Record of Decision

Atlantic Shores Offshore Wind South Project
Construction and Operations Plan

July 1, 2024

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

U.S. Department of Defense
U.S. Army Corps of Engineers

Table of Contents

1 Introduction 1

1.1 Background 2

1.2 Authorities 5

1.2.1 BOEM Authority 5
1.2.2 NMFS Authority 6
1.2.3 USACE Authority 7

2 Proposed Project 7

2.1 Project Description 7

2.2 Purpose and Need for the Proposed Action 8

3 Alternatives 9

3.1 Alternatives Carried Forward for Detailed Analysis 10

3.2 Environmental Consequences of Alternatives 12

3.3 Environmentally Preferable Alternatives 30

4 Mitigation, Monitoring, and Reporting 32

5 Final Agency Decisions 32

5.1 The Department of the Interior Decision 32

5.2 NMFS' Decision 40

5.2.1 NMFS Decision (40 CFR § 1505.2(a)(1)) 41
5.2.2 Alternatives NMFS Considered (40 CFR § 1505.2(a)(2)) 41
5.2.3 Primary Factors NMFS Considers Favoring Selection of the Proposed Action (40 CFR § 1505.2(a)(2)) 42
5.2.4 Mitigation, Monitoring and Reporting Considered by NMFS (40 CFR § 1505.2(a)(3)) 42

5.3 USACE's Decision 44

5.3.1 USACE Authorities and Jurisdictional Activities 45
5.3.2 USACE Public Notice and Comments 46
5.3.3 Alternatives Considered by the USACE und the National Environmental Policy Act (NEPA) 46
5.3.4 Alternatives Evaluations Under Section 404(b)(1) Guidelines 48
5.3.5 Evaluation of the Discharge of Dredged and Fill Material Under the 404(B)(1) Guidelines (40 CFR Part 230, Subparts B through H) 51
5.3.6 USACE Public Interest Review ((33 CFR § 320.4) 56
5.3.7 Compliance with Other Laws, Policies, and Executive Orders 60
5.3.8 U.S. Army Corps of Engineers Approval 67

6 References 68

LIST OF TABLES

Table 1-1: History of BOEM Planning and Leasing Offshore New Jersey Related to Lease OCS-A 0499 2
Table 3-1: Description of Alternatives 10
Table 3-2: Summary and Comparison of Impacts by Action Alternative with No Mitigation Measures 14

LIST OF FIGURES

Figure 1-1: Proposed Project Area and Facilities 4

LIST OF ACRONYMS

ACHP	Advisory Council on Historic Preservation
ADLS	Aircraft Detection Lighting System
AIS	Automatics Identification System
AOC	Area(s) of Concern
ASLF	ancient submerged landform features
BiOp	Biological Opinion
BOEM	Bureau of Ocean Energy Management
BPU	Board of Public Utilities
BSEE	Bureau of Safety and Environmental Enforcement
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COP	Construction and Operations Plan
CR	conservation recommendation(s)
CWA	Clean Water Act
DA	Department of the Army
DOI	Department of the Interior
EA	Environmental Assessment
EFH	essential fish habitat
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FLiDAR	floating light and detection ranging buoy
FONSI	Finding of No Significant Impact
ft	foot/feet
GHG	greenhouse gas
GIS	geographic information system
GW	gigawatts
GWh	gigawatt hours
HDD	horizontal directional drilling

HPTP	historic property treatment plans
HRG	high-resolution geophysical
ITR	Incidental Take Regulation
ITS	Incidental Take Statement
km	kilometer(s)
LEDPA	least environmentally damaging practicable alternative
LOA	Letter of Authorization
m	meter(s)
met	meteorological
mi	miles
MMPA	Marine Mammal Protection Act
MPRSA	Marine Protection, Research, and Sanctuaries Act
MW	megawatts
MWh	megawatt hours
NARW	North Atlantic right whale
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NJDEP	New Jersey Department of Environmental Protection
NMFS	National Marine Fisheries Service
nmi	nautical mile(s)
NOA	notice of availability
NOAA	National Oceanic and Atmospheric Administration
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
O&M	operations and maintenance
OREC	Offshore Wind Renewable Energy Certificate
OSS	offshore substations
OWEDA	Offshore Wind Development Act
PAM	Passive Acoustic Monitoring
POI	Point(s) of Interconnection
RDP	Post Review Discovery Plans
PSO	Protected Species Observers
RHA	Rivers and Harbors Act
ROD	Record of Decision
ROW	right-of-way
RTO	regional transmission organization
SAP	Site Assessment Plan
SAR	search and rescue
SFV	sound field verification
USACE	United States Army Corps of Engineers
USC	United States Code
USCG	United States Coast Guard
USFWS	United States Fish & Wildlife Service
WEA	Wind Energy Area
WTA	wind turbine area
WTG	wind turbine generators

1 INTRODUCTION

This document constitutes the Bureau of Ocean Energy Management's (BOEM), the National Ocean and Atmospheric Administration (NOAA) National Marine Fisheries Service's (NMFS),[1] and the United States Army Corps of Engineers' (USACE) joint record of decision (ROD) for the final Environmental Impact Statement (EIS) prepared for the Atlantic Shores Offshore Wind South (Atlantic Shores South) Project construction and operations plan (COP)[2] submitted to BOEM by Atlantic Shores Offshore Wind Project 1, LLC and Atlantic Shores Offshore Wind Project 2, LLC (hereinafter collectively referred to as Atlantic Shores).[3] The ROD addresses BOEM's action to approve the COP under Subsection 8(p)(4) of the Outer Continental Shelf Lands Act (OCSLA), 43 USC § 1337(p)(4)); NMFS' action to issue a Letter of Authorization (LOA) to Atlantic Shores Offshore Wind Project 1, LLC (Atlantic Shores Project 1 Company) under Section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA), as amended, 16 USC § 1371(a)(5)(A); and USACE's action to issue a permit under Section 10 of the Rivers and Harbors Act of 1899 (RHA; 33 USC § 403), Section 404 of the Clean Water Act (CWA; 33 USC § 1344), and Section 103 of the Marine Protection, Research, and Sanctuaries Act (MPRSA; 33 USC § 1413), as well as to grant permission under Section 14 of the RHA (33 USC § 408). This ROD was prepared following the requirements of the National Environmental Policy Act (NEPA), 42 USC §§ 4321 *et seq*. and 40 CFR §§ 1500-1508.[4]

BOEM prepared the final EIS with the assistance of a third-party contractor, ICF Jones & Stokes, Inc. The Bureau of Safety and Environmental Enforcement (BSEE), NMFS, USACE, U.S. Coast Guard (USCG), U.S. Environmental Protection Agency (EPA), and U.S. Fish and Wildlife Service (USFWS) were cooperating agencies during the development and review of the document. Cooperating state agencies included the New Jersey Board of Public Utilities (BPU), New Jersey Department of Environmental Protection (NJDEP), and New York State Department of State. The Advisory Council on Historic Preservation (ACHP) and National Park Service supported the environmental review as participating agencies.

NMFS received a request for authorization to take marine mammals incidental to construction activities related to the Project, which NMFS may authorize under the MMPA. NMFS' issuance of an MMPA incidental take authorization in the form of a LOA issued pursuant to the promulgation of Incidental Take Regulations (ITRs) is a major federal action and, in relation to BOEM's action, is considered a connected action (40 CFR § 1501.9(e)(1)). The purpose of NMFS' proposed action—which is based on Atlantic Shores Project 1 Company's request for authorization to take marine mammals incidental to specified activities associated with the

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1 For purposes of this ROD, NMFS is exercising authority under the Marine Mammal Protection Act to promulgate marine mammal incidental take regulations.

2 The COP submitted by Atlantic Shores Offshore Wind Project 1, LLC (Atlantic Shores Project 1 Company) and Atlantic Shores Offshore Wind Project 2, LLC (Atlantic Shores Project 2 Company) covers two offshore wind energy facilities (Project 1 and Project 2), known collectively as the Atlantic Shores Offshore Wind South Project (Project).

3 Partial assignment of Lease OCS-A 0499 to Atlantic Shores Offshore Wind Project 1, LLC and Atlantic Shores Offshore Wind Project 2, LLC (each holding 50% Record Title Interest in Lease OCS-A 0499) was approved by BOEM on April 18, 2022; https://www.boem.gov/sites/default/files/documents/renewable-energy/OCS-A-0549_OCS-A-0499-Lease-Segregation.pdf. Atlantic Shores Offshore Wind, LLC is the owner and an affiliate of both Atlantic Shores Offshore Wind Project 1, LLC and Atlantic Shores Offshore Wind Project 2, LLC.

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

Project (i.e., pile driving and high-resolution geophysical (HRG) site and characterization surveys)—is to evaluate Atlantic Shores Project 1 Company's request pursuant to specific requirements of the MMPA and its implementing regulations administered by NMFS, considering impacts of the applicant's activities on relevant resources, and if appropriate, issue the authorization. NMFS needs to render a decision regarding the request for authorization due to NMFS' responsibilities under the MMPA (16 USC § 1371(a)(5)(A)) and its implementing regulations.

In addition to analyzing potential impacts resulting from BOEM's approval of the COP pursuant to Subsection 8(p)(4) of OCSLA, the final EIS also analyzes impacts resulting from the proposed action that are relevant to USACE permitting actions under Section 10 of the RHA, 33 USC § 403; Section 14 of the RHA, 33 USC § 408; Section 404 of the CWA, 33 USC § 1344; Section 103 of the MPRSA, 33 USC § 1413; and NMFS' action of promulgating regulations and issuing an LOA for incidental harassment of small numbers of marine mammals during construction activities to Atlantic Shores Project 1 Company under the MMPA, 16 USC § 1371(a)(5)(A). See also (40 CFR § 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.[5] The Energy Policy Act provisions implemented by BOEM provide a framework for issuing renewable energy leases, easements, and rights-of-way (ROWs) 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.

Table 1-1: History of BOEM Planning and Leasing Offshore New Jersey Related to Lease OCS-A 0499

Year	Milestone
2009	In 2009, BOEM formed the BOEM/New Jersey Renewable Energy Task Force for coordination among affected federal agencies, Tribal Nations, state agencies, and local 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, January 28, 2014, April 22, 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 (hereinafter "Call") on the OCS Offshore New Jersey in the *Federal Register* (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, 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 New York Harbor.
2012	On February 3, 2012, BOEM published a Notice of Availability of a final EA and FONSI in the *Federal Register* (77 Fed. Reg. 5560) for commercial wind lease issuance and site assessment activities on the Atlantic OCS offshore New Jersey, Delaware, Maryland, and Virginia.

[5] Public Law No. 109-58, 119 Stat. 594 (2005).

