



**Record of Decision**

**Ocean Wind 1 Offshore Wind Farm  
Construction and Operations Plan**

**July 3, 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 Ocean and Atmospheric Administration (NOAA) National Marine Fisheries Service's (NMFS)<sup>1</sup> joint Record of Decision (ROD) for the Final Environmental Impact Statement (EIS) prepared for the Ocean Wind 1 Offshore Wind Farm Construction and Operations Plan (COP). The ROD addresses BOEM's action to approve the COP under subsection 8(p)(4) 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 Ocean Wind LLC 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.<sup>2</sup>

BOEM prepared the Ocean Wind 1 Offshore Wind Farm Final EIS with the assistance of a third-party contractor, 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), the National Park Service, the U.S. Fish and Wildlife Service, and the Department of Defense (DOD) were cooperating agencies during the development and review of the document. Cooperating state agencies included the New Jersey Department of Environmental Protection, the New York State Department of State, and the New Jersey Board of Public Utilities.

In addition to analyzing potential impacts resulting from BOEM's approval of the COP pursuant to Section 8(p)(4) 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 LOA for incidental harassment of small numbers of marine mammals during construction to Ocean Wind LLC 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 New Jersey is summarized in Table 1-1.

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<sup>1</sup> For purposes of this Record of Decision, "NMFS," as an action agency has been delegated authority to issue marine mammal incidental take authorizations.

<sup>2</sup> The associated Final EIS was prepared using the 2020 Council on Environmental Quality (CEQ) NEPA Regulations. Therefore, this ROD follows the 2020 CEQ Regulations.

**Table 1-1 History of BOEM Planning and Leasing Offshore New Jersey**

Year	Milestone
2009	In 2009 BOEM formed the BOEM/New Jersey Renewable Energy Task Force for coordination among affected Federal agencies and state, local and tribal governments through the leasing process. The first Task Force meeting was held on November 24, 2009, with subsequent meetings occurring on May 12, 2010, November 19, 2010, December 18, 2012, April 22, 2014, August 28, 2014, and May 19, 2016. The BOEM New Jersey Task Force was integrated into the New York Bight Task Force in December 2017.
2011	On April 20, 2011, BOEM published a Call for Information and Nominations for Commercial Leasing for Wind Power on the OCS Offshore New Jersey in the <i>Federal Register</i> (76 Fed. Reg. 22,130). The public comment period for the Call closed on June 6, 2011. In response, BOEM received 11 commercial indications of interest. After analyzing AIS data and holding discussions with stakeholders, BOEM removed OCS Blocks Wilmington NJ18– 02 Block 6740 and Block 6790 (A, B, C, D, E, F, G, H, I, J, K, M, N) and Block 6840 (A) to alleviate navigational safety concerns resulting from vessel transits out of the New York Harbor.
2012	On February 3, 2012, BOEM published a Notice of Availability of a final EA and FONSI for commercial wind lease issuance and site assessment activities on the Atlantic OCS offshore New Jersey, Delaware, Maryland, and Virginia in the <i>Federal Register</i> (77 Fed. Reg. 5,560).
2014	On July 21, 2014, BOEM published a Proposed Sale Notice in the <i>Federal Register</i> (79 Fed. Reg. 42,361) requesting public comments on the proposal to auction two leases offshore New Jersey for commercial wind energy development.
2015	On September 23, 2015, BOEM announced that it published a Final Sale Notice, which stated a commercial lease sale would be held November 9, 2015, for the WEA offshore New Jersey. The New Jersey WEA was auctioned as two leases. RES America Developments, Inc. was the winner of Lease Area OCS-A 0498 and US Wind, Inc. was the winner of lease OCS-A 0499.
2016	On April 14, 2016, BOEM received an application to assign 100 percent of the commercial lease OCS-A 0498 to Ocean Wind LLC. BOEM approved the assignment on May 10, 2016.
2017	On February 14, 2017, BOEM received a request to extend the preliminary term <sup>3</sup> for commercial lease OCS-A 0498 from March 1, 2017, to March 1, 2018. BOEM approved the request on March 1, 2017.
2018	On September 15, 2017, Ocean Wind LLC submitted a Site Assessment Plan for commercial wind lease OCS-A 0498, which was subsequently revised on November 10, 2017, January 25, 2018, and February 23, 2018. BOEM approved the Site Assessment Plan on May 17, 2018.
2019	On August 15, 2019, Ocean Wind LLC submitted its COP for the construction, operations, and conceptual decommissioning of the Project within a portion of the Lease Area. Updated versions of the COP were submitted on March 13, 2020, September 24, 2020, March 24, 2021, December 10, 2021, May 27, 2022, October 14, 2022, and April 24, 2023.
2020	On December 8, 2020, Ocean Wind LLC submitted an application to BOEM to assign the portion of lease OCS-A 0498 that is not covered by the COP to Ørsted North America, Inc. BOEM approved the assignment on March 26, 2021. The Lease Area assigned to Ørsted North America, Inc. now carries the new lease number OCS-A 0532.
2021	On March 30, 2021, BOEM published a Notice of Intent to Prepare an EIS for Ocean Wind LLC's Proposed Wind Energy Facility Offshore New Jersey in the <i>Federal Register</i> (86 Fed. Reg. 16,630).
2021	On October 1, 2021, Ocean Wind LLC submitted an initial Incidental Take Authorization (an LOA) application to NMFS.
2022	On February 11, 2022, NMFS received a complete application from Ocean Wind LLC for a 5-year LOA to incidentally take marine mammals under the MMPA during construction of the Project.

<sup>3</sup> Based on 30 C.F.R. § 585.235(a)(1), each commercial lease will have a preliminary term of 12 months, within which the Lessee must submit a Site Assessment Plan or a combined Site Assessment Plan and COP. The preliminary term begins on the effective date of the lease.

Year	Milestone
2022	On March 7, 2022, NMFS published Notice of Receipt of Application for LOA in the <i>Federal Register</i> (87 Fed. Reg. 12,666) for review and comment.
2022	On June 24, 2022, BOEM published a Notice of Availability of a Draft EIS in the <i>Federal Register</i> (87 Fed. Reg. 37,883) initiating a 45-day public comment period for the Draft EIS. On August 3, 2022, BOEM published a notice in the <i>Federal Register</i> (87 Fed. Reg. 48,038) announcing a 15-day extension of the public review and comment period.
2022	On October 26, 2022, NMFS published a proposed ITR and associated LOA in the <i>Federal Register</i> (87 Fed. Reg. 64,868) for review and comment.
2022	On November 25, 2022, NMFS published a 15-day extension of the comment period on the proposed ITR and associated LOA (87 Fed. Reg. 72,447).
2023	On April 3, 2023, NMFS issued a Biological Opinion considering all effects of the proposed actions on ESA-listed species and designated critical habitat (NMFS 2023). On May 12, 2023, the U.S. Fish and Wildlife Service issued a letter of concurrence and a Biological Opinion for ESA-listed species within their jurisdiction (USFWS 2023).
2023	On May 26, 2023, BOEM published a Notice of Availability of a Final EIS in the <i>Federal Register</i> (88 Fed. Reg. 34,184) initiating a minimum 30-day mandatory waiting period, during which BOEM is required to pause before issuing a ROD.

AIS = Automatic Identification System; EA = Environmental Assessment; EIS = Environmental Impact Statement; ESA = Endangered Species Act; FONSI = Finding of No Significant Impact; ITR = Incidental Take Regulations; ROD = Record of Decision; WEA = Wind Energy Area

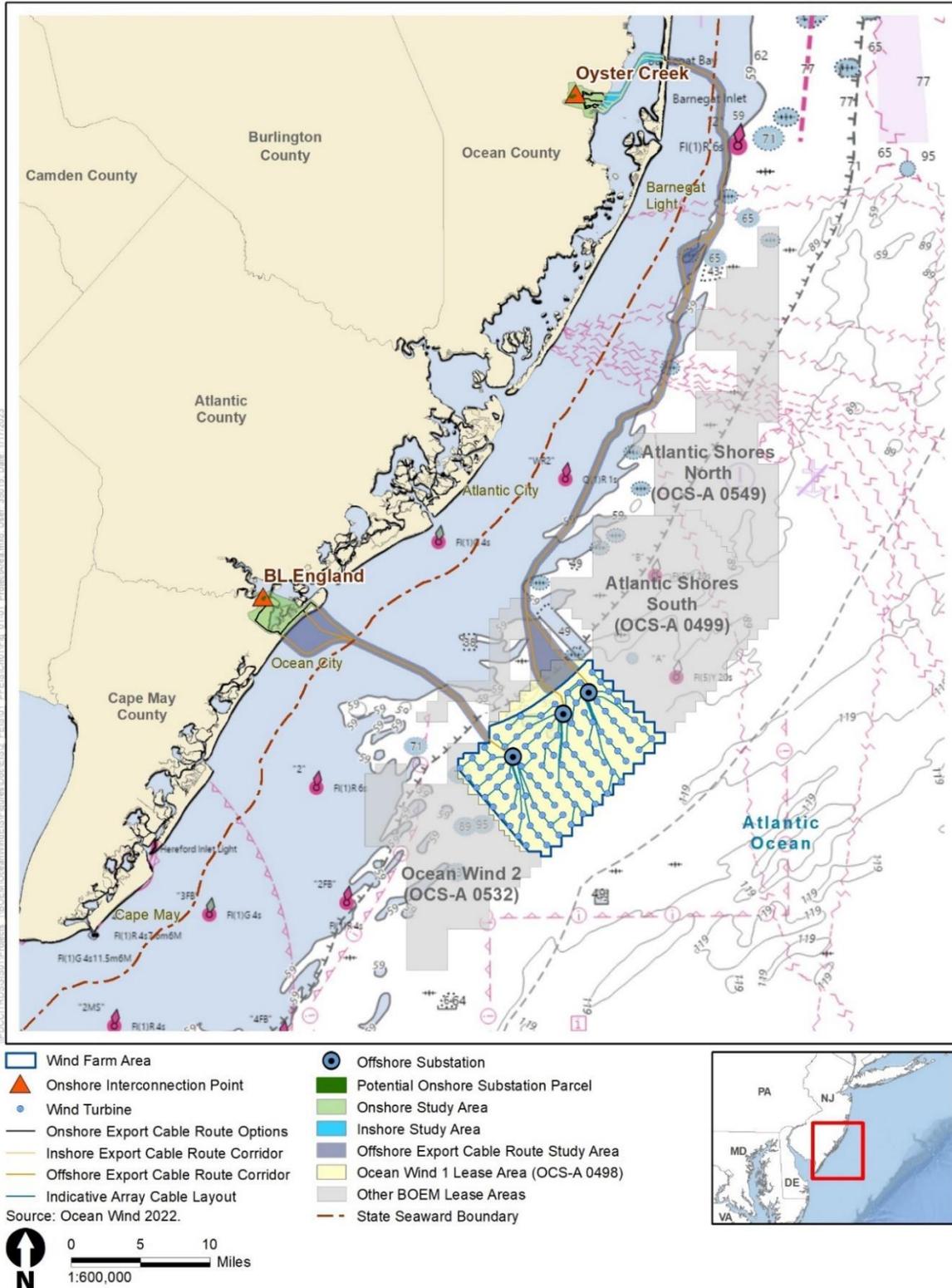


Figure 1-1 Proposed Project Area and Facilities

## 1.2. Authorities

The following summarizes BOEM's authority regarding the approval of the proposed Project, and NMFS' authority to authorize the incidental take of marine mammals by 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 in section 5.2 of this ROD. 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). Other agencies either are not required to authorize the Project, or have completed any authorizations that are required of them, or their actions are exempt from NEPA (e.g., USEPA's Clean Air Act permitting) and, therefore, reviewed separately.

### 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 Ocean Wind LLC'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 Environmental Impact Statement (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."<sup>4</sup>

### 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

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<sup>4</sup> M-Opinion 37067 at p. 5, <http://doi.gov/sites/doi.gov/files/m-37067.pdf>

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). In addition, if NMFS' action is anticipated to cause any incidental take of ESA-listed species, NMFS would obtain an Incidental Take Statement (ITS), which exempts that incidental take from ESA prohibitions subject to specified terms and conditions.

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 ensure that the MMPA authorized incidental take is not likely to jeopardize the continued existence of those species. The Biological Opinion (BiOp) for this action resulted in a no jeopardy opinion that includes an ITS with measures 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 that must be implemented by all action agencies to ensure compliance with the MMPA incidental take authorization (ITA) 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 will construct, operate, maintain, and decommission an approximately 1,100-megawatt (MW) wind energy facility consisting of up to 98 wind turbine generators (WTG), up to three offshore substations (OSS), inter-array cables linking the individual WTGs to the OSS, and substation interconnector cables linking the substations to each other, approximately 13 nautical miles (nm) southeast of Atlantic City, New Jersey. Up to three offshore export cables (installed within two export cable route corridors) that connect to onshore export cable systems and two onshore substations with connections to the existing electrical grid in New Jersey at BL England and Oyster Creek will also be developed. The BL England export cable route corridor will landfall in Ocean City, New Jersey, and the Oyster Creek export cable route corridor would landfall in Lacey Township, New Jersey. Development of the wind energy facility would occur within the range of design parameters described in Volume I of the Ocean Wind 1 COP (Ocean Wind LLC 2023), subject to applicable mitigation measures. The expected annual energy production of the Proposed Action is 4,851,489 MW-hours per year or 100 percent of Ocean Wind LLC's annual Offshore Renewable Energy Certificate (OREC) allowance per the 2019 Board Order issued by the New Jersey Board of Public Utilities (BPU). Volume I of the Ocean Wind 1 COP (Ocean Wind LLC 2023) provides additional details on Project design.

### 2.2. Purpose and Need for the Proposed Action

Through a competitive leasing process under 30 C.F.R. § 585.211, RES America Developments, Inc. was awarded commercial Renewable Energy Lease OCS-A 0498 covering an area offshore New Jersey (the Lease Area). BOEM subsequently approved 100-percent assignment of the lease to Ocean Wind LLC. Under the terms of the lease, Ocean Wind LLC has the exclusive right to submit a COP for activities 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 in accordance with BOEM's COP regulations under 30 C.F.R. § 585.626. Ocean Wind LLC's goal is to develop a commercial-scale offshore wind energy facility in the Lease Area with up to 98 WTG, inter-array cables, up to three OSS, two onshore substations, and two transmission cable routes making landfall in Ocean County, New Jersey and Cape May County, New Jersey (Figure 1).

The Project would contribute to New Jersey's goal of 11 gigawatts (GW) of offshore wind energy generation by 2040 as outlined in New Jersey Governor's Executive Order No. 307, issued on September 22, 2022. Furthermore, Ocean Wind LLC's stated goal is to construct and operate a commercial-scale offshore wind energy facility in the Lease Area intended to fulfill BPU's September 20, 2018, solicitation for 1,100 MW of offshore wind capacity. The 1,100-MW solicitation and a corresponding Offshore Wind Renewable Energy Certificate (OREC) allowance of 4,851,489 MW-hours per year were awarded to Ocean Wind LLC via BPU on June 21, 2019 (BPU Docket No. QO18121289, In the Matter of the Board of Public Utilities Offshore Wind Solicitation for 1,100 MW – Evaluation of the Offshore Wind Applications).<sup>5</sup>

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<sup>5</sup> BPU's June 21, 2019, Order, Docket No. QO18121289, is available at: <https://www.njcleanenergy.com/files/file/6-21-19-8D.PDF>.

The BPU Order identifies 1,100 MW of offshore wind as the required capacity of the Project and requires as a Term and Condition of the award that the Project be funded through OREC, as defined by the New Jersey Offshore Wind Economic Development Act of 2010. For each MW-hour delivered to the transmission grid, the Project will be credited and subsequently compensated for one OREC. Ocean Wind LLC's annual OREC allowance is 4,851,489 MW-hours per year per the 2019 award by BPU. According to the BPU Order, any unmet OREC allowances in a given year may be carried forward to the next year and the total allowance cannot be reduced or increased without mutual consent by BPU and Ocean Wind LLC. Ocean Wind LLC's stated goal is to routinely meet the OREC allowance in order to obtain the maximum possible annual payment from BPU for the Project's operations.

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 promoting ocean co-use;<sup>6</sup> and in consideration of Ocean Wind LLC's goals, the purpose of BOEM's action is to determine whether to approve, approve with modifications, or disapprove Ocean Wind LLC'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 require 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, who has MMPA authorization decision responsibilities and is 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).

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<sup>6</sup> Fact Sheet: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs | The White House: <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”).

### 3. Alternatives

The Final EIS considered a reasonable range of alternatives to the Proposed Action.<sup>7</sup> BOEM considered a total of 25 action alternatives during the preparation of the EIS and carried forward for detailed analysis five action alternatives (two of which have sub-alternatives) and the No Action Alternative. The other 20 action alternatives were not further analyzed because they did not meet the purpose and need or did not meet other screening criteria. See Final EIS, section 2.1.7, *Alternatives Considered but not Analyzed in Detail*, and Appendix C, *Additional Analysis for Alternatives Dismissed*.

#### 3.1 Alternatives Carried Forward for Detailed Analysis

**Table 3-1 Description of Alternatives**

Alternative	Description
No Action Alternative	<p><u>Under the No Action Alternative</u>, BOEM would not approve the COP; the Project construction and installation, O&amp;M, and conceptual decommissioning would not occur; and no additional permits or authorizations for the Project would be required.<sup>8</sup> Any potential environmental and socioeconomic impacts, including benefits, associated with the Project as described under the Proposed Action would not occur. The current resource condition, trends, and effects from ongoing activities under the No Action Alternative serve as the baseline against which all action alternatives are evaluated.</p> <p>Over the life of the proposed Project, other reasonably foreseeable future impact-producing offshore wind and non-offshore wind activities are expected to occur, which would cause changes to the existing baseline conditions even in the absence of the Proposed Action. The continuation of all other existing and reasonably foreseeable future activities described in Appendix F (<i>Planned Activities Scenario</i>) of the Final EIS without the Proposed Action serves as the baseline for the evaluation of cumulative impacts.</p>
Alternative A: Proposed Action (Preferred Alternative)	<p><u>Under Alternative A</u>, the construction, O&amp;M, and conceptual decommissioning of an 1,100-MW wind energy facility consisting of up to 98 WTGs, up to three alternating-current OSSs, inter-array cables linking the individual WTGs to the OSS(s), and substation interconnector cables linking the substations to each other would be developed in the Lease Area, approximately 13 nm southeast of Atlantic City, New Jersey. Up to three offshore export cables (installed within two export cable route corridors) that connect to onshore export cable systems and two onshore substations with connections to the existing electrical grid in New Jersey at BL England and Oyster Creek would also be developed. The BL England export cable route corridor would landfall in Ocean City, New Jersey, and the Oyster Creek export cable route corridor would landfall in Lacey Township, New Jersey. Development of the wind energy facility would occur within the range of design parameters outlined in the COP (Ocean Wind LLC 2023), subject to applicable mitigation measures.</p>
Alternative B: No Surface Occupancy at Select Locations to Reduce Visual Impacts	<p><u>Under Alternative B</u>, the construction, O&amp;M, and eventual decommissioning of an 1,100-MW wind energy facility on the OCS offshore New Jersey would occur within the range of the design parameters outlined in the COP, subject to applicable mitigation measures. However, no surface occupancy would occur at select WTG positions to reduce the visual impacts of the proposed Project. Each of the sub-alternatives below may be individually</p>

<sup>7</sup> 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).

<sup>8</sup> Under the No Action Alternative, impacts on marine mammals incidental to construction activities would not occur. Therefore, NMFS would not issue the requested authorization under the MMPA to the Applicant.

Alternative	Description
	<p>selected or combined with any or all other alternatives or sub-alternatives, subject to the combination meeting the purpose and need.</p> <ul style="list-style-type: none"> <li>● Alternative B-1: No Surface Occupancy at Select Locations to Reduce Visual Impacts (Smaller Turbine Model): This alternative would exclude placement of WTGs at up to nine<sup>9</sup> WTG positions that are nearest to coastal communities (positions F01 to K01 and B02 to D02).</li> <li>● Alternative B-2: No Surface Occupancy at Select Locations to Reduce Visual Impacts (Larger Turbine Model): This alternative would exclude placement of WTGs at up to 19 WTG positions that are nearest to coastal communities (positions F01 to K01, A02 to K02, A03, and C03). Selection of this alternative would be contingent on the larger turbine with a 240-meter rotor diameter being commercially available when BOEM issues its ROD as well as technical and economic feasibility and consistency with the purpose and need.</li> </ul>
<p>Alternative C: Wind Turbine Layout Modification to Establish a Buffer Between Ocean Wind 1 and Atlantic Shores South</p>	<p><u>Under Alternative C</u>, the construction, O&amp;M, and eventual decommissioning of an 1,100-MW wind energy facility on the OCS offshore New Jersey would occur within the range of the design parameters outlined in the Ocean Wind 1 COP, subject to applicable mitigation measures. However, modifications would be made to the wind turbine array layout to create a 0.81-nm to 1.08-nm buffer<sup>10</sup> between WTGs in the lease area of OCS-A 0498 (Ocean Wind 1 Lease Area) and WTGs in the lease area of OCS-A 0499 (Atlantic Shores South Lease Area) to reduce impacts on existing ocean uses, such as commercial and recreational fishing and marine (surface and aerial) navigation. Each of the sub-alternatives below may be individually selected or combined with any or all other alternatives or sub-alternatives, subject to the combination meeting the purpose and need.</p> <ul style="list-style-type: none"> <li>● Alternative C-1: No Surface Occupancy to Establish a Buffer with Turbine Relocation: No surface occupancy along the northeastern boundary of the Ocean Wind 1 Lease Area (A02 to A09) through the exclusion of eight WTG positions, relocation of up to eight WTG positions to the northern portion of the Ocean Wind 1 Lease Area, or some combination of exclusion and relocation of WTG positions, to allow for a 0.81-nm to 1.08-nm buffer between WTGs in the Ocean Wind 1 Lease Area and WTGs in the Atlantic Shores South Lease Area.</li> <li>● Alternative C-2: No Surface Occupancy to Establish a Buffer with Turbine Layout Compression: No surface occupancy along the northeastern boundary of the Ocean Wind 1 Lease Area to allow for a 0.81-nm to 1.088-nm buffer between WTGs in the Ocean Wind 1 Lease Area and WTGs in the Atlantic Shores South Lease Area. However, under Alternative C-2, the wind turbine array layout would be compressed to allow for a full build of up to 98 WTGs. Ocean Wind 1’s turbine array row spacing would be reduced from 1 nm between rows to no less than 0.99 nm between rows.</li> </ul>

<sup>9</sup> The Project Design Envelope (PDE) parameters for WTGs outlined in the COP include a rotor diameter up to 240 meters. Current and near-term commercially available WTGs likely used for this Project range from a 12.4-MW WTG (smaller turbine model) to a 14.7-MW WTG (larger turbine model). Calculations using these turbine nameplate capacities and the Project nameplate capacity (1,100 MW) were used to develop alternatives. For example, 1,100 MW divided by 12.4 MW equals 89 WTGs, allowing removal of up to nine WTGs from the 98 contemplated by Alternative A. This calculation, by itself, does not account for the capacity factor, or the average power output divided by the maximum power capability for a given time period. Capacity factor plays a role in estimating the expected annual energy production, and for the Project would most likely vary between 45 percent and 63 percent. Ocean Wind LLC has selected the GE Haliade-X 12-MW WTG; however, the environmental review analyzes the PDE as it is presented in the COP.

<sup>10</sup> Buffer distance would range between 0.81 nm and 1.08 nm; however, distance between individual WTGs may be greater than 1.08 nm.

Alternative	Description
<p>Alternative D:            Sand Ridge and            Trough            Avoidance</p>	<p><u>Under Alternative D</u>, the construction, O&amp;M, and eventual decommissioning of an 1,100-MW wind energy facility on the OCS offshore New Jersey would occur within the range of the design parameters outlined in the Ocean Wind 1 COP, subject to applicable mitigation measures. However, modifications would be made to the wind turbine array layout to minimize impacts on sand ridge and trough features in the northeastern corner of the Lease Area. This alternative would result in the exclusion of up to 15 WTG positions in the sand ridge and trough area that include A07 to E07, A08 to E08, and A09 to E09. The identification of individual WTGs for exclusion, should the number excluded be fewer than 15, would be coordinated with NMFS. Selection of this alternative with the exclusion of more than nine WTGs would be contingent on the larger turbine with a 240-meter rotor diameter being commercially available when BOEM issues its ROD as well as its technical and economic feasibility, and consistency with the purpose and need.</p>
<p>Alternative E:            Submerged            Aquatic            Vegetation            Avoidance            (Preferred            Alternative)</p>	<p><u>Under Alternative E</u>, the construction, O&amp;M, and eventual decommissioning of an 1,100-MW wind energy facility on the OCS offshore New Jersey would occur within the range of the design parameters outlined in the Ocean Wind 1 COP, subject to applicable mitigation measures. However, the Oyster Creek export cable route traversing Island Beach State Park would be limited to the option developed to minimize impacts on submerged aquatic vegetation in Barnegat Bay. The submerged aquatic vegetation avoidance export cable route option would make landfall within an auxiliary parking lot of Swimming Area 2 in Island Beach State Park, continue north within parking lots, then northwest under Shore Road before entering Barnegat Bay. Upon entering Barnegat Bay, the export cable route would continue within a previously dredged channel and then reconnect to the Oyster Creek export cable route in Barnegat Bay. This alternative would narrow the design envelope so that the Applicant could only select the northernmost export cable route; the northernmost export cable route would not function independently but is intended to be combined with another alternative or sub-alternative, subject to the combination meeting the purpose and need.</p>

**3.2. Environmental Consequences of Alternatives**

Table 3-2 summarizes and compares the potential impacts from the proposed Project under each action alternative assessed in Chapter 3 of the Final EIS. Under the No Action Alternative, BOEM would not approve the COP and any potential environmental and socioeconomic impacts associated with the Project, including both adverse impacts and benefits, would not occur. However, as described under the cumulative impact analysis in Chapter 3, impacts from other activities could still occur.