Year	Milestone
2014	On July 21, 2014, BOEM published a Proposed Sale Notice in the *Federal Register* (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 25, 2015, BOEM 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 Area OCS-A 0499.
2016	On March 17, 2016, BOEM received a request to extend the preliminary term[6] for commercial lease OCS-A 0499, from March 1, 2017, to March 1, 2018. BOEM approved the request on June 10, 2016.
2018	On January 29, 2018, BOEM received a second request to extend the preliminary term for commercial Lease Area OCS-A 0499, from March 1, 2018, to March 1, 2019. BOEM approved the request on February 14, 2018.
2018	On November 16, 2018, BOEM received an application from U.S. Wind Inc. to assign 100 percent of Lease Area OCS-A 0499 to EDF Renewables Development, Inc. BOEM approved the assignment on December 4, 2018.
2019	On April 29, 2019, BOEM received an application from EDF Renewables Development, Inc. to assign 100 percent of commercial lease OCS-A 0499 to Atlantic Shores Offshore Wind, LLC. BOEM approved the assignment on August 13, 2019.
2021	On March 25, 2021, Atlantic Shores submitted its COP for the construction and installation, operations and maintenance, and conceptual decommissioning of the Project within the Lease Area. Updates to the COP, supporting appendices, and GIS data were submitted in August, September, October, and December 2021; January, March, April, August, September, October, November, and December 2022; January, February, March, April, May, August, September, October, November, and December 2023; and January, February, March, and May 2024.
2021	On December 8, 2019, Atlantic Shores submitted a Site Assessment Plan (SAP) for commercial wind lease OCS-A 0499, which was subsequently revised on February 4, 2020; March 26, 2020; April 6, 2020; August 21, 2020; September 17, 2020; and November 16, 2020. BOEM approved the SAP on April 18, 2021. The SAP approval allowed for the installation of two met buoys.
2021	On September 28, 2021, BOEM received an application from Atlantic Shores to assign 100 percent interest of the southern portion of Lease Area OCS-A 0499 (which contains the Atlantic Shores South Project 1 and 2 areas) to Atlantic Shores Offshore Wind Project 1, LLC and Atlantic Shores Offshore Wind Project 2, LLC with each entity having a 50 percent interest.
2021	On September 30, 2021, BOEM published a Notice of Intent to Prepare an EIS for the Atlantic Shores Offshore Wind South Project offshore New Jersey.
2022	On April 19, 2022, BOEM approved a partial assignment that effected a segregation of lease OCS-A 0499. The northern portion of OCS-A 0499 was retained by Atlantic Shores Offshore Wind, LLC and given a new lease number (OCS-A 0549) by BOEM, while the southern portion retains the original lease number assigned by BOEM: OCS-A 0499.
2023	On May 18, 2023, BOEM published an NOA of the draft EIS in the *Federal Register* (88 Fed. Reg. 32,242), initiating a 45-day public comment period for the draft EIS.
2023	On December 1, 2023, USFWS issued a BiOp for Endangered Species Act (ESA)-listed species within its jurisdiction. On December 18, 2023, NMFS issued a BiOp for ESA-listed species and designated critical habitat within its jurisdiction.
2024	On May 31, 2024, BOEM published an NOA for a final EIS in the *Federal Register* (89 Fed. Reg. 47,174), initiating a minimum 30-day mandatory waiting period, during which BOEM is required to pause before issuing a ROD.
2024	On June 25, 2024, BOEM published an errata on its website that included certain edits to Chapter 2, Chapter 3, and Appendix G: Mitigation and Monitoring Table G-2. None of these edits are substantive or affect the analysis or conclusions in the final EIS.

Notes: AIS = Automatics Identification System; BiOp = Biological Opinion; EA = Environmental Assessment; FLiDAR = floating light and detection ranging buoy; FONSI = Finding of No Significant Impact; GIS = geographic information system; SAP = Site Assessment Plan; NOA = notice of availability; WEA = Wind Energy Area.

[6] Per 30 CFR § 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 (SAP) or a combined SAP and COP. The preliminary term begins on the effective date of the lease.

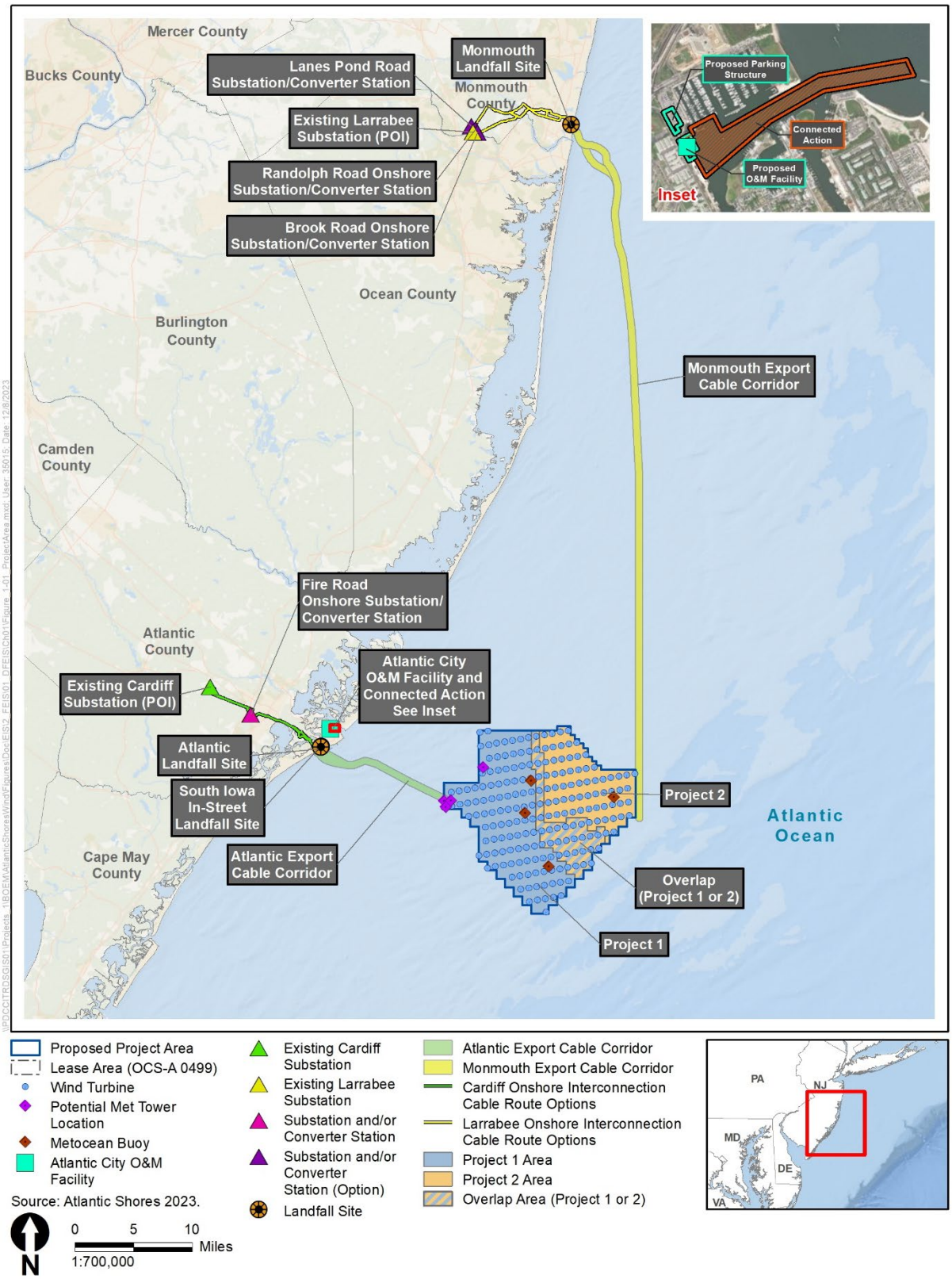

Figure 1-1: Proposed Project Area and Facilities

1.2 Authorities

The following summarizes BOEM's authority regarding the approval of the proposed Project; NMFS' authority to authorize the take, by harassment, of marine mammals incidental to the proposed Project; and USACE's authority under Section 10 of the RHA to authorize work and structures within navigable waters of the United States and structures affixed to the OCS,[7] and to authorize a permit under Section 404 of the CWA to allow for the discharge of dredged or fill material into waters of the United States. The final EIS includes a list of approvals, authorizations, and permits for the Project in Appendix A, Table A-1, and a description of consultations in Appendix A, Section A.2. The agencies adopting the final EIS are those agencies that have defined authorizations and permitting responsibilities for the Project itself or for effects related to the Project. The NMFS MMPA LOA is briefly discussed here; its decision and supporting rationale are discussed in Section 5.2 of this ROD. NMFS is serving as a cooperating agency pursuant to 40 CFR § 1501.8 because the scope of the Proposed Action and alternatives involves activities that could affect marine resources, and due to its jurisdiction by law and special expertise. Promulgation of an ITR and issuance of an LOA under the MMPA triggers independent NEPA compliance obligations, which may be satisfied by adopting the final EIS prepared by BOEM. USACE is serving as a cooperating agency pursuant to 40 CFR § 1501.8 because the scope of the Proposed Action, connected action, and alternatives involve activities that could affect resources and due to its jurisdiction by law and due to its special expertise pursuant to Section 10 of the RHA, Section 404 of the CWA, and Section 103 of the MPRSA. Issuance of Section 10, 404, and 103 permits, as well as Section 408 permission, requires NEPA compliance, which will be met via adoption of BOEM's final EIS and issuance of the ROD. The USACE permitting action is briefly discussed here; its decision and supporting rationale are discussed in Section 5.3 of this ROD. 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., EPA's Clean Air Act permitting) and are, therefore, reviewed separately.

1.2.1 BOEM Authority

The Energy Policy Act of 2005, Pub. L. No. 109-58, amended OCSLA, (43 USC §§ 1331 *et seq*.) by adding a new Subsection 8(p) to authorize the Secretary of the Interior (Secretary) to issue leases, easements, and ROWs on 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 OCSLA were promulgated by the Department of the Interior on April 29, 2009 (74 Fed. Reg. 19,637).[8] These regulations describe BOEM's process for determining

[7] Section 4(f) of the OCSLA of 1953, as amended, extended USACE's authority to prevent obstructions to navigation in navigable waters of the United States to artificial islands, installations, and other devices located on the seafloor to the seaward limit of the OCS. See 43 USC § 1333(e).

[8] On January 31, 2023, the Department of the Interior (Department) issued the "Reorganization of Title 30-Renewable Energy and Alternative Uses of Existing Facilities on the Outer Continental Shelf" direct final rule, which transferred existing safety and environmental oversight and enforcement regulations governing OCS renewable energy activities from 30 CFR Part 585, under BOEM's purview, to 30 CFR Part 285, under the purview of BSEE. Finally, the Department published the Renewable Energy Modernization Rule on May 15, 2024, which will become effective on July 15, 2024. This final rule not only finalized amendments to the Department's existing renewable regulations administered by BOEM, but also regulatory amendments previously proposed by BOEM that are now administered by BSEE.

whether to approve, approve with modifications, or disapprove the Atlantic Shores South COP. In accordance with Council on Environmental Quality (CEQ) NEPA regulations (40 CFR Part 1501), BOEM served as the lead federal agency for the preparation of the EIS.