**Table 3-2 Comparison of Impacts by Alternative**

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
3.4 Air Quality	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in moderate adverse impacts on air quality.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in moderate adverse cumulative impacts due to emissions of criteria pollutants, volatile organic compounds, hazardous air pollutants, and greenhouse gases, mostly released during construction and decommissioning of planned offshore wind projects, and minor to moderate beneficial cumulative impacts on regional air quality after offshore wind projects are operational.</p>	<p><i>Proposed Action:</i> The Proposed Action would have minor to moderate adverse impacts attributable to air pollutant and GHG emissions and accidental releases, mostly during construction and decommissioning. The Project may lead to reduced emissions from fossil-fueled power-generating facilities and consequently minor beneficial impacts on air quality and climate.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute a noticeable increment to the moderate adverse impacts because emissions would be higher during overlapping construction activities, and moderate beneficial cumulative impacts on air quality during operations.</p>	<p>Alternatives B-1, B-2, and D could have slightly less adverse but not materially different impacts on air quality compared to the Proposed Action due to a reduced number of WTGs. Similarly, Alternatives B-1, B-2, and D could have slightly less beneficial impacts on air quality from displacement of fossil-fueled power generation compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: minor to moderate adverse and minor beneficial.</p> <p>Alternatives C-1 and C-2 would have the same number of WTGs as the Proposed Action and, therefore, the same anticipated emissions and impact levels. Under Alternative E, the offshore and onshore cable lengths, and thus the construction emissions, would be slightly greater than for the Proposed Action. However, the impact levels would be the same as for the Proposed Action: minor to moderate adverse and minor beneficial.</p> <p>The cumulative impacts associated with Alternatives B, C, D, and E when each is 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.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
3.5 Bats	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in negligible to minor adverse impacts on bats.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in negligible to minor adverse cumulative impacts because bat presence on the OCS is anticipated to be limited and onshore bat habitat impacts are expected to be minimal.</p>	<p><i>Proposed Action:</i> The Proposed Action would have negligible to minor adverse impacts on bats, especially if tree clearing during construction is conducted outside of the active season. The primary risks would be from potential onshore removal of habitat during construction, and the operation of offshore WTGs (e.g., collision, barotrauma); however, occurrence of bats offshore is low and mortality is anticipated to be rare in the onshore or offshore environment.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute an undetectable increment to the negligible to minor cumulative adverse impacts on bats.</p>	<p>Alternatives B-1, B-2, and D may result in slightly less, but not materially different, negligible adverse impacts on bats than those described under the Proposed Action. Alternative C-1 would have the same WTG number and overall Wind Farm Area footprint as the Proposed Action and, therefore, would have similar impacts on bats. Alternative C-2 would have the same number of WTGs as the Proposed Action, but compressed in a smaller footprint, and, therefore, would have similar impacts on bats. Alternative E would limit the export cable route to the more northerly route, which is analyzed as part of the Proposed Action and so impacts would be the same. Therefore, the impact levels of Alternatives B, C, D, and E would be the same as for the Proposed Action: negligible to minor and adverse.</p> <p>The cumulative impacts associated with Alternatives B, C, and D, when each combined with the impacts of ongoing and planned activities (including offshore wind activities), would be the same as for the Proposed Action: negligible to minor and adverse.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
3.6 Benthic Resources	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in negligible to moderate adverse impacts on benthic resources.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in moderate adverse cumulative impacts and could potentially include moderate beneficial impacts resulting from emplacement of structures (habitat conversion).</p>	<p><i>Proposed Action:</i> The Proposed Action would have negligible to moderate adverse impacts and moderate beneficial impacts on benthic resources. 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.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute an undetectable to noticeable increment to the moderate adverse and moderate beneficial cumulative impacts on benthic resources.</p>	<p>Alternatives B-1 and B-2, and C-1 and C-2 would reduce the number of WTGs compared to the Proposed Action, and so the impacts would be reduced compared to the Proposed Action. There would be fewer foundations and less inter-array cable, which would reduce impacts associated with the presence of structures and conversion of habitat from soft-bottom to scour protection. These alternatives would have impact levels of negligible to minor adverse and moderate beneficial.</p> <p>Alternative D would remove 15 WTGs from the northeastern corner of the Wind Farm Area to minimize impacts on the sand ridge and trough features. Under this alternative, avoidance of the sand ridge and trough features would potentially benefit benthic communities. Alternative D would result in negligible to minor impacts and moderate beneficial impacts.</p> <p>Under Alternative E, impacts on submerged aquatic vegetation (SAV) would be reduced but the overall impact level would be the same as for the Proposed Action: negligible to minor adverse and moderate beneficial.</p> <p>The cumulative impacts associated with Alternatives B, C, D, and E when each 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.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
3.7 Birds	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in minor adverse impacts on birds.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in moderate adverse cumulative impacts but could include moderate beneficial impacts because of the reef effect and increased foraging opportunities associated with the presence of offshore structures.</p>	<p><i>Proposed Action:</i> The Proposed Action would have minor adverse impacts on birds, primarily associated with collision-induced mortality from rotating WTGs and permanent habitat loss and conversion from onshore construction. Minor beneficial impacts would result from increased foraging opportunities for marine birds.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute an undetectable increment to the moderate adverse and moderate beneficial cumulative impacts on birds.</p>	<p>Alternatives B-1, B-2, and D would reduce the number of WTGs compared to the Proposed Action, which may result in slightly less impacts on species with high collision sensitivity and high displacement sensitivity, but would not change the impact level: minor adverse with minor beneficial impacts.</p> <p>Alternatives C-1 and C-2 would have the same number of WTGs as the Proposed Action and, therefore, would have same minor adverse with minor beneficial impacts on birds.</p> <p>Under Alternative E, the rerouting of the Oyster Creek export cable in Barnegat Bay to avoid SAV would benefit bird species that use this habitat. Alternative E would slightly increase the length of the onshore cable route compared to the Proposed Action, but the cable would mostly be placed along the parking area and Central Avenue/Shore Road, minimizing impacts on vegetation and bird foraging and nesting habitat. Alternative E would have the same minor adverse with minor beneficial impacts on birds as the Proposed Action.</p> <p>The cumulative impacts associated with Alternatives B, C, D, and E when each 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.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
<p>3.8 Coastal Habitat and Fauna</p>	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing 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.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in moderate cumulative adverse impacts on coastal habitat and fauna, primarily driven by climate change.</p>	<p><i>Proposed Action:</i> The Proposed Action would have moderate adverse impacts on coastal habitat and fauna, primarily driven by climate change.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute an undetectable increment to the moderate cumulative adverse impacts on coastal habitat and fauna.</p>	<p>Because Alternatives B-1, B-2, C-1, C-2, and D involve modifications only to offshore components, impacts on coastal habitat and fauna from those alternatives would be the same as those under the Proposed Action: moderate adverse. Alternative E could affect slightly more habitat on Island Beach State Park than the Proposed Action and Alternatives B -1, B-2, C-1, C-2, and D, but impacts would remain limited overall. The impacts would be the same as those under the Proposed Action: moderate adverse.</p> <p>The cumulative impacts of Alternatives B, C, D, and E when each combined with the impacts from ongoing and planned activities (including offshore wind) would be the same as those of the Proposed Action: moderate adverse.</p>
<p>3.9 Commercial Fisheries and For-Hire Recreational Fishing</p>	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in minor to major adverse impacts for commercial fisheries and minor to moderate adverse impacts on for-hire recreational fishing. The major impact rating for some fisheries and fishing operations is primarily driven by regulated fishing effort and climate change associated with ongoing activities. The impacts could also include long-term minor to moderate beneficial impacts for</p>	<p><i>Proposed Action:</i> The Proposed Action would have minor to major adverse impacts on commercial fisheries and minor to moderate adverse impacts on for-hire recreational fishing. The major impact rating for some fisheries and fishing operations is primarily driven by regulated fishing effort (i.e., reduced stock levels from fishing mortality) and climate change because of the potential disruptions to fishing operations in the Project area. The impacts of the Proposed Action could also include long-term minor to moderate beneficial impacts for certain commercial fisheries and some for-hire recreational fishing operations due to the artificial reef effect.</p>	<p>Alternatives B-1 and B-2, and D would reduce the number of WTGs compared to the Proposed Action, providing fishing vessels in the Lease Area with more area to operate and fish and reducing the potential for gear entanglement and loss. However, the impact level is anticipated to be largely the same as for the Proposed Action: minor to major for commercial fisheries and minor to moderate for for-hire recreational fishing operations, with long-term minor to moderate beneficial impacts for certain commercial fisheries and some for-hire recreational fishing operations. Any additional revenue realized by commercial fisheries would be minimal, and for-hire recreational fishing may see a slight decrease due to fewer structures providing reef habitat for targeted species.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
	<p>certain commercial fisheries and some for-hire recreational fishing operations due to the artificial reef effect.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in a minor to major adverse cumulative impact on commercial fisheries and minor to moderate adverse cumulative impact on for hire recreational fishing because some commercial fisheries and fishing operations would experience substantial long-term disruptions. This impact rating is primarily driven by the presence of offshore structures, regulated fishing effort, and climate change. The cumulative impacts could also include long-term minor to moderate beneficial impacts for certain commercial fisheries and some for-hire recreational fishing operations due to the artificial reef effect.</p>	<p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute an appreciable increment to the minor to major adverse cumulative impacts on commercial fisheries and minor to moderate adverse cumulative impact on for-hire recreational fishing. Cumulative impacts could also include long-term minor to moderate beneficial impacts for certain commercial fisheries and some for-hire recreational fishing operations.</p>	<p>Alternatives C-1 and C-2 would have the same number of WTGs as the Proposed Action and, therefore, would have the same overall impact levels as the Proposed Action: minor to major for commercial fisheries and minor to moderate for for-hire recreational fishing operations, with long-term minor to moderate beneficial impacts for certain commercial fisheries and some for-hire recreational fishing operations.</p> <p>Alternative E would provide a slight benefit to commercial and for-hire recreational fisheries by reducing the impact on SAV, a nursery habitat for targeted species, but would also result in slightly greater construction impacts related to avoidance of the area for nearshore fisheries due to the extended length of the export cable. The impact level would be largely the same as for the Proposed Action: minor to major adverse impacts for commercial fisheries and minor to moderate adverse impacts for for-hire recreational fishing operations, with long-term minor to moderate beneficial impacts for certain commercial fisheries and some for-hire recreational fishing operations.</p> <p>The cumulative impacts of Alternatives B, C, D, and E when each combined with the impacts from ongoing and planned activities would be the same as for the Proposed Action: minor to major adverse impacts for commercial fisheries and minor to moderate adverse impacts for for-hire recreational fishing operations, with long-term minor to moderate beneficial impacts for certain commercial fisheries and some for-hire recreational fishing operations.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
3.10 Cultural Resources	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in moderate adverse impacts on cultural resources, primarily as a result of dredging, cable emplacement, and activities that disturb the seafloor.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in moderate adverse cumulative impacts on cultural resources.</p>	<p><i>Proposed Action:</i> The Proposed Action would have moderate adverse impacts 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 result in a loss of historic or cultural value; and dredging, cable emplacement, and activities that disturb the seafloor, which could 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, potentially resulting in a loss of scientific or cultural value.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute an appreciable increment to the moderate adverse cumulative impacts on cultural resources.</p>	<p>Alternatives B-1, B-2, C-1, C-2, and D would have the same moderate adverse impact level on cultural resources as the Proposed Action. While the degree of visual impacts on cultural resources under Alternatives B-1 and B-2 would be lower than under the other alternatives, these impacts would still require comparable mitigation which meets the definition for moderate adverse impacts.</p> <p>Alternative E would have the same overall moderate adverse impact level on cultural resources as the Proposed Action.</p> <p>The cumulative impacts of Alternatives B-1, B-2, C-1, C-2, and D when each combined with the impacts from ongoing and planned activities (including other offshore wind activities) would be the same as for the Proposed Action: moderate adverse.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
<p>3.11 Demographics Employment, and Economics</p>	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in minor adverse impacts and minor beneficial impacts on demographics, employment, and economics.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in minor adverse and moderate beneficial cumulative impacts.</p>	<p><i>Proposed Action:</i> The Proposed Action would have minor adverse and moderate beneficial impacts on demographics, employment, and economics.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute an undetectable to noticeable increment to the minor adverse and moderate beneficial cumulative impacts on demographics, employment, and economics.</p>	<p>Alternatives B-1, B-2, and D 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 moderate beneficial impacts.</p> <p>Alternatives C-1, C-2, and E 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 moderate beneficial.</p> <p>The cumulative impacts of Alternatives B, C, D and E when each 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.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
<p>3.12 Environmental Justice</p>	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in impacts on environmental justice populations ranging from minor to moderate adverse to minor beneficial.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in moderate cumulative impacts because environmental justice populations would have to adjust somewhat to account for disruptions due to notable and measurable adverse impacts.</p>	<p><i>Proposed Action:</i> The Proposed Action would have a range of impacts, such as minor impacts resulting from the disruption of marine activities during offshore cable installation and impacts of noise on commercial and for-hire fishing, and moderate impacts due to the long-term presence of structures in the offshore environment and secondary impacts on fishing vessels or at onshore seafood processing and distribution facilities. Potential minor beneficial impacts would result from port utilization and the enhanced employment opportunities. Overall, BOEM expects that impacts of the Proposed Action on environmental justice populations would be moderate because environmental justice populations would have to adjust somewhat to account for disruptions due to notable and measurable adverse impacts. The Proposed Action would not result in disproportionately “high and adverse” impacts on environmental justice populations.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute a noticeable increment to the moderate cumulative impacts on environmental justice populations.</p>	<p>Impacts of Alternatives B-1, B-2, C-1, C-2, D, and E would be the same as those of the Proposed Action for environmental justice populations and are anticipated to be moderate adverse. These action alternatives would not result in disproportionately “high and adverse” impacts on environmental justice populations.</p> <p>The cumulative impacts of Alternatives B, C, D, and E when each combined with the impacts from ongoing and planned activities (including other offshore wind activities) would be the same as for the Proposed Action: moderate adverse.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
<p>3.13 Finfish, Invertebrates, and Essential Fish Habitat</p>	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in moderate adverse impacts on finfish, invertebrates, and EFH.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in moderate adverse cumulative 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.</p>	<p><i>Proposed Action:</i> The Proposed Action would result in negligible to moderate adverse impacts for finfish, invertebrates, and EFH. The primary impacts on finfish would be from noise during construction and operation of the proposed Project. Long-term adverse impacts on EFH from construction and installation of the Proposed Action would be minor, as the resources would likely recover naturally over time. The Proposed Action would have negligible to minor adverse impacts on invertebrates through temporary disturbance and displacement, habitat conversion, and behavioral changes, injury, and mortality of sedentary fauna. The presence of structures may have a beneficial effect 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.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute a noticeable increment to the negligible to moderate adverse cumulative impacts on finfish, invertebrates, and EFH.</p>	<p>Alternatives B-1, B-2, and D would reduce the number of WTGs and would slightly reduce 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.</p> <p>Alternatives C-1 and C-2 would have no significant change to the negligible to moderate adverse impacts under the Proposed Action, as the number of WTGs would remain the same and the overall footprint would remain the same or slightly less.</p> <p>Alternative E would result in impacts similar to those described under the Proposed Action: negligible to moderate adverse.</p> <p>The cumulative impacts of Alternatives B, C, D, and E when each 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.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
<p>3.14 Land Use and Coastal Infrastructure</p>	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and activities under the No Action Alternative would result in negligible adverse and minor beneficial impacts on land use and coastal infrastructure.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in minor adverse cumulative impacts and minor beneficial cumulative impacts.</p>	<p><i>Proposed Action:</i> The Proposed Action would result in minor adverse with 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.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute a noticeable increment to the minor adverse and minor beneficial cumulative impacts.</p>	<p>Alternatives B-1, B-2, C-1, C-2, and D would have largely the same impacts on land use and coastal infrastructure as those of the Proposed Action—minor adverse with minor beneficial impacts. Because there would be fewer WTGs under these alternatives, there would be less potential for contamination from unforeseen spills or accidents, less light being emitted from offshore, and less need for port facilities for shipping, berthing, and staging. However, under all of these alternatives, the majority of the WTGs would still be visible and there would be no meaningful difference in impacts on land use and coastal infrastructure.</p> <p>Alternative E would have the same impacts on land use and coastal infrastructure as those of the Proposed Action: minor adverse with minor beneficial impacts. Alternative E would slightly increase the onshore portion of the Oyster Creek export cable route, resulting in increased impacts on land use associated with temporary construction activity compared to the Proposed Action. The overall impact magnitudes would be the same because the cable corridors would follow existing right-of-way and the primary impacts would be limited to the duration of construction.</p> <p>The cumulative impacts of Alternatives B, C, D, and E when each is 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.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
3.15 Marine Mammals	<p><i>No Action Alternative:</i> Not approving the COP would have no additional incremental effect on marine mammals (i.e., no effect). Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in minor to moderate adverse impacts on mysticetes (with exception of NARW), odontocetes, and pinnipeds. For NARW, the No Action Alternative would result in moderate to major adverse impacts.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in moderate impacts on mysticetes, odontocetes, and pinnipeds, except for the NARW, on which adverse impacts could be moderate to major.</p>	<p><i>Proposed Action:</i> The incremental impact of the Proposed Action when compared to the No Action Alternative would be minor for NARWs. The incremental impact of the Proposed Action when compared to the No Action Alternative would be minor to moderate for other large whales, minor for small whales and delphinids, and minor for pinnipeds. When considering existing environmental trends and ongoing activities, BOEM anticipates that the impacts resulting from the Proposed Action would result in moderate adverse impacts for mysticetes, except for the NARW, which would be moderate to major adverse impacts. BOEM anticipates that impacts from the Proposed Action would result in minor adverse impacts for odontocetes and pinnipeds and could include minor beneficial impacts due to the presence of structures.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute an undetectable to noticeable increment to the moderate adverse impact for mysticetes, minor adverse impact for odontocetes and pinnipeds, and moderate to major adverse impact for NARW.</p>	<p>Alternatives B-1, B-2, C-1, and D would result in the same incremental impacts on marine mammals as described for the Proposed Action, with some impacts being minimally decreased in duration and geographic extent. When considering existing environmental trends and ongoing activities, the impacts resulting from the alternatives individually would be minor adverse and minor beneficial for odontocetes and pinnipeds, moderate adverse for most mysticetes, and moderate to major adverse for NARW.</p> <p>Alternative C-2 would install the same number of WTGs as the Proposed Action; therefore, the impacts would be similar to those of the Proposed Action and would range from minor to major adverse and could include beneficial impacts.</p> <p>Alternative E would likely have the same minor to major adverse impacts and could also result in beneficial impacts on marine mammals as the Proposed Action. While Alternative E could result in reduced acreage of SAV potentially affected, the overall impacts on marine mammals from the alternative would not be materially different from those of the Proposed Action.</p> <p>The cumulative impacts of Alternatives B, C, D, and E when each combined with the impacts from ongoing and planned activities (including offshore wind activities) would be the same as for the Proposed action: moderate adverse, except for the NARW, which would be moderate to major adverse.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
3.16 Navigation and Vessel Traffic	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in moderate adverse impacts on navigation and vessel traffic.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in moderate adverse impacts primarily due to the presence of structures and increased vessel traffic, potentially leading to congestion at affected ports, an increased likelihood of collisions and allisions, and increased risk of accidental releases.</p>	<p><i>Proposed Action:</i> The Proposed Action would result in moderate adverse impacts on navigation and vessel traffic. Impacts include changes in navigation routes due to the presence of structures and cable emplacement, delays in ports, potentially degraded communication and radar signals, and increased difficulty of offshore SAR or surveillance missions within the Wind Farm Area. Some commercial fishing, recreational, and other vessels would choose to avoid the Wind Farm Area, leading to potential congestion of vessels along the Wind Farm 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.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute a noticeable increment to the moderate adverse cumulative impacts on navigation and vessel traffic.</p>	<p>Alternatives B-1, B-2, and D would reduce the number of WTGs, incrementally decreasing impacts on navigation and vessel traffic safety compared to the Proposed Action, but would not change the impact level from moderate adverse.</p> <p>The proposed buffer (0.81 to 1.08 nm) between Ocean Wind 1 and Atlantic Shores South would improve vessel navigation and SAR by providing additional space for transiting between the two lease areas. While Alternative C-2 would compress the WTG layout, the spacing between structures would be within USCG’s preferred range for safe navigation of vessels less than 200 feet in length, and would not have a substantive change in impacts on navigation and vessel traffic. Impacts of Alternatives C-1 and C-2 would be the same as for the Proposed Action: moderate adverse.</p> <p>Under Alternative E, the rerouting of the Oyster Creek export cable in Barnegat Bay would not result in a discernible difference in impacts on navigation and vessel traffic compared to the Proposed Action. Alternative E would result in the same moderate adverse impacts.</p> <p>The cumulative impacts associated with Alternatives B, C, D, and E when each is combined with the impacts from ongoing and planned activities (including other offshore wind activities) would be the same as for the Proposed Action: moderate adverse.</p>
3.17 Other Uses	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in</p>	<p><i>Proposed Action:</i> The Proposed Action would result in negligible adverse impacts for marine mineral extraction and cables and pipelines; minor adverse impacts for aviation and air traffic, radar systems, and most</p>	<p>Impacts of Alternatives B-1 and B-2 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</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
	<p>negligible adverse impacts for marine mineral extraction, marine and national security uses, aviation and air traffic, cables and pipelines, and radar systems and moderate adverse impacts on scientific research and surveys.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in negligible to minor adverse cumulative impacts for marine mineral extraction, aviation and air traffic, and cables and pipelines; moderate adverse cumulative impacts for radar systems due to WTG interference; minor adverse cumulative impacts for military and national security uses except for USCG SAR operations, which would have moderate adverse cumulative impacts; and major adverse cumulative impacts for scientific research and surveys.</p>	<p>military and national security uses; moderate adverse impacts for USCG SAR operations; 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 collision 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.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute a noticeable increment to the negligible to minor adverse cumulative impacts for aviation and air traffic, cables and pipelines, marine mineral extraction, and most military and national security uses; moderate adverse cumulative impacts for radar systems and USCG SAR operations; and major adverse cumulative impacts for NOAA’s scientific research and surveys.</p>	<p>impact ratings of negligible to major. Alternatives B-1 and B-2 could potentially decrease impacts on radar systems by removing the WTGs closest to the shore, which would possibly reduce line-of-sight impacts; however, localized, long-term, minor adverse impacts on radar systems are still anticipated.</p> <p>Impacts of Alternative C-1 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 negligible to major adverse impacts. Alternative C-1 could potentially increase adverse impacts on radar systems by adding an additional eight WTGs to the northern portion of the Lease Area closest to the shore, which would possibly increase line-of-sight impacts; however, localized, long-term, minor adverse impacts on radar systems are still anticipated.</p> <p>Impacts of Alternative C-2 would be similar to those of the Proposed Action for marine mineral extraction, aviation and air traffic, cables and pipelines, and radar, with negligible to major adverse impacts. Although Alternative C-2 would reduce the array spacing to no less than 0.99 nm between rows, the magnitude of impacts on scientific research and surveys would remain similar to those described for the Proposed Action and would result in major adverse impacts, as NOAA would still likely exclude the area from survey operations because the spacing between WTGs would be less than 1 nm.</p> <p>Impacts of Alternative D would be 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 negligible to major adverse impacts. Alternative D could potentially reduce localized impacts on</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
			<p>scientific research and surveys by avoiding placing structures in sand ridges and troughs; however, the structures present throughout the remainder of the Lease Area would exclude certain portions of the Project area from potential vessel and aerial sampling, resulting in major adverse impacts on scientific research and surveys.</p> <p>Impacts of Alternative E 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, radar, and scientific research and surveys, with negligible to major adverse impacts. While Alternative E would limit the onshore export cable route on Island Beach State Park to the northern option, there are no mapped mineral extraction areas or pipelines reasonably close to the offshore export cable route that could be affected by this alternative.</p> <p>The cumulative impacts associated with Alternatives B, C, D, and E when each is combined with the impacts from ongoing and planned activities (including offshore wind activities) would be the same as for the Proposed Action.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
<p>3.18 Recreation and Tourism</p>	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in negligible adverse impacts on recreation and tourism.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in moderate adverse and minor beneficial cumulative impacts on recreation and tourism.</p>	<p><i>Proposed Action:</i> The Proposed Action would result in moderate adverse and minor beneficial 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 cable hardcover and structures in the Wind Farm 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.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute an undetectable to noticeable increment to the moderate adverse, and minor beneficial cumulative impacts on recreation and tourism.</p>	<p>Impacts of Alternatives B-1, B-2, and D would be similar to those of the Proposed Action for recreation and tourism except for the impact of the presence of structures. Under these alternatives, fewer WTGs and associated inter-array cables would be installed, which would slightly reduce the construction footprint and installation period. The impact level is anticipated to remain the same as for the Proposed Action: moderate adverse and minor beneficial.</p> <p>Impacts of Alternatives C-1 and C-2 would be similar to those of the Proposed Action for recreation and tourism except for the impact of the presence of structures. Under these alternatives, the change in the WTG positions is not anticipated to be noticeable to the observer or affect recreational boating to a meaningful degree. The impact level is anticipated to remain the same as for the Proposed Action: moderate adverse and minor beneficial.</p> <p>Alternative E would not result in a discernible difference in impacts on recreation and tourism compared to the Proposed Action. Alternative E would result in the same moderate adverse and minor beneficial impacts.</p> <p>The cumulative impacts associated with Alternatives B, C, D, and E when each is 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 minor beneficial.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
3.19 Sea Turtles	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in minor adverse impacts on sea turtles.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in minor adverse cumulative impacts on sea turtles. Potential impacts on sea turtles from multiple construction activities within the same calendar year could affect migration, feeding, breeding, and individual fitness. WTG and OSS foundations may provide beneficial impacts as a result of increased foraging and sheltering opportunities; however, beneficial impacts may be offset given the increased risk of entanglement due to derelict fishing gear on the structures.</p>	<p><i>Proposed Action:</i> The Proposed Action would result in negligible to minor adverse impacts and could include potentially minor beneficial impacts. Minor beneficial impacts could result from the presence of structures creating an artificial reef effect.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute an undetectable to noticeable increment to the minor adverse cumulative impact on sea turtles. The main drivers are pile-driving noise and associated potential for auditory injury, the presence of structures, ongoing climate change, and ongoing vessel traffic posing a risk of collision. WTG and OSS foundations may provide beneficial foraging and sheltering opportunities; however, beneficial impacts may be offset given the increased risk of entanglement due to derelict fishing gear on the structures.</p>	<p>Alternatives B-1, B-2, C-1, and D would include exclusion of proposed WTGs and lead to the same types of impacts on sea turtles as described for the Proposed Action. The impacts resulting from the alternatives individually would be similar to those of the Proposed Action and would range from negligible to minor adverse and could potentially include minor beneficial impacts.</p> <p>Alternative C-2 would compress the layout and have the same types of impacts on sea turtles. Although this alternative would result in a decreased construction and operational footprint, the impacts resulting from the alternative would be similar to those of the Proposed Action and range from negligible to minor adverse impacts and could potentially include minor beneficial impacts.</p> <p>Alternative E would result in reduced acreage of SAV affected by cable emplacement; the impacts resulting from the alternative would be similar to those of the Proposed Action and range from negligible to minor adverse impacts and could include potentially minor beneficial impacts.</p> <p>The cumulative impacts associated with Alternatives B, C, D, and E when each is combined with the impacts from ongoing and planned activities (including offshore wind activities) would be the same as for the Proposed Action: minor adverse.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
<p>3.20 Scenic and Visual Resources</p>	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in minor to moderate adverse impacts on scenic and visual resources.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all other planned activities would result in major adverse cumulative impacts on visual and scenic resources due to addition of new structures, nighttime lighting, onshore construction, and increased vessel traffic.</p>	<p><i>Proposed Action:</i> Impacts of the Proposed Action on scenic and visual resources would range from negligible to major adverse impact. The main drivers for this impact rating are the major adverse impacts associated with the presence of structures, lighting, and vessel traffic.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute an appreciable increment to the major adverse cumulative impact on scenic and visual resources.</p>	<p>Alternatives B-1 and B-2 would reduce the number of WTGs visible from the seascape and landscape compared to the Proposed Action, which may result in reduced impacts on scenic and visual resources but would not change the impact level of negligible to major adverse impacts. The impacts of Alternatives C-1, C-2, D, and E on scenic and visual resources would be similar to the impacts of the Proposed Action: negligible to major adverse.</p> <p>The cumulative impacts associated with Alternatives B, C, D, and E when each is combined with the impacts from ongoing and planned activities (including other offshore wind activities) would be the same as for the Proposed Action: major adverse.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
3.21 Water Quality	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in moderate adverse impacts on water quality.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in moderate adverse impacts, primarily driven by the unlikely event of a large-volume, catastrophic release.</p>	<p><i>Proposed Action:</i> The Proposed Action would result in moderate adverse impacts on water quality primarily due to sediment resuspension and 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.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would result in moderate adverse cumulative impacts.</p>	<p>Alternatives B-1, B-2, and D may result in slightly less, but not materially different, moderate adverse impacts on water quality due to a reduced number of WTGs that would need to be constructed and maintained. Alternatives C-1 and C-2 would have the same number of WTG as the Proposed Action and, therefore, would have similar moderate adverse impacts on water quality. Alternative E would result in similar, but not materially different, moderate adverse impacts on water quality in relation to sediment disturbance and turbidity and onshore ground disturbance. Therefore, the moderate adverse impacts would be the same as those of the Proposed Action.</p> <p>The cumulative impacts of Alternatives B, C, D, and E when each combined with impacts from ongoing and planned activities (including offshore wind activities) would be the same as those of the Proposed Action: moderate adverse.</p>

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
3.22 Wetlands	<p><i>No Action Alternative:</i> Continuation of existing environmental trends and ongoing activities under the No Action Alternative would result in moderate adverse impacts on wetlands.</p> <p><i>Cumulative Impacts of the No Action Alternative:</i> The No Action Alternative combined with all planned activities would result in moderate adverse cumulative impacts, primarily through land disturbance.</p>	<p><i>Proposed Action:</i> The Proposed Action may affect wetlands through short-term or permanent disturbance from activities within or adjacent to these resources. Considering the avoidance, minimization, and mitigation measures required under federal and state statutes (e.g., CWA Section 404), construction of the Proposed Action would likely have moderate adverse impacts on wetlands.</p> <p><i>Cumulative Impacts of the Proposed Action:</i> The Proposed Action would contribute a noticeable increment to the moderate adverse cumulative impact on wetlands.</p>	<p>Because Alternatives B, C, and D 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 adverse.</p> <p>Alternative E would have the same moderate adverse impacts on wetlands as the Proposed Action. Impacts on wetlands would not be materially different because land disturbance would remain small, and implementation of mitigation measures and regulatory compliance would minimize impacts related to onshore ground disturbance.</p> <p>The cumulative impacts from Alternatives B, C, D, and E when each combined with impacts from ongoing and planned activities (including offshore wind activities) would be the same as those of the Proposed Action: moderate adverse.</p>

NARW = North Atlantic right whale; SAR = search and rescue;

### 3.3. Environmentally Preferable Alternatives

BOEM is required by CEQ regulations to identify in the ROD (but not necessarily to select) the *environmentally preferable alternative(s)*, 40 C.F.R. § 1505.2. Upon consideration and weighing of long-term environmental impacts against short-term impacts in evaluating what is the 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, Alternative D, and Alternative E.

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 Action 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 disproportionately 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. Comments received on the Draft EIS from companies in the offshore wind industry have noted that public and private investors have committed substantial amounts of new funding to offshore wind development, including commitments to develop manufacturing facilities, and that advancement of the Project is critical to continue to attract investment in the U.S. offshore wind market.<sup>11</sup>

Alternative D would exclude up to 15 WTGs (and the inter-array cables connecting these WTGs) from the sand and ridge trough features in the northeastern corner of the lease area, reducing impacts on these features. The sand ridges and troughs represent macroscale habitats for finfish and invertebrates and are areas of biological significance for migration and spawning of mid-Atlantic fish species, many of which are recreationally targeted in those specific areas. Temporary and permanent impacts to benthic habitat would also be reduced by approximately 728 acres in comparison to the Proposed Action. Permanent impacts on complex habitat (NOAA habitat complexity category) would be reduced by 1.8 acres and soft-bottom habitat impacts would increase by 11.3 acres under Alternative D. The installation of up to 15 fewer foundations would reduce the duration of noise associated with impact pile driving, which would result in a slight reduction of impacts to finfish, invertebrates, marine mammals, and sea turtles. Fewer vessels and vessel trips would be expected, which would reduce the risk of discharges, fuel spills, and trash in the area and decrease the risk of collision with marine mammals and sea turtles. Alternative D could also potentially reduce gear entanglements and loss, as well as the risk of allisions. The operation of fewer WTGs may result in slightly less impacts on bird species with high collision sensitivity and

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<sup>11</sup> See, e.g., Business Network for Offshore Wind, Comment Letter on Ocean Wind 1 Draft EIS (Aug. 19, 2022), <https://www.regulations.gov/comment/BOEM-2022-0021-1247>; see also Ocean Wind 1 Final EIS, app. O, Responses to Comments on the Draft EIS, Table O.7-8, 2257 (summarizing comments on demographics, employment, and economics).

high displacement sensitivity. However, Alternative D would result in a reduced supply of offshore wind energy for the State of New Jersey from the Project (an up to 19 percent reduction in expected annual energy production).

Alternative E would narrow the design envelope so that the applicant could only select the Oyster Creek export cable route developed to minimize impacts on SAV in Barnegat Bay. Alternative E would result in significantly lower impacts on SAV, which would be beneficial to numerous fish and invertebrate species that utilize this important inshore habitat. Alternative E would have no reduction to estimated annual energy production.

In comparison to the No Action Alternative, Alternatives D and E would result in regional air quality benefits and global climate change reduction benefits. The selection of these alternatives would positively impact the development of offshore wind energy facilities, increasing the scale of these beneficial impacts and potentially improving the long-term environmental fate of the resources impacted by these alternatives relative to the No Action Alternative, as well as globally beyond the geographic setting of the Project. 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.

#### **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.<sup>12</sup> BOEM is adopting all the measures identified in Tables H-1, 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 and except for two measures in Table H-3, one relating to recreational fishing and other relating to cable maintenance and monitoring plan measures. Adoption of the recreational fishing measure would be impracticable because the schedule and geographic extent of future recreational fishing tournaments or other important seasonal recreational fishing events is not fixed and would therefore lead to undue uncertainty regarding the project schedule. Adoption of the measure to develop a separate cable maintenance and monitoring plan would be ineffective or unnecessary. First, anticipated cable monitoring and maintenance activities are already described in section 2.1.2.3.2 of the Final EIS. Second, the technical measures that BOEM intends to include as conditions of COP approval for post-installation cable monitoring outline a schedule for cable inspection, require a cable monitoring report for review of burial conditions, and set a timeframe for remedial activities.

The mitigation, monitoring, and reporting measures that BOEM intends to include as conditions of approval are identified in this ROD in Appendix A. BOEM has modified some measures identified in the Final EIS as an outcome of consultation under Section 106 of the National Historic Preservation Act, which concluded after publication of the Final EIS. This appendix clarifies the language of certain measures that were identified in the Final EIS to ensure that they are enforceable, and also reflect other updates to measures being considered by NMFS for the final ITR and associated LOA.

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<sup>12</sup> 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 Ocean Wind 1 adopting the Preferred Alternative (Alternative A, the Proposed Action, in combination with Alternative E), which is also one of the three identified environmentally preferable alternatives.<sup>13</sup> By selecting the Preferred Alternative (hereinafter the “selected alternative”), DOI will allow for 98 WTGs and up to three OSS on the OCS offshore New Jersey within Lease Area OCS-A 0498, with export cables making landfall in Ocean County and Cape May County, New Jersey. The selected alternative will provide a minimum 0.81-nm buffer between the WTGs in Ocean Wind 1 and the WTGs in Atlantic Shores South (Lease Area OCS-A 0499), which is designed to minimize impacts to navigation and vessel traffic and commercial and recreational fishing. Ocean Wind 1 and Atlantic Shores South, in coordination with the USCG, developed this mutually agreeable scenario, which was documented in a joint letter signed by Ocean Wind LLC and Atlantic Shores Offshore Wind, LLC on July 21, 2022.

Selection of Alternative B would have eliminated some WTG positions nearest to coastal communities. For example, for shoreline viewers directly northwest of the Wind Farm Area, the distance to the nearest WTG would increase from 13.3 nm under the selected alternative to 14.0 nm under Alternative B-1 (i.e., only a 0.7 nm increment). The analysis conducted in the Final EIS indicates that Alternative B-1 and the selected alternative would have essentially the same presence on the horizon. The minimal change in Project size, character, and contrasts between the selected alternative and Alternative B-1 would be unnoticeable to viewers from the shore because the number and spacing of WTG rows in the array would be the same as the selected alternative and the WTG and OSS design parameters would remain constant.<sup>14</sup> Therefore, the effects of Alternative B on seascape character, open ocean character, landscape character, and viewer experience would be similar to the effects of the selected alternative and Alternative B would do little to reduce environmental effects (i.e., scenic and visual resources). However, selection of Alternative B results in up to a 14 percent reduction in expected annual energy production when compared to the selected alternative. A 14 percent reduction in expected annual energy production would represent a reduction of up to 679,208 MW-H per year and would result in a reduced supply of offshore wind energy for the State of New Jersey from the Project.

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<sup>13</sup> By selecting the Preferred Alternative, Ocean Wind LLC must develop the Oyster Creek export cable route in accordance with Alternative E to minimize impacts on SAV in Barnegat Bay. Since Alternative E concerns the siting of the export cable in areas outside of BOEM’s authority, Ocean Wind LLC will need to process and obtain all Federal and state permits and authorizations to develop the Project consistent with Alternative E. On April 27, 2023, New Jersey Department of Environmental Protection issued their permits for the Project, which includes the Oyster Creek export cable route described as Alternative E in the Final EIS. Authorization from USACE under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), Section 404 of the Clean Water Act (33 U.S.C. 1344), and Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408) is also required for the Project activities under USACE jurisdiction. Ocean Wind LLC’s application submitted to USACE includes the Oyster Creek export cable route described as Alternative E in the Final EIS.

<sup>14</sup> Section 3.20 Appendix M. Seascape, Landscape, and Visual Impact Assessment of the Final EIS provides a detailed comparative analysis of scenic and visual impacts.

Also, the larger turbine model analyzed under Alternative B-2 is not currently commercially available. For these reasons, BOEM has not selected Alternative B in this ROD.

Alternative C would modify the WTG array layout by either excluding or relocating eight WTG positions (Alternative C-1) or compressing the WTG array layout (Alternative C-2) to create a 0.81-nm to 1.08-nm buffer. Separation between the WTGs in Ocean Wind 1 and Atlantic Shores South, as proposed by the USCG and adopted by Ocean Wind 1, is provided under Alternative A (i.e., at least 0.81 nm between each project's WTGs). Increasing the buffer distance could allow for additional maneuverability for mariners transiting between the lease areas. Additional modification of the WTG array spacing and layout under Alternative C-1 would result in additional 1.0 nm of separation between each project's WTGs when compared to the selected alternative, but also in an annual energy reduction of up to 12.5 percent. Selection of Alternative C-2 (1.08-nm buffer compression) would have resulted in additional separation between each project's WTGs (varying between approximately 0.3 nm to 0.4 nm for Rows 3-9 and 1.3 nm for Row 2) when compared to the selected alternative, but also in an annual energy reduction of 8 percent. The analysis conducted in section 3.16 (Navigation and Vessel Traffic) of the Final EIS indicates that there would be little difference in impacts on safety and the use of the sea for navigation between the selected alternative and Alternative C because the mutually agreeable separation scenario under the selected alternative provides sufficient maneuverability for mariners transiting between the lease areas. However, selection of Alternative C would result in some waste of OCS resources when compared to the selected alternative, since Alternative C would result in a reduction of expected annual energy production. A 12.5 percent reduction in expected annual energy production would represent a reduction of up to 606,436 MW-H per year and would result in a reduced supply of offshore wind energy for the State of New Jersey from the Project. For these reasons, BOEM has not selected Alternative C in this ROD.

Alternative D would exclude up to 15 WTGs from the sand ridge and trough features in the northeastern corner of the lease area. These physical features are found throughout the OCS in the mid-Atlantic and provide important habitat for several species. While Alternative D would exclude up to 15 WTGs and their inter-array cables, the reduction to long-term impacts in comparison to the selected alternative equates to a very small percentage of the 6,207-acre sand ridge and trough complex and a very small percentage of the 75,525-acre Lease Area (32 acres; 0.5 percent and 0.00042 percent, respectively). Eliminating the need for cable installation and the associated seabed preparation activities, such as boulder clearance, sandwave clearance, pre-lay grapnel run and disturbance from installation vessels, would reduce short-term impacts by an estimated 938.86 acres, which equates to 15 percent of the sand ridge and trough complex and 1.2 percent of the Lease Area. In conditions similar to the Project, the disturbances resulting from seabed preparation and cable installation activities have been shown to reduce in magnitude over relatively short time periods through natural processes, typically within a year or following a storm event. In contrast, the loss in annual energy production if Alternative D was selected, in comparison with the selected alternative, is substantial and will not be reduced over time. Alternative D would result in up to 19 percent reduction in expected annual energy production when compared to the selected alternative. A 19 percent reduction in expected annual energy production would represent a reduction of up to 921,783 MW-H per year and would result in a

reduced supply of offshore wind energy for the State of New Jersey from the Project. Therefore, BOEM has not selected Alternative D in this ROD.