The Secretary's actions must comply with OCSLA Subsection 8(p)(4) (43 USC § 1337(p)(4)), which "imposes a general duty on the Secretary to act in a manner providing for the subsection's [various] goals."[9] 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."[10]

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 USC § 1371(a)(5)(A), (D). To authorize the incidental take of marine mammals, NMFS evaluates the best available scientific information to determine whether the take would have a negligible impact on affected species or stocks and whether the activity would have an unmitigable adverse impact on the availability of the species or stocks for subsistence use (if applicable). NMFS cannot issue an authorization if NMFS finds the taking would result in more than a negligible impact on marine mammal species or stocks or would result in an unmitigable adverse impact on the species or stocks for subsistence uses. NMFS must also prescribe the permissible methods of take and other means of effecting the least practicable adverse impact on the species or stocks of marine mammals and their habitat, paying particular attention to rookeries, mating grounds, and other areas of similar significance. All incidental take authorizations include additional requirements pertaining to monitoring and reporting. Pursuant to Section 7(a)(2) of the Endangered Species Act (ESA), NMFS must also ensure that issuing the marine mammal incidental take authorization is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. 16 USC § 1536(a)(2).

For those marine mammal species that are listed under the ESA, NMFS Office of Protected Resources (NMFS-OPR) must also consult with NMFS Greater Atlantic Regional Fisheries Office (GARFO) Protected Resources Division (GARFO-PRD) to receive an exemption for the incidental take of those species and adhere to the requirements listed under Section 7 of the ESA to ensure that the MMPA-authorized incidental take is not likely to jeopardize the continued existence of those species. The ESA Section 7 consultation for this action resulted in issuance of a BiOp that concluded the proposed federal actions are not likely to jeopardize the continued existence of any ESA-listed species or result in the destruction or adverse modification of any critical habitat. The BiOp includes an Incidental Take Statement (ITS), which exempts an identified amount and extent of incidental take from the ESA Section 9 prohibitions on take subject to specified reasonable and prudent measures and implementing terms and conditions considered necessary and appropriate for that action agencies including NMFS OPR, to

[9] 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).

[10] M-Opinion 37067 at p. 5, http://doi.gov/sites/doi.gov/files/m-37067.pdf.

minimize the effects of take on ESA-listed marine mammals. The BiOp and ITS also identify measures, which may be specific to the regulatory authorities of each action agency, to ensure compliance with the MMPA 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 CFR 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.

1.2.3 USACE Authority

This permit action is being undertaken through authority delegated to the District Engineer by 33 CFR § 325.8 pursuant to Section 10 of the RHA, Section 404 of the CWA, and Section 103 of the MPRSA. Section 10 of the RHA prohibits the obstruction or alteration of navigable waters of the United States without a permit from USACE. USACE also issues permits under Section 404 of the CWA authorizing the discharge of dredged or fill material into waters of the United States. In addition, USACE issues permits for the ocean disposal of dredged materials under Section 103 of the MPRSA. The applicant proposes to perform work and place structures below the mean high-water line of navigable waters of the United States, and to discharge fill below the high tide line of waters of the United States. These activities require authorization from USACE under Section 10 of the RHA and Section 404 of the CWA.

In addition, USACE received a request for a "Section 408 permission," which is required pursuant to Section 14 of the RHA for any proposed alterations that have the potential to alter, occupy, or use any federally authorized civil works projects. USACE's Regulatory and Section 408 Programs perform distinct but concurrent reviews for the Section 10, 404, and 103 permits and the Section 408 permission, respectively. USACE considers issuance of permits under these four delegated authorities a major federal action connected to BOEM's action (40 CFR § 1501.9(e)(1)).

USACE participated in development of the Atlantic Shores South EIS as a cooperating agency under the CEQ NEPA regulations. USACE has reviewed and evaluated the information in the final EIS, including all supplemental data provided, in accordance with 40 CFR § 1506.3, and 33 CFR § 325, Appendix B. USACE found the information to be a sufficient and accurate assessment. Therefore, USACE adopts the final EIS, as appropriate, for the purposes of NEPA, Section 404(b)(1) guidelines evaluation, and the public interest review required by 33 CFR § 325, Appendix B, 40 CFR § 230, and 33 CFR § 320.4.

2 PROPOSED PROJECT

2.1 Project Description

The Proposed Action would include the construction and installation, operation and maintenance (O&M), and eventual decommissioning of the Atlantic Shores South Project, which consists of two wind energy facilities (Project 1 and Project 2) on the OCS offshore of New Jersey. The Atlantic Shores South Project would include up to 200 wind turbine generators (WTGs)

(between 105 and 136 for Project 1, and between 64 and 95 for Project 2), up to 10 offshore substations (OSSs) (up to 5 in each Project), up to 1 permanent meteorological (met) tower (Project 1), up to 4 temporary meteorological and oceanographic (metocean) buoys (up to 3 metocean buoys in Project 1, 1 metocean buoy in Project 2), interarray and interlink cables for both Projects, 2 onshore substations, 1 O&M facility, and up to 8 transmission cables making landfall at two New Jersey locations (Figure 1-1). The proposed landfall locations are the Monmouth landfall in Sea Girt, New Jersey, with an onshore route to the existing Larrabee Substation Point of Interconnection (POI) and the Atlantic landfall in Atlantic City, New Jersey, with an onshore route to the existing Cardiff Substation, which would be upgraded to accommodate the Project's POI. Project 1 would have a capacity of 1,510 megawatt (MW). Project 2's capacity is not yet determined, but Atlantic Shores has a goal of 1,327 MW, which would align with the interconnection construction and service agreements Atlantic Shores intends to execute in the future with the regional transmission organization (RTO), PJM. The Project would be built within the range of the design parameters outlined in the Atlantic Shores South COP (Atlantic Shores 2024), as found on BOEM's webpage at https://www.boem.gov/renewable-energy/state-activities/atlantic-shores-south, subject to applicable mitigation measures.

2.2 Purpose and Need for the Proposed Action

Through a competitive leasing process under 30 CFR § 585.211, Atlantic Shores was awarded commercial Renewable Energy Lease OCS-A 0499 covering an area offshore New Jersey (Lease Area). Under the terms of the lease, Atlantic Shores has the exclusive right to submit a COP for activities within the Lease Area. Atlantic Shores submitted a COP to BOEM proposing the construction and installation, O&M, and conceptual decommissioning of two offshore wind energy facilities in the Lease Area in accordance with BOEM's COP regulations under 30 CFR §§ 585.620-585.628.

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 21, 2022. Furthermore, Atlantic Shores' goal is to construct and operate two commercial-scale offshore wind energy facilities in the Lease Area to provide clean, renewable energy to the New Jersey. Project 1 is intended to fulfill BPU's September 10, 2020, solicitation for 1,200 to 2,400 MW of offshore wind capacity. The solicitation and a corresponding Offshore Wind Renewable Energy Certificate (OREC) allowance of 6,181 gigawatt hours (GWh) per year were awarded to Atlantic Shores Offshore Wind Project 1 via BPU on June 30, 2021, and redistributed on January 7, 2022 (BPU Docket No. QO21050824, In the Matter of the Board of Public Utilities Offshore Wind Solicitation 2 for 1,200 to 2,400 MW – Atlantic Shores Offshore Wind Project 1, LLC).[11]

The BPU Order identifies 1,509.6 MW of offshore wind energy 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 megawatt hour (MWh) delivered to the transmission grid, the Project will be credited and

[11] BPU's June 30, 2021, Order, Docket No. Q021050824, is available at: https://www.nj.gov/bpu/pdf/boardorders/2021/20210630/ORDER%20Solicitation%202%20Board%20Order%20ASOW%20Revised.pdf.

subsequently compensated for one OREC. Atlantic Shores Offshore Wind Project 1's annual OREC allowance is 6,181 GWh per year per the 2021 award by BPU. According to the BPU Order, unmet OREC allowances in a given year may be carried forward for up to two years to provide a reasonable opportunity to meet the Atlantic Shores South Project's total production. Atlantic Shores may not exceed the Annual OREC allowance of 6,181 GWh.

Atlantic Shores' goal is to routinely meet the OREC allowance in order to obtain the maximum possible annual payment from BPU for operation of Project 1. An annual output has yet to be determined for Project 2. Atlantic Shores has a goal of 1,327 MW for Project 2, which would align with the interconnection construction and service agreements Atlantic Shores intends to execute in the future with the RTO, PJM.

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;[12] and in consideration of Atlantic Shores' goals, the purpose of BOEM's action is to determine whether to approve, approve with modifications, or disapprove Atlantic Shores' 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 in accordance with the applicable regulations in 30 CFR Part 585, which require BOEM to make a decision on Atlantic Shores' plan to construct and operate two commercial-scale offshore wind energy facilities within the Lease Area.

NMFS, which 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).

USACE, which has Sections 10 and 14 RHA, Section 404 CWA, and Section 103 of the MPRSA 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 USACE's purpose and need (more specific statements of the purpose and need for the actions by USACE are found in Section 5.3 of this ROD).

3 ALTERNATIVES

The final EIS considered a reasonable range of alternatives to the Proposed Action.[13] BOEM considered a total of 21 alternatives (inclusive of the No Action Alternative) during the preparation of the EIS and carried forward for detailed analysis 5 action alternatives and the No

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

[13] The Department of the Interior'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 CFR § 46.420(b).

Action Alternative. The other 15 alternatives were not further analyzed because they did not meet the purpose and need or did not meet other screening criteria. Refer to final EIS, Section 2.2, *Alternatives Considered but not Analyzed in Detail.*

3.1 Alternatives Carried Forward for Detailed Analysis

Table 3-1: Description of Alternatives

Alternative	Description
Alternative A – No Action	Under Alternative A, the No Action Alternative, BOEM would not approve the COP, the Project's construction and installation, O&M, and eventual decommissioning would not occur, and no additional permits or authorizations for the Project would be required.[14] Any potential environmental and socioeconomic impacts, including benefits, associated with the Project as described under the Proposed Action would not occur. The current resource conditions, trends, and effects from ongoing activities under the No Action Alternative serve as the existing baseline against which all action alternatives are evaluated. 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 the final EIS, Appendix D (*Ongoing and Planned Activities Scenario)* without the Proposed Action serves as the baseline for the evaluation of cumulative impacts.
Alternative B – Proposed Action	Under Alternative B, the Proposed Action (Figure 1-1), the construction and installation, O&M, and eventual decommissioning of the Atlantic Shores South Project, which consists of two wind energy facilities (Project 1 and Project 2) on the OCS offshore of New Jersey, would be built within the range of the design parameters outlined in the Atlantic Shores South COP (Atlantic Shores 2024), subject to applicable mitigation measures. The Atlantic Shores South Project would include up to 200 total WTGs (between 105 and 136 WTGs for Project 1, and between 64 and 95 WTGs for Project 2), up to 10 OSSs (up to 5 in each Project), up to 1 permanent met tower, and up to 4 temporary metocean buoys (up to 1 met tower and 3 metocean buoys in Project 1, and 1 metocean buoy in Project 2), interarray and interlink cables for both Projects, 2 onshore substations, 1 O&M facility, and up to 8 transmission cables making landfall at 2 New Jersey locations. The proposed landfall locations are the Monmouth landfall in Sea Girt, New Jersey with an onshore route to the existing Larrabee Substation POI and the Atlantic landfall in Atlantic City, New Jersey, with an onshore route to the existing Cardiff Substation, which would be upgraded to accommodate the Project's POI. Project 1 would have a capacity of 1,510 MW. Project 2's capacity is not yet determined, but Atlantic Shores has a goal of 1,327 MW, which would align with the interconnection construction and service agreements Atlantic Shores intends to execute with the RTO, PJM.[15]
Alternative C – Habitat Impact Minimization/Fisheries	Under Alternative C, the construction and installation, O&M, and eventual decommissioning of two wind energy facilities (Project 1 and Project 2) 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, the layout and maximum number of WTGs and OSSs would be adjusted to avoid and

[14] 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.