Under the No Action Alternative, DOI would not approve the Ocean Wind 1 Project. In addition, no other permits or authorizations for this proposed Project would be issued. The No Action Alternative is one of the three environmentally preferable alternatives identified in this ROD because adverse environmental impacts across resources would generally be less under the No Action Alternative (i.e., no construction, operation, or decommissioning activities would occur on the OCS). Hence, impacts on physical, biological, 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 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. The Final EIS found that a combination of Alternative A and Alternative E would result in fewer impacts than other action alternatives considered, 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. Measures arising from consultation under Section 106 of the National Historic Preservation Act (NHPA), 54 U.S.C. §§ 300101 et seq. have been finalized after publication of the Final EIS. BOEM conducted a thorough National Historic Preservation Act Section 106 review of the Project with federally recognized Tribes, the New Jersey State Historic Preservation Office, the Advisory Council on Historic Preservation, and consulting parties concurrent with the NEPA process 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 and Final 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 concludes with the execution and implementation of the MOA, which was signed by the BOEM, the New Jersey State Historic Preservation Officer, the Advisory Council on Historic Preservation, the Lessee, and the New Jersey Historic Trust (the mitigation fund administrator) on June 30, 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, Alternative A is anticipated to have major adverse impacts to 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 3.17.1). There are 14 NMFS scientific surveys that overlap with wind energy development in the northeast region. Eight 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 impacts on the eight 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.

Additional engineering and technical terms and conditions that will be required with COP approval are included in Appendix A of this ROD.<sup>15</sup> Ocean Wind LLC 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)). Ocean Wind LLC 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

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

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Date

<sup>15</sup> 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 Ocean Wind LLC.

## 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 Ocean Wind LLC 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 Ocean Wind LLC, 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 October 1, 2021, NMFS received an application from Ocean Wind LLC 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 Outer Continental Shelf off of New Jersey in OCS-A 0498, 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 Ocean Wind LLC 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 Ocean Wind LLC's request for authorization to take marine mammals incidental to specified activities associated with the Project (e.g., pile driving and removal, marine site assessment surveys, and unexploded ordnance and munitions and explosives of concern (UXO/MEC))—was to evaluate Ocean Wind LLC'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' proposed rulemaking which was published in the *Federal Register*, 87 Fed. Reg. 64,868 (Oct. 26, 2022). 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 Ocean Wind LLC authorizing take of marine mammals incidental to construction activities associated with the proposed Project, specifically pile driving and removal, marine site assessment surveys, and UXO/MEC detonation, 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, as corrected and amended, 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 final ITR and 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 Ocean Wind LLC's request for an authorization and an action alternative in which it would issue an LOA to Ocean Wind LLC with mitigation, monitoring, and reporting requirements.

Consistent with BOEM's No Action Alternative, NMFS would not issue the requested authorization to Ocean Wind LLC, in which case, NMFS assumes Ocean Wind LLC 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 Ocean Wind LLC, 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 LOA, 87 Fed. Reg. 64,868 (Oct. 26, 2022), and may be

modified in the final LOA in response to public comment, agency review, and ESA Section 7 consultation. The Proposed Action alternative evaluated by NMFS is consistent with the Preferred Alternative evaluated by BOEM in the Final EIS and selected in this ROD as it will provide the incidental take authorization necessary to achieve the activities identified in that alternative.

### **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 Ocean Wind LLC in response to their 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 and LOA, 87 Fed. Reg. 64,868 (Oct. 26, 2022). These measures may be modified in the final ITR and LOA as NMFS consider BOEM's proposed mitigation, monitoring and reporting measures (Appendix A; many of which align with those in the proposed rule), and additional measures recommended in the public comments. When it issues the final ITR and 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 Ocean Wind LLC.

**RAUCH.SAMUEL.DEAN.**  
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Samuel D. Rauch, III  
Deputy Assistant Administrator for Regulatory Programs

Date

## 6. References

- Bureau of Ocean Energy Management (BOEM). 2012. *Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore New Jersey, Delaware, Maryland, and Virginia Final Environmental Assessment*. (OCS EIS/EA BOEM 2012-003). January. Available at: [https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable\\_Energy\\_Program/Smart\\_from\\_the\\_Start/Mid-Atlantic\\_Final\\_EA\\_012012.pdf](https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/Smart_from_the_Start/Mid-Atlantic_Final_EA_012012.pdf).
- 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.
- National Marine Fisheries Service (NMFS). 2023. Endangered Species Act Section 7 Consultation: Biological Opinion for Construction, Operation, Maintenance, and Decommissioning of the Ocean Wind 1 Offshore Energy Project. April. Available at: <https://repository.library.noaa.gov/view/noaa/49689>
- Ocean Wind LLC (Ocean Wind LLC). 2023. Construction and Operations Plan, Ocean Wind Offshore Wind Farm. Volumes I–III. May. Available at: <https://www.boem.gov/ocean-wind-construction-and-operations-plan/>.
- United States Fish and Wildlife Service (USFWS). 2023. Biological Opinion on the Effects of the Ocean Wind 1 Wind Energy Project, Offshore Atlantic County, New Jersey on Three Federally Listed Species. May. 98 pp.

**Appendix A. Anticipated Conditions of Construction and Operations Plan  
Approval for the Ocean Wind 1 Offshore Wind Farm Project**

**Section:**

1. [GENERAL PROVISIONS](#)
2. [TECHNICAL CONDITIONS](#)
3. [NAVIGATIONAL AND AVIATION SAFETY CONDITIONS](#)
4. [NATIONAL SECURITY CONDITIONS](#)
5. [CONDITIONS RELATED TO PROTECTED SPECIES AND HABITAT](#)
6. [CONDITIONS RELATED TO COMMERCIAL FISHERIES, FOR-HIRE RECREATIONAL FISHING, AND ENVIRONMENTAL JUSTICE](#)
7. [CONDITIONS RELATED TO CULTURAL RESOURCES](#)
8. [CONDITION RELATED TO AIR QUALITY](#)

**Attachments:**

1. [LIST OF ACRONYMS](#)

## 1. GENERAL PROVISIONS

- 1.1. Adherence to the Approved Construction and Operations Plan (COP), Statutes, Regulations, Permits, and Authorizations (Planning) (Construction) (Operations) (Decommissioning).<sup>1</sup> The Lessee must conduct all activities as proposed in its approved COP for the Ocean Wind 1 project (Project)<sup>2</sup> and as stated in these terms and conditions. Additionally, the Lessee must comply with all applicable requirements in commercial lease OCS-A 0498 (Lease), statutes, regulations, consultations, and permits and authorizations issued by Federal, state, and local agencies for the Project. The Department of the Interior (DOI) Bureau of Ocean Energy Management (BOEM) and/or the Bureau of Safety and Environmental Enforcement (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, the Lessee may construct and install on the Outer Continental Shelf (OCS) up to 98 wind turbine generators (WTGs), up to 3 offshore substations (OSSs), inter-array cables linking the individual WTGs to the OSS, and substation interconnector cables linking the OSSs and up to three offshore export cables (installed within two export cable route corridors) that contain up to approximately 67 statute miles of cable easement on the OCS in support of this Project.
- 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 herein, 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 remain effective until the termination of the Lease, which, unless renewed, has an operations term of 25 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

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<sup>1</sup> 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).

<sup>2</sup> Ocean Wind LLC. 2023. Construction and Operations Plan, Ocean Wind Offshore Wind Farm. Volumes I-III.

Project's Biological Opinion (BiOp) issued by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) on April 3, 2023<sup>3</sup>; BiOp issued by U.S. Fish and Wildlife Service (USFWS) on May 12, 2023; Incidental Take Authorizations (ITA) for the Project under the Marine Mammal Protection Act (MMPA); the Section 106 Memorandum of Agreement (MOA) executed on June 30, 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.

- 1.5. Waiver of Terms and Conditions (Planning) (Construction) (Operations) (Decommissioning). The Lessee may submit a written request from the Lessee to BOEM and BSEE, seeking a waiver from particular requirements of these Terms and Conditions. The request must explain why compliance with a particular requirement is not technically and economically practical or feasible. To the extent not otherwise prohibited by law and after careful consideration of all relevant facts and applicable legal requirements, BOEM and BSEE may grant a waiver of particular requirements if they determine that the waiver: (1) would not result in a significant change in the Project impacts described in the Final Environmental Impact Statement (FEIS) and ROD for the Project, (2) would not alter conditions that were required after consultations performed by BOEM and BSEE under Federal law in connection with this COP approval (e.g., Endangered Species Act (ESA), Coastal Zone Management Act (CZMA), National Historic Preservation Act (ESA), 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 requested waiver, BOEM and BSEE will notify the Lessee in writing whether those agencies will waive particular requirements set forth in this COP approval. Approved waivers will be made publicly available. This procedure applies to the extent not superseded by different waiver provisions for specific requirements.
- 1.6. 48 Hour Notification Prior to Construction Activities (Construction) (Operations) (Decommissioning). The Lessee must submit a 48-hour notification to BSEE through TIMSWeb prior to the start 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

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<sup>3</sup> This is inclusive of the avoidance, minimization, and mitigation measures described in the proposed action and included in the BiOp's Incidental Take Statement.

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 12 of 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 purpose 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 that provides a means for the public to communicate about the Project (e.g., 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 representative of the Lessee who can respond to these communications.
  - 1.8.1. The Lessee must post construction notices and other publicly relevant information to the Project website. The Project website will allow users to subscribe (or unsubscribe) to an electronic mailing list for Project update notifications.
  - 1.8.2. The Lessee must post the following information to the Project website within 5 business day of availability.
    - 1.8.2.1. Locations where target burial depths were not achieved/locations of cable protection measures.
    - 1.8.2.2. Local Notices to Mariners.
    - 1.8.2.3. The Communication Plan (COP Volume II, Table 1.1-2, GEN-14).
    - 1.8.2.4. The Project Mitigation Plan identified in section 1.9.
  - 1.8.3. Location data (GIS) must be downloadable and packaged in an ESRI compatibility 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 contains measurement units, where applicable, must be included.
- 1.9. Project Mitigation Plan (Planning) (Construction) (Operations) (Decommissioning). The Lessee must develop a Project Mitigation Plan that is informed by public engagement, consultation with the appropriate state, Federal, and regional, non-government organizations (i.e., the Regional Wildlife Science Collaborative for Offshore Wind and the Responsible Offshore Science Alliance). The Project Mitigation Plan will be a comprehensive compilation of all 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) required for the construction and operation of the Project. The Project Mitigation Plan must summarize the expected Project impacts; 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); identify policies and standards to be used and complied with; and be responsive to impacts detected in Project monitoring and other monitoring and research studies and initiatives, including the Lessee's Fisheries Monitoring Plan, the Lessee's Benthic Monitoring Plan, and the New Jersey Research and Monitoring Initiative for Offshore Wind.

## **2. TECHNICAL CONDITIONS**

- 2.1. Munitions and Explosives of Concern/Unexploded Ordnance Investigation (Planning). The Lessee must investigate the areas of potential disturbance, as described in the COP, 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 of findings; (3) an identification survey to determine the nature of the identified objects and report of findings; (4) a MEC/UXO mitigation (avoidance, in situ disposal, or relocation); and (5) a certification that MEC/UXO risks from installation and operation of the facility have been reduced to ALARP levels.
- 2.2. MEC/UXO Identification Survey Report (Planning). The Lessee must submit an Identification Survey Report to BOEM and BSEE for each agencies' review and concurrence prior to the installation of facilities in the area of potential disturbance. The report must include the following:
  - 2.2.1. A detailed discussion of methodologies.
  - 2.2.2. 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.
  - 2.2.3. A separate list of findings that identify conditions different from those anticipated and discussed in the DTS.
  - 2.2.4. 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.
- 2.3. MEC/UXO Survey Results Implementation (Construction). The Lessee must implement the mitigation methods identified in the approved COP, DTS, and the subsequent survey report(s) following the resolution of all comments provided by BOEM and BSEE. As part of the 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; (4) and MEC/UXO relocation and/or construction re-routing.

- 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 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 USCG to ensure the MEC/UXO discovery is published in the next version of the Local Notice to Mariners (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](mailto:BOEM_MEC_Reporting@boem.gov)), BSEE, and relevant agency representatives within 24 hours of discovery for seabed clearance activities, 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 (survey, seabed clearance, cable installation, etc.);
  - 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. Safety Management System (Planning) (Construction) (Operations) (Decommissioning). Pursuant to 30 C.F.R. § 285.810, a Lessee, designated operator, contractor, or subcontractor constructing, operating, or decommissioning renewable energy facilities on the OCS must have a Safety Management System (SMS). The Lessee must provide a description of the SMS that will guide all activities described in the approved COP (hereafter the "Lease Area's Primary SMS"). BSEE will review the Lease Area's Primary SMS and compare it to the regulations and requirements below (Sections 2.6.1 through 2.6.4) and verify that the submissions are acceptable.

- 2.6.1. 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.
- 2.6.2. The Lease Area's Primary SMS is expected to evolve as activities progress from site characterization through construction, operations, and eventually to decommissioning, typically by acknowledging the new risks that will be faced by the workforce and by incorporating work practices and operating procedures specific to managing those risks. 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. A description of any changes to the Lease Area's Primary SMS to address new or increased risk must be provided to BSEE before each phase of the Project commences (i.e., construction, operation and 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<sup>4</sup> prior to beginning the relevant activities, as described in the COP. The Lessee can demonstrate the Lease Area's Primary SMS functionality through various means. The following list provides illustrative examples of demonstrations of functionality.
- 2.6.2.1. If the Lessee wants to use a similar SMS that is functioning elsewhere as the Lease Area's Primary SMS, the Lessee may demonstrate the proper functioning of the similar SMS by sharing certifications of that SMS from a recognized accreditation organization (e.g., International Organization for Standardization (ISO)/International Electric Code (IEC) 450001, ANSI Z10, American Petroleum Institute Recommended Practices (API RP) 75 4<sup>th</sup> or later edition), or by sharing reports of third-party or internal audits of the SMS. The Lessee must also share an explanation of how the Lessee has adapted the similar, audited SMS to become the Lease Area's Primary SMS.
- 2.6.2.2. If the Lessee does not have a similar SMS that is functioning elsewhere, demonstration of functionality may include the following:
- 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 Lessee's preparedness to control various risks
  - A description of the personnel who have been trained on the Lease Area's Primary SMS, an overview of the training content,

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<sup>4</sup> Unless otherwise specified in the terms and conditions, the term "days" means "calendar days."

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

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

2.6.3. 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. If, upon review, BSEE determines that the Lease Area's Primary SMS is not functional, then the Lessee will engage with BSEE until BSEE's concerns are addressed to BSEE's satisfaction.

2.6.4. In addition to maintaining an acceptable Lease Area Primary SMS, the Lessee, designated operator, contractor, and subcontractor constructing, operating, or decommissioning renewable energy facilities on the OCS is required to follow the policies and procedures of the specific SMS applicable to their activities and to take corrective action whenever there is a failure to follow the specific SMS or the specific SMS failed to ensure safety.

2.7. Emergency Response Procedure. Prior to 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 or upon BSEE's request, consistent with Section 2.7.3. The Emergency Response Procedure must address the following:

2.7.1. Standard Operating Procedures. 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 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.

2.7.2. Communications. Description of the capabilities to be maintained by the control center to communicate with the USCG within and in the vicinity of the Lease Area. Control center communications capability must include, at a minimum, Very High Frequency (VHF) marine radio.

2.7.3. Monitoring. The control center 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, for (1) determining the status of all Private Aids to Navigation (PATONs) and immediately reporting discrepancies to the local USCG Sector Command Center (a timeline of when discrepancies can be resolved must be sent to USCG within 14 days)

2.7.3.1. The Lessee must immediately contact the USCG if real-time monitoring is unavailable for more than 1 hour. The Lessee must thereafter establish an alternate monitoring plan(s) agreed to by the USCG.

2.8. Oil Spill Response Plan (Planning). Pursuant to 30 C.F.R. § 585.627(c), the Lessee must submit an Oil Spill Response Plan (OSRP) in compliance with 33 U.S.C. § 1321, including information identified in 30 C.F.R. part 254 that is applicable to the Lessee's activities. The OSRP may be lease specific, or it may be a regional OSRP covering multiple leases. The leases covered in the Regional OSRP must have the same owner or operator and must be located in the Atlantic OCS Region. The Lessee may group facilities or leases for the purposes of conducting trajectory analysis and determining worst case discharge scenarios, subject to the approval of BSEE. The Lessee must submit the OSRP directly to the BSEE Oil Spill Preparedness Division (OSPD) at [BSEEOSPD\\_ATL\\_OSRLPs@bsee.gov](mailto:BSEEOSPD_ATL_OSRLPs@bsee.gov). Before the installation on the OCS of any component of the Lessee's facilities that may handle or store oil, BSEE - OSPD must review and approve the Lessee's OSRP. The Lessee's OSRP must be consistent with the National Contingency Plan and appropriate Area Contingency Plan(s), as defined in 30 C.F.R. § 254.6. In order to continue operating, the Lessee must operate consistent with the OSRP accepted by BSEE - OSPD.

The Lessee's OSRP, including any regional OSRP, must contain the following information:

2.8.1. Facility Information. The OSRP must describe the type(s) and amounts of oil on the facilities covered under the Lessee's OSRP.

2.8.1.1. "Facility," for the purposes of the Lessee's OSRP, is a facility, as that term is defined in 30 C.F.R. § 285.112, that contains or stores oil. As used herein, "oil," as defined by the Clean Water Act at 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 fluids, as an example, meets this definition of oil.

2.8.1.2. The information for each worst-case discharge (WCD) facility must include the latitude and longitude, water depth, distance to the nearest

coastline, facility type(s), the volume for each type of oil product, and its location shown on a map

2.8.2. Copies of Safety Data Sheets. The OSRP must include copies of safety data sheets (SDS) for any oils present on any facility in quantities equal to or greater than 100 gallons.

2.8.3. Worst-Case Discharge Volume. The OSRP must include the WCD volume for each type of facility covered in the OSRP.

2.8.3.1. “Worst-Case Discharge Volume” is the highest cumulative volume of oil(s) contained on a single facility, such as an OSS or WTG.

2.8.3.2. Calculating the Lessee’s WCD volume(s):

2.8.3.2.1. For all facilities (e.g., WTGs or other support structures) other than OSSs, the WCD volume is the highest total volume of oil(s) contained onboard or within the facility.

2.8.3.2.2. For an OSS, the WCD volume is the highest total volume of oil(s) contained within the facility.

2.8.4. 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 OSRP must provide their 24-hour contact information, including phone numbers and email addresses. In the OSRP covering the OSSs, the Lessee must also designate trained members of the Lessee’s Incident Management Team (IMT) and provide their 24-hour contact information, including phone numbers and email addresses. For the IMT, at least one alternate must be identified for 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 an IMT, evidence of such a contract must be provided in the Lessee’s OSRP.

2.8.4.1. “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.

2.8.4.2. “Incident Management Team” (IMT) means the group of personnel identified within the Lessee’s organizational structure who manage the overall response to an incident consistent with the Lessee’s OSRP. The IMT consists of the Incident Commander, Command and

General Staff, and other personnel assigned to key Incident Command System positions designated in the Lessee's OSRP.

- 2.8.4.3. "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.
- 2.8.4.4. "Spill Response Operating Team" (SROT) means the trained persons who respond to spills and deploy and operate oil spill response equipment.
- 2.8.5. Notification Procedures. The OSRP must describe the procedures for spill notification. Notification procedures must include the 24-hour contact information for:
  - 2.8.5.1. The QI and an alternate, including phone numbers and email addresses
  - 2.8.5.2. IMT members, if applicable
  - 2.8.5.3. Federal, state, and local regulatory agencies that must be notified when a spill occurs, including, but not limited to, the National Response Center
  - 2.8.5.4. An OSRO and SROT that are available to respond
  - 2.8.5.5. Other response organizations and subject matter experts that the Lessee will rely on for the Lessee's response
- 2.8.6. 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 (if required) would respond 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 covered under the Lessee's OSRP (refer to definition above). To achieve compliance with this section, the OSRP must include the following:
  - 2.8.6.1. 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).
  - 2.8.6.2. General procedures for ensuring the source of a discharge are controlled as soon as possible after a spill occurs.
  - 2.8.6.3. Procedures to remove oil and oiled debris from offshore and shallow water environments and along shorelines.

- 2.8.6.4. Procedures to store, transfer, and dispose of recovered oil and oil-contaminated materials and to ensure that all disposal is consistent with Federal, state, and local requirements.
- 2.8.6.5. For regional OSRPs, you must include a description of the response to your WCD scenario(s). The description must include the quantity of response personnel, equipment, and support vessels you plan to use to contain and remove the discharge to the maximum extent practicable. You must also provide timeframes for response resources to deploy to the WCD facility. Timeframes should include times for equipment procurement, loadout, travel, and deployment.
- 2.8.7. Trajectory Analysis. The OSRP that covers the OSSs must include a stochastic spill trajectory analysis from each OSS. The trajectory analysis must:
  - 2.8.7.1. Be based on the WCD volume from the OSS that contains the highest total volume of oil. If all OSSs contain the same volume of oil, base the trajectory analysis on the OSS that is closest to shore.
  - 2.8.7.2. 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.
  - 2.8.7.3. Identify the probabilities for oiling on the water's surface and on shorelines, and 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. Stochastic analysis must incorporate a minimum of 100 different trajectory simulations using random start dates selected over a multi-year period.
- 2.8.8. Resources at Risk. The OSRP must include a concise list of the sensitive resources that are located near the Lessee's offshore facility and could be oiled by a spill. In lieu of listing sensitive resources, the Lessee may identify the areas that could be oiled by a spill from the Lessee's facility and provide hyperlinks to corresponding Environmentally Sensitive Index Maps and/or Geographic Response Strategies for those areas from the appropriate Area Contingency Plans.
- 2.8.9. Contractual Agreements and Response Resources. The OSRP must include a list (with contact information) of OSROs and SROTs that are available to respond to the WCD of oil from the Lessee's offshore facilities.
  - 2.8.9.1. If the Lessee's OSRP covers only WTGs, the Lessee may provide a Letter of Intent (LOI) in lieu of a contract from each OSRO and

SROT in the Lessee's plan acknowledging that it will act as OSRA and/or SROT, as applicable.

- 2.8.9.2. In the OSRP that covers the OSSs, the Lessee is required to ensure the availability of the OSRO and SROT resources necessary to respond through a contract or membership agreement. If a contract or membership agreement has been established with an OSRO and SROT, or the Lessee is relying on membership agreement, evidence of such contracts or membership agreements must be provided in the Lessee's plan. An LOI is not required from any OSRO or SROT whose availability has been ensured through a contract or membership agreement.
- 2.8.9.3. The OSRP must include a map(s) showing equipment storage sites and staging location(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.
- 2.8.10. Training. The OSRP must include a description of the annual training necessary to ensure that the QI, IMT, OSRO, and SROT (as applicable) are sufficiently trained to perform their respective duties. The Lessee's OSRP must provide the most recent dates of applicable training(s). The Lessee must ensure that the Lessee's QI, IMT, OSRO, and SROT personnel receive annual training. The training must be sufficient for personnel to perform their duties. Training records must be maintained and retained for 3 years and must be provided to BSEE upon request.
- 2.8.11. Response Plan Exercise. The OSRP must include a triennial exercise plan, for review by and concurrence of 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 (NPREP) 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. 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 exercise, if the OSRP covers an OSS. If the Lessee's plan includes an OSRO and/or SROT contract, the Lessee must perform an annual deployment exercise of the Lessee's contracted response equipment. The lessee must notify BSEE-OSPD at least 30 days in advance of any exercise they intend to conduct for compliance with this Condition. BSEE will advise on the options available to the Lessee for satisfaction of 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. BSEE may evaluate the results of the exercises and advise the Lessee of any needed changes in response equipment, procedures, tactics, or strategies. BSEE

may periodically initiate unannounced exercises to test the Lessee's spill preparedness and response capabilities. Exercise records must be maintained and retained for at least 3 years following the exercise and must be provided to BSEE upon request.

2.8.12. Response Equipment. The OSRP that covers the OSSs must include a list, or a hyperlink to a list, of the oil spill response equipment that is available to the Lessee through OSRO contracts; and identify the location of the equipment depots where the equipment is stored. The Lessee must ensure that the Lessee's contracted response equipment is maintained in proper operating condition; ensure that all maintenance, modification, and repair records are kept for a minimum of 3 years; and provide these records to BSEE upon request. The Lessee or the Lessee's OSRO must provide BSEE with physical access to the Lessee's equipment storage depots and perform functional testing of the Lessee's response equipment upon BSEE's request. BSEE may require maintenance, modifications, or repairs to response equipment or require the Lessee to remove response equipment from the Lessee's plan if the equipment does not operate as intended.

2.8.13. OSRP Maintenance. If the Lessee makes a significant change to its OSRP that would reduce the Lessee's ability to respond to a spill, or if there is a significant increase in the Lessee's WCD; removal of a contracted IMT, OSRO, or SROT from the Lessee's plan; or a significant change in the applicable area contingency plans, the Lessee must revise its OSRP to address these developments and provide notice to BSEE no more than 15 days after said change for review and concurrence. The Lessee must review and update the entire OSRP as needed at intervals not to exceed once every 3 years, starting from the date the OSRP was initially accepted. The Lessee must send a written notification to BSEE upon completion of this review and submit any updates for concurrence. BSEE may require changes to the Lessee's OSRP at any time if BSEE determines that the OSRP is outdated or contains significant inadequacies through review of the Lessee's OSRP, information obtained during exercises or actual spill responses, or other relevant information obtained by BSEE.

2.9. 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.

2.9.1. Morphological Seabed Assessment Study. The Lessee must submit a Morphological Seabed Assessment Study to BSEE for review no later than the submittal of the export, interconnector, or inter-array cables FDR. This study must include an assessment of seabed elevation changes for the Lease Area and export cable routes and include predictions for the operation term of the lease. The Lessee must resolve any BSEE-identified comments and concerns with the study to BSEE's satisfaction before BSEE completes its review of the associated FDR under C.F.R. 285.700.

2.10. 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 6.1.2.6 and 6.1.2.8 of the approved COP. For the purpose of the approved COP, BOEM has determined the proper burial depth to be a minimum of 4 feet (1.2 meters) below stable 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 Z-2 Cable Burial Feasibility 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 2.13) and final, as-built information (Section 2.20).

2.11. Cable Protection Measures (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 6.1.2.6 and 6.1.2.8 of the approved COP. In areas where final cable burial depth is less than 1.2 meter below stable seabed, the Lessee must install secondary protection such as concrete mattresses, fronded mattresses, rock bags or rock placement and must adhere to the scour and cable protection measures in Section 5.6.5.

2.11.1. The use of cable protection measures must not exceed 10 percent of the total export cable length on the OCS or 10 percent along 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 2.10, is not achieved. The Lessee must include design information and drawings as

part of the relevant cable FDR and installation information as a part of the relevant FIR or must submit, and obtain concurrence from BSEE, a standalone design and installation report, containing design information and drawings and installation information respectively, prior to installing cable protection. The Lessee must 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. Notice of locations where target burial depths were not achieved and where cable protection measures were used, including accessible graphic/geo-referenced repository for this information, must be made available on the Project website (Section 1.6 Project Website).

2.11.2. If the Lessee cannot comply with the requirements in Section 2.11.1, the Lessee must request a waiver 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, CVA verification of the proposed alternative, and must resolve any BSEE comments.

2.12. 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.

2.12.1. In the event that 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 may 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.

2.13. Post-Installation Cable Monitoring (Construction) (Operations). The Lessee must conduct an inspection of inter-array, interconnector, and export cables 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, and 24 after commissioning). These surveys must also be conducted within 180 days of a storm event (as defined in the Post-Storm Monitoring Plan, described in Section 2.17). 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 identify seabed features, natural and man-made hazards, and site conditions along Federal sections of the cable routing.

- 2.13.1. 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 monitoring inspection schedule for review and concurrence.
  - 2.13.2. 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 TIMS Web 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.
  - 2.13.3. 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 TIMS Web 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.
- 2.14. WTG and OSS Foundation Depths (Planning). In a letter dated March 3, 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.
- 2.15. Structural Integrity Monitoring (Construction) (Operations). The Lessee must conduct annual above-water inspections to ensure structural integrity is maintained. The inspections should detect or verify indications of obvious overloading, deteriorating coating systems, condition of cathodic protection system(s), excessive corrosion, and bent, missing, 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 285.824(b). See Section 2.17 for post-storm structural integrity monitoring.

2.16. 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. 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 BSEE's concurrence prior to initiating the inspection program. If BSEE does not send comments within 60 days, the Lessee may presume concurrence.

2.16.1. The Lessee must carry out an initial foundation scour inspection within 6 months of completing 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 Monitoring Plan, described in Section 2.17).

2.16.2. 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 to be provided within 90 days of completing the last foundation scour inspection. The schedule of reporting must be included in the Inspection Plan and concurred to by BSEE.

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

2.17. Post-Storm Event Monitoring Plan (Construction) (Operations) (Decommissioning). The Lessee must provide a plan for post-storm event condition monitoring of the facility infrastructure, foundation scour protection, and cables to BSEE for review and concurrence prior to commencing installation activities. Plans may be submitted separately for the cables (including cable protection), WTG, and OSSs. The plan must describe how the Lessee will measure and monitor environmental conditions and duration of storm events, specify the 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 related activities. At a minimum, post-storm event inspections should be conducted following a storm event where conditions exceed one half the design return

period. For example, the WTG platform design for 50-year windstorm event should be inspected after a 25-year wind storm event. BSEE reserves the right to require post-storm mitigations to address conditions that could result in safety risks and/or impacts to the environment.

2.18. High Frequency Radar Interference Analysis and Mitigation (Planning) (Construction) (Operations). The Lessee’s 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 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 (“mission objectives”), 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 Lessee’s Project is within the measurement range of eight IOOS HF radar systems listed in Table 2.18-1 below:

<b>Radar Name</b>	<b>Radar Operator</b>
Seaside Park SeaSonde Oceanographic HF-radar	Rutgers University
Brant Beach SeaSonde Oceanographic HF-radar	Rutgers University
Strathmere SeaSonde Oceanographic HF-radar	Rutgers University
North Wildwood SeaSonde Oceanographic HF-radar	Rutgers University
Hempstead SeaSonde Oceanographic HF-radar	Rutgers University
Loveladies SeaSonde Oceanographic HF-radar	Rutgers University
Brigantine SeaSonde Oceanographic HF-radar	Rutgers University
Wildwood SeaSonde Oceanographic HF-radar	Rutgers University

- 2.18.1. 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 Lessee’s Project. Interference must be mitigated before rotor blades are installed within the Project, and inference 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.
- 2.18.2. Mitigation Approval. After the above coordination and at least 60 days before commissioning the first WTG, the Lessee must submit to BOEM documentation demonstrating how it will mitigate interference with IOOS HF-radar in accordance with Section 2.18.1. If, after consultation

with the NOAA IOOS Office, BOEM deems the mitigation acceptable, the Lessee must conduct activities in accordance with the proposed mitigations.

- 2.18.3. 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 interference with IOOS HF-radar. The point-of-contact for 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. A Mitigation Agreement may serve the purpose of implementing Sections 2.18.2. If there is any discrepancy between Section 2.18.2 and the terms of a Mitigation Agreement, the terms of the Mitigation Agreement will prevail.
- 2.18.4. Mitigation Data Requirements. Mitigation required under Section 2.18.2 must address the following:
  - 2.18.4.1. Before rotor blades are installed within the Project, and continuing throughout the life of the Project until the point of decommissioning where all rotor blades are removed, 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,
  - 2.18.4.2. If requested by the NOAA IOOS Office, 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.
- 2.18.5. Additional Notification and Mitigation.
  - 2.18.5.1. If at any time the NOAA IOOS Office or a HF-radar operator informs the Lessee that the Project will cause a HF-radar system to fall outside of its operational parameters or fail to meet mission objectives, the Lessee must notify BOEM of the determination and propose new or modified mitigation pursuant to Section 2.18.5.2 as soon as possible and no later than 30 days from the date on which the determination was communicated.
  - 2.18.5.2. If a mitigation measure other than that identified in Section 2.18.2 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.

2.19. Critical Safety Systems (Planning) (Construction). Lessee must provide to BSEE qualified third-party verification of (1) the identification of, (2) proper installation, and (3) commissioning of all critical safety systems and equipment designed to prevent or ameliorate major accidents that could result in harm to health, safety, or the environment (hereinafter “critical safety systems”). The documentation provided to BSEE must demonstrate that the qualified third party verified that the critical safety systems were identified based on a standardized risk assessment methodology, 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 2.19.4.

2.19.1. 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.

2.19.2. Identification of Critical Safety Systems and Equipment Risk Assessment. The Lessee must conduct a risk assessment to identify the critical safety systems and equipment within its facility, including the WTG, tower and each OSS. The Lessee must submit the risk assessment 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 information necessary for a qualified third party to make a recommendation to BSEE on the acceptability of the risk assessment and its associated conclusions. The Lessee must address BSEE’s comments to BSEE’s satisfaction before BSEE completes its review of the associated FDR under 30 C.F.R. § 285.700.

2.19.3. 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 aforementioned 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 of the commissioning of the critical safety systems and equipment of 5 percent of the WTG, including at least one WTG in the first array string, and of each OSS. The Lessee must arrange for a qualified third party, at a minimum, to verify that:

- 2.19.3.1. The installation procedures and/or commissioning instructions supplied by the manufacturer and identified in the Project's functional requirements are adequate.
- 2.19.3.2. The Lessee is following the instructions supplied by the manufacturer and identified in the Project's functional requirements during commissioning.
- 2.19.3.3. The systems and equipment function as designed.
- 2.19.3.4. The final commissioning records are complete.
- 2.19.4. 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 2.20.2. Once the commissioning of the critical safety systems and equipment has been completed for the first WTG, Lessee must, at weekly intervals, submit the surveillance records or Conformity Statement and supporting documentation for WTGs which have been verified by a qualified third party within the previous week. If BSEE has not responded to the surveillance records or Conformity Statement and supporting documentation submitted by the qualified third party within five business days, then the Lessee may presume concurrence and keep operating. If the surveillance records or Conformity Statement and supporting documentation are not submitted within a week of third-party verification of the commissioning, the WTG is not allowed to continue operating.
- 2.20. Engineering Drawings (Construction) (Operations) (Decommissioning). The Lessee must compile, retain, and make available to BSEE the drawings and documents specified in Table 2.20-1.