[15] Atlantic Shores plans to enter into interconnection construction and service agreements with PJM to fund improvements to the onshore Cardiff and Larrabee substations, along with required grid updates. These agreements are distinct from PPAs (applicable in Connecticut, Massachusetts, and Rhode Island) and ORECs (applicable in Maryland, New Jersey, and New York). An OREC represents the environmental attributes of one MWh of electric generation from an offshore wind project. BPU awards ORECs through a competitive bidding process and they represent a long-term contract with the State of New Jersey.

Alternative	Description
Habitat Impact Minimization[16]	minimize potential impacts on important habitats. NMFS identified two areas of concern (AOCs) within the Lease Area that have pronounced bottom features and produce habitat value. AOC 1 is part of a designated recreational fishing area called "Lobster Hole." AOC 2 is part of a sand ridge (ridge and trough) complex. Alternative C1: Lobster Hole Avoidance Up to 16 WTGs, 1 OSS, and associated interarray cables within the Lobster Hole designated area as identified by NMFS would be removed. Alternative C2: Sand Ridge Complex Avoidance Up to 13 WTGs and associated interarray cables within the NMFS-identified sand ridge complex would be removed. Alternative C3: Demarcated Sand Ridge Complex Avoidance Up to 6 WTGs and associated interarray cables within 1,000 feet (ft) (305 meters (m)) of the sand ridge complex area identified by NMFS, but further demarcated through the use of the NOAA's Benthic Terrain Modeler and bathymetry data provided by Atlantic Shores, would be removed. Alternative C4: Micrositing This alternative, proposed by Atlantic Shores, consists of micrositing up to 29 WTGs[17], 1 OSS, and associated interarray cables outside of 1,000 foot (305 meter) buffers of ridges and swales within AOC 1 and AOC 2.
Alternative D – No Surface Occupancy at Select Locations to Reduce Visual Impacts[14]	Under Alternative D, the construction and installation, O&M, and eventual decommissioning of two wind energy facilities (Project 1 and Project 2) 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, the no surface occupancy would occur at select WTG positions to reduce the visual impacts of the proposed Project. Alternative D1: No Surface Occupancy of Up to 12 Miles (19.3 Kilometers (km)) from Shore: Removal of Up to 21 Turbines This alternative would exclude placement of WTGs up to 12 miles (mi) (19.3 km) from shore, resulting in the removal of up to 21 WTGs from Project 1 and associated interarray cables. The remaining turbines in Project 1 would be restricted to a maximum hub height of 522 ft (159 m) above mean sea level (AMSL) and maximum blade tip height of 932 ft (284 m) AMSL. Alternative D2: No Surface Occupancy of Up to 12.75 Miles (20.5 Kilometers) from Shore: Removal of Up to 31 Turbines The up to 31 WTGs sited closest to shore would be removed, as well as the associated interarray cables. The remaining WTGs in Project 1 would be restricted to a maximum hub height of 522 ft (159 m) AMSL and maximum blade tip height of 932 ft (284 m) AMSL. Alternative D3: No Surface Occupancy of Up to 10.8 Miles (17.4 Kilometers) from Shore: Removal of Up to 6 Turbines The up to 6 WTGs sited closest to shore would be removed, as well as the associated interarray cables. The remaining WTGs in Project 1 would be restricted to a maximum hub height of 522 ft (159 m) AMSL and maximum blade tip height of 932 ft (284 m) AMSL.

[16] The number of WTGs that could be removed may be reduced if this alternative is selected and combined with another alternative that requires removal of additional WTG positions, and if that combination of alternatives would fail to meet the purpose and need, including any awarded offtake agreement(s).

[17] Micrositing would not materially change the grid layout. No microsited permanent structures would be placed in a way that narrows any linear rows and columns to fewer than 0.6 nautical mile (1.1 kilometers) by 1.0 nautical mile (1.9 kilometers), with the exception of WTGs AX01, AZ08, BA09, BC07, BE10, BE12, BE14, BE15, BE16, BF14, BF15, and BG13 as shown in Figure 2.1-10-C4 of the final EIS, or in a layout that eliminates two distinct lines or orientation in a grid pattern.

Alternative	Description
Alternative E – Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1[14]	Under Alternative E, the construction and installation, O&M, and eventual decommissioning of two wind energy facilities (Project 1 and Project 2) 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, modifications would be made to the wind turbine array layout to create a 0.81 nautical-mile (1,500 meter) to 1.08 nautical-mile (2,000 meter) setback range between WTGs in the Atlantic Shores South Lease Area (OCS-A 0499) and WTGs in the Ocean Wind 1 Lease Area (OCS-A 0498) to reduce impacts on existing ocean uses, such as commercial and recreational fishing and marine (surface and aerial) navigation. There would be no surface occupancy along the southern boundary of the Atlantic Shores South Lease Area through the exclusion or micrositing of up to 4 to 5 WTG positions to allow for a 0.81 nautical-mile (1,500 meter) to 1.08 nautical-mile (2,000 meter) separation between WTGs in the Atlantic Shores South Lease Area and WTGs in the Ocean Wind 1 Lease Area.
Alternative F – Foundation Structures	Under Alternative F, the construction and installation, O&M, and eventual decommissioning of two wind energy facilities (Project 1 and Project 2) on the OCS offshore New Jersey would occur within the range of the design parameters outlined in the COP, subject to applicable mitigation measures. This includes a range of foundation types (of monopile and piled jacket, suction bucket, and gravity-based). To assess the extent of potential impacts of each foundation type for up to 211 foundations (inclusive of WTGs, OSSs, and 1 permanent met tower [Project 1]), this final EIS analyzes the following: Alternative F1: Piled Foundations The use of monopile and piled jacket foundations only is analyzed for the maximum extent of impacts. Alternative F2: Suction Bucket Foundations The use of the mono-bucket, suction bucket jacket, and suction bucket tetrahedron base foundations only is analyzed for the maximum extent of impacts. Alternative F3: Gravity-Based Foundations The use of gravity-pad tetrahedron and gravity-based structure foundations only is analyzed for the maximum extent of impacts.
Preferred Alternative	Under the Preferred Alternative, the construction and installation, O&M, and eventual decommissioning of two wind energy facilities (Project 1 and Project 2) on the OCS offshore New Jersey would occur within the range of design parameters outlined in the COP, subject to applicable mitigation measures. However, modifications would be made to the wind turbine array layout to require the proposed OSSs, met tower, and WTGs to be aligned in a uniform grid with rows in an east-northeast to west-southwest direction spaced 1.0 nautical mile (nmi) (1.0 km) apart and rows in an approximately north to south direction spaced 0.6 nmi (1.1 km) apart; remove a single turbine approximately 150 to 200 ft (45.8 to 61 m) from the observed Fish Haven (Atlantic City Artificial Reef Site); microsite up to 29 WTGs[15], 1 OSS, and associated interarray cables outside of the 1,000 foot (305-meter) buffer of the ridge and swale features within the NMFS-identified AOC 1 and AOC 2, restrict the height of WTGs in Project 1 to a maximum hub height of 522 ft (159 m) AMSL and maximum blade tip height of 932 ft (284 m) AMSL, and provide a minimum 0.81-nmi (1,500 meter) setback between the WTGs in Atlantic Shores South and the WTGs in Ocean Wind 1 (Lease Area OCS-A 0498) by removing two WTGs and micrositing one WTG from Project 1. The total number of permanent structures constructed (WTGs, OSSs, and/or met tower) may not exceed 197.

3.2 Environmental Consequences of Alternatives

Table 3-2 summarizes and compares the 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.[18] However, as described under the cumulative impact analysis in Chapter 3, impacts from other activities could still occur.

[18] As part of the proposed Project, Atlantic Shores intends to develop a shoreside parcel in Atlantic City as an O&M facility. BOEM and USACE have determined that the dredging work and repair activities for the bulkhead repair are connected actions. Atlantic Shores will complete maintenance dredging for the O&M facility under an existing Nationwide Permit #3 as approved by USACE (CENAP-OPR-2021- 0573-95) and NJDEP Dredge Permit No. 0102-20-0001.1 LUP 210001 and issued to the Atlantic City municipal government. The repair activities for the bulkheads will be permitted separately through USACE by Atlantic Shores Nationwide 13 Permit pursuant to CWA Sections 10 and 404.

Table 3-2: Summary and Comparison of Impacts by Action Alternative with No Mitigation Measures[19]

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
3.4.1 Air Quality	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **minor to moderate adverse** impacts on air quality. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all other planned activities (including other offshore wind activities) would result in **minor to moderate adverse** impacts due to emissions of criteria pollutants, volatile organic compounds, hazardous air pollutants (HAPs), and greenhouse gases (GHG), mostly released during construction and installation and decommissioning, and **minor to moderate beneficial** impacts on regional air quality after offshore wind projects are operational.	*Proposed Action:* The Proposed Action would have **minor to moderate adverse** impacts attributable to air pollutant, GHG emissions and accidental releases. The Project may lead to reduced emissions from fossil-fueled power-generating facilities and consequently **minor to moderate beneficial** impacts on air quality and climate. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would result in **minor to moderate adverse** impacts and **minor to moderate beneficial** impacts.	*Alternative C:* This alternative could have up to 29 fewer WTGs and 1 fewer OSS 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 to moderate beneficial**. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative D:* This alternative could have up to 31 fewer WTGs 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 to moderate beneficial**. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative E:* This alternative could have up to 5 fewer WTGs 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 to moderate beneficial**. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative F:* Emissions from construction and installation of different foundation types would not differ substantially among the sub-alternatives and would be similar to the Proposed Action. The impact magnitude would remain **minor to moderate adverse** and **minor to moderate beneficial**. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Preferred Alternative:* This alternative could have at least 5 fewer WTGs 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 to moderate beneficial**. *Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.
3.4.2 Water Quality	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **moderate adverse** impacts on water quality.	*Proposed Action:* The Proposed Action would result in **moderate adverse** impacts on water quality primarily due to sediment resuspension, discharges, and accidental releases. The impacts are likely to be temporary or small in	*Alternative C:* This alternative could have up to 29 fewer WTGs and 1 fewer OSS compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse**.	*Alternative D:* This alternative could have up to 31 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse**.	*Alternative E:* This alternative could have up to 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse**.	*Alternative F:* Water quality impacts from construction and installation of different foundation types would not differ substantially among the sub-alternatives and would be similar to the Proposed Action. The	*Preferred Alternative:* This alternative could have at least 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse**.

[19] All sub-alternatives were deemed to have similar impacts unless otherwise stated within the applicable column.

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
	Cumulative Impacts of the No Action Alternative: The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **moderate adverse** impacts primarily driven by the unlikely event of a large-volume, catastrophic release.	proportion to the geographic analysis area. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **moderate adverse** primarily due to short-term, localized effects from increased turbidity and sedimentation due to anchoring and cable emplacement during construction, and alteration of water currents and increased sedimentation during operations due to the presence of structures.	*Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	impact magnitude would remain **moderate adverse**. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.
3.5.1 Bats	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **negligible** impacts on bats. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **negligible** impacts on bats because bat presence on the OCS is anticipated to be limited and onshore bat habitat impacts are expected to be minimal.	*Proposed Action:* The Proposed Action would result in **negligible** impacts on bats. The most significant sources of potential impact would be collision mortality from operation of the offshore WTGs (although BOEM anticipates this to be rare because offshore occurrence of bats is low) and potential onshore removal of habitat. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other	*Alternative C:* This alternative could have up to 29 fewer WTGs and 1 fewer OSS compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **negligible**. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative D:* This alternative could have up to 31 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **negligible**. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative E:* This alternative could have up to 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **negligible**. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative F:* This alternative would not change the number of structures within the OCS, and thereby would not have the potential to significantly reduce or increase impacts on bats. The overall impact level would be the same as for the Proposed Action: **negligible**. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Preferred Alternative:* This alternative could have at least 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **negligible**. *Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
		offshore wind activities, would be **negligible**.					
3.5.2 Benthic Resources	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **moderate adverse** impacts on benthic resources. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **moderate adverse** impacts from habitat degradation and conversion and **moderate beneficial** impacts from emplacement of structures (habitat conversion to hard substrate).	*Proposed Action:* The Proposed Action would result in **moderate adverse** impacts from habitat disturbance; permanent habitat conversion; and behavioral changes, injury, and mortality of benthic fauna. **Moderate beneficial** impacts would result from new hard surfaces that could provide new benthic habitat. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **moderate adverse** and **moderate beneficial**.	*Alternative C:* This alternative could have up to 29 fewer WTGs and 1 fewer OSS compared to the Proposed Action. The removal, or micrositing of up to 29 WTGs and 1 OSS under Alternative C would result in a proportional decrease in the amount of electromagnetic field (EMF) and noise impacts and benthic habitat disturbance and conversion related to the installation of foundations, interarray cables, and scour protection. With Alternatives C1 and C2, the Project could avoid impacts on one or both (if Alternatives C1 and C2 were combined) NMFS AOCs, both of which have pronounced bottom features and produce habitat value. Although impacts on benthic resources would be reduced under Alternative C, overall impacts on benthic resources would be similar to those under the Proposed Action: **moderate adverse** impacts, with some **moderate beneficial** impacts. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other	*Alternative D:* This alternative could have up to 31 fewer WTGs compared to the Proposed Action. The removal of up to 31 WTGs under Alternative D would result in a proportional decrease in the amount of EMF and noise impacts and benthic habitat disturbance and conversion related to the installation of foundations, interarray cables, and scour protection. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse** impacts, with some **moderate beneficial** impacts. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as the Proposed Action.	*Alternative E:* This alternative could have up to 5 fewer WTGs compared to the Proposed Action. The removal of up to 5 WTGs under Alternative E would result in a proportional decrease in the amount of EMF and noise impacts and benthic habitat disturbance and conversion related to the installation of foundations, interarray cables, and scour protection. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse** impacts, with some **moderate beneficial** impacts. Cumulative Impacts of Alternative E: Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as the Proposed Action.	*Alternative F:* Alternative F1 would result in similar impacts as the Proposed Action from installing only piled foundations: **moderate adverse** impacts, with some **moderate beneficial** impacts. Under Alternatives F2 and F3, there would be no underwater noise impacts on benthic resources due to impact pile driving. The avoidance of impact pile-driving noise impacts would reduce overall construction and installation impacts on benthic resources under Alternatives F2 and F3 compared to the Proposed Action. Alternatives F2 and F3 would avoid pile-driving noise impacts from installing suction bucket and gravity-based foundations but would result in increased habitat conversion from larger foundations. The overall impact level for Alternatives F2 and F3 would be **minor adverse** impacts. Due to the reduction in scour protection and the beneficial hard-bottom habitat it provides, Alternatives F2 and F3 could include only **minor beneficial** impacts. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from	*Preferred Alternative:* This alternative could have at least 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse** impacts with some **moderate beneficial** impacts. *Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
			offshore wind activities, would be the same as the Proposed Action.			ongoing and planned activities, including the connected action and other offshore wind activities, would be **moderate adverse** and **moderate beneficial**.	
3.5.3 Birds	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **minor adverse** impacts on birds primarily through construction of ongoing activities and climate change. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **moderate adverse** impacts on birds due to habitat loss from increased onshore construction and interactions with offshore developments, and **minor beneficial** impacts because of the presence of offshore structures.	*Proposed Action:* The Proposed Action would result in **moderate adverse** impacts on birds. The most significant sources of potential impact would be collision mortality from operation of the offshore WTGs and long-term but minimal habitat loss and conversion from onshore construction. The Proposed Action would also result in potential **minor beneficial** impacts associated with foraging opportunities for marine birds. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **moderate adverse**, as well as **minor beneficial**, primarily through the permanent impacts from the presence of structures.	*Alternative C:* This alternative could have up to 29 fewer WTGs and 1 fewer OSS compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse** impacts and **minor beneficial** impacts. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative D:* This alternative could have up to 31 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse** impacts and **minor beneficial** impacts. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative E:* This alternative could have up to 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse** impacts and **minor beneficial** impacts. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative F:* This alternative would not change the number of structures within the OCS, and thereby would not have the potential to significantly reduce or increase impacts on birds. The overall impact level would be the same as for the Proposed Action: **moderate adverse** impacts and **minor beneficial** impacts. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Preferred Alternative*: This alternative could have at least 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse** impacts and **minor beneficial** impacts. *Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.
3.5.4 Coastal Habitat and Fauna	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **moderate adverse**	*Proposed Action:* The Proposed Action would result in **moderate adverse** impacts on coastal habitats and fauna due to the developed and urbanized	*Alternative C:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for coastal	*Alternative D:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for coastal	*Alternative E:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for coastal	*Alternative F:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for coastal	*Preferred Alternative:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for coastal

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
	impacts on coastal habitat and fauna, primarily through onshore construction and climate change. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **moderate adverse** impacts on coastal habitat and fauna through onshore construction and climate change.	landscape that dominates the geographic analysis area and measures taken to avoid sensitive habitat, but with consideration of climate change. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **moderate adverse** due to impacts on wildlife habitat in the geographic analysis area, but with consideration of climate change.	habitat and fauna. Thus, the overall impact level would be the same as for the Proposed Action: **moderate adverse**. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	habitat and fauna. Thus, the overall impact level would be the same as for the Proposed Action: **moderate adverse**. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	habitat and fauna. Thus, the overall impact level would be the same as for the Proposed Action: **moderate adverse**. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	habitat and fauna. Thus, the overall impact level would be the same as for the Proposed Action: **moderate adverse**. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	habitat and fauna. Thus, the overall impact level would be the same as for the Proposed Action: **moderate adverse**. *Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.
3.5.5 Finfish, Invertebrates, and Essential Fish Habitat	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **moderate adverse** impacts on finfish, invertebrates, and essential fish habitat. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **moderate adverse** and **minor beneficial** impacts on finfish, invertebrates, and essential fish habitat.	*Proposed Action:* The Proposed Action would result in **moderate adverse** and **minor beneficial** impacts on finfish, invertebrates, and essential fish habitat, primarily due to the disturbance of seafloor during cable emplacement and the presence of structures. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **moderate adverse** and **minor beneficial**.	*Alternative C:* This alternative could have up to 29 fewer WTGs and 1 fewer OSS compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse** and **minor beneficial**. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative D:* This alternative could have up to 31 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse** and **minor beneficial**. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative E:* This alternative could have up to 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse** and **minor beneficial**. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative F:* This alternative would not change the number of structures within the OCS, and thereby would significantly reduce or increase most impacts on finfish, invertebrates, and essential fish habitat. Impacts due to pile-driving noise would be eliminated under Alternative F; therefore, impacts due to noise would be reduced to negligible under Alternative F compared to the moderate levels determined under the Proposed Action. The overall impact levels would still be **moderate adverse** and **minor beneficial**. *Cumulative Impacts of Alternative F:* Impacts of	*Preferred Alternative*: The reduction in number of WTGs and micrositing under this alternative would reduce impacts due to fewer disturbances of bottom habitats. The reduction in disturbances to complex habitats in the NMFS-identified AOCs would also benefit finfish and invertebrates that are known to be productive in these areas. These reductions of impacts are not sufficient to change the impact determinations made under Alternative B; however, avoidance and/or reduction of impacts to these resources within the AOCs is ecologically valuable. The impacts due to the Preferred