<b>Table 2.20-1</b>			
<b>Drawing Type</b>	<b>Time Frame to Make Available “Issued for Construction” Drawings</b>	<b>Time Frame to Make Available Post-Fabrication Drawings</b>	<b>Deadline to Make Available Final, As-Built Drawings</b>
Complete set of structural drawing(s), including major structural components and evacuation routes <sup>5</sup>	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	Within 1 calendar year of the completion of commissioning activities.
Front, side, and plan view drawings <sup>6</sup>	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	N/A
Location plat for all Project facilities <sup>7</sup>	With FDR submittal. Drawings must be reviewed and stamped by a registered professional land surveyor.	N/A	Within 1 calendar year of the completion of commissioning activities. 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 Final FIR review, as contemplated in 30 C.F.R. § 285.700(b) <sup>8</sup>	Within 90 days of the completion of commissioning activities.
Proposed Anchoring Plat as required by Section 5.6.2 and 7.2	120 days before anchoring activities. Drawings must be reviewed and stamped by a professional land surveyor	N/A	N/A
As-placed Anchor Plats for all anchoring activities	N/A	N/A	90 days upon completion of an activity or construction of a major facility component. Drawings must be reviewed and stamped by a professional land surveyor
Piping and instrumentation diagram(s)	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	Within 90 days of the completion of commissioning.
Safety diagram(s) <sup>9</sup>	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	Within 90 days of the completion of commissioning activities.
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	Within 90 days of the completion of commissioning activities.
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	Within 90 days of the completion of commissioning activities.

<b>Table 2.20-1</b>			
<b>Drawing Type</b>	<b>Time Frame to Make Available “Issued for Construction” Drawings</b>	<b>Time Frame to Make Available Post-Fabrication Drawings</b>	<b>Deadline to Make Available Final, As-Built Drawings</b>
Area classification diagrams	With FDR Submittal.	N/A	Within 90 days of the completion of commissioning activities.

- 2.20.1. Engineering drawings, as outlined in Table 2.20-1, and the associated engineering report(s) must be reviewed and stamped by a licensed professional engineer or a professional land surveyor. For modified systems, only the modifications are required to be reviewed and 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.
- 2.20.2. The Lessee must certify in an accompanying letter that the as-built design documents have been reviewed for compliance with applicable FDR/FIR, do not make material changes from the stamped issued for construction drawings, and accurately represent the as installed facility. The drawings must be clearly marked “as-built.”
- 2.20.3. The Lessee must ensure that the engineer of record submits a stamped report showing that the as-built design documents have been reviewed and do not make material changes from the issued for construction (IFC) drawings and accurately represent the as-installed facility. The Lessee must also ensure that the engineer of record 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.
- 2.20.4. As-Placed Anchor Plats. The Lessee must provide as-placed anchor plats to BOEM and BSEE within 90 days of completion of an activity or construction of a major facility component (e.g., buoys; export cable installation; WTG or OSS installation, and, inter array cable installation) to demonstrate that seabed-disturbing activities complied with avoidance requirements for seabed features and hazards, archaeological resources,

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<sup>5</sup> As required by 30 C.F.R. § 285.701(a)(4). This is applicable to the WTGs and OSSs.

<sup>6</sup> As required by 30 C.F.R. § 285.701(a)(3). This is applicable to the WTGs and OSSs.

<sup>7</sup> As required by 30 C.F.R. § 250(a)(2). This is applicable for all installed assets on the OCS, including scour protection, cables, WTGs, OSSs.

<sup>8</sup> As-installed location must be submitted with the final FIR.

<sup>9</sup> 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.

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 seabed for all seabed disturbing activities. The plats must be at a scale of 1 inch = 1,000 feet (300 meters) with DGPS accuracy.

2.21. Construction Status. On at least a monthly basis, the Lessee must provide BSEE, BOEM, and 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).

2.22. Maintenance Schedule. On a monthly basis, the Lessee must provide BSEE with its maintenance schedule for any planned WTG or OSS maintenance.

### **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. No sooner than 365 days and no less than 60 days before installation, the Lessee must file an application (form CG-2554), either in paper form or electronically, with the Commander of the Fifth Coast Guard District to establish PATONs, as provided in 33 C.F.R. part 66. The application should consider the requirements of section 5.3.2. United States Coast Guard (USCG) approval of the application must be obtained before the Lessee begins installation of the facilities. The PATON must be included with the lighting, marking, and signaling plan and design specifications for maritime navigation lighting. The Lessee must:

- 3.1.1.1. Provide a lighting, marking, and signaling plan for review and concurrence by BOEM, BSEE, and USCG at least 120 days before installation. The plan must broadly conform to applicable Federal law and regulations, and to guidelines, e.g., International Association of Marine Aids to Navigation and Lighthouse Authorities Recommendation G1162, The Marking of Man-Made Offshore Structures; USCG's Local Notice to Mariners (D5 LNM: 14/23) or 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. Provide signage that is visible to mariners in a 360-degree arc around the structures to warn vessels of the vertical blade-tip clearance, as determined at highest astronomical tide.
  - 3.1.1.3. Submit as-built cable route, OSS, and WTG locations to USCG and NOAA, consistent with Section 2.21, to facilitate government-produced and commercially available navigation aids.
  - 3.1.1.4. Provide mariner information, such as location and PATON details, on the Lessee's website within 90 days of installing any WTG and OSS component.
  - 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.
- 3.1.2. **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 immediately initiate the shutdown of any WTGs upon emergency order of the Department of Defense (DoD) or USCG. The Lessee must initiate braking and shut down of each WTG 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 with the Project's annual inspection results.
  - 3.1.2.3. The Lessee must work with 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 not adjust approved structure locations in a way that narrows any linear rows and columns oriented both northwest-southeast and northeast-southwest to less than 0.6 nautical miles, nor to a layout which 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 2.20.
- 3.2. Installation Conditions (Planning) (Construction).
- 3.2.1. Installation Schedule. Not less than 60 days prior to commencing offshore construction activities, but as early as possible, the Lessee must provide BSEE and 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. No WTG or OSS installation work may begin at the Project site (i.e., on or under the water) without prior review by DOI and USCG of the plan required under this provision. The Lessee must submit any significant revisions or updates to the plan at least 60 days before commencing the activities described in that update or revision. Appropriate Notice to Mariners submissions must accompany the plan and its revisions.

- 3.2.2. Design Modifications. Any changes or modification in the design of the Lease Area that may impact navigation safety (including, but not limited to a change in number, size, or location of WTGs, or change in construction materials or construction method) requires written approval by BSEE.
  - 3.2.3. Cable Burial. A detailed submarine cable system burial plan must be submitted to USCG and BSEE for BSEE review no later than the relevant FDR/FIR submittal. No later than 60 days after post-cable installation of all cable lines (export, interconnector, and array), the Lessee must submit to BSEE, BOEM, and USCG a copy of the final submarine cable system route positioning list that depicts the precise location and burial depths of the entire cable system.
- 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. § 285. The monthly report must be submitted via TIMSWeb.
  - 3.3.2. Correspondence. On a monthly basis, the Lessee must provide BSEE, BOEM, and 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 at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov).
- 3.4. Meeting Attendance (Planning) (Construction) (Operations). As requested by BSEE, BOEM, and 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) (Operation). 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, which occur 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 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. Distributed Fiber-Optic Sensing Technology. (Planning) (Construction) (Operation). To mitigate potential impacts on the Department of the Navy’s (DON’s) operations, the Lessee must coordinate with the DoD/DON on any proposal to use distributed fiber-optic sensing technology as part of the Project or associated transmission cables. The DON point-of-contact for coordination is Matthew Senska: [matthew.senska@navy.mil](mailto:matthew.senska@navy.mil); 571-970-8400.
- 4.3. Electromagnetic Emissions. (Planning) (Construction) (Operation). 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 with a copy of the agreement within 15 days of entering into it.

The Lessee must include a summary of associated activities in the Lessee's annual self-inspection reports.

## 5. PROTECTED SPECIES<sup>10</sup> AND HABITAT CONDITIONS

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

5.1.1. Aircraft Detection Lighting System (Construction) (Operations). The Lessee must use a Federal Aviation Administration (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](mailto:renewable_reporting@boem.gov)) and BSEE (via TIMSWeb with a notification email sent to [oswsubmittals@bsee.gov](mailto:oswsubmittals@bsee.gov)), the information about an FAA-approved vendor for ADLS on WTGs and the OSS at the time the relevant FIR is submitted.

### 5.1.2. Marine Debris<sup>11</sup> Awareness and Elimination (Planning) (Construction) (Operations) (Decommissioning).

5.1.2.1. The Lessee must submit required documents related to marine debris awareness training 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](mailto: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, and an explanation from management personnel that emphasizes their commitment to the requirements; and (2) documented certification that all personnel

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<sup>10</sup> 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 Marine Mammal Protection Act (MMPA).

<sup>11</sup> 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.

listed above have completed their initial and annual training. This certification made available for inspection by BSEE 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 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 that are likely to snag or damage fishing devices or be lost or discarded overboard, must be clearly marked with the vessel or facility identification number, and 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 trash or debris in the marine environment is prohibited. Debris that is accidentally released by the Lessee in 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 is located 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 released marine debris was immediately recovered. If the marine debris was not recovered, the Lessee must provide their 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 are 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, BSEE may require 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 of receiving BSEE's request. The Plan must explain how the Lessee plans to recover the marine debris and the proposed recovery schedule. Recovery of the marine debris should be completed as soon as practicable, but must be completed no later than 30 days from the date on which the marine debris was released.
- 5.1.2.7.2. Unless BSEE objects within 48 hours of the Lessee filing the Recovery Plan, the Lessee may proceed with the activities described in the Recovery Plan. The Lessee must request and obtain a time extension if recovery activities cannot be completed within 30 days from the date on which marine debris was released.
- 5.1.2.7.3. Recovery Completion Notification. 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 were 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:
- a. Project identification and contact information for the Lessee and for any operators or contractors involved
  - b. The date and time of the incident
  - c. The lease number, OCS area and block, and coordinates of the object's location (latitude and longitude in decimal degrees)
  - d. A detailed description of the dropped object, including dimensions (approximate length, width, height, and weight) and composition (e.g., plastic, aluminum, steel, wood, or paper)

- e. Pictures, data imagery, data streams, and/or a schematic/illustration of the object, if available
- f. An indication of whether the lost or discarded item could be detected as a magnetic anomaly of greater than 50 nanotesla, a seabed 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 consistent with DOI's most recent, applicable guidance
- g. An explanation of how the object was lost
- h. 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 (Operations). The Lessee must monitor indirect impacts associated with charter and recreational fishing gear lost from expected increases in fishing around WTG foundations by surveying at least 10 of the WTGs located closest to shore in the Lease Area annually. Survey design and effort (i.e., the number of WTGs and frequency of reporting) may be modified; any modification must be reviewed and concurred in 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](mailto: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 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](mailto:marinedebris@bsee.gov) if unable to upload in TIMSWeb.

- 5.1.2.9.1. Annual reports must include a summary of survey reports that include results, including: the survey date; contact information of the operator; the 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 Ørsted's corporate gear loss compensation policy and procedures. Required data and reports may be archived,

analyzed, published, and disseminated by BOEM and BSEE.

- 5.1.2.10. Site Clearance and Decommissioning. The Lessee must include and address 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. ESA-Listed Plant Conditions.**

- 5.2.1. The Lessee must submit all required documents related to the ESA-listed plant conditions in Section 5.2.2 through 5.2.4 to: BOEM at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov); BSEE via TIMSWeb with a notification email at [protectedspecies@bsee.gov](mailto:protectedspecies@bsee.gov); and USFWS at [Wendy\\_Walsh@fws.gov](mailto:Wendy_Walsh@fws.gov). The Lessee must confirm the relevant point of contact before submitting the report and must also confirm the agencies' receipt of the report.
- 5.2.2. American Chaffseed (Planning). The Lessee must retain a USFWS qualified surveyor to conduct a survey of all suitable American chaffseed habitats between June 1 and August 15 that will be subject to temporary disturbance or permanent modification as a result of Project activities, both during construction and from post-construction O&M activities, including areas crossed by HDD. Survey areas must not be mowed for at least one month prior to the survey, and the survey must cover all areas of suitable habitat, not just transects. The Lessee must submit the survey area(s), timing, methods, and qualifications of the surveyor(s) for BOEM, USACE, and USFWS approval before starting the survey. A survey report, including maps and associated spatial files in an ESRI ArcGIS/ArcPro compatible format, must be provided to BOEM, USACE, and USFWS for review no later than 30 days after the survey has been completed. BOEM, USACE and USFWS will complete their reviews and identify any deficiencies that require a report revision by the Lessee within 30 days of receipt of the survey report. If any American chaffseed is found during the survey, the surveyor must document the distribution and abundance of plants and submit both the full survey report and a completed Natural Heritage Rare Plant Species Reporting Form to BOEM, USACE, USFWS, and the New Jersey Natural Heritage Program. If American chaffseed is present in or adjacent to Project activities, the Lessee must coordinate with USFWS to develop appropriate conservation measures that the Lessee is required to implement to avoid adverse effects to this species.
- 5.2.3. Swamp Pink (Planning). If the Lessee elects to construct an Oyster Creek onshore cable route option other than the Holtec property route, the Lessee must adhere to all applicable laws and obtain all necessary permits. The Lessee must retain a USFWS qualified surveyor to conduct a survey between late fall and early spring and consistent with USFWS

swamp pink survey guidelines of all suitable habitats (i.e., forested wetlands) that will be subject to temporary disturbance or permanent modification as a result of Project activities, both during construction and from post-construction O&M activities, including areas crossed by HDD. The survey area must also include all forested wetlands within 300 feet of upland disturbance. The Lessee must submit the survey area(s), timing, methods, and qualifications of the surveyor(s) for BOEM, USACE and USFWS approval prior to the start of the survey. A survey report, including maps and associated spatial files in an ESRI ArcMap/ArcPro compatible format, must be provided to BOEM, USACE, and USFWS for review no later than 30 days after the survey has been completed. BOEM, USACE, and USFWS will complete their reviews and identify any deficiencies that require a report revision by the Lessee within 30 days of receipt of the survey report. If any swamp pink is found during the survey, the surveyor must document the distribution and abundance of plants and submit both the full survey report and a completed Natural Heritage Rare Plant Species Reporting Form ([https://www.nj.gov/dep/parksandforests/natural/docs/NHRPSR\\_Form.pdf](https://www.nj.gov/dep/parksandforests/natural/docs/NHRPSR_Form.pdf)) to BOEM, USACE, USFWS and the New Jersey Natural Heritage Program. If swamp pink is present in or adjacent to Project activities, the Lessee must coordinate with USFWS to develop appropriate conservation measures that the Lessee is required to implement to avoid adverse effects to this species.

- 5.2.4. Knieskern's Beaked Rush (Planning). If the Lessee elects to construct an Oyster Creek onshore cable route option other than the Holtec property route, the Lessee must adhere to all applicable laws and obtain all necessary permits. The Lessee must retain a USFWS qualified surveyor to conduct a survey between July and September and consistent with USFWS Knieskern's beaked-rush survey guidelines of all suitable habitats that will be subject to temporary disturbance or permanent modification as a result of Project activities, both during construction and from post-construction O&M activities, including areas crossed by HDD. USFWS requires that survey areas not be mowed for at least one month before the survey. The Lessee must submit the survey area(s), timing, methods, and qualifications of the surveyor(s) for BOEM, USACE and USFWS approval before starting the survey. A survey report, including maps and associated spatial files in an ESRI ArcGIS/ArcPro compatible format, must be provided to BOEM, USACE and USFWS for review no later than 30 days after the survey has been completed. BOEM, USACE and USFWS will complete their reviews and identify any deficiencies that require a report revision by the Lessee within 30 days of receipt of the survey report. If any Knieskern's beaked-rush is found during the survey, the surveyor must document the distribution and abundance of plants and submit both the full survey report and a completed Natural Heritage Rare Plant Species Reporting Form to BOEM, USACE, USFWS, and the New Jersey Natural Heritage

Program. If Knieskern's beaked-rush is present in or adjacent to Project activities, the Lessee must coordinate with USFWS to develop appropriate conservation measures that the Lessee is required to implement to avoid adverse effects to this species.

### 5.3. Avian and Bat Protection Conditions.

- 5.3.1. The Lessee must submit all required documents related to avian and bat protection conditions in Sections 5.3.2 through Section 5.3.10 to: BOEM at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov); BSEE at [protectedspecies@bsee.gov](mailto:protectedspecies@bsee.gov) for a notification email and TIMSWeb; USFWS at [wendy\\_walsh@fws.gov](mailto:wendy_walsh@fws.gov); and NJDEP at [njfishandwildlife@dep.nj.gov](mailto:njfishandwildlife@dep.nj.gov). The Lessee must confirm the relevant point of contact before submitting the report and must also confirm that the agencies have received the report.
- 5.3.2. Bird-Deterrent Devices and Plan (Construction) (Operations). 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 roseate terns and other marine birds for BOEM, BSEE, and USFWS approval. 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 best available science regarding the effectiveness of perching-deterrent devices on 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 FIR. The Bird Perching Deterrent Plan must be approved before the Lessee may commence installation of any WTGs or OSSs. The Lessee must also provide the location and type of bird-deterrent devices as part of the as-built submittals to BSEE.
- 5.3.3. Navigation Lighting Upward Illumination Minimization (Planning) (Construction) (Operations). 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).
- 5.3.4. Avian and Bat Monitoring Program (Construction) (Operations). The Lessee must develop and implement an Avian and Bat Post-Construction Monitoring Plan based on COP Appendix III, Appendix AB Avian and Bat Post-Construction Monitoring Framework, in coordination with

USFWS, New Jersey Department of Environmental Protection (NJDEP), and other relevant regulatory agencies. 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. BSEE, BOEM, 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, BSEE, and USFWS's satisfaction before implementing the plan and before commissioning the first WTG. The Lessee may conclude that BOEM and BSEE have concurred in the Avian and Bat Post-Construction Monitoring Plan if BOEM and BSEE provide no comments on the plan within 60 days of its submittal date.

- 5.3.4.1. Monitoring. The Lessee must conduct monitoring, as outlined in the COP Appendix III, Appendix AB Avian and Bat Post-Construction Monitoring Framework (March 24, 2023), which will include the use of radio-tags to monitor movement of ESA-listed birds in the vicinity of the Project. The plan will include an initial monitoring phase involving deployment of Motus Wildlife Tracking System (Motus) radio tags on listed birds in conjunction with installation and operation of Motus receiving stations in the Lease Area following offshore Motus recommendations. The initial phase may also include deployment of satellite-based tracking technologies (e.g., GPS or Argos tags).
- 5.3.4.2. 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 last avian survey. The report must include all data, analyses, and summaries regarding ESA-listed and non-ESA-listed birds and bats.
- 5.3.4.3. Post-Construction Quarterly Progress Reports. During the first full year that the Project is operational, the Lessee must submit quarterly progress reports during 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.
- 5.3.4.4. Monitoring Plan Revisions. Within 15 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 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 will be required to modify the Avian and Bat Post-Construction Monitoring Plan. If the reported monitoring results deviate substantially from the impact analysis included in the FEIS,<sup>12</sup> the Lessee must transmit to BOEM, BSEE, and USFWS recommendations for new mitigation measures and/or monitoring methods.

- 5.3.4.5. Operational Reporting (Operations). 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 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.
- 5.3.4.6. Raw Data. The Lessee must store the raw data from all avian and bat surveys and monitoring activities according to 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) will be stored, managed, and made available to BOEM and USFWS following the protocols and procedures outlined in the agency document entitled Guidance for Coordination of Data from Avian Tracking Studies, or its successor.
- 5.3.5. Annual Bird/Bat Mortality Reporting (Construction) (Operations) (Decommissioning). The Lessee must submit an annual report 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 be submitted to BOEM, BSEE, and USFWS. The report must contain the following information: the name of species, date found, location, a picture 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.<sup>13</sup>
- 5.3.6. Immediate Reporting (Construction) (Operations) (Decommissioning). Any occurrence of dead or injured ESA birds or bats must be reported to

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<sup>12</sup><https://www.boem.gov/renewable-energy/state-activities/ocean-wind-1-final-environmental-impact-statement-feis-commercial>

<sup>13</sup> <https://www.usgs.gov/centers/eesc/science/bird-banding-laboratory>

BOEM, BSEE, and USFWS<sup>14</sup> 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 any necessary wildlife permits and compliance with the Lessee's health and safety standards (see Monitoring Requirements in USFWS BiOp).

5.3.7. Collision Minimization (Planning) (Construction) (Operations). Within 5 years of the start of WTG operation 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 worldwide and include both offshore and onshore WTGs. BOEM's Collision Minimization Report, prepared consistent with Term and Condition 2 of the USFWS BiOp, will be provided to the Lessee, USFWS, NJDEP and the New Jersey Board of Public Utilities (NJBPU) for a 60-day review period. Within 60 days of BOEM's issuance of the final Collision Minimization Report, the Lessee must participate in a meeting with BOEM, BSEE, and USFWS. Meeting participants will discuss the Collision Minimization Report and seek consensus on: (1) whether implementation of any technologies/methods is reasonable and prudent,<sup>15</sup> (2) a timeframe in which any required collision minimization measure(s) must be implemented, and (3) requirements to monitor, maintain, or adapt the minimization measure(s) over time. will make the final determination of whether any minimization measures are reasonable and prudent (i.e., necessary or appropriate to minimize the amount or extent of incidental take), after considering input from BOEM, the Lessee, the NJDEP, and the NJBPU.

5.3.7.1. The Lessee must submit an annual report covering each calendar year, due by January 31, documenting the implementation of any minimization measure(s) during the preceding year. The report must be submitted to BOEM, BSEE, and USFWS.

5.3.8. Compensatory Mitigation for Piping Plover, Red Knot, and Roseate Tern (Planning) (Construction) (Operations). At a minimum, the Compensatory Mitigation Plan must provide compensatory mitigation actions to offset projected levels of take of listed birds for the first 5 years of WTG operation at a ratio of 1:1. At its discretion, the Lessee

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<sup>14</sup> Report must be submitted to: Senior Resident Agent, U.S. Fish and Wildlife Service, Division of Law Enforcement, Sea Land Building, 2<sup>nd</sup> Floor, 1210 Corbin Street, Elizabeth, New Jersey, 07201, 973-645-5910 consistent with the FWS 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.

<sup>15</sup> The terms reasonable and prudent are defined by ESA (i.e., necessary or appropriate to minimize the amount or extent of incidental take).

may include actions to offset projected take over a longer time period and/or at a higher ratio.

- 5.3.8.1. The Compensatory Mitigation Plan for Piping Plover, Red Knot, and Roseate Tern must include: a) detailed description of one or more specific mitigation actions; b) the specific location for each action; c) a timeline for completion; d) itemized costs for implementing the mitigation actions; e) a list of permits, approvals, and permissions needed for implementing the mitigation actions; f) details of the mitigation mechanisms (e.g., mitigation agreement, applicant-proposed mitigation); g) best available science linking the compensatory mitigation actions to the projected level of collision mortality, as described in the USFWS BiOp; h) a schedule for completion of the mitigation actions; and i) monitoring to ensure the effectiveness of the mitigation actions in offsetting the target level of take.
- 5.3.8.2. Plan development and implementation must occur according to the following schedule:
  - a) At least 180 days prior to the start of the commissioning of the first WTG, the Lessee must distribute a draft Compensatory Mitigation Plan to BOEM, BSEE, USFWS, NJDEP, and other stakeholders or interested parties identified by the Lessee and confirmed by BOEM, BSEE, USFWS, and NJDEP for a 60-day review period.
  - b) At least 90 days before the start of WTG operation, the Lessee must transmit a revised Compensatory Mitigation Plan for approval by BOEM and the USFWS, along with a record of comments received on the draft. The Lessee must rectify any outstanding agency comments or concerns before BOEM and USFWS make a final decision about whether to approve the Plan.
  - c) Before or concurrent with commissioning of the first WTG, the Lessee must provide documentation to BOEM and USFWS showing the Lessee's financial, legal, or other binding commitment(s) for implementing the Compensatory Mitigation Plan.
  - d) The Lessee must prepare and implement a new Compensatory Mitigation Plan every 5 years for the life of the Project, according to a schedule developed by BOEM and approved by USFWS. Compensatory mitigation actions included in each new Compensatory Mitigation Plan must reflect: a) the level and effectiveness of mitigation previously provided by the Lessee; b) the level of take over the next 5 years, as projected

by SCRAM (or its successor) (see Conservation Measure 4 in the USFWS BiOp); c) current information regarding any effects of offshore lighting (see Conservation Measure 2 in the USFWS BiOp); and d) the effectiveness of any minimization measures that have been implemented as required by the reasonable and prudent measures included in the USFWS BiOp.

- 5.3.9. Eastern Black Rail and Saltmarsh Sparrow Assessment (Planning). If the Lessee elects to construct an Oyster Creek onshore cable route option other than the Holtec property route, the Lessee must notify BOEM, USFWS, and NJDEP. The Lessee must retain a species expert to conduct a desktop and field assessment for the purposes of mapping suitable eastern black rail and saltmarsh sparrow habitat within the limits of disturbance. The Lessee must provide the assessment, mapping, and associated spatial files in an ESRI ArcMap/ArcPro compatible format, and qualifications of the expert, to BOEM and USFWS for review no later than 30 days after the assessment has been completed. BOEM and USFWS will complete their reviews and identify any deficiencies that require a report revision by the Lessee within 30 days of receipt of the assessment. If areas of suitable eastern black rail and/or saltmarsh sparrow habitat will be impacted by Project activities, the Lessee must coordinate with USFWS to develop appropriate conservation measures that the Lessee must implement to avoid adverse effects to these species. Conservation measures must include seasonal restriction of construction activities and other Project-related intrusions into areas of suitable habitat from April 1 through September 30 (April 1 through September 30 for eastern black rail and May 1 to September 30 for saltmarsh sparrow) to minimize the risk of directly disturbing or injuring adults, eggs, or chicks during sensitive periods of the breeding season.
- 5.3.10. Bat Surveys (Planning). If the Lessee elects to construct an Oyster Creek onshore cable route option other than the Holtec route, the Lessee must notify BOEM, USFWS, and NJDEP. After this notification to BOEM, USFWS, and NJDEP, the Lessee must retain the services of a USFWS Recognized and Qualified Bat Surveyor to conduct acoustic surveys along the proposed route. The Lessee must provide a survey report, including maps and associated spatial files in an ESRI ArcGIS/ArcPro compatible format, to BOEM and USFWS for a 30-day review no later than 30 days after the survey has been completed. The Lessee must resolve any deficiencies that require a report revision to BOEM and USFWS's satisfaction prior to commencing onshore construction activities.

5.4. Benthic Habitat and Fisheries Monitoring Conditions (Planning) (Construction) (Operations).

- 5.4.1. The Lessee must submit all required documents related to benthic habitat and fisheries monitoring conditions in Section 5.4.2 through Section 5.4.5 (e.g., benthic and fisheries monitoring plans) to BOEM at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov) and to BSEE with status updates of those reports in the Annual Certification<sup>16</sup> for reporting in TIMSWeb.
- 5.4.2. Benthic Monitoring Plan. The Lessee must conduct benthic monitoring according to the *Ocean Wind Offshore Wind Farm Benthic Monitoring Plan* (BMP) to assess benthic habitats in the Project area pre-, during, and post- construction. The Lessee must review all NMFS GARFO comments on the BMP that BOEM provides to the Lessee and revise the BMP, as appropriate. The Lessee must resolve all comments on the BMP to BOEM's and BSEE's satisfaction prior to implementation of the revised BMP.
- 5.4.3. The Lessee must submit to BOEM and BSEE a survey report 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.
- 5.4.4. Benthic Supplemental MBES Monitoring Plan (Planning) (Construction) (Operations). If any of the WTGs A09, B09, C09, D09, or D10 will be constructed, the Lessee must submit and implement the Lessee's Supplemental Multibeam Backscatter (MBES) Monitoring Plan, which is a component of the Project's Benthic Monitoring Plan designed to detect physical changes – such as depth, hardness, rugosity, slope, and other morphometrics – to the sand ridge and trough benthic habitat through the regular collection of acoustic data. The Supplemental MBES Monitoring Plan must include the following components:
  - 5.4.4.1. MBES surveys within region of the Lease Area where sand ridges exist, with an appropriate control survey in similar habitat.
  - 5.4.4.2. Post-construction MBES surveys must occur at T<sub>0.5</sub> (6 months), T<sub>1</sub>, T<sub>2</sub>, and T<sub>5</sub>. Post-construction timing is defined as: time zero (t<sub>0</sub>) is the day of commissioning; t<sub>1</sub> is one year after commissioning, etc. If the Project is constructed such that there are multiple t<sub>0</sub>s, each t<sub>0</sub> must be factored into the survey design.
  - 5.4.4.3. After the Year 5 (T<sub>5</sub>) post-construction survey, MBES surveys will be conducted every 3 years thereafter for the life of the project, as

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<sup>16</sup> 30 C.F.R. § 285.633(a) requires certification of compliance annually with certain terms and conditions of your COP, hereinafter referred to as “Annual Certification.”

well as within 180 days of a major storm event. If Project phasing results in multiple  $t_0$ s, this condition will apply to each  $t_0$ .

5.4.4.4. At least 120 days before construction of WTGs A09, B09, C09, D09, or D10, the Lessee must submit the Plan to BOEM and BSEE for a 60-day review. BOEM and BSEE will submit the Plan to NMFS GARFO for a concurrent review. The Lessee must resolve all comments on the Supplemental MBES Survey Plan to BOEM's and BSEE's satisfaction prior to implementation of the Plan.

5.4.4.5. Within 90 days after the  $T_{0.5}$  survey and any major storm event survey, and within 90 days of the completion of each year of sampling ( $T_1$ ,  $T_2$ ,  $T_5$ , and every three years thereafter), the Lessee must submit a report on its findings to BOEM and BSEE. BOEM and BSEE will coordinate submission of the report to NMFS GARFO. If Project phasing results in multiple  $t_0$ s, this condition will apply to each  $t_0$ . The Lessee must share data consistent with its data sharing plan and upon BOEM's or BSEE's request.

5.4.5. Fisheries Monitoring Plan (Planning) (Construction) (Operations). The Lessee must conduct fisheries monitoring according to the *Ocean Wind Offshore Wind Farm Fisheries Monitoring Plan (FMP)* to assess fisheries status in the Project area pre-, during, and post- construction. The Lessee must review all NMFS GARFO comments on the FMP and revise the FMP, as appropriate. The Lessee must resolve all comments on the FMP to BOEM's and BSEE's satisfaction prior to implementation of the revised FMP. 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.

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

5.5.1. The Lessee must submit all required documents related to protected species conditions in Section 5.5.2 through Section 5.5.11 (e.g., passive acoustic monitoring, pile driving monitoring and plans, UXO/MEC detonation and monitoring, Sound Field Verification (SFV), cofferdam installation and monitoring, and vessel strike) to: BOEM at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov); BSEE via TIMSWeb with a notification email sent to BSEE at [protectedspecies@bsee.gov](mailto:protectedspecies@bsee.gov); NMFS GARFO at [nmfs.gar.incidental-take@noaa.gov](mailto:nmfs.gar.incidental-take@noaa.gov); and USACE at [napregulatory@usace.army.mil](mailto:napregulatory@usace.army.mil).

5.5.2. Passive Acoustic Monitoring (PAM) During Construction (Planning) (Construction). The Lessee must conduct PAM to supplement visual monitoring of marine mammals for all monopile and pin pile

installations, as well as before, during, and after all UXO/MEC detonations.

5.5.3. UXO/MEC PAM Plan. The Lessee must prepare a UXO/MEC PAM Plan that describes all proposed equipment, deployment locations, detection review methodology, and other procedures and protocols related to the use of PAM to supplement visual monitoring during UXO/MEC detonation. The Lessee must submit this plan to NMFS GARFO, BOEM, and BSEE for review and BOEM's concurrence at least 180 days before the planned start of UXO/MEC activities requiring PAM. The UXO/MEC PAM Plan must incorporate the list of requirements as described in Section 5.5.4.

5.5.4. Pile Driving PAM Plan. The Lessee must submit a Pile Driving PAM Plan to BOEM, BSEE, and NMFS GARFO at least 180 days before impact pile driving is planned. BOEM, BSEE, and NMFS will review the PAM plan and provide comments to the Lessee within 45 days of receipt of the plan. Under the terms of the NMFS BiOp, BOEM, BSEE, and the Lessee must obtain NMFS GARFO's concurrence with this plan 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 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. The Plan must include a description of all proposed PAM equipment, address 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 all proposed PAM equipment, procedures, and protocols including information to support that it will be able to detect vocalizing right whales within the clearance and shutdown zones. The plan must also incorporate the following requirements: If a North Atlantic right whale (NARW) is detected via real-time PAM, data must be submitted by the Lessee to NMFS at [nmfs.pacmdata@noaa.gov](mailto:nmfs.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.pacmdata@noaa.gov](mailto:nmfs.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 ([A-47](https://www.fisheries.noaa.gov/resource/document/passive-acoustic-</a></p></div><div data-bbox=)

[reporting-system-templates](#)). The Lessee must submit the completed data templates to NMFS at [nmfs.pacmdata@noaa.gov](mailto: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. BOEM and BSEE will review the PAM Plan and provide comments to the Lessee, if any, on the plan within 45 days but no later than 90 days of its submittal. The Lessee must resolve all comments on the PAM Plan to BOEM, BSEE, and NMFS GARFO's satisfaction before implementation of the plan.