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
						Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as the Proposed Action.	Alternative would be **moderate adverse** with some **minor beneficial** impacts. *Cumulative Impacts of the Preferred Alternative*: The cumulative impacts of the Preferred Alternative with ongoing and planned activities including the connected action and other offshore wind activities, would be the same as the Proposed Action.
3.5.6 Marine Mammals	Incremental Impacts[20]: None *No Action Alternative Impacts:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **moderate adverse** impacts on pinnipeds, odontocetes, and mysticetes (except for NARW) and **major adverse** impacts on NARW and could include **minor beneficial** impacts on odontocetes and pinnipeds. The No Action Alternative would have no additional incremental effect on marine mammals. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities)	*Incremental Impacts:* Minor for NARW; minor to moderate for other mysticetes, odontocetes, and pinnipeds *Proposed Action:* Including the baseline, the Proposed Action would result in **moderate adverse** impacts on mysticetes (except for NARW), odontocetes, and pinnipeds and **major adverse** impacts on NARW. **Minor beneficial** impacts on odontocetes and pinnipeds could result from the presence of structures. These beneficial effects have the potential to be offset by risk of entanglement from derelict fishing gear and/or reduced feeding potential (prey concentrations) for some marine mammal species. The incremental impact of the Proposed	*Incremental Impacts:* Minor for NARW; minor to moderate for other mysticetes, odontocetes, and pinnipeds *Alternative C:* This alternative could have up to 29 fewer WTGs and 1 fewer OSS compared to the Proposed Action. However, the overall impact level, including the baseline, would be the same as for the Proposed Action: **moderate adverse** impacts on mysticetes (except for NARW), odontocetes, and pinnipeds, and **major adverse** impacts on NARW, and could include **minor beneficial** impacts on odontocetes and pinnipeds. These beneficial effects have the potential to be offset by risk of entanglement from derelict fishing gear and/or	*Incremental Impacts:* Minor for NARW; minor to moderate for other mysticetes, odontocetes, and pinnipeds *Alternative D:* This alternative could have up to 31 fewer WTGs compared to the Proposed Action. However, the overall impact level, including the baseline, would be the same as for the Proposed Action: **moderate adverse** impacts on mysticetes (except for NARW), odontocetes, and pinnipeds, and **major adverse** impacts on NARW, and could include **minor beneficial** impacts on odontocetes and pinnipeds. These beneficial effects have the potential to be offset by risk of entanglement from derelict fishing gear and/or reduced feeding potential	*Incremental Impacts:* Minor for NARW; minor to moderate for other mysticetes, odontocetes, and pinnipeds *Alternative E:* This alternative could have up to 5 fewer WTGs compared to the Proposed Action. However, the overall impact level, including the baseline, would be the same as for the Proposed Action: **moderate adverse** impacts on mysticetes (except for NARW), odontocetes, and pinnipeds, and **major adverse** impacts on NARW, and could include **minor beneficial** impacts on odontocetes and pinnipeds. These beneficial effects have the potential to be offset by risk of entanglement from derelict fishing gear and/or reduced feeding potential	*Incremental Impacts:* Minor for NARW; minor to moderate for other mysticetes, odontocetes, and pinnipeds *Alternative F:* Alternative F1 would not result in measurably different impacts, inclusive of the baseline, from the Proposed Action: **moderate adverse** impacts on mysticetes (except for NARW), odontocetes, and pinnipeds, and **major adverse** impacts on NARW, and could include **minor beneficial** impacts on odontocetes and pinnipeds. These beneficial effects have the potential to be offset by risk of entanglement from derelict fishing gear and/or reduced feeding potential (prey concentrations) for some marine mammal species.	*Incremental Impacts:* Minor for NARW; minor to moderate for other mysticetes, odontocetes, and pinnipeds *Preferred Alternative*: This alternative could have at least 5 fewer WTGs compared to the Proposed Action. However, the overall impact level, inclusive of the baseline, would be the same as for the Proposed Action: **moderate adverse** impacts on mysticetes (except for NARW), odontocetes, and pinnipeds, and **major adverse** impacts on NARW and could include **minor beneficial** impacts on odontocetes and pinnipeds. The incremental impact of the Preferred Alternative would be the same as the Proposed Action.

[20] Incremental impacts (i.e., alternative impacts without the baseline) were included at NMFS' request in order to support determinations under the MMPA.

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
	would result in **moderate adverse** impacts on pinnipeds, odontocetes, and mysticetes (except for NARW) and **major adverse** impacts on NARW and could include **minor beneficial** impacts due to increased foraging opportunities for odontocetes and pinnipeds. However, these effects may be offset by risk of entanglement from derelict fishing gear and/or reduced feeding potential (prey concentrations) for some marine mammal species.	Action when compared to the No Action Alternative would be **minor to moderate** for mysticetes (except for NARW), odontocetes, and pinnipeds, and **minor** for NARW. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **moderate** for mysticetes (except for NARW), odontocetes, and pinnipeds, and **major** for NARW, and would also include **minor beneficial** impacts on odontocetes and pinnipeds. These beneficial effects have the potential to be offset by risk of entanglement from derelict fishing gear and/or reduced feeding potential (prey concentrations) for some marine mammal species.	reduced feeding potential (prey concentrations) for some marine mammal species. The incremental impact of Alternative C would be the same as the Proposed Action. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	(prey concentrations) for some marine mammal species. The incremental impact of Alternative D would be the same as the Proposed Action. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	(prey concentrations) for some marine mammal species. The incremental impact of Alternative E would be the same as the Proposed Action. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	Alternatives F2 and F3 would result in measurably different impacts from the Proposed Action due to the avoidance of impact pile-driving noise. However, given the baseline, Alternatives F2 and F3 would still result in **moderate** adverse impacts on pinnipeds, odontocetes, and mysticetes (except for NARW) and **major adverse** impacts on NARW and could include **minor beneficial** impacts on odontocetes and pinnipeds. The incremental impact of Alternative F would be the same as the Proposed Action. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.
3.5.7 Sea Turtles	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **minor adverse** impacts on sea turtles. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned	*Proposed Action:* The Proposed Action would result in **minor adverse** impacts on sea turtles, primarily due to pile-driving noise, vessel noise, and presence of structures. **Minor beneficial** impacts could result from the presence of structures allowing for increased foraging opportunities.	*Alternative C:* This alternative could have up to 29 fewer WTGs and 1 fewer OSS compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **minor adverse** impacts, with some **minor beneficial** impacts.	*Alternative D:* This alternative could have up to 31 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **minor adverse** impacts, with some **minor beneficial** impacts.	*Alternative E:* This alternative could have up to 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **minor adverse** impacts, with some **minor beneficial** impacts.	*Alternative F:* Alternative F1 would not result in measurably different impacts from the Proposed Action: **minor adverse** impacts, with some **minor beneficial** impacts. Alternatives F2 and F3 would result in measurably different impacts from the Proposed Action due to the avoidance of impacts	*Preferred Alternative:* This alternative could have at least 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **minor adverse** impacts with some **minor beneficial** impacts.

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
	activities (including other offshore wind activities) would result in **minor adverse** impacts on sea turtles and could include **minor beneficial** impacts. Adverse impacts would result mainly from pile-driving noise, presence of structures, and vessel traffic. Beneficial impacts could result from the presence of structures allowing for increased foraging opportunities.	*Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **minor adverse** and would also include **minor beneficial** impacts.	*Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	associated with pile-driving noise. However, given that impacts are still expected due to vessel noise, displacement of sea turtles into higher-risk areas associated with the presence of structures, and vessel traffic, construction and installation, O&M, and decommissioning of Alternatives F2 and F3 would still result in **minor adverse** impacts on sea turtles and could include **minor beneficial** impacts. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.
3.5.8 Wetlands	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **moderate adverse** impacts on wetlands, primarily driven by land disturbance. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **moderate**	*Proposed Action:* The Proposed Action would result in **moderate adverse** impacts on wetlands, primarily due to land disturbance. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **moderate,** primarily due to cable	*Alternative C:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for wetlands. Thus, the overall impact level would be the same as for the Proposed Action: **moderate adverse**. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the	*Alternative D:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for wetlands. Thus, the overall impact level would be the same as for the Proposed Action: **moderate adverse**. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the	*Alternative E:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for wetlands. Thus, the overall impact level would be the same as for the Proposed Action: **moderate adverse**. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the	*Alternative F:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for wetlands. Thus, the overall impact level would be the same as for the Proposed Action: **moderate adverse**. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the	*Preferred Alternative:* This alternative could have at least 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse**. *Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
	adverse impacts, primarily driven by land disturbance.	emplacement and onshore construction activities.	connected action and other offshore wind activities, would be the same as for the Proposed Action.	connected action and other offshore wind activities, would be the same as for the Proposed Action.	connected action and other offshore wind activities, would be the same as for the Proposed Action.	connected action and other offshore wind activities, would be the same as for the Proposed Action.	wind activities, would be the same as for the Proposed Action.
3.6.1 Commercial Fisheries and For-Hire Recreational Fishing	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **major adverse** impacts on commercial fisheries and for-hire recreational fishing. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **major adverse** impacts on commercial fisheries and for-hire recreational fishing. These impacts would primarily result from fisheries use and management and the increased presence of offshore structures. The impacts could also include **minor beneficial** impacts for some for-hire recreational fishing operations due to the presence of structures and the artificial reef effect.	*Proposed Action:* The Proposed Action would result in **major adverse** impacts on commercial fisheries and for-hire recreational fisheries, primarily due to fisheries use and management and long-term impacts from the presence of structures, including navigational hazards, gear loss and damage, and space use conflicts. **Minor beneficial** impacts could result from the presence of structures and the artificial reef effect. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **major adverse** and would also include **minor beneficial** impacts on for-hire recreational fisheries.	*Alternative C:* This alternative would have up to 29 fewer WTGs and 1 fewer OSS compared to the Proposed Action. However, the overall impact levels would be the same as for the Proposed Action: **major adverse** for commercial fisheries and for-hire recreational fisheries, with the potential for **minor beneficial** impacts on for-hire recreational fisheries. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative D:* This alternative would have up to 31 fewer WTGs compared to the Proposed Action. However, the overall impact levels would be the same as for the Proposed Action: **major adverse** for commercial fisheries and for-hire recreational fisheries, with the potential for **minor beneficial** impacts on for-hire recreational fisheries. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative E:* This alternative would have up to 5 fewer WTGs compared to the Proposed Action. However, the overall impact levels would be the same as for the Proposed Action: **major adverse** for commercial fisheries and for-hire recreational fisheries, with the potential for **minor beneficial** impacts on for-hire recreational fisheries. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative F:* Alternative F2 (suction bucket foundations) would result in the greatest area of habitat conversion from scour protection and was evaluated under the Proposed Action. Alternative F1 (piled foundations) and Alternative F3 (gravity-based foundations) would result in a reduction in scour protection compared to the Proposed Action. However, the overall impact levels under Alternatives F1, F2, and F3 would be the same as for the Proposed Action: **major adverse** for commercial fisheries and for-hire recreational fisheries, with the potential for **minor beneficial** impacts on for-hire recreational fisheries. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Preferred Alternative:* This alternative would have at least 5 fewer WTGs compared to the Proposed Action and would modify the layout of offshore structures. However, the overall impact levels would be the same as for the Proposed Action: **major adverse** for commercial fisheries and for-hire recreational fisheries, with the potential for **minor beneficial** impacts on for-hire recreational fisheries. *Cumulative Impacts of Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.
3.6.2 Cultural Resources	*No Action Alternative:* Continuation of existing environmental trends and activities under the No	*Proposed Action:* The Proposed Action would result in **major adverse** impacts on cultural	*Alternative C:* This alternative could have up to 29 fewer WTGs and 1 fewer OSS compared to the	*Alternative D:* This alternative could have up to 31 fewer WTGs compared to the Proposed Action.	*Alternative E:* This alternative could have up to 5 fewer WTGs compared to the Proposed Action.	*Alternative F:* The severity of impacts on cultural resources increases with the size of the foundation type	*Preferred Alternative*: This alternative would include at least 5 fewer WTGs, in addition to a WTG height