5.5.5. Long-term Passive Acoustic Monitoring (Construction) (Operations). The Lessee must conduct long-term monitoring of ambient noise, marine mammal, and marine fish vocalizations in the Lease Area before, during, and following construction. The Lessee must conduct continuous<sup>17</sup> recording at least 30 days before conducting pile driving, during foundation pile driving, initial operation, and for at least 3 full calendar years of operation to monitor for potential impacts. The Lessee must independently deploy at least three devices within the Lease Area to maximize spatial coverage of the Project area based on 10-kilometer spacing between deployment locations or as otherwise agreed between BOEM and the Lessee. The Lessee must coordinate the locations of the three buoys with the Regional Wildlife Science Collaborative prior to the plan being submitted to BOEM and BSEE. The Lessee may move devices to new locations during the recording period, if existing PAM devices will be present in the Lease Area providing continuous recording. The archival recorders must have a minimum capability of continuously detecting and storing acoustic data on vessel noise, pile-driving, WTG operation, baleen whale vocalizations, and marine fish vocalizations in the Lease Area.

5.5.5.1. Long-term Passive Acoustic Monitoring Plan. No later than 180 days before buoy deployment, the Lessee must submit to BOEM and BSEE the long-term PAM plan, which must describe all proposed equipment, deployment locations, detection review methodology, and other procedures and protocols related to the required use of PAM for monitoring. The PAM plan must detail mooring best practices, data management, storage, measurement, and data processing best practices that are required by BOEM for long-term PAM monitoring. Refer to Regional Wildlife Science Collaborative for Offshore Wind Data Management & Storage Best Practices for Long-term and Archival PAM Data. The Lessee should detail other best practices

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<sup>17</sup> 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.

consistent with COP approval in the plan. The long-term PAM Plan must include the proposed equipment, sample rate, mooring design, deployment locations, methods for baleen whale and marine fish detections, and metrics for ambient noise analysis. The Lessee must submit the long-term PAM plan to BOEM and BSEE for review and concurrence. BOEM and BSEE will review the long-term PAM Plan and provide comments, if any, on the plan to the Lessee within 45 days, but no later than 90 days of its submittal. The Lessee's plan must satisfy all outstanding comments to BOEM's and BSEE's satisfaction. The Lessee will receive written concurrence from BOEM and BSEE upon acceptance of the final long-term PAM plan. If BOEM and BSEE do not provide comments on the long-term PAM Plan within 90 days of its submittal, the Lessee may conclusively presume BOEM and BSEE's concurrence with the long-term PAM Plan. The Lessee must provide long-term PAM monitoring results to BOEM and BSEE within 180 days of buoy collection and again within 180 days of the annual anniversaries of each the PAM device deployments. The Lessee must send all raw data to NCEI for archiving no later than 6 months following the date of each recorder recovery.

5.5.5.2. Option to Contribute to BOEM's Environmental Studies Program. As an alternative to conducting long-term PAM in the Lease Area, the Lessee may opt to meet the monitoring requirement in Section 5.5.5 above through an annual deposit to BOEM's Environmental Studies Program in support of its Partnership for an Offshore Wind Energy Regional Observation Network (POWERON) initiative. Under this option, the Lessee will be expected to cooperate with the POWERON team to facilitate deployment and retrieval of instruments within the Lease Area. If necessary, the Lessee may request temporary withholding of the public release of acoustic data that has been collected within its Lease Area.

5.5.6. Marine Mammal and Sea Turtle Monitoring Plan for Pile Driving and UXO Detonation (Planning) (Construction). The Lessee must submit a Marine Mammal and Sea Turtle Monitoring Plan for Pile Driving and UXO Detonation to BOEM, BSEE, and NMFS GARFO at least 90 days before impact or vibratory pile driving or UXO detonation is planned. BOEM, BSEE, and NMFS GARFO will review the plan and provide comments within 45 days of receipt of the plan. NMFS GARFO'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 BiOp and its ITS. If the plan is determined 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 GARFO will discuss a timeline for review and approval of the modified plan. Under the terms

of the NMFS BiOp, the Lessee must obtain BOEM, BSEE, and NMFS GARFO's concurrence with this plan before starting any pile driving or carrying out any UXO detonation. The plan must include a description of all monitoring equipment and PSO protocols (including number and location of PSOs) for all pile driving and UXO detonations. 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 and UXO detonation. The plan must also 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.

- 5.5.7. Cofferdam Installation and Removal Monitoring Plan (Planning) (Construction). The Lessee must submit the Cofferdam Installation and Removal and Monitoring Plan to BOEM, BSEE, USACE, and NMFS GARFO at least 90 days before vibratory pile driving is planned to begin. NMFS GARFO'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 BiOp and its ITS. If the plan is determined 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. Under the terms of the NMFS BiOp, the Lessee must obtain BOEM, BSEE, USACE and NMFS GARFO's concurrence with this plan prior to the start of any pile driving or the start of any cofferdam installation or removal with a vibratory hammer. This plan must include a description of how BOEM, BSEE, and the Lessee will determine the number of whales exposed to noise above the Level B harassment threshold during pile installation and removal with the vibratory hammer. This plan may be stand-alone or a component of the Pile Driving and Marine Mammal and Sea Turtle Monitoring Plan.
- 5.5.8. Alternative Monitoring Plan/Nighttime Pile Driving Monitoring Plan (Planning) (Construction). The Lessee must submit the Alternative Monitoring/Nighttime Pile Driving Monitoring Plan to BOEM, BSEE, and NMFS GARFO at least 90 days before impact pile driving is planned to begin unless specified differently under the LOA. BOEM, BSEE, and NMFS will review the Alternative Monitoring/Nighttime Pile Driving Monitoring Plan and provide comments within 45 days of receipt of the plan. NMFS GARFO'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 BiOp and its ITS. If the plan is determined 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. Under the terms of the NMFS BiOp, the Lessee must obtain BOEM, BSEE, and NMFS GARFO's concurrence with this plan prior to the start of pile driving. This plan must contain a thorough description of how the Lessee plans to monitor pile driving activities at night, including proof of the efficacy of the Lessee's night vision devices (e.g., mounted thermal/IR camera systems, hand-held or wearable night vision devices, infrared (IR) spotlights) in detecting ESA listed marine mammals and sea turtles over the full extent of the required clearance and shutdown zones, including demonstration that the full extent of the minimum visibility zones (1,650 meters May-November, 2,500 meters December) can be effectively and reliably monitored. The Plan must identify the efficacy of the technology at detecting marine mammals and sea turtles in the clearance and shutdowns under all conditions anticipated during construction, including varying weather conditions, sea states, and various uses of artificial lighting. If the plan does not include a full description of the proposed technology, monitoring methodology, and data demonstrating to NMFS GARFO's satisfaction that marine mammals and sea turtles can reliably and effectively be detected within the clearance and shutdown zones for monopiles and pin piles before and during impact pile driving, nighttime pile driving by the Lessee (unless a pile was initiated 1.5 hours prior to civil sunset) must not occur.

- 5.5.9. Alternative Monitoring Plan/Daytime Reduced Visibility Pile Driving Monitoring Plan (Planning) (Construction). The Lessee must submit the Alternative Monitoring Plan/Daytime Reduced Visibility Pile Driving Monitoring Plan to BOEM, BSEE, and NMFS GARFO at least 90 days before impact pile driving is planned to begin. BOEM, BSEE, and NMFS will review the Alternative Monitoring Plan/Daytime Reduced Visibility Pile Driving 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, BSEE, and NMFS GARFO's concurrence with this plan prior to the start of pile driving. The plan must address monitoring during daytime when lighting or weather (e.g., fog, rain, sea state) conditions prevent visual monitoring of the full extent of the clearance and shutdown zones. For the purposes of this condition, daytime is defined as one hour after civil sunrise to 1.5 hours before civil sunset. The AMP must demonstrate (through empirical evidence) the capability of the proposed monitoring methodology to detect marine mammals and sea turtles within the full extent of the established clearance and shutdown zones (i.e., species can be detected at the same distances and with similar confidence) with the same effectiveness as daytime visual monitoring (i.e., same detection probability). 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.

5.5.10. SFV Plan (Planning) (Construction). The Lessee must submit the SFV Plan to BOEM, BSEE, and NMFS GARFO at least 180 days before impact pile driving or UXO detonation is planned to begin. BOEM, BSEE, and NMFS GARFO will review the plan and will provide comments within 45 days of receipt of the plan. NMFS GARFO'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 BiOp and its ITS. If the plan is determined 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. Under the terms of the NMFS BiOp, the Lessee must obtain BOEM, BSEE, and NMFS GARFO's concurrence with this plan prior to the start of pile driving or UXO detonation activities. The plan must describe how the Lessee will ensure that the first three monopile and pin pile installation sites and each UXO/MEC detonation site selected for SFV are representative of the rest of the monopile and pin pile installation and UXO/MEC sites. In the case that these sites are not determined to be representative of all other monopile and pin pile installation sites and UXO/MEC detonation locations, the Lessee must include information on how additional sites will be selected for SFV. The plan must also include methodology for collecting, analyzing, and preparing SFV data for submission to NMFS GARFO. The Lessee's plan must describe how the effectiveness of the sound attenuation methodology will be evaluated based on the results. The Lessee must also provide, as soon as they are available, but no later than 48 hours after each installation, the initial results of the SFV measurements to BOEM, BSEE, and NMFS GARFO in an interim report after each monopile for the first 3 piles and pin pile installation for the first full jacket foundation (16 pin piles). If any interim SFV report submitted for any of the first 3 monopiles indicates the sound fields exceed the modeled distances to any protected species injury or behavioral harassment/disturbance thresholds (as modeled assuming 10 decibel attenuation), the Lessee must carry out SFV for the next 3 monopiles and provide a SFV report to BOEM, BSEE, and NMFS GARFO within 48 hours after each foundation is installed. If any interim SFV report submitted for the first full jacket foundation indicates the sound fields exceed the modeled distances to any protected species injury or behavioral harassment/disturbance thresholds (as modeled assuming 10 decibel attenuation), the Lessee must carry out SFV for the next full jacket foundation (i.e., all 16 pin piles) and provide a SFV report to BOEM, BSEE, and NMFS GARFO within 48 hours after the foundation is installed. After the first 6 monopiles and/or the first two full jacket foundations, BOEM, BSEE, or NMFS GARFO may require the Lessee to carry out additional SFV and provide additional interim SFV reports to BOEM, BSEE, and NMFS GARFO if the measured

sound fields continue to exceed the modeled results. These requirements are in addition to the requirement for the Lessee to implement additional sound attenuation measures and/or adjustments to clearance and shutdown zones if sound fields exceed the modeled distances to any protected species injury or behavioral harassment/disturbance thresholds (as modeled assuming 10 decibel attenuation).

5.5.11. NARW Vessel Strike Avoidance Plan (Planning) (Construction). The Lessee must submit the NARW Vessel Strike Avoidance Plan to BOEM, BSEE, and NMFS GARFO at least 90 days prior to commencement of vessel use, with the exception of vessels deployed for the fisheries surveys. NMFS GARFO'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 BiOp and its ITS. If the plan is determined 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. The plan must provide details on the vessel-based observer protocols on transiting vessels. If the Lessee plans to implement the Alternative Plan for vessel strike avoidance (i.e., implement PAM in the Atlantic City to Lease Area transit lane to allow vessel transit above 10 knots from May 1 – October 31) 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 proposed MMPA ITA, unless and until the Plan is approved by NMFS Office of Protected Resources (OPR) and NMFS GARFO, all vessels transiting between the O&M facility and the Lease Area, year-round, must comply with the 10-knot speed restriction.

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

5.6.1. The Lessee must submit all required documents related to pre-seabed disturbance conditions in Section 5.6.1 through Section 5.6.6 (e.g., anchoring plan, as-placed anchor plats, micrositing plan, scour and cable protection, and post seabed disturbance) to: BOEM at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov), BSEE via TIMSWeb with a notification email sent to [oswsubmittals@bsee.gov](mailto:oswsubmittals@bsee.gov), and NMFS GARFO at [nmfs.gar.incidental-take@noaa.gov](mailto:nmfs.gar.incidental-take@noaa.gov).

5.6.2. Anchoring Plan. The Lessee must prepare and implement an Anchoring Plan for all areas where anchoring occurs during construction and operations/maintenance within 1,640 feet (500 meters) of habitats, resources, and submerged infrastructure that are sensitive, including

complex habitat;<sup>18</sup> sand ridge and trough habitat at WTGs A06, A07, A09, B07, B09, C09, D09, and D10; boulders  $\geq 0.5$  meters; ancient submerged landform features; known and potential shipwrecks; potentially significant debris fields; potential hazards; and any related facility installation activities (such as cable, WTG, and OSS installation). The proposed anchoring plans and relevant locations of interest or avoidance must be sealed by a professional land surveyor. The Lessee must provide to all construction and support vessels the locations where anchoring must be avoided to the extent technically and/or economically feasible, including complex habitat;<sup>16</sup> sand ridge and trough habitat at WTGs A06, A07, A09, B07, B09, C09, D09, and D10; boulders  $\geq 0.5$  meters; ancient submerged landform features; and 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. Any instances where the Lessee believes there is technical infeasibility must be supported by a technical feasibility analysis, as appropriate, for review and concurrence by BOEM and BSEE.

5.6.2.1. The Lessee must provide the Anchoring Plan to BOEM and BSEE to coordinate with NMFS GARFO for a 60-day review at least 120 days before anchoring activities and construction begins. 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.

5.6.3. WTG Removal (Construction) (Decommissioning). To the extent it is technically and/or economically feasible and practicable for the Lessee to construct fewer than 98 WTGs, the Lessee must prioritize removal of WTG positions A09, B09, C09, D09 and D10 from the Project layout. The Lessee may choose the order in which the listed WTGs are removed. Following these five, the Lessee should prioritize WTG positions A06, A07, and B07, again choosing the order. Any instances

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<sup>18</sup> Complex habitat for this Project is defined by benthic habitat delineations with modifiers to identify habitat that is less resilient to disturbance, e.g., hardbottom substrate, hardbottom substrate with epifauna or macroalgae, and vegetated habitats.

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.

- 5.6.4. Micrositing Plan (Planning) (Construction). The Lessee must prepare and implement a Micrositing Plan that describes how WTGs A06, A07, A09, B05, B06, B07, B08, B09, C09, D02, D09, D10, E07, F01, F07, G03, G09, and J03 and inter-array and export cable routes will be microsited to avoid or minimize impacts to high relief sand ridge and trough complex areas, complex habitat and boulders  $\geq 0.5$  meters, as technically and/or economically feasible or practicable. 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 or cable segment, including benthic habitat delineations showing complex habitat<sup>17</sup> and locations of boulders  $\geq 0.5$  meters. For WTGs and cables that cannot be microsited to avoid impacts to high relief sand ridge and trough complex areas, complex habitat, or boulders  $\geq 0.5$  meters, impact minimization measures must be provided, 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 Micrositing Plan must be submitted to BOEM and BSEE to coordinate with NMFS GARFO and NJDEP for a 60-day review, 120 days prior to site preparation activities for cables and WTGs. The Lessee must resolve all comments on the Micrositing Plan to BOEM's and BSEE's satisfaction prior to implementation of the plan.
- 5.6.4.1. The Lessee must identify all potential and previously identified Munitions and Explosives of Concern (MEC)/Unexploded Ordinance (UXO) in the Micrositing Plan and any practicable mitigation measures for MEC/UXO.
- 5.6.4.2. Boulder Relocation (Construction). As a component of the Micrositing Plan, the Lessee must consider the spatial extent of boulder relocation in the micrositing of WTGs and OSS foundations and inter-array and export cables, and must, to the extent technically and/or economically feasible or practicable for this Project, relocate boulders as close as practicable to areas immediately adjacent to existing similar habitat. The Lessee must clearly depict all boulder relocation activities in the Micrositing Plan.
- a. The Lessee must identify where boulders will be removed and where they will be placed. The Lessee must also identify boulders that cannot be relocated with documentation of technical and/or economic feasibility concerns. The plan must

include the following: (1) detailed methodology for each type of boulder relocation activity; (2) identification of areas of active (within last 5 years) bottom trawl fishing, areas where boulders >2 meters in diameter are anticipated to occur, and areas where boulders are expected to be relocated for project purposes; (3) methods to minimize the quantity of seabed or obstructions from relocated boulders in areas of active bottom trawl fishing, as identified in item (1) above, as technically and/or economically feasible; (4) identification of locations of boulders that will be moved and approximately where they will be placed, method(s) for moving boulders, and measures to minimize impacts as technically and/or economically feasible; and (5) an outreach/communication plan to relay information in a timely manner to mariners and other interested parties regarding the boulder relocation plan. 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.

- 5.6.5. Scour and Cable Protection Plan (Construction). 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 sand ridge and trough habitat at WTGs A06, A07, A09, B07, B09, C09, D09, and D10. The Lessee must avoid the use of engineered stone or concrete mattresses in complex habitat and the sand ridge and trough complex area at the listed WTGs, 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 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.
- 5.6.6. WTG Impact Zones. The Lessee must reduce the temporary impact zones for WTGs B05, B06, D02, and F01 from 250 meters to 200 meters to reduce potential impacts to New Jersey Prime Fishing Grounds.

## 5.7. Post-Seabed Disturbance Conditions

- 5.7.1. Berm Survey and Report (Construction) (Operations). Where plows, jets, grapnel runs, or other similar methods are used, post-construction surveys capable of detecting bathymetry changes of 0.5 ft. or less should be completed to determine the height and width of any created berms. The Lessee must capture bathymetry changes greater than 3 feet during the Year 1 multi-beam echosounder (MBES) bathymetry survey along the cable routes. If there are bathymetric changes in berm height greater than 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 Year 1 MBES bathymetry 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.
- 5.7.2. If avoidance and minimization to Prime Fishing Areas identified on NOAA and NJDEP's publicly available GIS layer depicting previously identified Prime Fishing Areas (see <https://gisdata-njdep.opendata.arcgis.com/>) is not feasible, then Lessee must provide the NJDEP's Division of Land Resource Protection with information that clearly shows any permanent changes to the bathymetry, including but not limited to flattening sand waves, filling, and relocation of boulders, post-construction. The information must include the location and extent of modification of the pre-existing bathymetry (figures and GIS shapefiles with locations and dimensions of these features within the Project area should be provided), which structures were installed within these areas, and the avoidance and minimization measures which were implemented to reduce the area permanently modified. The Lessee must submit confirmation from NJDEP that the requirement under Section 5.7.2 have been met in the Lessee's Annual Certification.

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

5.8.1. General Conditions for All Fisheries Monitoring Surveys

5.8.2. The Lessee must submit all required documents related to endangered and threatened species conditions for fishery monitoring in Section 5.8.3 through Section 5.8.10 (e.g., marine debris, visual and Protected Species Observers (PSOs), take, and annual reporting) to: BOEM at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov), BSEE via TIMSWeb with a notification email sent to [protectedspecies@bsee.gov](mailto:protectedspecies@bsee.gov) or [marinedebris@bsee.gov](mailto:marinedebris@bsee.gov) (if related to marine debris/lost gear), and NMFS GARFO Protected Resources Division at [nmfs.gar.incidental-take@noaa.gov](mailto:nmfs.gar.incidental-take@noaa.gov).

5.8.3. 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.

5.8.3.1. All vessels must comply with the vessel speed plan as outlined below in Section 5.10.4 for vessel speed restrictions.

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

5.8.3.3. If marine mammals are sighted in the area within 15 minutes before deploying gear and are considered to be 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 sightings of any marine mammal for 15 minutes within 1 nautical mile (1852 meters) of sampling location.

5.8.3.4. The Lessee must ensure all vessels deploying fixed gear (e.g., chevron 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."

5.8.4. Conditions for Trawl Surveys.

5.8.4.1. The Lessee must ensure all vessels have at least one survey team member onboard the trawl surveys who has completed Northeast

Fisheries Observer Program observer training (or another training in protected species identification and safe handling, inclusive of taking genetic samples from Atlantic sturgeon) within the last 5 years. Reference materials for identification, disentanglement, safe handling, and genetic sampling procedures must be available on board each survey vessel. This requirement applies to any trips where gear is set or hauled. Documentation of training must be provided to BOEM and BSEE within 48 hours upon request. If the Lessee will deploy non-NEFOP trained observers, the Lessee must submit a plan to BOEM, BSEE, and NMFS GARFO describing the training that will be provided to the survey observers. The Lessee must submit the PSO Training Plan for Trawl Surveys as soon as possible after issuance of the Project's BiOp but no later than 7 days prior to the start of trawl surveys. Under the terms of the NMFS BiOp, the Lessee must obtain NMFS GARFO's concurrence with this plan before starting any trawl surveys.

- 5.8.4.2. The captain and/or a member of the scientific crew must conduct marine mammal monitoring before, during, and after haul back.
- 5.8.4.3. The Lessee must commence trawl operations as soon as possible once the vessel arrives on station; the target tow time must be limited to 20 minutes.
- 5.8.4.4. The Lessee must initiate marine mammal watches (visual observation) within 1 nautical mile (1852 meters) of the site 15 minutes prior to sampling.
- 5.8.4.5. If a marine mammal is sighted within 1 nautical mile (1,852 meters) of the planned sampling station in the 15 minutes before gear deployment, the Lessee must delay setting the trawl until marine mammals have not been sighted for 15 minutes, or the Lessee may move the vessel away from the marine mammal to a different section of the sampling area. If, after moving on, marine mammals are still visible from the vessel, the Lessee may decide to move again or to skip the sampling station.
- 5.8.4.6. The Lessee must maintain visual monitoring effort during the entire period of time that trawl gear is in the water (i.e., throughout gear deployment, fishing, and retrieval). If marine mammals are sighted before the gear is fully removed from the water, (i.e., prior to haul back) the vessel must slow its speed and steer away from the sighted animal in order to minimize potential interactions.
- 5.8.4.7. The Lessee must open the codend of the net close to the deck/sorting area to avoid damage to animals that may be caught in gear.

- 5.8.4.8. The Lessee must empty gear as close as possible to the deck/sorting area and as quickly as possible after retrieval.
- 5.8.4.9. The Lessee must fully clean and repair trawl nets (if damaged) before setting again.
- 5.8.4.10. In the case of a marine mammal interaction, the Lessee must contact the Marine Mammal Stranding Network immediately.
- 5.8.5. Conditions for Structured Habitat Surveys (Chevron traps and Baited Remote Underwater Video [BRUVs]).
  - 5.8.5.1. The Lessee must deploy chevron traps and BRUVs on a limited soak duration (90 minutes or less), and must keep the vessel on location with the gear while it is sampling.
  - 5.8.5.2. The Lessee must use buoy/end lines with a breaking strength of <1,700 pounds (lbs). All buoy line must use weak links that are chosen from the list of NMFS approved gear. This may be accomplished by using whole buoy line that has a breaking strength of 1,700 lbs; or buoy line with weak inserts that result in line having an overall breaking strength of 1,700 lbs.
  - 5.8.5.3. The Lessee must label all buoys as research gear and must write the scientific permit number on the buoy. All markings on the buoys and buoy lines must be compliant with the regulations, and all buoy markings must comply with any specific marking instructions received by staff at NMFS GARFO.
  - 5.8.5.4. The Lessee must report any lines that go missing to the NMFS GARFO as soon as possible.
  - 5.8.5.5. The Lessee must not deploy either the chevron traps or the BRUVs if marine mammals are sighted near the proposed sampling station. The Lessee must not deploy gear if marine mammals are observed within the area. If a marine mammal is deemed to be at risk of interaction, the Lessee must immediately remove all gear.
- 5.8.6. 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.<sup>19</sup> Biological data, samples, and tagging must occur as outlined below:

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<sup>19</sup> <https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%2007162021.pdf?null>

- a. The Lessee must follow the Sturgeon and Sea Turtle Take Standard Operating Procedures.<sup>20</sup>
- b. 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<sup>10</sup> and reported to BOEM, BSEE, and NMFS GARFO.
- c. 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 tracking of the amount of incidental take. This sample collection must be done consistent with the Procedures for Obtaining Sturgeon Fin Clips.<sup>21</sup>
- d. 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 6 months of the sample collection.
- e. 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.<sup>22</sup>

5.8.7. 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 fill out an NMFS Take Report Form<sup>23</sup> for each individual sturgeon and sea turtle and submitted to BOEM, BSEE, and NMFS GARFO.

5.8.8. 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:

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<sup>20</sup> [https://media.fisheries.noaa.gov/dam-migration/sturgeon\\_&\\_sea\\_turtle\\_take\\_sops\\_external.pdf](https://media.fisheries.noaa.gov/dam-migration/sturgeon_&_sea_turtle_take_sops_external.pdf)

<sup>21</sup> [https://media.fisheries.noaa.gov/dam-migration/sturgeon\\_genetics\\_sampling\\_revised\\_june\\_2019.pdf](https://media.fisheries.noaa.gov/dam-migration/sturgeon_genetics_sampling_revised_june_2019.pdf)

<sup>22</sup> <https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-take-reporting-programmatics-greater-atlantic>

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

- 5.8.8.1. 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 less) to limit the amount of stress placed on the animals.
- 5.8.8.2. All survey vessels must have 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.<sup>24</sup> These handling and resuscitation procedures (the latter, when necessary) must be executed any time a sea turtle is incidentally captured and brought onboard a survey vessel.
- 5.8.8.3. 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, provided that 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.
- 5.8.8.4. 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.<sup>25</sup>
- 5.8.8.5. 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

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<sup>24</sup> [https://media.fisheries.noaa.gov/dam-migration/sea\\_turtle\\_handling\\_and\\_resuscitation\\_measures.pdf](https://media.fisheries.noaa.gov/dam-migration/sea_turtle_handling_and_resuscitation_measures.pdf)

<sup>25</sup> <https://media.fisheries.noaa.gov/dam-migration-miss/Resuscitation-Cards-120513.pdf>

Atlantic Regional Fisheries Office, Protected Resources Division for transfer to an appropriately permitted partner or facility on shore.

- 5.8.9. The Lessee must notify DOI 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.<sup>26</sup> 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, 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.
- 5.8.10. 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/trawl, and total effort. The report on survey activities must be comprehensive of all activities, regardless of whether ESA-listed species were observed.
- 5.9. Protected Species Training and Coordination (Construction) (Operations) (Decommissioning). Before beginning any in-water activities involving vessel use, pile driving, UXO/MEC detonation, 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, UXO/MEC detonation, and HRG survey activity, and when new personnel join the work, in order to explain responsibilities, communication procedures, and protected species mitigation, monitoring, and reporting requirements.
- 5.9.1. The Lessee must submit, all required documents and reports related to protected species training and coordination conditions in Sections 5.9.2. and 5.9.3 to: BOEM at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov), BSEE via TIMSWeb with a notification email sent to [protectedspecies@bsee.gov](mailto:protectedspecies@bsee.gov), and NMFS GARFO Protected Resources Division at [nmfs.gar.incidental-take@noaa.gov](mailto:nmfs.gar.incidental-take@noaa.gov).

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<sup>26</sup> <https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%2007162021.pdf?null>

- 5.9.2. Vessel Crew and Protected Species Observer (PSO) Training Requirements. (Construction) (Operations) (Decommissioning). 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 captain, 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 reference materials for identifying sea turtles and marine mammals available aboard all Project vessels. Copies of the Marine Mammal and Sea Turtle Monitoring Plans and NARW Vessel Strike Avoidance Plan must be available aboard all Project vessels. 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 for them to 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.
- 5.9.3. PSO Requirements (Construction) (Operations) (Decommissioning). The Lessee must use independent, dedicated, qualified PSOs provided by a third party. PSOs must have no Project-related tasks other than 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.<sup>27</sup> 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 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<sup>28</sup> or for geological and geophysical surveys by sending an inquiry to [nmfs.psoreview@noaa.gov](mailto:nmfs.psoreview@noaa.gov).

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<sup>27</sup> <https://repository.library.noaa.gov/view/noaa/15851>

<sup>28</sup> [www.fisheries.noaa.gov/new-england-mid-atlantic/careers-and-opportunities/protected-species-observers](http://www.fisheries.noaa.gov/new-england-mid-atlantic/careers-and-opportunities/protected-species-observers)

5.9.3.1. 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.

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

5.10.1. The Lessee must submit all required documents related to vessel strike avoidance conditions in Section 5.10.2 through Section 5.10.5 to: BOEM at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov), BSEE via TIMSWeb with a notification email sent to [protectedspecies@bsee.gov](mailto:protectedspecies@bsee.gov), and NMFS GARFO Protected Resources Division at [nmfs.gar.incidental-take@noaa.gov](mailto:nmfs.gar.incidental-take@noaa.gov).

5.10.2. PSO Requirements (Construction) (Operations) (Decommissioning). 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.

5.10.2.1. 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 PSO 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 visual observers must not have duties other than observing for marine mammals while the vessel is operating over 10 knots.

5.10.3. Vessel Communication of Threatened and Endangered Species Sightings (Planning) (Construction) (Operations) (Decommissioning). 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 captains, or both.

5.10.3.1. 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 than every 12 hours. If a vessel operator is alerted to a NARW detection within the Project area, they must immediately convey this information to the

PSO and PAM teams. For any UXO/MEC detonation, these systems must be monitored for 24 hours prior to blasting.

5.10.3.2. 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 captains to increase situational awareness.

5.10.4. Vessel Speed Requirements (Construction) (Operations) (Decommissioning). All vessels must comply with existing NMFS vessel speed regulations, as applicable, for NARWs and the vessel speed restrictions in the NMFS BiOp and the MMPA ITA decision. Within 30 days after issuance of the MMPA ITA decision, 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.

5.10.5. Vessel Strike Avoidance of Sea Turtles (Construction) (Operations) (Decommissioning).

5.10.5.1. For all vessels operating north of the Virginia/North Carolina border, between June 1 and November 30, the Lessee must have a trained lookout posted 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 captain so that the requirements below can be implemented.

5.10.5.2. For all vessels operating south of the Virginia/North Carolina border, year-round, the Lessee must have a trained lookout posted 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 captain so that the requirements below can be implemented. This requirement is in place year-round for any vessels transiting south of Virginia, as sea turtles are present year-round in those waters.

5.10.5.3. 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 transit to all vessel operators/captains and lookouts on duty that day.

5.10.5.4. 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 captain, and reporting requirements.

- 5.10.5.5. 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 unsafe to do so) 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 safe to do so and then proceed away from the turtle at a speed of 4 knots. The vessel may resume normal operations once it has passed the turtle.
- 5.10.5.6. Vessel captains/operators must avoid transiting through areas of visible jellyfish aggregations or floating sargassum lines or mats. In the event that operational safety prevents avoidance of such areas, vessels must slow to 4 knots while transiting through such areas.
- 5.10.5.7. 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 captain), as well as a communication channel and process for crew members to do so.
- 5.10.5.8. The only exception to the requirements regarding vessel speed and avoiding jellyfish, sargassum, and/or sea turtles is when the safety of the vessel or crew during an emergency necessitates deviation from these requirements. If any such incidents occur, they must be reported to BSEE and NMFS GARFO within 24 hours.
- 5.10.5.9. 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.
- 5.10.5.10. 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.

5.11. WTG and OSS Foundation Installation Conditions (Construction) (Operations).

Monopiles must be no larger than 11 meters in diameter, representing the larger end of the tapered 8/11 meter monopile design. If jacket foundations are used for OSSs, pin piles must be no larger than 2.44 meters in diameter. For all monopiles and pin piles, the minimum amount of hammer energy necessary to effectively and safely install and maintain the integrity of the piles must be used. Hammer energies must not exceed 4,000 kilojoules.

5.11.1. The Lessee must submit all required documents related to WTG and OSS foundation installation conditions in Section 5.11.2 through Section 5.11.5 to: BOEM at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov), BSEE via TIMSWeb with a notification email sent to [protectedspecies@bsee.gov](mailto:protectedspecies@bsee.gov), and NMFS GARFO Protected Resources Division at [nmfs.gar.incidental-take@noaa.gov](mailto:nmfs.gar.incidental-take@noaa.gov).

5.11.2. Seasonal and Daily Restrictions (Construction) No foundation impact pile driving activities is allowed to occur January 1 through April 30. No more than two foundation monopiles are allowed to 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 Alternative Monitoring Plan/Daytime Reduced Visibility Pile Driving Monitoring Plan. Under the terms of the NMFS BiOp, the Lessee is not allowed to conduct night-time pile driving, unless the Lessee has received concurrence from BOEM, BSEE, and NMFS on the Alternative Monitoring Plan/Nighttime Pile Driving Monitoring Plan (See Section 5.5.8 for more detail regarding requirements of the Alternative Monitoring Plan/Nighttime Pile Driving Monitoring Plan).

5.11.3. Noise Abatement Systems (Construction). The Lessee must employ noise abatement systems, also known as noise mitigation systems (NMS), during all impact pile driving (monopiles and pin piles) consistent with the PSMMP (COP Volume III, Appendix AA) to reduce the sound pressure levels that are transmitted through the water in an effort to reduce ranges to acoustic thresholds and minimize any acoustic impacts resulting from pile driving. The Lessee must employ a double big bubble curtain or a combination of two or more NMS during these activities, that are capable of achieving, at a minimum, 10 decibels of sound attenuation during all impact pile driving of foundation piles. Additional NMS that result in greater noise dampening must be included to avoid and minimize impacts to habitats and species in close proximity

to artificial reef sites. The Lessee must also adjust operational protocols to minimize noise levels. A single big bubble curtain may only be used if paired with another noise attenuation device; a double big bubble curtain may be used without being paired with another noise attenuation device.