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
	Action Alternative would result in **moderate adverse** impacts on cultural resources, primarily through the presence of structures. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **major adverse** impacts on cultural resources.	resources because a notable and measurable impact requiring mitigation is anticipated. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **major adverse**.	Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **major adverse**. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	However, the reduction in impact severity on cultural resources would not avoid visual adverse effects as compared to the Proposed Action, resulting in the same overall impact level as the Proposed Action: **major adverse**. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	However, the overall impact level would be the same as for the Proposed Action: **major adverse**. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	and anticipated seabed disturbance. However, the nature of physical activities proposed under this alternative would result in the same level of impacts as for the Proposed Action: **major adverse**. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	restriction in Project 1, compared to the Proposed Action and would modify the layout of offshore structures. This would lessen the overall severity of physical and visual impacts on a limited proportion of identified cultural resources; however, the impact level would be the same as for the Proposed Action: **major adverse**. *Cumulative Impacts of Preferred Alternative*: Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.
3.6.3 Demographics, Employment, and Economics	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **minor adverse** and **minor beneficial** impacts on demographics, employment, and economics, primarily driven by land disturbance and additional employment opportunities. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities)	*Proposed Action:* The Proposed Action would result in **minor adverse** and **minor beneficial** impacts on demographics, employment, and economics, primarily due to job and revenue creation. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **minor adverse** and **moderate beneficial**.	*Alternative C:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for demographics, employment, and economics. Thus, the overall impact level would be the same as for the Proposed Action: **minor adverse** and **minor beneficial** impacts. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned	*Alternative D:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for demographics, employment, and economics. Thus, the overall impact level would be the same as for the Proposed Action: **minor adverse** and **minor beneficial** impacts. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned	*Alternative E:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for demographics, employment, and economics. Thus, the overall impact level would be the same as for the Proposed Action: **minor adverse** and **minor beneficial** impacts. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned	*Alternative F:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for demographics, employment, and economics. Thus, the overall impact level would be the same as for the Proposed Action: **minor adverse** and **minor beneficial** impacts. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned	*Preferred Alternative:* This alternative would include at least 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **minor adverse** and **minor beneficial** impacts. *Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
	would result in **minor adverse** and **moderate beneficial** impacts, the latter of which would be on ocean-based employment and economics.	The beneficial impacts would primarily be associated with the investment in offshore wind, job creation and workforce development, income and tax revenue, and infrastructure improvements, while the adverse impacts would result from aviation hazard lighting on WTGs, new cable emplacement and maintenance, the presence of structures, vessel traffic and collisions/allisions during construction, and land disturbance.	activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	same as for the Proposed Action.
3.6.4 Environmental Justice	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **minor adverse** impacts on environmental justice populations, primarily driven by ongoing population growth and new development. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **moderate adverse** impacts, primarily due to short-term impacts from cable emplacement, construction-phase noise, and vessel traffic, as well as the long-term presence of structures. **Minor beneficial** impacts could result through	*Proposed Action:* The Proposed Action would result in **moderate adverse** impacts on environmental justice populations, primarily due to land disturbance, and noise. The Proposed Action would result in **minor beneficial** impacts on environmental justice populations, primarily due to port utilization and presence of structures. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **moderate adverse** impacts and **moderate beneficial** impacts. The adverse effects are primarily	*Alternative C:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for environmental justice populations. Thus, the overall impact level would be the same as for the Proposed Action: **moderate adverse** and **minor beneficial** impacts. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative D:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for environmental justice populations. Thus, the overall impact level would be the same as for the Proposed Action: **moderate adverse** and **minor beneficial** impacts. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative E:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for environmental justice populations. Thus, the overall impact level would be the same as for the Proposed Action: **moderate adverse** and **minor beneficial** impacts. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative F:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for environmental justice populations. Thus, the overall impact level would be the same as for the Proposed Action: **moderate adverse** and **minor beneficial** impacts. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Preferred Alternative:* This alternative would have at least 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **moderate adverse** and **minor beneficial**. *Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
	economic activity, job opportunities, and reductions in air emissions.	driven by land disturbance, and noise and the beneficial impacts are primarily driven by port utilization, presence of structures, and air emissions.					
3.6.5 Land Use and Coastal Infrastructure	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **minor adverse** and **minor beneficial** impacts on land use and coastal infrastructure. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **minor adverse** impacts, primarily driven by land disturbance, noise, and traffic. **Major beneficial** impacts would result from productive use of ports and related infrastructure for offshore wind activity.	*Proposed Action:* The Proposed Action would result in **minor adverse** and **moderate beneficial** impacts on land use and coastal infrastructure. Adverse impacts are primarily due to land disturbance, noise, and traffic during onshore construction. Beneficial impacts are primarily due to supporting designated uses and infrastructure improvements at ports. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **minor adverse** and **major beneficial**. The adverse impacts would primarily be driven by land disturbance, noise, and traffic. The beneficial impacts would primarily be associated with port utilization.	*Alternative C:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for land use and coastal infrastructure. Thus, the overall impact level would be the same as for the Proposed Action: **minor adverse** and **moderate beneficial** impacts. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative D:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for land use and coastal infrastructure. Thus, the overall impact level would be the same as for the Proposed Action: **minor adverse** and **moderate beneficial** impacts. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative E:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for land use and coastal infrastructure. Thus, the overall impact level would be the same as for the Proposed Action: **minor adverse** and **moderate beneficial** impacts. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Alternative F:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for land use and coastal infrastructure. Thus, the overall impact level would be the same as for the Proposed Action: **minor adverse** and **moderate beneficial** impacts. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	*Preferred Alternative:* This alternative would differ only in terms of the offshore components, which would be outside of the geographic analysis area for land use and coastal infrastructure. Thus, the overall impact level would be the same as for the Proposed Action: **minor adverse** and **moderate beneficial** impacts. *Cumulative Impacts of the Preferred Alternative:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.
3.6.6 Navigation and Vessel Traffic	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would	*Proposed Action:* The Proposed Action would result in **major adverse** impacts on navigation and vessel traffic, primarily due	*Alternative C:* This alternative could have up to 29 fewer WTGs and 1 fewer OSS compared to the Proposed Action. However,	*Alternative D:* This alternative could have up to 31 fewer WTGs compared to the Proposed Action. However, the overall impact	*Alternative E:* This alternative would involve a 0.81-nmi (1,500-meter) to 1.08-nmi (2,000-meter) setback between WTGs in	*Alternative F:* This alternative would involve installing a range of foundation types, which has little to no impact on	*Preferred Alternative:* This alternative would have at least 5 fewer WTGs compared to the Proposed Action and would modify

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
	result in **moderate adverse** impacts on navigation and vessel traffic. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **moderate adverse** impacts primarily due to the presence of offshore wind structures, which would increase the risk of collisions, allisions, and accidental releases, as well due to port utilization and vessel traffic.	to changes in navigation routes, delays in ports, degraded communication and radar signals, and increased difficulty of offshore search and rescue (SAR) or surveillance missions. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **major adverse**, primarily due to the increased possibility for marine accidents.	the overall impact level would be the same as for the Proposed Action: **major adverse**. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	level would be the same as for the Proposed Action: **major adverse**. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	the Ocean Wind 1 Lease Area (OCS-A 0498) and the Atlantic Shores South Lease Area (OCS-A 0499). This alternative would result in the exclusion or micrositing of up to 5 WTGs. The setback would be an improvement to vessel navigation and search and rescue considerations, but due to the presence of off-grid structures, the impact level would remain the same as for the Proposed Action: **major adverse**. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	navigation and traffic. Furthermore, the number of structures within the OCS would not change under this alternative. Thus, the overall impact level would be the same as for the Proposed Action: **major adverse**. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	the layout of offshore structures. This modification would lessen potential impacts to vessel navigation. Thus, the overall impact level would be reduced when compared to the Proposed Action: **moderate adverse**. *Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be reduced from the Proposed Action: **moderate**.
3.6.7 Other Uses (Marine Minerals, Military Use, Aviation, and Scientific Research and Surveys)	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **negligible** impacts for military and national security uses except USCG SAR operations, aviation and air traffic, cables and pipelines, and radar systems; **minor adverse** impacts for marine mineral extraction and USCG SAR operations, and **moderate adverse** impacts for scientific research and surveys.	*Proposed Action:* The Proposed Action would result in **minor adverse** impacts for marine mineral extraction, military and national security uses except for USCG SAR operations, aviation and air traffic, and cables and pipelines; **moderate adverse** impacts for radar systems; and **major adverse** impacts for USCG SAR operations and scientific research and surveys. The presence of structures associated with the Proposed Action and	*Alternative C:* This alternative could have up to 29 fewer WTGs and 1 fewer OSS compared to the Proposed Action. However, the overall impact level for the individual IPFs would be the same as for the Proposed Action and range from: **minor to major adverse**. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the	*Alternative D:* This alternative could have up to 31 fewer WTGs compared to the Proposed Action. However, the overall impact level for the individual IPFs would be the same as for the Proposed Action and range from **minor to major adverse**. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the	*Alternative E:* This alternative would involve a 0.81-nmi (1,500-meter) to 1.08-nmi (2,000-meter) setback between WTGs in the Ocean Wind 1 Lease Area (OCS-A 0498) and the Atlantic Shores South Lease Area (OCS-A 0499). This alternative would result in the exclusion or micrositing of up to 5 WTGs. The overall impacts would be the same as for the Proposed Action except for USCG SAR operations. The setback would be an	*Alternative F:* This alternative would involve installing a range of foundation types, which has little to no impact on navigation and traffic. Furthermore, the number of structures within the OCS would not change under this alternative. Thus, the overall impact level would be the same as for the Proposed Action and range from: **minor to major adverse**. *Cumulative Impacts of Alternative F:* Impacts of	*Preferred Alternative:* This alternative would have at least 5 fewer WTGs compared to the Proposed Action and would modify the layout of offshore structures. The overall impacts would be the same as for the Proposed Action except for USCG SAR operations. The modified layout would be an improvement to vessel navigation and SAR considerations and would lead to reduced impacts for USCG SAR operations

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
	Cumulative Impacts of the No Action Alternative: The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **minor adverse** impacts for marine mineral extraction, military and national security uses except for USCG SAR operations, aviation and air traffic, cables and pipelines and radar systems; and **moderate adverse** impacts for USCG SAR operations and **major adverse** scientific research and surveys.	increased risk of allisions are the primary drivers for impacts on USCG SAR operations. Impacts on scientific research and surveys would qualify as major because entities conducting surveys and scientific research would have to make significant investments to change methodologies to account for unsampleable areas, with potential long-term and irreversible impacts on fisheries and protected-species research as a whole, as well as on the commercial fisheries community. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **minor adverse** for marine mineral extraction, military and national security uses except for USCG SAR operations, aviation and air traffic, and cables and pipelines; **moderate adverse** for radar systems; and **major adverse** for USCG SAR operations and scientific research and surveys.	connected action and other offshore wind activities, would be the same as for the Proposed Action.	connected action and other offshore wind activities, would be the same as for the Proposed Action.	improvement to vessel navigation and SAR considerations and would lead to reduced impacts for USCG SAR operations when compared to the Proposed Action: **moderate adverse**. The overall impact range would remain **minor to major adverse**. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would the same as for the Proposed Action except for USCG SAR operations, which would be **moderate adverse**. The overall impact range would remain **minor to major**.	Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	when compared to the Proposed Action: **moderate adverse**. The overall impact range would remain **minor to major adverse**. *Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action except for USCG SAR operations, which would be **moderate adverse**. The overall impact range would be **minor to major adverse.**
3.6.8 Recreation and Tourism	*No Action Alternative:* Continuation of existing environmental trends and activities under the No	*Proposed Action:* The Proposed Action would result in **minor adverse** and **minor beneficial** impacts on	*Alternative C:* This alternative could have up to 29 fewer WTGs and 1 fewer OSS compared to the	*Alternative D:* Alternative D1 would exclude placement of WTGs up to 12 mi (19.3 km) from shore,	*Alternative E: Alternative E:* This alternative could have up to 5 fewer WTGs compared to the Proposed	*Alternative F:* This alternative would involve installing a range of foundation types, which	*Preferred Alternative:* This alternative would have at least 5 fewer WTGs compared to the Proposed