- 5.11.3.1. The bubble curtain(s) must distribute air bubbles using an airflow rate of at least  $0.5 \text{ m}^3/(\text{min} \cdot \text{m})$ . The bubble curtain(s) must surround 100 percent of the piling perimeter throughout the full depth of the water column. In the unforeseen 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.
- 5.11.3.2. The lowest bubble ring must be in contact with the seabed for the full circumference of the ring, and the weights attached to the bottom ring must ensure 100-percent seabed contact.
- 5.11.3.3. No parts of the ring or other objects may prevent full seabed contact.
- 5.11.3.4. The Lessee must use qualified and experienced staff to train personnel in the proper balancing of airflow to the ring. The Lessee must ensure that construction contractors submit an inspection/performance report for approval by the Lessee within 72 hours following the performance test; that report must also be submitted to NMFS GARFO, NMFS OPR, BOEM, and BSEE at that time. Corrections to the bubble ring(s) to meet the performance standards must occur prior to impact pile driving of monopiles. If the Lessee uses a noise mitigation device in addition to the big bubble curtain, the Lessee must maintain similar quality control measures as described here.
- 5.11.4. Use of PSOs and PAM Operators (Construction). 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 located at the outer edge of the 2 kilometer (in the summer; 2.5 kilometer in the winter) large whale clearance zone (unless modified by NMFS based on SFV). At least one active PSO on each platform must have a minimum of 90 days at-sea experience working in those roles in offshore environments with no more than 18 months elapsed since the conclusion of the at-sea experience. These PSOs must maintain watch at all times when impact pile driving of monopiles and/or pin piles is underway. Concurrently, at least one PAM operator must actively monitor for vocalizing marine mammals before, during and after pile driving.

Furthermore, all crew and personnel working on the Project are required to maintain situational awareness of marine mammal presence (discussed further above) and are required to report any sightings to the PSOs.

5.11.4.1. The Lessee must ensure that PSO coverage is sufficient to reliably detect whales and sea turtles at the surface in the identified clearance and shutdown zones (Section 5.11.5) to execute any pile driving delays or shutdown requirements. If, at any point prior to or during construction, the PSO coverage is determined not to be sufficient to reliably detect ESA-listed whales and sea turtles within the clearance and shutdown zones, additional PSOs and/or platforms must be deployed. Determinations prior to construction must be based on review of the Marine Mammal and Sea Turtle Monitoring Plan - Pile Driving and UXO Detonations (Section 5.5.6). Determinations during construction must be based on review of the weekly pile driving reports and other information, as appropriate.

5.11.4.2. The Lessee must ensure that, if the clearance and/or shutdown zones are expanded due to the verification of sound fields from Project activities, PSO coverage is sufficient to reliably monitor the expanded clearance and/or shutdown zones. Additional observers must be deployed on additional platforms for every 1,500 meters that a clearance or shutdown zone is expanded beyond the distances modeled prior to verification.

5.11.5. Clearance and Shutdown Zones (Construction). 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. Additionally, the Lessee must monitor the full extent of the area where noise may exceed the 175 decibel rms threshold for sea turtles for the full duration of all pile driving activities and for 30 minutes following the cessation of pile driving activities and record all observations in order to ensure that all take that occurs is documented.

<b>Table 5.11.5-1</b>		
<b>Species</b>	<b>Clearance Zone (Meters)</b>	<b>Shutdown Zone (Meters)</b>
Minimum Visibility Zone: 1,650 meters May-November; 2,500 meters December		
NARW – visual PSO	any distance	any distance
NARW – PAM	3,500 (3,800)	1,650 (2,500)
Blue, fin, sei, and sperm whale	2,000 (2,500)	1,800 (2,500)
Sea Turtles	500	500

5.11.5.1. 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, blue whales, and sperm whales must not be reduced to less than 1,000 meters, or 500 meters for sea turtles. No reductions in the clearance or shutdown zones for NARWs will be considered regardless of the results of SFV.

5.11.5.2. 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 impact 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.

5.11.5.3. 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, impact pile driving has begun, the PSO must call for a temporary cessation of impact 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, pile refusal, or pile instability. In this situation, reduced hammer energy must be implemented instead, as determined to be practicable.

The Lessee must file a report with BSEE and NMFS GARFO in the event that any ESA listed species is observed within the identified shutdown zone during active pile driving. This report must be filed 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 shutdown. The report must also include 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 report must include an explanation for that determination and the measures that were implemented (e.g., reduced hammer energy).

- 5.11.5.4. Pile Driving Restart Procedures for Marine Mammal or Sea Turtle Detections. Pile driving must not restart until either the marine mammal(s) has voluntarily left the specific clearance zones and has 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. The specific time periods are 15 minutes for small odontocetes and 30 minutes for all other marine mammal species and sea turtles. In cases where these criteria are not met, pile driving may restart only if necessary to maintain pile stability at which time the lowest hammer energy must be used to maintain stability. If impact pile driving has been shut down due to the presence of a NARW, pile driving may not restart until the NARW is no longer observed or 30 minutes has elapsed since the last detection. Upon re-starting pile driving, soft start protocols must be followed.
- 5.11.5.5. Soft Start for Pile Driving. (Construction). The Lessee must use a soft start protocol for impact 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 each day's monopile installation, and at any time following a cessation of impact 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, impact 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 30 minutes for all other marine mammal species and sea turtles).

5.12. HRG Survey Conditions for Marine Mammals and Sea Turtles (Planning) (Construction) (Operations) (Decommissioning).

- 5.12.1. The Lessee must submit all required documents related to HRG survey conditions in Section 5.12.2 through Section 5.12.8 to: BOEM at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov), to BSEE via TIMSWeb with a notification email sent to [protectedspecies@bsee.gov](mailto:protectedspecies@bsee.gov), and to NMFS GARFO Protected Resources Division at [nmfs.gar.incidental-take@noaa.gov](mailto:nmfs.gar.incidental-take@noaa.gov).
- 5.12.2. Use of PSOs. The Lessee must employ qualified NMFS-approved PSOs during HRG surveys related to the Project. One PSO must monitor during daylight hours and two must monitor during nighttime hours, per vessel. Between four and six PSOs must be present on every 24-hour survey vessel and two to three PSOs must be present on every 12-hour survey vessel. At least one PSO must be on active duty during HRG surveys conducted during daylight and at least two PSOs must be on activity duty during HRG surveys conducted at night. Any PSO must have the authority to call for a delay or shutdown of survey activities. 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 5.12.2-1		
Species	Clearance Zone (Meters)	Shutdown Zone (Meters)
NARW	500	500
Blue, fin, sei, and sperm whale	100	100
Sea Turtles	100	100

- 5.12.3. HRG Clearance Procedures (Construction). 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 an additional time period has elapsed with no further sighting (i.e., 15 minutes for small odontocetes and seals, and 30 minutes for all other marine mammal species and sea turtles). 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, survey operations may commence (i.e., no delay is required) despite periods of inclement weather and/or loss of daylight.

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

5.12.4. HRG Shutdown Procedures (Construction). 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 Level B harassment 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 or a 100 meter zone for all other marine mammal species (with exception of specific delphinid 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. During periods of low visibility (e.g., darkness, rain, fog, etc.), PSOs must use alternative technology (i.e., IR/thermal camera) to monitor the

clearance and shutdown zones.

- 5.12.5. HRG Restart Procedures (Construction). If a boomer, sparker, or CHIRP is shut down for reasons other than mitigation (e.g., mechanical difficulty) for less 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.
- 5.12.6. Ramp-Up Procedures (Construction). 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 less 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.
  - 5.12.6.1. 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) 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 seals, and 30 minutes for all other marine mammal species and sea turtles).
- 5.12.7. 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.
- 5.12.8. 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.

- 5.13. UXO Detonation Activity Conditions (Construction). The Lessee may detonate a maximum of 10 UXO/MECs of varying sizes. Upon encountering a UXO/MEC of concern, the Lessee may only resort to high-order removal (i.e., detonation) after all other means by which to remove the UXO/MEC have been exhausted. The Lessee must not detonate a UXO/MEC if another means of removal is practicable.
- 5.13.1. The Lessee must submit all required documents related to UXO/MEC activity conditions in Section 15.3.2 through Section 5.13.7 to: BOEM at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov), BSEE via TIMSWeb with a notification email sent to [protectedspecies@bsee.gov](mailto:protectedspecies@bsee.gov), and NMFS GARFO Protected Resources Division at [nmfs.gar.incidental-take@noaa.gov](mailto:nmfs.gar.incidental-take@noaa.gov).
- 5.13.2. Seasonal and Daily Restrictions (Construction). UXO detonation is prohibited from January 1 to April 30 in all locations and November 1 to April 30 in the offshore areas greater than 3 nautical miles from the U.S. baseline to reduce impacts to NARW during peak migratory periods and to avoid impacts during the timeframe of potentially increased Atlantic sturgeon presence in the offshore wind area. UXO/MEC detonation must be limited to daylight hours only.
- 5.13.3. Noise Abatement Systems (Construction). The Lessee must use a dual noise abatement system during all UXO/MEC detonation events and operate that system in a manner that achieves maximum noise attenuation levels practicable, but at least 10decibel attenuation.
- 5.13.4. Use of PAM and PSO Operators (Construction). The Lessee must monitor the clearance and shutdown zones identified below using at least six visual PSOs and one PAM operator on at least two dedicated PSO vessels or, if the largest clearance zone is greater than 5 kilometer, one dedicated PSO vessel and one aerial platform (i.e., airplane). The Lessee must perform an aerial survey of the entire clearance zone prior to detonation and immediately after detonation to monitor for marine mammals. Two PSOs must also be on the airplane during aerial surveys and must monitor for marine mammals before, during, and after UXO/MEC detonation events. All PSOs must begin monitoring 60 minutes prior to UXO detonation, during, and for 30 minutes after an activity. PAM must be conducted for at least 60 minutes prior to detonation, during, and for 30 minutes after detonation and the zone must be acoustically clear of marine mammals during this entire duration. The PAM operator must monitor in and past the clearance zone for large whales. The Lessee may not detonate UXO/MEC(s) unless the clearance and shutdown zones are fully visible for at least 60 minutes prior to planned detonation and all marine mammal(s) are confirmed to

be outside of the clearance zone for at least 30 minutes prior to detonation.

5.13.4.1. For detonation areas larger than 2 kilometer, the Lessee must use a secondary vessel to monitor. For any additional vessels determined to be necessary, two PSOs must be used and located at the appropriate vantage point on the vessel. These additional PSOs must maintain watch during the same time period as the PSOs on the primary monitoring vessel. Prior to, during, and after any detonation occurring, the Lessee must ensure that these clearance zones are fully (100 percent) monitored.

5.13.5. Clearance Zones (Construction). Prior to any detonation activities, the Lessee must clear the zones identified below using both visual and acoustic monitoring methods.

<b>Table 5.13.5-1</b>	
<b>Species</b>	<b>Clearance Zone (Meters)</b>
NARW, blue, fin, and sei whale	10,000
Sperm whale	2,000
Sea Turtles	500

For marine mammals, these zone sizes may be further adjusted based on the SFV, and confirmation of UXO/donor charge sizes. If a marine mammal is observed entering or within the clearance zone prior to denotation, the UXO/MEC activity must be delayed. The Lessee may continue with detonation only when the marine mammals have been confirmed to have voluntarily left the clearance zones and they have been visually confirmed to be beyond the clearance zone, or when 60 minutes have elapsed without any redetections for whales (including the NARW) or 15 minutes have elapsed without any redetections of delphinids, harbor porpoises, or seals

For sea turtles, the Lessee must establish a clearance zone extending 500 meters around any planned UXO/MEC detonation. The Lessee must maintain the clearance zone for at least 60 minutes prior to any UXO detonation. The Lessee must ensure that there is sufficient PSO coverage to reliably document sea turtle presence within the clearance zone. In the event that a PSO detects a sea turtle outside the 500 meters clearance zone, the Lessee must delay detonation until the sea turtle has not been observed for 30 minutes.

5.13.6. Clearance or Shutdown Zone Adjustment After SFV. During each UXO/MEC detonation, the Lessee must empirically determine source levels (peak and cumulative sound exposure level), the ranges to the

isopleths corresponding to the Level A harassment and Level B harassment thresholds, and estimated transmission loss coefficient(s).

5.13.6.1. If SFV measurements on any of the detonations indicate that the ranges to Level A harassment and Level B harassment thresholds are larger than those modeled, assuming 10-decibel attenuation, the Lessee must modify the ranges, with approval from NMFS, and/or apply additional noise attenuation measures (e.g., improve efficiency of bubble curtain(s), install an additional noise attenuation device) before the next detonation event.

5.13.7. Notification (Construction). The Lessee must provide BSEE and NMFS GARFO with notification of planned UXO/MEC detonation as soon as possible, but at least 48 hours prior to the planned detonation, unless this 48-hour notification creates delays to the detonation that result in imminent risk of human life or safety. This notification must include the coordinates of the planned detonation, the estimated charge size, and any other information available on the characteristics of the UXO/MEC. NMFS GARFO will provide alerts to NMFS sea turtle and marine mammal stranding network partners consistent with best practices. The Lessee must provide notification to NMFS GARFO via email to [nmfs.gar.incidental-take@noaa.gov](mailto:nmfs.gar.incidental-take@noaa.gov) and by phone to the NMFS GARFO Protected Resources Division (978-281-9328) and BSEE at [protectedspecies@bsee.gov](mailto:protectedspecies@bsee.gov) and TIMSWeb. See Section 5.14.3.4 for requirements associated with reporting of UXO Detonations

#### 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](mailto:renewable_reporting@boem.gov), to BSEE via TIMSWeb with a notification email sent to [protectedspecies@bsee.gov](mailto:protectedspecies@bsee.gov), and to NMFS GARFO Protected Resources Division at [nmfs.gar.incidental-take@noaa.gov](mailto:nmfs.gar.incidental-take@noaa.gov).

5.14.2. Pre-Construction Reporting (Construction). Within 10 business days of BSEE issuing a no objection to the complete Facility Design Report (FDR)/Fabrication and Installation Report (FIR)<sup>29</sup> (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 (i.e., gravity cell or sheet pile), 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-

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<sup>29</sup> Complete being defined as the submission of all final FIR or FDR asset packages.

assembly and load out, and cable staging. BOEM will review the information and, based on coordination with NMFS GARFO, notify the Lessee within 30 days of NMFS GARFO's receipt of the information identified here, of the need for ESA Section 7 consultation with NMFS to be reinitiated.

5.14.3. Situational Reporting (Construction).

5.14.3.1. Reporting of All NARW Sightings (Planning) (Construction) (Operations) (Decommissioning). 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, and any mitigation measures implemented.

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 shutdown. 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 (Planning) (Construction) (Operations) (Decommissioning). The Lessee must report within 48 hours all observations or collections of injured or dead whales, sea turtles, or sturgeon to BSEE and NMFS GARFO. 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 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 to be limited to capture and handling of sturgeon in extreme weather. 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.

The Lessee must report any suspected or confirmed vessel strike of a sea turtle or sturgeon 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. The Lessee must include in the report the following information: (A) Time, date, and location (latitude/longitude) of the incident; (B) Species identification (if known) or description of the animal(s) involved; (C) Vessel’s speed during and leading up to the incident; (D) Vessel’s course/heading and what operations were being conducted (if applicable); (E) Status of all sound sources in use; (F) 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; (G) Environmental conditions (e.g., wind speed and direction, Beaufort scale, cloud cover, visibility) immediately preceding the strike; (H) Estimated size and length of animal that was struck; (I) Description of the behavior of the animal immediately preceding and following the strike; (J) Estimated fate of the animal (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and (K) To the extent practicable, photographs or video footage of the animal(s).

In the event that an injured or dead marine mammal or sea turtle is sighted, the Lessee must report the incident to BOEM, BSEE, NMFS GARFO, NMFS New England/Mid-Atlantic Regional Stranding Hotline (866-755-6622), as soon as feasible, but no later than 24 hours from the sighting. The Lessee must include in the report the following information: (A) Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable); (B) Species identification (if known) or description of the animal(s) involved; (C) Condition of the animal(s) (including carcass condition if the animal is dead); (D) Observed behaviors of the animal(s), if alive; (E) If available, photographs or video footage of the animal(s); and (F) General circumstances under which the animal was discovered. The Lessee must follow any instructions provided by staff responding to the hotline call for handling or disposing of any injured or dead animals, which may include coordination of transport to shore, particularly for injured sea turtles.

- 5.14.3.4. UXO Detonation Reports (Construction). The Lessee must compile and submit reports following any UXO/MEC detonation that provide details on the UXO/MEC that was detonated (e.g., charge size), location of the detonation, 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 reports must include any observations of dead or injured fish or other marine life in the post detonation monitoring period. The Lessee must ensure that the PSO providers submit these reports directly to NMFS GARFO, BSEE, and BOEM within one week of the detonation. The reports may consist of raw data or be made available upon request. The Lessee must also ensure that the PSO providers submit all reports of dead or injured ESA listed species directly to NMFS GARFO, BSEE, and BOEM immediately, but no later than 24 hours following the observation.
- 5.14.3.5. Detected or Impacted Dead Non-ESA-Listed Fish (Planning) (Construction) (Operations) (Decommissioning). 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.
- 5.14.4. Weekly Pile Driving Reports (Construction). 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 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, and PSO coverage; Vessel operations (including port departures, number of vessels, type of vessel(s), and route); All protected species sightings; 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 in by BOEM, BSEE, and NMFS before those protocols are implemented.

5.14.5. Monthly Reports (Construction). The Lessee must compile and submit monthly reports that include a summary of all project activities carried out in the previous month, including trawl surveys, vessel transits (number, type of vessel, and route), and piles installed, and all observations of ESA listed whales, sea turtles, and sturgeon. These reports must be submitted to BOEM, BSEE, 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\_YearMonthDaytoYearMonthDay.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
- 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)
- Range from vessel (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 travel in first approach (relative to vessel)
- 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 (reticle distance in meters)
- Time at closest approach (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 (Operations). 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), repair and maintenance activities, survey activity, and all observations of ESA-listed species. The annual reports must be submitted to BOEM, BSEE, 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 GARFO, BOEM, and BSEE, the frequency of reports can be changed.



as seafood processing and vessel repair services within communities near the ports in the table below.

<b>Table 6.1.2-1</b>	
<b>Port and State</b>	
Atlantic City, New Jersey	Cape May, New Jersey
New Bedford, Massachusetts	Newport News, Virginia
Sea Isle City, New Jersey	Barnegat, New Jersey
Wildwood, New Jersey	Hampton, Virginia
Ocean City, Maryland	Long Beach, New Jersey
Beaufort, North Carolina	Point Judith, Rhode Island
North Kingstown, Rhode Island	Point Pleasant, New Jersey
Wanchese, North Carolina	New London, Connecticut
Davisville, Rhode Island	Chincoteague, Virginia
Oriental, North Carolina	Montauk, New York
Shinnecock, New York	

- 6.1.3. Compensation Calculations. Once the values at 6.1.1 and 6.1.2 are determined, the Lessee must use Table 6.1.4-1 and Table 6.1.4-2 to calculate the total reserve fund requirements. The amounts of the reserve fund requirements should be normalized as described in Section 6.1.1.2 to current real prices from a base year. The Lessee may use the prior year’s GDP Implicit Price Deflator to estimate Compensation and Mitigation Fund requirements after COP approval if the current year is unavailable.

As described in 6.1.1.1., the Lessee must ensure the reserve amount allows for 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 3.9-11 and Table 3.9-16, respectively, of the Ocean Wind 1 FEIS.

**Table 6.1.4-1. Calculation Subcomponents for Construction and Decommissioning**

Project Status	Base Annual Average Fishing Revenue Exposed to the Wind Farm Area <sup>1</sup>	Shoreside Support Services Multiplier <sup>2</sup>	Exposure Ratio	Adjusted Base Annual Average Fishing Revenue Exposed to the Wind Farm Area	Reserve Requirements
Construction	$\left( \$348,386.00 \times \frac{n_i}{113.784} + (\$20,929.00 \times \frac{n_i}{118.895}) \right)$	M	1	$\left( \$348,386.00 \times \frac{n_i}{113.784} + (\$20,929.00 \times \frac{n_i}{118.895}) \right)$	$\left[ \left( \$348,386.00 \times \frac{n_i}{113.784} + (\$20,929.00 \times \frac{n_i}{118.895}) \right) \right] (1 + M)$
Decommissioning <sup>3</sup>	$\left( \$348,386.00 \times \frac{n_i}{113.784} + (\$20,929.00 \times \frac{n_i}{118.895}) \right)$	M	1	$\left( \$348,386.00 \times \frac{n_i}{113.784} + (\$20,929.00 \times \frac{n_i}{118.895}) \right)$	$\left[ \left( \$348,386.00 \times \frac{n_i}{113.784} + (\$20,929.00 \times \frac{n_i}{118.895}) \right) \right] (1 + M)$

Notes: <sup>1</sup> Inflation-adjusted revenues from FEIS Tables 3.9-11 and 3.9-16. The inflation-adjusted base equation is:

$$\left( \text{Average Annual Commercial Fishing Revenue} \times \frac{n_i}{113.784} \right) + \left( \text{Average Annual For Hire Fishing Revenue} \times \frac{n_i}{118.895} \right)$$

<sup>2</sup> 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.

<sup>3</sup> 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:

$$k \left( \left[ \left( \$348,386.00 \times \frac{n_i}{113.784} \right) + \left( \$20,929.00 \times \frac{n_i}{118.895} \right) \right] (1 + M) \right) + j \left( \left[ \left( \$348,386.00 \times \frac{n_i}{113.784} \right) + \left( \$20,929.00 \times \frac{n_i}{118.895} \right) \right] (1 + M) \right).$$

**Table 6.1.4-2. Calculation Subcomponents by Operating Year**

<b>Project Status</b>	<b>Base Annual Average Fishing Revenue Exposed to the Wind Farm Area<sup>1</sup></b>	<b>Shoreside Support Services Multiplier<sup>2</sup></b>	<b>Exposure Ratio</b>	<b>Adjusted Base Annual Average Fishing Revenue Exposed to the Wind Farm Area</b>	<b>Reserve Requirements</b>
Operating Year 1	$\left( \$348,386.00 \times \frac{n_i}{113.784} \right) + \left( \$20,929.00 \times \frac{n_i}{118.895} \right)$	M	1	$\left( \$348,386.00 \times \frac{n_i}{113.784} \right) + \left( \$20,929.00 \times \frac{n_i}{118.895} \right)$	$\left[ \left( \$348,386.00 \times \frac{n_i}{113.784} \right) + \left( \$20,929.00 \times \frac{n_i}{118.895} \right) \right] (1 + M)$
Operating Year 2	$\left( \$348,386.00 \times \frac{n_i}{113.784} \right) + \left( \$20,929.00 \times \frac{n_i}{118.895} \right)$	M	0.8	$\left( \$278,708.00 \times \frac{n_i}{113.784} \right) + \left( \$16,743.20 \times \frac{n_i}{118.895} \right)$	$\left[ \left( \$278,708.00 \times \frac{n_i}{113.784} \right) + \left( \$16,743.20 \times \frac{n_i}{118.895} \right) \right] (1 + M)$
Operating Year 3	$\left( \$348,386.00 \times \frac{n_i}{113.784} \right) + \left( \$20,929.00 \times \frac{n_i}{118.895} \right)$	M	0.7	$\left( \$243,870.20 \times \frac{n_i}{113.784} \right) + \left( \$14,650.30 \times \frac{n_i}{118.895} \right)$	$\left[ \left( \$243,870.20 \times \frac{n_i}{113.784} \right) + \left( \$14,650.30 \times \frac{n_i}{118.895} \right) \right] (1 + M)$
Operating Year 4	$\left( \$348,386.00 \times \frac{n_i}{113.784} \right) + \left( \$20,929.00 \times \frac{n_i}{118.895} \right)$	M	0.6	$\left( \$209,031.60 \times \frac{n_i}{113.784} \right) + \left( \$12,557.40 \times \frac{n_i}{118.895} \right)$	$\left[ \left( \$209,031.60 \times \frac{n_i}{113.784} \right) + \left( \$12,557.40 \times \frac{n_i}{118.895} \right) \right] (1 + M)$
Operating Year 5	$\left( \$348,386.00 \times \frac{n_i}{113.784} \right) + \left( \$20,929.00 \times \frac{n_i}{118.895} \right)$	M	0.5	$\left( \$174,193.00 \times \frac{n_i}{113.784} \right) + \left( \$10,464.50 \times \frac{n_i}{118.895} \right)$	$\left[ \left( \$174,193.00 \times \frac{n_i}{113.784} \right) + \left( \$10,464.50 \times \frac{n_i}{118.895} \right) \right] (1 + M)$
<i>Operating Total<sup>3</sup></i>				$\left( \$1,254,189.60 \times \frac{n_i}{113.784} \right) + \left( \$75,344.40 \times \frac{n_i}{118.895} \right)$	$\left[ \left( \$1,254,189.60 \times \frac{n_i}{113.784} \right) + \left( \$75,344.40 \times \frac{n_i}{118.895} \right) \right] (1 + M)$

Notes: <sup>1</sup> Inflation-adjusted revenues from FEIS Tables 3.9-11 and 3.9-16. The inflation-adjusted base equation is:

$$\left( \text{Average Annual Commercial Fishing Revenue} \times \frac{n_i}{113.784} \right) + \left( \text{Average Annual For} \right. \\ \left. - \text{Hire Fishing Revenue} \times \frac{n_i}{118.895} \right)$$

<sup>2</sup> 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.

<sup>3</sup> Rolling forward unclaimed funds from prior years may lower this total value.

Before rolling forward any unclaimed funds e, the total fund reserve requirements for Construction, Decommissioning, and Operating Years 1-5 (as shown in Table 6.1.4-2 above), become:

$$k \left( \left[ \left( \$348,386.00 \times \frac{n_i}{113.784} \right) + \left( \$20,929.00 \times \frac{n_i}{118.895} \right) \right] (1 + M) \right) + \\ j \left( \left[ \left( \$348,386.00 \times \frac{n_i}{113.784} \right) + \left( \$20,929.00 \times \frac{n_i}{118.895} \right) \right] (1 + M) \right) + \\ \left[ \left( \$1,254,189.60 \times \frac{n_i}{113.784} \right) + \left( \$75,344.40 \times \frac{n_i}{118.895} \right) \right] (1 + M).$$

- 6.1.4. **Reporting.** The Lessee must submit to BOEM and BSEE an annual report demonstrating implementation of the Direct Compensation Program. The report must include 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 impacts to fishers and related shoreside businesses resulting from all phases of the project development on the Lease Area (pre-construction, construction, operation, and decommissioning).
- 6.1.5. **Notification.** The Lessee must establish the compensation/mitigation funds in accordance with the consistency certification concurrence issued for the Project under the Coastal Zone Management Act. Specifically, the Lessee must enter into an MOU with the State of New Jersey to provide appropriate compensation measures for fisheries resources and fishing industry uses impacted by the authorized project. The Lessee must request that the administrator of the direct compensation program notify BOEM that the direct compensation program has been established and is processing claims. Notification can be accomplished by the Administrator transmitting to BOEM an annual financial statement of the direct compensation program. The Administrator 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.

- 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 Volume III, Appendix AE of the COP, Fisheries Mitigation Efforts. The fisheries gear loss and damage claims procedure must be 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. Eight 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*,<sup>31</sup> 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 eight 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) NARW aerial survey; (e) Aerial marine mammal and sea turtle survey; (f) Shipboard marine mammal and sea turtle survey; (g) Atlantic surfclam and ocean quahog survey; and (h) Atlantic sea scallop survey. At a minimum, the survey mitigation agreement must describe actions and the means 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

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<sup>31</sup> 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.

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

- 6.4. Environmental Data Sharing with Federally Recognized Tribal Nations (Planning) (Construction) (Operations) (Decommissioning). No later than 90 days after COP approval, the Lessee must request the BOEM and BSEE Tribal Liaison Officer and Regional Tribal Liaison Officer coordinate with federally recognized tribal nations in order to solicit the federally recognized tribal nation's interest in participating as active monitors on board vessels during construction and/or maintenance activities, participating in postmortem examinations of mortality events as a result of these activities, and/or enjoying open access to the following: reports generated as a result of the Fisheries Monitoring Plan; reports of NARW sightings; injured or dead protected species reporting (sea turtles, NARW, sturgeon); NARW PAM monitoring; PSO reports (e.g., pile-driving reports); pile driving schedules and changes to them. At a minimum, the Lessee must offer access to the following federally recognized tribal nations: Delaware Nation; Delaware Tribe of Indians; The Shinnecock Indian Nation; Mashantucket (Western) Pequot Tribal Nation; Stockbridge-Munsee Community Band of Mohican Indians; and Wampanoag Tribe of Gay Head (Aquinnah). The Lessee must provide, in a manner suitable to the tribal nation, access to nonproprietary, non-confidential business information listed in this paragraph to any federally recognized tribal nation no later than 30 days after the information becomes available.

## **7. CULTURAL RESOURCES CONDITIONS**

- 7.1. Reporting (Planning) (Construction) (Operations) (Decommissioning). The Lessee must submit all required documents related to cultural resource conditions in Section 7.2 through Section 7.11 to: BOEM at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov), and to BSEE via TIMSWeb with a notification email sent to [env-compliance-arc@bsee.gov](mailto: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 ancient submerged landform features as described below. The Lessee must identify avoidance requirements on proposed anchoring plots, 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 Known Shipwrecks. The Lessee must avoid known shipwrecks (Targets 1, 9, 12-14, 17 and 18 as identified in the Marine Archaeological Resources Assessment (COP Volume III, Appendix F-1)) by a distance of no less than 50 meters from the known extent of the resource for placement of Project structures and when conducting seabed-disturbing activities.
- 7.2.2. Avoidance of Potential Shipwrecks. The Lessee must avoid potential shipwrecks (Targets 2-8, 10, 11, 15, 16, 19 as identified in the Marine Archaeological Resources Assessment (COP Volume III, Appendix F-1)) and potentially significant debris fields previously identified during marine archaeological surveys by a distance of no less than 50 meters from the known extent of the resource, unless the buffer precludes the installation of facilities at their engineered locations, but in no event is the buffer allowed to be less than 50 meters from the known extent of the resource.
- 7.2.3. Avoidance of Ancient Submerged Landform Features. The Lessee must avoid three ASLFs (Targets 20, 27, and 32 as identified in the Marine Archaeological Resources Assessment (COP Volume III, Appendix F-1)). No additional avoidance buffer is required for these ASLFs, because avoidance of the ASLFs is based on the defined spatial extent of each ASLF, which has been determined based on the maximum observed presence of the seismic reflector and unique buffer area designed to account for minimal positioning errors or lack of resolution.

- 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 WTG FIR.
- 7.4. Implementation of Mitigation Measures to Resolve Adverse Effects to 13 Ancient Submerged Landform Features (Planning) (Construction). The Lessee must mitigate adverse effects to 13 ASLFs (Targets 21–26, 28–31, and 33–35 as identified in the Marine Archaeological Resources Assessment (COP Volume III, Appendix F-1)) that remain in the Area of Potential Effects (APE) and that cannot be avoided. The Lessee must execute all aspects of this condition, consistent with the Section 106 MOA (Stipulation III.A.1 and Attachment 3 *Historic Property Treatment Plan for the Ocean Wind 1 Farm Ancient Submerged Landform Features, Federal Waters on the Outer Continental Shelf*). Reporting associated with Section 106 MOA compliance must be included in the Annual Certification.
- 7.5. Implement Mitigation Measures to Resolve Visual Adverse Effects to 18 Historic Properties (Planning) (Construction). The Lessee must mitigate visual adverse effects to 18 historic properties (Brigantine Hotel, Brigantine City, Atlantic County; Absecon Lighthouse, Atlantic City, Atlantic County; Atlantic City Boardwalk, Atlantic City, Atlantic County; Atlantic City Convention Hall, Atlantic City, Atlantic County; Ritz-Carlton Hotel, Atlantic City, Atlantic County; Haddon Hall/Resorts Casino Hotel, Atlantic City, Atlantic County; Riviera Apartments, Atlantic City, Atlantic County; Vassar Square Condominiums, Ventnor City, Atlantic County; House at 114 South Harvard Avenue, Ventnor City, Atlantic County; Lucy the Margate Elephant, Margate City, Atlantic County; Great Egg Coast Guard Station, Longport Borough, Atlantic County; Ocean City Boardwalk, Ocean City, Cape May County; Ocean City Music Pier, Ocean City, Cape May County; Hereford Lighthouse, North Wildwood, Cape May County; North Wildwood Life Saving Station, North Wildwood, Cape May County; U.S. Lifesaving Station #35, Stone Harbor Borough, Cape May County; Flanders Hotel, Ocean City, Cape May County; and Little Egg Harbor U.S. Life Saving Station #23 (U.S. Coast Guard Station #119), Little Egg Harbor Township, Ocean County). The Lessee must execute all aspects of this condition of COP approval consistent with the Section 106 MOA (Stipulation III.B.1 and Attachment 4 *Historic Properties Treatment Plan for the Ocean Wind 1 Offshore Wind Farm Project Historic Properties Subject to Adverse Effects Cape May and Atlantic Counties, New Jersey*; and Stipulation III.C). Reporting associated with Section 106 MOA compliance must be included in the Annual Certification.

- 7.6. 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 BOEM's efforts to carry out the terms of the Section 106 MOA. The Lessee can satisfy this reporting requirement by providing the relevant portions of the Annual Certification required under 30 C.F.R. § 285.633.
- 7.7. 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 found, the Lessee must implement the post-review discovery plans found in Section 106 MOA Attachment 6 (Post-Review Discovery Plan for Submerged Cultural Resources for the Ocean Wind 1 Offshore Wind Farm for Lease OCS-A 0498 Construction and Operations Plan) and Attachment 7 (Post-Review Discovery Plan for Terrestrial Cultural Resources for the Ocean Wind 1 Offshore Wind Farm for Lease OCS-A 0498 Construction and Operations Plan).
- 7.8. 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:
- 7.8.1. Immediately halt seabed-disturbing activities within the area of discovery.
  - 7.8.2. As soon as practicable and no later than 72 hours after the discovery, notify BOEM and BSEE via 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 of the potential resource 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 understanding of the potential resource. Provide the notification to BOEM and BSEE within 72 hours of its discovery. BOEM and BSEE may request additional information and/or request revisions to the report.

- 7.8.3. 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.
- 7.8.4. 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.
- 7.8.5. 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.
- 7.8.6. If BOEM incurs costs in addressing the discovery, under Section 110(g) of the National Historic Preservation Act, BOEM may charge the Lessee reasonable costs for carrying out preservation responsibilities under OCSLA (30 C.F.R. § 585.802(c-d)).
- 7.9. Emergency Situations (Construction) (Operations) (Decommissioning). In the event of an emergency or disaster that is declared by the President or the Governor of New Jersey, 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 with the assistance of the Lessee will notify the consulting federally recognized tribal nation, New Jersey State Historic Preservation Officer, and the Advisory Council on Historic Preservation of the condition which has initiated the situation and the measures taken to respond to the emergency or hazardous condition consistent with the Section 106 MOA. BOEM 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 nation, New Jersey State Historic Preservation Officer, or the Advisory Council on Historic Preservation desire to provide technical assistance to BOEM, they will submit comments within seven days from notification if the nature of the emergency or hazardous condition allows for such coordination.
- 7.10. No Impact Without Approval (Planning) (Construction) (Operations) (Decommissioning). The Lessee may not knowingly impact a potential archaeological resource without BOEM 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 to within 72 hours to BOEM and BSEE.

- 7.11. 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 7.10 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. If the placement area was not previously reviewed and certified by a Qualified Marine Archaeologist in support of the Lessee's approved COP, a Qualified Marine Archaeologist must certify in an annual letter to BOEM that the Lessee's PAM placement activities did not impact potential historic properties identified as a result of the Qualified Marine Archaeologist's determination. As-placed PAM system plats must be submitted to BSEE via TIMSWeb within 90 days. This certification is not required if the PAM placement activities did impact potential historic properties identified in the archaeological surveys without the BOEM's prior authorization. In that case, the Lessee and the Qualified Marine Archaeologist who prepared the report must instead provide to BOEM a statement documenting the extent of these impacts. This statement must be made to BOEM, consistent with Stipulation 4.3.7 of Addendum C of the Lease and Section 7.8, above. BOEM may require 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 required documents related to air quality conditions in Section 8.2 and Section 8.3 to: BOEM at [renewable\\_reporting@boem.gov](mailto:renewable_reporting@boem.gov), to BSEE via TIMSWeb with a notification email sent to [oswsubmittals@bsee.gov](mailto:oswsubmittals@bsee.gov), USFWS at [jaron\\_ming@fws.gov](mailto:jaron_ming@fws.gov), and the Environmental Protection Agency (EPA) at [Chan.Suilin@epa.gov](mailto:Chan.Suilin@epa.gov). The Lessee must confirm the relevant point of contact prior to reporting and confirmation of reporting receipt.
- 8.2. Brigantine Wilderness Area Air Quality Related Values (AQRV) Mitigation Framework (Construction) (Operations) (Decommissioning). The Lessee must develop a framework for the mitigation of Air Quality Related Value impacts at Brigantine Wilderness Area.
  - 8.2.1. The framework must include a description of existing conditions and monitoring objectives; description of preventative and any voluntary offsetting mitigation measures; identification of the avoidance or offset value for each measure; cost estimates for each measure; schedule for USFWS implementation of each measure; the mechanism for the transfer of any funding from the Lessee to USFWS; and, reporting to demonstrate completion of implementation.
  - 8.2.2. The framework must be submitted to BOEM, BSEE, USFWS, and EPA for review at least 30 days prior to publication of the draft OCS Air Permit.
- 8.3. Sulfur Hexafluoride (SF<sub>6</sub>) Leak Rate Monitoring and Detection (Construction) (Operations) (Decommissioning). The Lessee must adhere to International Electrotechnical Commission (IEC) and EPA guidance for SF<sub>6</sub> leak detection and monitoring requirements of one-half percent or less.
  - 8.3.1. The Lessee must 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), perform maintenance to fix seals within 14 days. If an event requires removal of SF<sub>6</sub>, the affected major component(s) must be replaced with new component(s).
  - 8.3.2. The Lessee must report any detectible pressure drop that is greater than ten percent as soon as practicable and no later than 72 hours after the discovery, notify BOEM and BSEE and provide an estimated timeframe for maintenance or replacement.
  - 8.3.3. The Lessee must provide a summary in the Lessee's Annual Certification of observed SF<sub>6</sub> leak rates in the past year and a summary of any leaks greater than one percent and the associated maintenance or repair actions taken and their timeframe from detection to completion.

8.3.4. National Ambient Air Quality Standards and PSD Class I and Class II Air Quality Increments (Construction) (Operations). 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
AMP	Alternative Monitoring Plan
ANSI	American National Standards Institute
APE	Area of Potential Effects
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
FRMP	Fisheries Research and Monitoring Plan
GARFO	Greater Atlantic Fisheries Office
GPS	Global Positioning System
HESD	Habitat and Ecosystem Division
HF	high frequency
HPTP	Historic Preservation Treatment Plan
HRG	high resolution geophysical
IEC	International Electric Code
IHA	Incidental Harassment Authorization
IMT	Incident Management Team
IOOS	Integrated Ocean Observing System
ISO	International Organization for Standardization
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 Ocean Wind 1 Offshore Wind Farm 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 Ocean Wind 1 Wind Energy Project for Commercial Lease OCS-A 0498

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### 1.0 Summary

Subsection 8(p)(4) of the Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. §§ 1331 *et seq.*, requires the Secretary of the Interior (“Secretary”) to approve activities in a manner that provides for 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) for the Ocean Wind 1 Wind Farm (hereafter Project) on Commercial Lease OCS-A 0498 under the provisions set forth in 30 C.F.R. §§ 585.620 through 585.629, and BOEM’s application of the 12 factors enumerated in subsection 8(p)(4) of OCSLA (hereinafter, “8(p)(4) factors”).<sup>1</sup> BOEM has determined that the project will comply with the Bureau’s regulations and that the proposed activities will be carried 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 New Jersey and to assess the feasibility of allowing wind energy activities therein began in 2009, approximately 13 years ago. BOEM formed the BOEM/New Jersey Renewable Energy Task Force for coordination among affected Federal agencies and state, local, and tribal governments through the leasing process. The first Task Force meeting was held on November 24, 2009; subsequent meetings were held on May 12, 2010; November 19, 2010; December 18, 2012; August 28, 2014; April 22, 2014; and May 19, 2016. Working with the Task Force, BOEM

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<sup>1</sup> 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 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. Dep’t of the Interior, Departmental Manual, 209 DM 3.1, 3.2A(11) (2020).

identified a Wind Energy Area (WEA), which was then published in the New Jersey Call for Information and Nominations of Interest (“Call”) *Federal Register* notice on April 20, 2011 (76 Fed. Reg. 22,130). The WEA and Call Area were delineated with the goal of providing protection of ecologically sensitive areas and minimizing user conflicts while making an appropriate area available for commercial offshore wind development. The WEA and Call area were developed using the boundary of New Jersey’s Ocean/Wind Power Ecological Baseline Studies (OWPEBS) as a base and the results of the OWPEBS<sup>2</sup> to help identify areas that may not be suitable for development, based on features ranging from physical obstructions and usages to the presence and density of biological resources including avian populations and aquatic habitat. Details on areas removed from leasing consideration are described in the Call. Outer Continental Shelf (OCS) lease blocks within and directly south of the Traffic Separation Scheme Approaches to New York were removed on the recommendation of the U.S. Coast Guard (USCG), as were OCS blocks within one nautical mile of an identified traditional tug and barge transit route.

The WEA was further reduced in area when the New Jersey Proposed Sale Notice was published in the *Federal Register* on July 21, 2014 (79 Fed. Reg. 42,361). The reduction was the result of an additional vessel traffic analysis, which showed that offshore wind development in OCS blocks just south of the Ambrose to Barnegat traffic lane, created a navigational obstacle of vessel traffic out of New York Harbor. To alleviate navigational safety concerns resulting from vessel transits out of the New York Harbor approximately two OCS blocks were removed from the eastern side of the WEA.

After these reviews, analyses, and revisions to the WEA, BOEM held a competitive lease sale in November 2015, pursuant to 30 C.F.R. § 585.211, for certain lease areas within the New Jersey WEA. This lease sale resulted in BOEM’s issuance of Commercial Lease OCS-A 0498 to RES America Developments Inc. The lease became effective on March 1, 2016.

In April 2016, RES America Developments Inc., submitted a request to assign 100 percent of OCS-A 0498 to Ocean Wind LLC (Ocean Wind). The assignment was approved by BOEM and became effective on May 10, 2016. On December 8, 2020, Ocean Wind requested a partial assignment of lease OCS-A 0498 to Ørsted North America, Inc. BOEM approved the partial assignment and became effective on March 26, 2021. The Lease Area assigned to Ørsted North America, Inc., now carries the new lease number OCS-A 0532 and contains 84,955 acres (341 km<sup>2</sup>). Lease OCS-A 0498 contains 75,526 acres (306 km<sup>2</sup>).

Lease OCS-A 0498 does not authorize Ocean Wind to conduct construction activities within the leased area. Under Lease OCS-A 0498 and 30 C.F.R. Part 585, Ocean Wind must first submit and receive approval of a COP before any construction activities may take place on the OCS.<sup>3</sup> Submittal and processing of the COP is governed by the provisions set forth in 30 C.F.R. §§ 585.620 through 585.629.

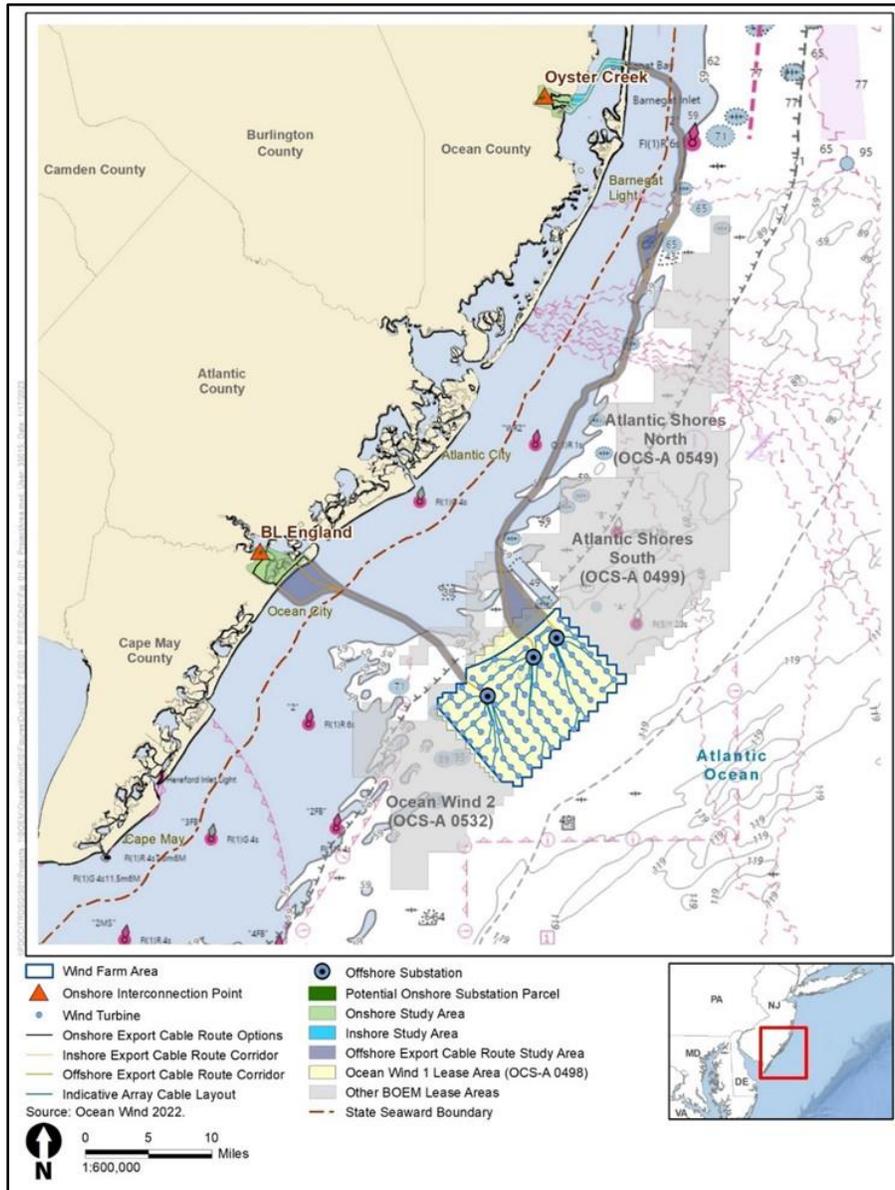
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<sup>2</sup> See the baseline studies, January 2008–December 2009 at the New Jersey State Library website: <https://dspace.njstatelib.org/xmlui/handle/10929/68435>

<sup>3</sup> See 30 C.F.R. § 585.600(b).

On August 19, 2019, Ocean Wind submitted a COP to BOEM for review and approval. The COP proposes the development of an offshore wind energy project (“Project”) limited to an area within Lease OCS-A 0498, as shown in Figure 1 below. The Project area consists of 68,450 acres (277 km<sup>2</sup>).<sup>4</sup>

**FIGURE 1 – PROJECT**



<sup>4</sup> 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’s area.” However, note that the entirety of the Lease Area OCS-A 0498 consists of approximately 75,526 acres (306 km<sup>2</sup>).

Ocean Wind has 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 Project (the Proposed Action in the Final Environmental Impact Statement [EIS]) consists of up to 98 wind turbine generators (WTGs), up to three offshore substations (OSS), inter-array cables linking the individual WTGs to the OSS, and substation interconnector cables linking the substations to each other in the Lease Area, which is approximately 13 nm southeast of Atlantic City, New Jersey. The WTGs will 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 1 nautical mile (nm) by 0.8 nm. Up to three offshore export cables (installed within two export cable route corridors) connecting to onshore export cable systems and two onshore substations with connections to the existing electrical grid in New Jersey at BL England and Oyster Creek will also be developed. The BL England export cable route corridor will make landfall at Ocean City, New Jersey, and the Oyster Creek export cable route corridor will make landfall at Lacey Township, New Jersey. Ocean Wind's COP details the proposed construction, operation, and eventual decommissioning of the WTGs, OSS, and associated inter-array and export cabling to shore for the Project, along with biological and physical survey information.

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), Ocean Wind requested project easements as part of its COP. Ocean Wind further refined those project easements in a June 23, 2023, request to BOEM. As proposed in the COP, the project easements would pass through approximately 67 statute miles of the U.S. OCS. The remainder of the Ocean Wind export cables would pass through state waters.

### **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 conducts an environmental review. As described below, BOEM's Office of Renewable Energy Programs (OREP) has completed the sufficiency, technical, and environmental reviews of Ocean Wind's COP.

#### **3.1 Completeness and Sufficiency Review**

With regard to the regulations pertaining to COPs, 30 C.F.R. § 585.620 provides the general requirements of what must be described in a COP,<sup>5</sup> and 30 C.F.R. § 585.621 sets forth what a

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<sup>5</sup> 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

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, and other project-specific information, including financial assurance. Pursuant to 30 C.F.R. § 585.627, the Lessee must submit information and certifications necessary for BOEM to comply with the National Environmental Policy Act of 1969 (NEPA)<sup>6</sup> and other relevant laws.

In a letter dated July 16, 2019, Ocean Wind requested a departure from BOEM's regulations to allow it to submit information identified in 30 C.F.R. §§ 585.626(a)(1), (a)(2), (a)(4), (a)(5), (a)(6) and 30 C.F.R. §§ 585.627(a)(1), (a)(3), (a)(5), (a)(6), and (a)(10) for the Project's area, to conduct surveys, including geophysical, shallow and deep geotechnical cores, marine archaeological, and biological surveys. Ocean Wind proposed a schedule of supplemental filings to submit the information identified in 30 C.F.R. §§ 585.626(a)(1), (a)(2), (a)(5) and 30 C.F.R. §§ 585.627(a)(1), (a)(3), (a)(5), (a)(6), and (a)(10) that would provide BOEM with sufficient time to conduct its reviews, initiate Federal agency consultations, and begin the NEPA process.

In the same July 16, 2019 letter, Ocean Wind proposed to submit the information identified in 30 C.F.R. §§ 585.626(a)(4) and (a)(6) as an appendix to the required Facility Design Report (FDR).

OREP's Projects and Coordination Branch (PCB) evaluated the departure request and coordinated BOEM's review. On March 12, 2020, BOEM approved the departure request in part. BOEM found that with respect to the request to depart from 30 C.F.R. §§ 585.626(a)1, (a)(2), (a)(3), (a)(5) and 30 C.F.R. §§ 585.627(a)(6), Ocean Wind's schedule for submitting the information allowed the Project details to be sufficiently finalized before submitting the information, while also providing BOEM with sufficient information to support its review of the COP and initiate required consultations with other Federal and state agencies.

Ocean Wind requested a departure from 30 C.F.R §§ 585.627(a)(9), but BOEM determined that a departure was not required because the proposed development is not within Delaware's designated geographic location description, so consistency certification was not required.

With respect to Ocean Wind's request for departure from 30 C.F.R §§ 585.627(a)(10), BOEM's regulations do not require the submittal of a cable crossing agreement with the COP, but coordination among cable owners is encouraged when crossings are anticipated.

With respect to Ocean Wind's request for a departure so as to submit the information identified in 30 C.F.R. §§ 585.626(a)(4) and (a)(6) as an appendix to the FDR, BOEM determined that the geotechnical information submitted by Ocean Wind with the COP was sufficient to allow for its review of the COP. BOEM approved the departure request, allowing Ocean Wind to submit geotechnical investigations at final foundation locations with the FDR along with results of geotechnical analyses and foundation design parameters.

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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).

<sup>6</sup> 42 U.S.C. §§ 4321 et seq.

On August 19, 2019, Ocean Wind submitted a COP to BOEM for review and approval. On October 2, 2019, 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 required in 30 C.F.R. §§ 585.626 and 585.627 for BOEM to begin reviewing the sufficiency of that information. PCB coordinated with ETRB and EBRE BOEM's sufficiency review of Ocean Wind's COP. Throughout the review process, BOEM evaluated the information provided in response to its requests for additional information, as well as the updated COPs Ocean Wind submitted, and determined that the information provided was sufficient, in accordance with BOEM's regulations.

OREP has determined that the COP includes all the information required by 30 C.F.R. §§ 585.626 and 585.627 for the Project, except the information described in 30 C.F.R. §§ 585.626(a)(4) and (a)(6), for which BOEM has approved a regulatory departure. If the Project is approved, Ocean Wind must submit the following information no later than when it submits its Facility FDR:

- Updated information required in 30 C.F.R. §§ 585.626(a)(1) on shallow hazards, to include the results of the geological survey relevant to the design and siting of the facility (§ 585.626(a)(4)), and the overall site investigation for the facility (§ 585.626(a)(6)).

### **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; and
- USCG, for vessel navigation.

Furthermore, ETRB and BSEE reviewed the statement of work and qualification submitted in the COP for the Certified Verification Agent (CVA) nomination. On April 1, 2021, BOEM approved the nomination of DNV GL Denmark A/S (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 Ocean Wind if BOEM approves the COP.

As a result of these reviews, ETRB has determined that both the technical information and supporting data provided with the COP meet the requirements of 30 C.F.R. § 585.626 and are sufficient to allow 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 (Anticipated Terms and Conditions of COP Approval; Appendix A to the ROD).

### 3.3 Environmental Review

OREP's EBRE conducted an environmental review of the COP. On March 30, 2021, BOEM published the Notice of Intent (NOI) to prepare an EIS for Ocean Wind's COP,<sup>7</sup> which started BOEM's formal scoping process pursuant to NEPA. The Notice of Availability (NOA) of the Draft EIS for the Project was published on June 24, 2022.<sup>8</sup> The U.S. Army Corps of Engineers (USACE), the National Marine Fisheries Service (NMFS), BSEE, USCG, U.S. Environmental Protection Agency (USEPA), National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), and Department of Defense (DoD) were cooperating Federal agencies during the development and review of the Final EIS. Cooperating state agencies included the New Jersey Department of Environmental Protection (NJDEP), the New York Department of State, and the New Jersey Board of Public Utilities.<sup>9</sup> BOEM invited the Absentee-Shawnee Tribe of Indians of Oklahoma, Eastern Shawnee Tribe of Oklahoma, Shawnee Tribe, Mashantucket (Western) Pequot Tribal Nation, the Narragansett Indian Tribe, the Rappahannock Tribe, and the Shinnecock Indian Nation; the Delaware Tribe of Indians, Delaware Nation, the Stockbridge-Munsee Community Band of Mohican Indians, and the Wampanoag Tribe of Gay Head (Aquinnah) to participate in tribal consultation meetings with BOEM after public scoping and after publication of the Draft EIS. Tribal coordination (government-to-government) meetings were held with Delaware Nation and Delaware Tribe of Indians on June 17, 2021, and with Delaware Tribe of Indians and Shinnecock Indian Nation on November 3, 2022.

On May 26, 2023, BOEM published the NOA of the Final EIS in the *Federal Register*.<sup>10</sup> The Final EIS identified Alternative A, the Proposed Action, in combination with Alternative E as the Preferred Alternative and included BOEM's responses to comments on the Draft EIS in Appendix O. The Final EIS found that the Preferred Alternative would have negligible to moderate adverse impacts on most resources and only the potential for major adverse impacts on (i) scenic and visual resources (not overall, but depending on the specific resource affected); (ii) commercial fishing (not overall, but depending on the specific type of gear used and thus specific type of fisherman affected); (iii) scientific research and surveys; and (iv) marine mammals (including the North Atlantic right whale (NARW)).<sup>11</sup> The Final EIS also found that the Project could have, to some extent, beneficial impacts on the following resources: (i) air quality; (ii) benthic resources; (iii) birds; (iv) commercial fisheries and for hire recreational fishing; (v) demographics, employment, and economics; (vi) land use and costal infrastructure; (vii) marine mammals (odontocetes [toothed whales] and pinnipeds); (viii) recreation and tourism; and (ix) sea turtles.

Concerning 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 and (ii) scientific research and surveys. The Final EIS also found that future

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<sup>7</sup> Notice of Intent to Prepare an EIS, 86 Fed. Reg. 16,630 (March 30, 2021).

<sup>8</sup> Notice of Availability of a Draft EIS, 87 Fed. Reg. 37,883 (June 24, 2022).

<sup>9</sup> For more details, see Final EIS. <https://www.boem.gov/renewable-energy/state-activities/ocean-wind-1-final-environmental-impact-statement-feis-commercial>

<sup>10</sup> Notice of Availability of a Final EIS, 88 Fed. Reg. 34,184 (May 26, 2023).

<sup>11</sup> Final EIS, Exec. Summary, at iv-v.

planned actions could have beneficial impacts on the following resources: (i) demographics, employment, and economics; (ii) recreation and tourism; and (iii) land use and coastal infrastructure. The 30-day waiting period for the Final EIS closed on June 26, 2023.

Several consultations were conducted as part of the environmental review process. On April 3, 2023, NMFS issued a Biological Opinion (BiOp) for the Project under Section 7 of the Endangered Species Act (ESA).<sup>12</sup> The BiOp concluded that the proposed activity is not likely to jeopardize the continued existence of any ESA-listed species under NMFS' jurisdiction. To be exempt from 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 BiOp.<sup>13</sup>

On May 12, 2023, USFWS transmitted a BiOp for the Project and concluded consultation and conference for the Project pursuant to Section 7 of the ESA.<sup>14</sup> The BiOp concluded the Project is not likely to jeopardize the continued existence of the Federally listed piping plover, rufa red knot, or roseate tern. To be exempt from prohibitions of Section 9 of the ESA, BOEM must comply with the Reasonable and Prudent Measures and implementing Terms and Conditions documented in the BiOp.<sup>15</sup>

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 February 24, 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. On March 22, 2023, BOEM indicated to NMFS that due to the nature of the Project, more than 30 days would be needed to respond. BOEM issued a detailed response letter to NMFS on May 23, 2023. The detailed response to the conservation recommendations provided draft conditions of COP approval that adopt or partially adopt NMF's conservation recommendations, which BOEM has included in Appendix A of the ROD.

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 two National Historic Landmarks (NHLs) properties, Lucy the Margate Elephant and Atlantic City Convention Hall, that 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 NPS, New Jersey SHPO, and 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 N, section N.6, *National Historic Landmarks and the NHPA Section 106 Process* of the Final EIS.

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<sup>12</sup> 16 U.S.C. §§ 1531 *et seq.*; *see generally* Nat'l Marine Fisheries Serv., GARFO-022-02397 Endangered Species Act Section 7 Consultation Biological Opinion: Construction, Operation, Maintenance, and Decommissioning of the Ocean Wind 1 Offshore Energy Project (Lease OCS-A 0498), [https://repository.library.noaa.gov/view/noaa/49689/noaa\\_49689\\_DS1.pdf](https://repository.library.noaa.gov/view/noaa/49689/noaa_49689_DS1.pdf), hereinafter BiOp.

<sup>13</sup> See BiOp § 11.3.

<sup>14</sup> See Letter from Eric Schrading, Field Supervisor, New Jersey Field Office, Fish and Wildlife Serv., to Lisa Landers, Office of Renewable Energy Programs, Bureau of Ocean Energy Mgmt. (May 12, 2023).

<sup>15</sup> See BiOp § 11.3.

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 New Jersey State Historic Preservation Officer, and the Advisory Council on Historic Preservation, and fully executed on June 30, 2023.

Ocean Wind voluntarily submitted a request for Federal Consistency Certification to the State of New Jersey under the Coastal Zone Management Act (CZMA).<sup>16</sup> NJDEP Division of Land Resources Protection, acting under Section 307 of the Federal Coastal Zone Management Act (Pub. L. No. 92-583), as amended, determined that the Project is conditionally consistent with New Jersey's Coastal Zone Management Rules (N.J.A.C. 7:7-1.1 *et seq.*) (amended on October 5, 2021), provided that the conditions outlined in NJDEP's April 27, 2023, Federal Consistency Certification Request Letter are met to the satisfaction of the NJDEP.<sup>17</sup> BOEM has included terms and conditions in Appendix A of the ROD that cover all the relevant conditions included in NJDEP's conditional consistency determination.

#### **4.0 Compliance Review<sup>18</sup>**

The regulations at 30 C.F.R. part 585 set forth responsibilities for both BOEM and Ocean Wind that are similar to those imposed by the 8(p)(4) factors.<sup>19</sup> The regulations at 30 C.F.R. § 585.102 require 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 Ocean Wind has planned and is prepared to conduct the proposed activities in a manner that conforms to its responsibilities listed in 30 C.F.R. § 585.105(a), as well as seven other goals listed therein. BOEM and Ocean Wind share some of the responsibilities (e.g., ensuring that activities are carried out in a safe manner), while others are the responsibility of either BOEM (e.g., ensuring a fair return to the United States) or Ocean Wind (e.g., using properly trained personnel). The discussion in the following sections, 4.1 to 4.12, provides an overview of how BOEM has ensured the selected 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 Ocean Wind's commercial lease<sup>20</sup>**

Consultations and reviews for the Project under NEPA, ESA, CZMA, MSA and NHPA have been completed.<sup>21</sup> Further, approval of the COP would prohibit Ocean Wind from commencing construction activities before obtaining all applicable permits and authorizations, including permits and permissions requested by Ocean Wind under Section 10 of the Rivers and Harbors Act of 1899 (RHA), Section 404 of the Clean Water Act, and Section 14 of the RHA from USACE, and Incidental Take Regulations and an associated Letter of Authorization under the

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<sup>16</sup> 16 U.S.C. §§ 1451 *et seq.*

<sup>17</sup> See Final EIS, Appendix A (discussing Coastal Zone Management Act concurrence).

<sup>18</sup> See 43 U.S.C. § 1337(p)(4) (OCSLA Subsection 8(p)(4)); 30 C.F.R. §§ 585.102, 585.621.

<sup>19</sup> See 30 C.F.R. §§ 585.102, 585.621.

<sup>20</sup> See *id.* §§ 585.102(b), 585.621(a).

<sup>21</sup> See discussion *supra* sec. 3.3.

Marine Mammal Protection Act from NMFS. Section 2.2 of the COP (Regulatory Framework) lists all expected Federal, New Jersey State, regional (county), and local-level reviews and permits for the Project.<sup>22</sup>

#### **4.2 Safety, best available and safest technology,<sup>23</sup> best management practices,<sup>24</sup> and properly trained personnel<sup>25</sup>**

The COP for the Ocean Wind 1 Offshore Wind Farm project proposed the following major offshore components:

- Up to 98 WTGs;
- Each WTG would be supported by a monopile foundation;
- The inter-array cables with a typical voltage of 66 kV but up to 170 kV;
- Up to three offshore substations on a monopile or piled jacket foundation;
- Up to two interconnector cables with a voltage of 275 kV; and
- The export cables would consist of up to three 275kV submarine power cable with target burial depth of 4 to 6 feet.

BSEE and the CVA will verify that all major components of the Project, and all planning, design, and construction activities, meet or exceed industry standards and/or certifications at the FDR/FIR stage, as proposed in the COP.<sup>26</sup>

The engineering specifications of the WTGs and their ability to sufficiently withstand weather events— which include withstanding hurricane-level events—is independently evaluated by a CVA when reviewing the FDR and FIR according to international standards. One of these standards calls for the structure to be able to withstand a 50-year return interval event. An additional standard also includes withstanding 3-second gusts of a 500-year return interval event.

ETRB determined that the information provided in the COP was sufficient to determine that the proposed project uses best available and safest technology, pursuant to 30 CFR 585.621(e), with the understanding that this determination will be confirmed through agency review of the FDR, FIR, and the SMS.

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 approval for the COP to ensure that this Project is carried out in a safe manner.<sup>27</sup> Additionally, oversight of the review of future submissions (e.g., FDR and FIR

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<sup>22</sup> See also Final EIS, appendix A.

<sup>23</sup> See COP vol. I, §§ 1.1.5, 6.1.1 – 6.2.3, 7.0 & 9.1.

<sup>24</sup> See COP. vol. II, § Table 1.1-2.

<sup>25</sup> See 43 U.S.C. § 1337(p)(4)(A); 30 C.F.R. §§ 585.102(a)(1), 585.621(b), 585.621(e)-(g). See COP. vol. I, §§ 6.1.2, 6.1.4, 7.2.5 and COP vol. I app. B

<sup>26</sup> 30 C.F.R. § 585.115(e) (incorporating by reference Am. Petroleum Inst., API RP 2A-WSD, Recommended Practice for Planning, Designing and Constructing Fixed Offshore Platforms—Working Stress Design (21st ed. 2000); Errata and Supplement 1 (2002); Errata and Supplement 2 (2005); Errata and Supplement 3 (2007)).

<sup>27</sup> See *infra*. Anticipated Terms and Conditions of COP Approval, Appendix A to the ROD.

activities) will allow BSEE to ensure that the “facilities are designed, fabricated, and installed in conformance with accepted engineering practices.”<sup>28</sup>

The COP also provides a description of its proposed SMS,<sup>29</sup> 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 Ocean Wind’s proposed implementation thereof. BOEM determined that Ocean Wind’s proposals are consistent with acceptable industry practices and standards. Specifically, the SMS provides that all contractors will be fully qualified to perform the roles for which they are contracted, including any prescribed safety standards and awareness training.

#### **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<sup>30</sup>**

Minimizing environmental impacts through the assessment of environmental resources is integral to BOEM’s planning and leasing phase of offshore wind development. The Final EIS (BOEM, 2023) determined that the majority of the potential adverse impacts to the environment and natural resources are negligible to moderate. The Final EIS concluded that the project would potentially result in major impacts only to commercial fisheries; marine mammals (NARW); scientific research and surveys; and scenic and visual resources. 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.

BOEM’s efforts to protect the environment and prevent undue harm to the resources listed herein began before Lease OCS-A 0498 was issued to Ocean Wind. BOEM published in the *Federal Register* a Call for Information and Nominations (“Call”) to identify locations within the offshore Call Area<sup>31</sup> in which there was industry interest to seek commercial leases for developing wind projects. The Call Area was located off the coast of New Jersey beginning approximately seven nm from shore and extending approximately 23 nm seaward.<sup>32</sup> It was approximately 418 square nm and contained 43 whole OCS lease blocks and 34 partial OCS lease blocks.<sup>33</sup> In the Environmental Assessment (EA) discussed below, BOEM evaluated the potential environmental effects of lease issuance and subsequent site assessment and site characterization activities in this Call Area.<sup>34</sup>

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<sup>28</sup> See 30 C.F.R. § 285.705(a)(1).

<sup>29</sup> See COP vol. I, app. B.

<sup>30</sup> See 43 U.S.C. § 1337(p)(4)(B); 30 C.F.R. §§ 585.102(a)(2), 585.621(d).

<sup>31</sup> See Bureau of Ocean Energy Mgmt., New Jersey Call Area, [https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable\\_Energy\\_Program/State\\_Activities/NewJerseyCallNatuicalChartFinal2.pdf](https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/State_Activities/NewJerseyCallNatuicalChartFinal2.pdf)

<sup>32</sup> See generally Com. Leasing for Wind Power on the Outer Continental Shelf Offshore New Jersey—Call for Info. and Nominations, 76 Fed. Reg. 22,130 (Apr. 20, 2011).

<sup>33</sup> *Id.* at 22,134-22,135.

<sup>34</sup> See

[https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable\\_Energy\\_Program/Smart\\_from\\_the\\_Start/Mid-Atlantic\\_Final\\_EA\\_012012.pdf](https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/Smart_from_the_Start/Mid-Atlantic_Final_EA_012012.pdf).

On February 9, 2011, BOEM published an NOI to prepare an 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 in and around the Lease Area.<sup>35</sup> 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), which assessed 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 those states.<sup>36</sup>

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, NMFS issued the BiOp for the Project on April 3, 2023. The BiOp concluded that the Project is likely to adversely affect but is not likely to jeopardize the continued existence of blue, fin, sei, sperm, and NARW, the Northwest Atlantic Distinct Population Segment (DPS) of loggerhead sea turtles, the North Atlantic DPS of green sea turtles, Kemp's ridley or leatherback sea turtles, the shortnose sturgeon, or any of the five DPSs of Atlantic sturgeon.<sup>37</sup> The Project may adversely affect but is not likely to destroy or adversely modify critical habitat designated for the New York Bight DPS of Atlantic sturgeon. The BiOp also concluded that the project will have no effect on the Gulf of Maine DPS of Atlantic salmon or critical habitat designated for the NARW, Carolina DPS of Atlantic sturgeon, or the Northwest Atlantic DPS of loggerhead sea turtles. The Project is not likely to adversely affect giant manta rays, hawksbill sea turtles, the Northeast Atlantic DPS of loggerhead sea turtles, and oceanic whitetip sharks.

In response to BOEM's May 27, 2022, request to USFWS to initiate ESA Section 7 consultation, on May 12, 2023, USFWS transmitted a BiOp and concluded consultation and conference for the Project. The BiOp concluded the Project is not likely to jeopardize the continued existence of the Federally listed piping plover, rufa red knot, or roseate tern. To minimize impacts on the piping plover, rufa red knot, or roseate tern, the BiOp includes several Conservation Measures

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<sup>35</sup> 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).

<sup>36</sup> 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). The EA did not analyze the development and operation of a wind energy facility since Lease OCS-A-0498 did not authorize the construction of an OCS facility and, at the time the EA was prepared, there was no proposal for a wind energy project that could be meaningfully evaluated under NEPA.

<sup>37</sup> See BiOp at 503.

and Reasonable and Prudent Measures and implementing Terms and Conditions that must be made conditions of approval.<sup>38</sup>

BOEM also conducted consultation with NMFS in accordance with Section 305(b)(2) of the MSA. BOEM analyzed potential adverse impacts of the Project on EFH in an EFH Assessment deemed complete by NMFS on December 16, 2022.<sup>39</sup> NMFS issued a letter on February 24, 2023, in which they provided 12 conservation recommendations to avoid and minimize impacts to EFH for activities within the OCS. BOEM provided a detailed response to NMFS via letter dated May 25, 2023, regarding how each of the conservation recommendations would be applied for the Project. BOEM fully or partially adopted 11 of the 12 conservation recommendations. Conservation recommendation #11 was not adopted because it is not specifically related to the Project and similar studies examining changes in hydrodynamics in the Mid-Atlantic have been conducted.<sup>40</sup>

BOEM also conducted NHPA Section 106 consultation with the 37 consulting parties made up of 6 Federal agencies (including the Advisory Council on Historic Preservation), 6 federally-recognized Tribes, 3 State agencies (including the New Historic Preservation Office), 11 local governments, 10 nongovernmental organizations and/or groups or private property owners, and Ocean Wind, with a demonstrated interest in the affected historic properties and held 5 consulting party meetings.<sup>41</sup> 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 two NHLs that may be visually adversely affected by activities resulting from COP approval and followed the requirements for compliance with NHPA Section 110(f). On June 30, 2023, an MOA was executed stipulating how the adverse effects of the Project on historic properties will be resolved.

The COP proposed impact avoidance, minimization, and mitigation measures, which BOEM included as elements of the project in its environmental analysis and consultations. Measures proposed by Ocean Wind can be found in Volume II, section 1.1 of the COP and include measures to avoid, minimize, and mitigate impacts to resources such as air quality, birds, and bats, among others.<sup>42</sup> If BOEM approves the COP, BOEM will incorporate Ocean Wind's proposed measures as COP conditions of approval and require Ocean Wind 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 on existing ocean uses and on environmental and socioeconomic resources

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<sup>38</sup> See Letter from Eric Schradung, Field Supervisor, New Jersey Field Office, Fish and Wildlife Serv., to Lisa Landers, Office of Renewable Energy Programs, Bureau of Ocean Energy Mgmt. (May 12, 2023), <https://www.boem.gov/renewable-energy/state-activities/fws-esa-consultations>

<sup>39</sup> See Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Ocean Wind Essential Fish Habitat Assessment (2022), <https://www.boem.gov/renewable-energy/state-activities/ocean-wind-1-draft-efh-assessment>.

<sup>40</sup> Hydrodynamic Modeling, Particle Tracking and Agent-Based Modeling of Larvae in the U.S. Mid-Atlantic Bight: [https://epis.boem.gov/final%20reports/BOEM\\_2021-049.pdf](https://epis.boem.gov/final%20reports/BOEM_2021-049.pdf)

<sup>41</sup> The list of those parties accepting participation and declining to participate by either written response or no response to direct invitations are listed in Attachment 2 of the Section 106 MOA.

<sup>42</sup> COP vol. II, § 1.1; Ocean Wind 1 Wind Farm Construction and Operations Plan (April 24, 2022), <https://www.boem.gov/ocean-wind-1-construction-and-operations-plan>

associated with construction, operation, and maintenance activities across the various resource areas analyzed in 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 section.

#### **4.4 Prevention of waste and conservation of natural resources<sup>43</sup>**

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 sections 2.1 and 2.2 of the Ocean Wind 1 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. For similar reasons, 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 0498 was the result of a comprehensive planning process, as discussed in section 1.1 and Appendix A of the Final EIS. The multiple stages of the planning process evaluated natural resources in the region and removed from consideration areas that would be incompatible with renewable energy activities in the area covered by Lease OCS-A 0498. The analysis conducted in the section 3.17 of the Final EIS concluded that the Project would result in negligible impacts on non-energy marine minerals (primarily sand and gravel) because the Project would avoid mineral leases, sand and gravel leases and borrow areas, and ocean disposal areas. There are no existing oil 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 program which was announced on July 1, 2022).<sup>44</sup> There is no evidence that the project will waste oil, gas, or other mineral resources.

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<sup>43</sup> See 43 U.S.C. §§ 1337(p)(4)(C)-(D); 30 C.F.R. §§ 585.102(a)(3)-(4), 585.105(a).

<sup>44</sup> See <https://www.doi.gov/pressreleases/interior-department-invites-public-comment-proposed-five-year-program-offshore-oil-0>

#### **4.5 Coordination with relevant Federal agencies<sup>4546</sup>**

Throughout BOEM's regulatory process, BOEM engaged with relevant Federal agencies to obtain expert advice, comply with regulatory requirements, and ensure proper coordination. Documentation of this coordination with Federal agencies through BOEM's Intergovernmental Renewable Energy Task Force meetings, and public meetings from the early pre-lease planning stages to the Area Identification process (which resulted in the WEAs before modification at the Proposed Sale Notice stage) can be found in section 1.5 of the Mid-Atlantic EA<sup>47</sup> and on BOEM's website.<sup>48</sup> Throughout the environmental and technical review of the COP, BOEM met with various Federal agencies, including BSEE, DoD, EPA, USACE, USFWS, NOAA-NMFS, NPS, and 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, EPA, USACE, USFWS, NOAA, and USCG supported preparation of the Draft EIS as Cooperating Agencies, and NPS supported preparation of the Draft EIS as a Participating Agency. BOEM provided Cooperating and Participating Agencies with the preliminary Draft EIS on February 10, 2022, for review and comment. Before BOEM 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, NPS requested to become a Cooperating Agency. The Cooperating Agencies also supported preparation of the Final EIS. BOEM provided Cooperating Agencies with the preliminary Final EIS on November 28, 2022, for review and comment. Before BOEM 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 four times (May 18, 2020, June 29, 2021, January 13, 2022, and January 17, 2023), met with agencies individually on a plethora of occasions, and hosted two sets of three public meetings (scoping and Draft EIS).<sup>49</sup> 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.

#### **4.6 Protection of national security interests of the United States<sup>50</sup>**

At each stage of the regulatory process involving Lease OCS-A 0498, BOEM has consulted with DoD for the purposes of assessing national security considerations in its decision-making

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<sup>45</sup> See 43 U.S.C. § 1337(p)(4)(E); 30 C.F.R. § 585.102(a)(5).

<sup>46</sup> Throughout the COP review and approval process, DOI engaged in meaningful consultation with federally recognized Tribes. For more detail see Final EIS Appendix A section A.2.2.3 and Appendix N.

<sup>47</sup> 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](https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/Smart_from_the_Start/Mid-Atlantic_Final_EA_012012.pdf)

<sup>48</sup> See <https://www.boem.gov/renewable-energy/state-activities/renewable-energy-task-force-meetings-1>

<sup>49</sup> See Final EIS, app. A (detailing consultation and coordination process with other Federal and State agencies).

<sup>50</sup> See 43 U.S.C. § 1337(p)(4)(F); 30 C.F.R. §§ 585.102(a)(6), 585.621(c).

processes. On April 11, 2011, BOEM published a “Call for Information and Nominations for Commercial Leasing for Wind Power on the OCS Offshore New Jersey” (Call) in the *Federal Register* (under Docket ID: BOEM-2011-0005) to help BOEM determine whether competitive interest exists in the identified Call Area offshore New Jersey. 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 BOEM’s New Jersey Renewable Energy Task Force, which include Federal, state, and tribal government partners, including DoD, USCG, and the State of New Jersey. Furthermore, BOEM consulted with DoD on the EA (described in section 4.3), which examined the potential environmental effects of issuing commercial wind energy leases and approving site assessment activities in the New Jersey WEA. Section 4.1.3.7.1 of the EA discusses military activities within the WEA.

Following BOEM’s consultation with DoD on the proposed action to issue leases in the entire WEA, DoD concluded that site-specific stipulations, designed in consultation with DoD, could mitigate the impact of site characterization surveys and the installation, operation, and decommissioning of meteorological towers and buoys on DoD testing training and operations in the WEA. When addressed through coordination with the DoD, impacts would be negligible and avoidable.<sup>51</sup>

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 Navy (DON) operations from distributed fiber-optic sensing technology. BOEM and the DoD Clearinghouse coordinated to address these concerns and to avoid or mitigate them.<sup>52</sup> The DoD Clearinghouse requested the specific mitigation measures listed below to be accomplished by the lessee via entering into an agreement with DoD:

- To mitigate potential impacts on the DON’s operations, the Lessee must coordinate with the DoD/DON on any proposal to utilize distributed fiber-optic sensing technology as part of the Project or associated transmission cables.
- 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 with a copy of the agreement

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<sup>51</sup> 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](https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/Smart_from_the_Start/Mid-Atlantic_Final_EA_012012.pdf)

<sup>52</sup> For more information on these concerns, see Final EIS § 3.17 (Other Uses (Marine Minerals, Military Use and Aviation)).

within 15 calendar days of entering into it. The Lessee must include a summary of associated activities in the Lessee's annual self-inspection reports.

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

The Lessee's lease also includes a provision allowing for BOEM to suspend operations in accordance with Suspension of Operations for National Security or Defense Purposes as described in Section 3c of Lease OCS-A 0498.<sup>53</sup>

#### **4.7 Protection of the rights of other authorized users of the OCS<sup>54</sup>**

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.<sup>55</sup> 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 those parties' authorized uses.

Specifically, there are no nearby oil and gas leases or grants or deposits of sand, gravel, and shell resources subject to 43 U.S.C. § 1337(k)(2) (OCSLA) that would be affected by the activities proposed in the COP. While there are two adjacent or nearby wind energy leases comprising the New Jersey WEAs, one wind energy lease, OCS-A 0532, is held by Ocean Wind LLC's parent company Ørsted North America, Inc. The other wind energy lease, OCS-A 0499, has adopted a separation agreement with Ocean Wind<sup>56</sup> to establish a separate distance of at least 1,500 meters between the Lessees' bordering WTGs.

#### **4.8 A fair return to the United States<sup>57</sup>**

BOEM has determined that the high bid resulting from the lease auction and terms of the lease provide a fair return to the United States. On November 9, 2015, BOEM auctioned the New Jersey WEA. BOEM auctioned the area as two leases, referred to as the South Lease Area

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<sup>53</sup> Commercial Wind Lease OCS-A 0498, [https://www.boem.gov/sites/default/files/documents/renewable-energy/OCS-A-0498\\_OCS-A-0532-Lease-Segregation.pdf](https://www.boem.gov/sites/default/files/documents/renewable-energy/OCS-A-0498_OCS-A-0532-Lease-Segregation.pdf)

<sup>54</sup> See 43 U.S.C. § 1337(p)(4)(G); 30 C.F.R. § 585.102(a)(7).

<sup>55</sup> 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.

<sup>56</sup> Ocean Wind 1 and Atlantic Shores South, in coordination with the U.S. Coast Guard, developed a mutually agreeable separation scenario, which was documented in a joint letter signed by Ocean Wind and Atlantic Shores Offshore Wind on July 21, 2022.

<sup>57</sup> See 43 U.S.C. § 1337(p)(4)(H); 30 C.F.R. § 585.102(a)(8).

(Lease OCS-A 0498) and the North Lease Area (Lease OCS-A 0499). The North Lease Area consisted of about 183,353 and the South Lease Area consisted of about 160,480 acres. RES America Developments Inc. was the winner of South Lease Area because they submitted the highest Live-Bid Price of \$880,715. U.S. Wind Inc. was the winner of the North Lease Area because they submitted the highest Live-Bid price of \$1,006,240. The auction received \$1,886,955 in high bids and lasted one day, consisting of 7 rounds. 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,<sup>58</sup> the minimum bid for the South Lease Area was \$2 per acre, or \$320,960. The minimum bid for the North Lease Area was \$2 per acre, of \$366,706. RES America Developments Inc.'s winning monetary bid exceeded these minimum bids at \$5.49 per acre and thereby exceeded fair return for the United States on that basis alone.

On April 14, 2016, RES America Developments Inc., submitted an application to BOEM to assign 100 percent of OCS-A 0498 to Ocean Wind. BOEM approved the assignment on May 10, 2016. On December 8, 2020, Ocean Wind submitted an application to BOEM to assign the portion of lease OCS-A 0498 that is not covered by the COP to Ørsted North America, Inc. BOEM approved the assignment on March 26, 2021. The Lease Area assigned to Ørsted North America, Inc. now carries the new lease number OCS-A 0532.

Lease payments are enumerated in Lease OCS-A 0498, as confirmed in BOEM's March 29, 2021, letter approving the segregation of OCS-A 0498 and assigning the relevant portion to Ørsted North America, Inc., under OCS-A 0532. Addendum "B" of Lease OCS-A 0498 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 the assignment and segregation letter, this annual rent after assignment is \$226,578.00. 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-0498 and BOEM's regulations.<sup>59</sup> The operating fee compensates the public for offshore wind development on OCS submerged lands and the associated electricity generated and sold. Upon COP approval, and annually thereafter, Ocean Wind would be required to submit its first project-easement rent payment, calculated based on the acreage of the easement and the formula provided at 30 C.F.R. § 585.500(c)(5) and Addendum D of commercial lease OCS-A 0498.

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<sup>58</sup> See Atlantic Wind Lease Sale 5 (ATLW5) for Commercial Leasing for Wind Power on the Outer Continental Shelf Offshore New Jersey Final Sale Notice, 80 *Fed. Reg.* 57,862 (September 25, 2015) <https://www.boem.gov/sites/default/files/regulations/Federal-Register-Notices/2015/80-FR-57862.pdf>

<sup>59</sup> 30 C.F.R. § 585.506.

#### **4.9 Prevention of interference with reasonable uses of the OCS, the exclusive economic zone, the high seas, and the territorial seas; does not unreasonably interfere with other uses of the OCS, including national security and defense<sup>60</sup>**

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;<sup>61</sup> and that activities authorized by the Secretary will “not unreasonably interfere with other uses of the OCS.”<sup>62</sup>

Throughout the planning and leasing process for Lease OCS-A 0498, 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 New Jersey WEA, BOEM worked closely with the New Jersey Intergovernmental Task Force, Federal agencies, Federally recognized Tribes, the public, and other stakeholders between November 2009 and January 2014.

Before lease issuance, BOEM removed areas to strike a rational balance between identifying an area suitable for wind energy development and preventing interference with other reasonable uses of the OCS. As a result of the Call for Information and Nominations, continued analysis of available data, and engagement with the USCG and maritime community, BOEM removed areas located directly south of the Ambrose to Barnegat traffic lane that if not removed create a navigational obstacle out of New York Harbor.<sup>63</sup> Moreover, BOEM specifically selected the Lease Area to reduce potential use conflicts between the wind energy industry and maritime users by proactively avoiding established traffic separation schemes and traditional navigation routes.

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 activities, if approved, would be carried out in a manner that provides for the prevention of interference with those uses.

- **Navigation.**<sup>64</sup>

Delaware Bay and the Delaware River offers access to several ports of call, such as Wilmington, Philadelphia, and Trenton, for large commercial deep-draft ships, tug and/or barge units, and smaller commercial and non-commercial shallower draft vessels. Other

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<sup>60</sup> 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).

<sup>61</sup> See 43 U.S.C. § 1337(p)(4)(I); 30 C.F.R. § 585.102(a)(9).

<sup>62</sup> See 30 C.F.R. § 585.621(c).

<sup>63</sup> See 79 Fed. Reg. 42,361 (Jul. 21, 2014).

<sup>64</sup> See Final EIS. <https://www.boem.gov/renewable-energy/state-activities/ocean-wind-1-final-environmental-impact-statement-feis-commercial>

ports with traffic navigating in the vicinity of the project include Atlantic City, Paulsboro, New York Harbor, Hope Creek, and Port Elizabeth. These ports serve the commercial fishing industry, passenger cruise lines, cargo, and other maritime activities.

The navigation risk assessment for the proposed project shows that it is technically feasible to navigate through the Lease Area. The Project will maintain two lines of orientation throughout the Lease Area to be oriented northwest – southeast and northeast to southwest direction with the distance between 0.8 nm by 1 nm. This width will enable vessels to maneuver in accordance with the International Regulations for Preventing Collisions at Sea while transiting through the Lease Areas and for search and rescue operations to be conducted within the Project area.

The vessel traffic passing through the Project area was analyzed in the USCG Port Access Route Study: Seacoast of New Jersey Including Offshore Approaches to the Delaware Bay (NJPARS). The USCG recommended a combination of modifications consistent with International Maritime Organization (IMO) routing measures, such as extending the Traffic Separation Scheme (TSS), creating fairways, and establishing precautionary areas. These modifications are currently going through a rulemaking.<sup>65</sup> The NJPARS did not make specific recommendations about turbine spacing or layout for this Lease Area, but the USCG participated alongside BOEM in the review of the NSRA for the project, which was developed with USCG guidance and recommendations. USCG recommended a common turbine spacing and layout through the project and adjoining leases. In the absence of consistent layouts, a setback between any shared lease borders will be created.

Ocean Wind and Atlantic Shores Offshore Wind, LLC , in coordination with USCG, developed a mutually agreeable setback from its shared lease border due to the difference in turbine layout. The setback will improve vessel navigation by providing clear visual reference for mariners within the area to adjust course. This setback was documented in a joint letter signed by Ocean Wind and Atlantic Shores Offshore Wind, LLC on July 21, 2022.

Any vessels navigating through the Project area would need to navigate with greater caution, however, there are no restrictions on navigation in the Project area. WTGs with lighting and marking (COP, Volume II, Table 1.1-2, GEN-07) will serve as additional aids to navigation. Further, BOEM has included conditions in Attachment B to the ROD that would require Ocean Wind to: (i) obtain USCG approval for private aids to navigation to be installed in the Project and (ii) coordinate with the USCG District 5 so that, to the extent possible, the FDR is consistent with the recommendations provided in

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<sup>65</sup> U.S. Coast Guard, *Access Route Study: Seacoast of New Jersey Including Offshore Approaches to the Delaware Bay, Delaware*, 86 Fed. Reg. 53,089 (Sept. 24, 2021).

the marking and lighting guidelines published by the USCG District 5 and BOEM<sup>66</sup> and chapter 4, section G of *Aids to Navigation Manual (COMDTINST Manual (CIM 16500.7A))*.

Ocean Wind has also committed to voluntarily develop and employ a communication plan (COP, Volume II, Table 1.1-2, GEN-14) to inform the USCG, DoD headquarters, harbor masters, public, local businesses, commercial and recreational fishers, among others, of construction and maintenance activities and vessel movement.<sup>67</sup> This communication plan will be followed until the Project is decommissioned.

- **Aviation and Air Traffic.**<sup>68</sup>

Several public and private-use airports serve the region surrounding the Project area, including Atlantic City International Airport, Ocean City Municipal Airport, Woodbine Municipal Airport, Cape May County Airport, and Warren Grove Range Airport. The addition of these structures would increase navigational complexity and could change aircraft navigation patterns for aircraft flying at low altitudes and for airports in the vicinity, increasing collision risks for some aircraft during the project's operational timeframe.

WTGs would be constructed under the listed Federal Aviation Administration (FAA) flight level ceiling designated within the Project area, therefore, 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, Ocean Wind's FDR to be consistent with the recommendations in the *Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development*.<sup>69</sup>

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<sup>66</sup> Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Dev. (2021), <https://www.boem.gov/sites/default/files/documents/renewable-energy/2021-Lighting-and-Marking-Guidelines.pdf>.

<sup>67</sup> See Final EIS. Appendix H.

<sup>68</sup> See Final EIS § 3.17.

<sup>69</sup> Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Guidelines for Lighting and Marking of Structures.

- **Commercial Fisheries and For-Hire Recreational Fishing.**<sup>70</sup>

Federally permitted fishing occurs in the Lease Area. NMFS has issued permits for approximately 4,300 vessels<sup>71</sup> 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.<sup>72</sup> Of these 161 vessels, NMFS data from 2008 to 2021 show that most permits source less than 0.2 percent of their income from the Lease Area.<sup>73</sup> 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 alternative selected in the ROD would result in minor to major adverse impacts to commercial fisheries and minor to moderate adverse impacts on for-hire recreational fishing, depending on the fishery or fishing operation. The Final EIS states that impacts from future planned actions, including future offshore wind approvals, could result in minor to major adverse impacts to commercial fisheries and minor to moderate adverse impacts on for-hire recreational fishing, depending on the fishery or fishing operation. 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.<sup>74</sup> 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 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.

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<sup>70</sup> See Final EIS. <https://www.boem.gov/renewable-energy/state-activities/ocean-wind-1-final-environmental-impact-statement-feis-commercial>

<sup>71</sup> 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.

<sup>72</sup> See Final EIS, Section 3.9.

<sup>73</sup> *Id.*

<sup>74</sup> See Final EIS, Section 3.9.5.

While BOEM expects that, with time, many fishermen will adapt to the spacing and be able to fish successfully in the Project area,<sup>75</sup> BOEM has identified ways to reduce the level of interference that the Project would have with commercial fisheries.<sup>76</sup> 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 1 nm by 0.8 nm.

Ocean Wind has committed to three fisheries mitigation programs, which consist of a gear claim procedure under which requests for reimbursement related to lost and/or damaged gear would be processed, a Direct Compensation Program for reimbursement of lost revenues, and the navigational safety fund for navigation equipment upgrades. BOEM is also including a condition that requires Ocean Wind's Direct Compensation Program to include losses to shoreside business and requires Ocean Wind to conduct a shoreside seafood business analysis that would be used to further supplement funds available for settling claims of lost revenue as a result of the Project. The Direct Compensation Fund includes a reserve amount to be used to pay claims brought by both commercial and for-hire fishermen according to BOEM's *Guidelines for Mitigating Impacts to Commercial and Recreational Fisheries on the Outer Continental Shelf Pursuant to 30 C.F.R. Part 585* (BOEM's Mitigation Guidance) and must be based on the annual average commercial fisheries landings values and for-hire fishing revenue stated in the Final EIS (Table 3.9-11). The reserve amount must be determined by the formula specified in the conditions of approval. The reserve amount will be augmented to pay claims in amounts determined through an analysis of impacts of the Project to shoreside support services.

Including all 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.**<sup>77</sup>

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 13.17.5, the Project will have major adverse impacts on NMFS scientific surveys.

There are 14 NMFS scientific surveys that overlap with wind energy development in the northeast region. Eight 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

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<sup>75</sup> See Final EIS, App. M

<sup>76</sup> See Final EIS, App. H.

<sup>77</sup> See Final EIS, Section 3.17.

*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 impacts on the eight 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.

- **National Security and Defense.**

As explained in section 4.6, BOEM has consulted extensively with the DoD. If BOEM approves the COP, BOEM will include in any COP approval the mitigation measures identified as a result of said consultations.

#### **4.10 Consideration of (i) the location of, and any schedule relating to, a lease or grant under this part for an area of the OCS, and (ii) any other use of the sea or seabed, including use for a fishery, a sealane, a potential site of a deepwater port, navigation<sup>78</sup>**

For a discussion on 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. Also, as noted above, the Preferred Alternative is consistent with the separation agreement between Atlantic Shores Offshore Wind, LLC and Ocean Wind, which documents an agreed-upon separation of a minimum distance of 1,500 meters (0.8 nm) from any WTGs within the adjacent Atlantic Shores South Lease Area.<sup>79</sup>

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

#### **4.11 Public notice and comment on any proposal submitted for a lease or easement<sup>80</sup>**

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.<sup>81</sup>

Before preparing the Draft EIS, BOEM held three virtual public scoping meetings (April 13, 15, and 20, 2021) to solicit feedback and to identify issues and potential alternatives for

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<sup>78</sup> See 43 U.S.C. § 1337(p)(4)(J); 30 C.F.R. § 585.102(a)(10).

<sup>79</sup> Ocean Wind 1 and Atlantic Shores South, in coordination with the U.S. Coast Guard, developed a mutually agreeable separation scenario, which was documented in a joint letter signed by Ocean Wind and Atlantic Shores Offshore Wind, LLC on July 21, 2022.

<sup>80</sup> See 43 U.S.C. § 1337(p)(4)(K); 30 C.F.R. § 585.102(a)(11).

<sup>81</sup> 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](https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/Smart_from_the_Start/Mid-Atlantic_Final_EA_012012.pdf)

consideration. The topics most referenced in the scoping comments included NEPA, public involvement, recreation and tourism, and mitigation and monitoring.<sup>82</sup> 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-2021-0024.

On June 24, 2022, BOEM published an 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.<sup>83</sup> The Draft EIS was made available to the public on BOEM’s website and hardcopies were made available at four libraries (Ocean County Library, Waretown, New Jersey; Atlantic City Free Public Library, Atlantic City, New Jersey; Ocean City Free Public Library, Ocean City, New Jersey; and, Cape May County Library, Wildwood, New Jersey). The NOA commenced the public review and comment period of the Draft EIS. BOEM held three virtual public hearings (July 14, 20, and 26, 2022) 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, employment, and economics, marine mammals, and scenic and visual resources. All Draft EIS comment submissions received can be viewed online at <http://www.regulations.gov> under Docket Number BOEM-2022-0021.

On May 26, 2023, BOEM published an NOA for the Final EIS in the *Federal Register*.<sup>84</sup> The Final EIS was also made available in electronic form at <https://www.boem.gov/renewable-energy/state-activities/ocean-wind-1>. BOEM’s 30-day waiting period for the Final EIS closed on June 26, 2023. BOEM’s responses to comments on the Draft EIS are included in Appendix O of the Final EIS.

#### **4.12 Oversight, inspection, research, monitoring, and enforcement relating to a lease, easement, or right-of-way<sup>85</sup>**

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.<sup>86</sup> On September 14, 2022, DOI delegated relevant authorities to BSEE and BOEM in Departmental Manual part 219,

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<sup>82</sup> <https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Ocean-Wind-Scoping-Report.pdf>

<sup>83</sup> Notice of Availability of a Draft Env’t Impact Statement, 87 Fed. Reg. 37,883 (June. 24, 2022).

<sup>84</sup> Notice of Availability of a Final Env’t Impact Statement, 88 Fed. Reg. 34,184 (May. 26, 2023).

<sup>85</sup> See 43 U.S.C. § 1337(p)(4)(L); 30 C.F.R. § 585.102(a)(12).

<sup>86</sup> “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.

chapter 1, and part 218, chapter 1, respectively.

On January 31, 2023, DOI published a final rule in the *Federal Register* (88 Fed. Reg. 6376) 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 0498, 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, regulations, leases, grants, and approved plans through notices of noncompliance, cessation orders, civil penalties, and other appropriate means.

Under this authority BSEE and BOEM will ensure that offshore renewable energy development in Lease OCS-A 0498 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**

Ocean Wind is currently in compliance with the terms of Lease OCS-A 0498. Ocean Wind has maintained the lease in full force and effect by virtue of annual rent payments, all of which have been timely paid by Ocean Wind and received by BOEM.

## **6.0 Financial Assurance**

As required by 30 C.F.R. § 585.625(b)(19), section 1.1.4 and 1.3 of the COP contains Ocean Wind's statement attesting that the activities and facilities proposed in the COP are or will be covered by an appropriate bond or security as required by 30 C.F.R. §§ 585.515 and 585.516. Ocean Wind has provided and currently maintains Irrevocable Standby Letter of Credit Number SBY59927 in the amount of \$481,578 to meet the initial lease-specific and Site Assessment Plan supplemental financial assurance requirements on lease OCS-A 0498 to guarantee compliance with all terms and obligations of the lease. BOEM's regulations at 30 C.F.R. § 585.516(a)(3) provide that, before BOEM will approve a COP, the lessee must provide a supplemental bond or other financial assurance in an amount determined by BOEM based on the complexity, number, and location of all facilities in the lessee's planned activities and commercial operation. Ocean Wind 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 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.<sup>87</sup>

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<sup>87</sup> See 30 C.F.R. § 585.517.

## 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, OREP established and began meeting with an Intergovernmental Renewable Energy Task Force, and with other stakeholders and ocean users, to identify areas of interest for wind energy offshore New Jersey as well as areas that were less suitable. OREP 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.

Once Ocean Wind submitted its proposed COP in 2019, BOEM 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, DON, USEPA, USACE, USFWS, NOAA, EPA, NPS, and USCG. All of those reviews, consultations, and coordination efforts enabled BOEM to assess whether approval of the Preferred Alternative conforms with the 8(p)(4) factors and implementing regulations.

The Final EIS identified a range of adverse impacts to environmental, socioeconomic, and cultural resources, which are summarized in the ROD. In addition, as the Final EIS concluded, the Preferred Alternative could have beneficial impacts on the following resources: (i) air quality; (ii) benthic resources, (iii) birds, (iv) commercial fisheries and for hire recreational fishing, (v) demographics, employment, and economics; (vi) land use and costal infrastructure; (vii) marine mammals (odontocetes and pinnipeds); (viii) recreation and tourism; and (ix) 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.<sup>88</sup>

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.”

In conclusion, OREP has evaluated all the information that Ocean Wind 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. In the OREP’s view, 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 the activities on the OCS are carried out in a manner that provides for the factors in Subsection 8(p)(4) of OCSLA. \*\*\*

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<sup>88</sup> See Secs. 4.3 and 4.9 *supra*.

## **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  
Chief, Engineering and Technical Review Branch

Subject: Review of the Ocean Wind Offshore Wind Farm Construction and Operations Plan (COP) for Commercial Lease OCS-A 0498

Ocean Wind LLC (Ocean Wind) submitted a COP to the Bureau of Ocean Energy Management (BOEM) on August 15, 2019, for lease OCS-A 0498. The COP for the Ocean Wind 1 Offshore Wind Farm (OCW01) project proposes the installation of the following major offshore components:

- Up to 98 Wind Turbine Generators (WTGs) supported by monopile foundations;
- Up to three offshore alternating current substations (OSS) on monopile foundations;
- The inter-array cables would be up to 170-kV alternating current power cables with a maximum total length of 190 miles and a target burial depth of 4 to 6 feet; and
- The export cables would consist of three 275-kV alternating current power cables with a maximum total length of 143 miles and a target burial depth of 4 to 6 feet.

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 Ocean Wind are logged in the COP review matrix on the Office of Renewable Energy Programs' shared drive AEAU:\S:\State of New Jersey\Ocean Wind LLC\OCS-A 0498\COP\Final.

On April 1, 2021, BOEM approved the nomination of DNV, to be the Certified Verification Agent for the OCW01 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 CFR 585.705.

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 Ocean Wind meets the requirements of 30 CFR 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 CFR 585.621. ETRB determined that the information provided in the COP was sufficient to make an initial determination that the proposed project uses best available and safest technology, pursuant to 30 CFR 585.621(e), with the expectation that this determination will be confirmed through agency review of the Facility Design Report, Fabrication and Installation Report, and the Safety Management System.

ETRB recommends approval of the COP, along with the inclusion of the following terms and conditions (T&C), provided as Appendix B 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	Munitions and Explosives of Concern/Unexploded Ordnance Investigation	§585.627(a)(1)	Hazard information – manmade hazards
2.2	MEC/UXO Identification Survey Report	§585.627(a)(1)	Hazard information – manmade hazards
2.3	MEC/UXO Survey Results Implementation	§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	Safety Management System	§585.627(d)	Safety Management System
2.7	Emergency Response Plan	§585.626(b)(12)(ii)	Operating procedures – accidents or emergencies
2.8	Oil Spill Response Plan	§585.627(c)	Oil Spill Response Plan
2.9	Cable Routings	§585.626(b)(7)	Cables
2.10	Cable Burial	§585.626(b)(7)	Cables
2.11	Cable Protection Measures	§585.626(b)(7)	Cables
2.12	Crossing Agreements	§585.626(b)(7)	Cables
2.13	Post-Installation Cable Monitoring	§585.626(b)(7)	Cables
2.14	WTG and OSS Foundation Depths	§585.626(a)(4)	Geotechnical survey

2.15	Structural Integrity Monitoring	§585.626(b)(12) §285.824	Operating procedures, self-inspections
2.16	Foundation Scour Protection Monitoring	§585.626(a)(6)	Overall site investigation – scouring of the seabed
2.17	Post-Storm Monitoring Plan	§585.627(a)(1)	Hazard information – meteorology, oceanography
2.18	High Frequency Radar Interference Analysis and Mitigation	§585.626(b)(23); FEIS	Other information as required by BOEM
2.19	Critical Safety Systems	§585.626(b)(20);	CVA nomination and reports
2.20	Engineering Drawings	§585.626(b)(20);	CVA nomination and reports
2.21	Construction Status	§585.626(b)(21);	Construction Schedule
2.22	Maintenance Schedule	§585.626(b)(12);	Operating procedures
3	Navigational and Aviation Safety Conditions	§585.626(b)(23)	Other information as required by BOEM