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
	Action Alternative would result in **minor adverse** impacts on recreation and tourism. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **minor adverse** impacts, primarily driven by land disturbance, cable emplacement and maintenance, noise, traffic, anchoring, lighting, and the presence of structures. **Minor beneficial** impacts would result from the anticipated artificial reef effect resulting from installation of offshore structures.	recreation and tourism. Adverse impacts are primarily due to anchoring, land disturbance, lighting, cable emplacement and maintenance, noise, traffic, and the presence of structures. Beneficial impacts are primarily due to the presence of structures and the potential for the artificial reef effect. *Cumulative Impacts of the Proposed Action:* Impacts of the Proposed Action when combined with the impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be **minor adverse** and **minor beneficial**.	Proposed Action. However, the overall impact level would be the same as for the Proposed Action: **minor adverse** and **minor beneficial** impacts. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	resulting in the removal of up to 21 WTGs. Alternative D2 would exclude placement of WTGs up to 12.75 mi (20.5 km) from shore, resulting in the removal of up to 31 WTGs. Alternative D3 would exclude placement of WTGs up to 10.8 mi (17.4 km) from shore, resulting in the removal of up to six WTGs. Alternatives D1 and D2 may substantially reduce the visual impacts on historic aboveground resources. Alternative D3 is not anticipated to result in a substantial reduction. Though the visual impact may be reduced for Alternatives D1 and D2, the overall impact level for Alternative D would be the same as for the Proposed Action: **minor adverse** and **minor beneficial** impacts. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	Action. However, the overall impact level would be the same as for the Proposed Action: **minor adverse** and **minor beneficial** impacts. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	would not have measurable impacts on recreation and tourism that are materially different from the impacts of the Proposed Action: **minor adverse** and **minor beneficial** impacts. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	Action. However, the overall impact level would be the same as for the Proposed Action: **minor adverse** and **minor beneficial**. *Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.
3.6.9 Scenic and Visual Resources	*No Action Alternative:* Continuation of existing environmental trends and activities under the No Action Alternative would result in **major adverse**	*Proposed Action:* Effects of Offshore Project elements on high- and moderate-sensitivity seascape character units, open ocean character units, and	*Alternative C:* This alternative could have up to 29 fewer WTGs and 1 fewer OSS compared to the Proposed Action. However, the overall impact level	*Alternative D:* Alternative D1 would exclude placement of WTGs up to 12 mi (19.3 km) from shore, resulting in the removal of up to 21 WTGs. Alternative	*Alternative E: Alternative E:* This alternative could have up to 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the	*Alternative F:* This alternative would involve installing a range of foundation types, which would not have measurable impacts on scenic and visual	*Preferred Alternative:* This alternative would have at least 5 fewer WTGs compared to the Proposed Action. However, the overall impact level would be the

Resource	Alternative A No Action	Alternative B Proposed Action	Alternative C Habitat Impact Minimization/ Fisheries Habitat Impact Minimization	Alternative D No Surface Occupancy at Select Locations to Reduce Visual Impacts	Alternative E Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1	Alternative F Foundation Structures	Preferred Alternative
	impacts on scenic and visual resources. *Cumulative Impacts of the No Action Alternative:* The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **major adverse** impacts due to the addition of new structures, nighttime lighting, onshore construction, and increased vessel traffic.	landscape character units would be **major adverse**. Onshore facilities would result in **major adverse** impacts on scenic and visual resources. *Cumulative Impacts of the Proposed Action:* Overall, impacts from ongoing and planned activities, including other offshore wind activities, would be **major adverse**.	would be the same as for the Proposed Action: **major adverse** impacts. *Cumulative Impacts of Alternative C:* Impacts of Alternative C when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	D2 would exclude placement of WTGs up to 12.75 mi (20.5 km) from shore, resulting in the removal of up to 31 WTGs. Alternative D3 would exclude placement of WTGs up to 10.8 mi (17.4 km) from shore, resulting in the removal of up to 6 WTGs. Alternatives D1 and D2 may substantially reduce the visual impacts on historic aboveground resources. Alternative D3 is not anticipated to result in a substantial reduction. Though the visual impact may be reduced for Alternatives D1 and D2, the overall impact level for Alternative D would be the same as for the Proposed Action: **major adverse** impacts. *Cumulative Impacts of Alternative D:* Impacts of Alternative D when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	same as for the Proposed Action: **major adverse** impacts. *Cumulative Impacts of Alternative E:* Impacts of Alternative E when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	resources that are materially different from the impacts of the Proposed Action: **major adverse** impacts. *Cumulative Impacts of Alternative F:* Impacts of Alternative F when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.	same as for the Proposed Action: **major adverse.** *Cumulative Impacts of the Preferred Alternative:* Impacts of the Preferred Alternative when combined with impacts from ongoing and planned activities, including the connected action and other offshore wind activities, would be the same as for the Proposed Action.

3.3 Environmentally Preferable Alternatives

BOEM is required by CEQ regulations to identify in the ROD the *environmentally preferable alternative(s)* (40 CFR § 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 CFR § 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 A), Alternative C1 – C3 (Habitat Impact Minimization/Fisheries Habitat Impact Minimization), and Alternative D (No Surface Occupancy at Select Locations to Reduce Visual Impacts).

Adverse environmental impacts in the Project area would generally be less under the No Action Alternative because construction and installation, 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 minor to moderate, long-term, adverse impacts on regional air quality because other energy generation facilities would be needed to meet future power demands. These facilities might be fueled with natural gas, oil, or coal, which would emit more pollutants than wind turbines and would have more adverse impacts on air quality and contribute greenhouse gases that cause climatic change. Adverse impacts on air quality also tend to disproportionally impact environmental justice communities, which often include low-income and minority populations. These air quality impacts might be compounded by other impacts because selection of the No Action Alternative could negatively impact future investment in U.S. offshore wind energy facilities, which in turn could result in the loss of beneficial cumulative impacts, such as increased employment, improvements in air quality, and reductions in greenhouse gas emissions. As noted in the final EIS, Section 3.6.3, *Demographics, Employment, and Economics,* 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 United States offshore wind market.

Alternative C was developed in response to comments received through the EIS scoping process. Alternative C includes four sub-alternatives, three of which would avoid entirely, or in part, two AOCs identified by NMFS within the Lease Area that have pronounced bottom features and produce valuable habitat. AOC 1 is part of a designated recreational fishing area called "Lobster Hole," and AOC 2 is part of a sand ridge (ridge and swale) complex.

- Alternative C1: Up to 16 WTGs, 1 OSS, and associated interarray cables within the Lobster Hole designated area (AOC 1) as identified by NMFS would be removed.

- Alternative C2: Up to 13 WTGs and associated interarray cables within the NMFS-identified sand ridge complex in the southernmost portion of the Lease Area (AOC 2) would be removed.

- Alternative C3: Up to 6 WTGs located within 1,000 ft (305 m) of the sand ridge complex area identified by NMFS and further demarcated using NOAA's Benthic Terrain Modeler and bathymetry data provided by Atlantic Shores would be removed.

- Alternative C4 was proposed by Atlantic Shores and would involve the micrositing of up to 29 WTGs, 1 OSS, and associated interarray cables outside of the 1,000-ft (305-mr) buffer of the ridge and swale features within two AOCs identified by NMFS within the Lease Area.

In comparison to the Proposed Action, Alternative C1 – C3 would reduce the potential impacts on benthic resources, benthic foraging sea turtles, and marine mammals due to the avoidance and minimization of impacts on sensitive habitats and the potential removal, relocation, or micrositing of up to 29 WTGs, 1 OSS, and associated interarray cables; and avoidance of impact pile-driving noise. Alternative C1 – C3 would remove turbines from the two AOC's and their associated scour protection and interarray cables, thereby reducing impacts on these habitats. Alternative C4 would not avoid impacts to the two AOCs, which are landscape-scale features, though Alternative C4 would reduce impacts on complex habitat to the extent that micrositing is feasible.

Alternative D was developed through the scoping process for the EIS in response to public comments concerning the visual impacts of the Atlantic Shores South Project. Under Alternative D, no surface occupancy would occur within defined distances to shore to reduce the visual impacts of the proposed Project. Alternatives D1, D2, and D3 would result in the exclusion of up to 21, 31, and 6 WTG positions in Project 1 that are sited closest to shore, respectively. The remaining turbines in Project 1 would be restricted to a maximum hub height of 522 ft (159 m) AMSL and maximum blade tip height of 932 ft (284 m) AMSL. While a reduction in horizontal and vertical field of view and contrasts would occur, the reduced impacts under Alternatives D1, D2, and D3 would not be sufficient to change the level of impacts as compared with the Proposed Action. The height restriction would soften the overall visibility but does not reach the threshold to shift impacts from major to moderate. Nonetheless, these alternatives present small but potentially meaningful changes to local communities to soften visibility.

In comparison to the Proposed Action, Alternative D would reduce the potential impacts on benthic resources, finfish, invertebrates, essential fish habitat, marine mammals, and sea turtles due to the potential removal of up to 31 WTGs and associated interarray cables.

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

4 MITIGATION, MONITORING, AND REPORTING

Appendix G of the final EIS[21] identifies measures to avoid, minimize, and mitigate adverse environmental impacts that could result from the proposed activities and identifies the anticipated enforcing agency. BOEM is adopting all the measures identified in Tables G-2, G-3, and G-4 of Appendix G of the final EIS, except for the measures identified below and those that are identified in Tables G-2, G-3, and G-4 as outside of BOEM's or BSEE's authority to enforce.

1. Essential Fish Habitat (EFH) Conservation Recommendation #17: Any debris encountered during a site preparation grapnel run should be retained and discarded at an appropriate upland facility. Debris should not be returned overboard.

   BOEM is not adopting the recommendation as proposed. BOEM will require the Lessee to submit a Pre-lay Grapnel Run Plan that must include a description of debris removal and disposal methods to ensure that debris is disposed of in a responsible manner.

2. EFH Conservation Recommendation #29: *Continuous pile driving for 24 hours/day should not be permitted; minimum mandatory quiet periods of at least 4 hours should be required per 24 hours*.

   BOEM is not adopting the recommendation as proposed. Pursuant to the Biological Opinion, nighttime pile driving may be authorized with the concurrence of a nighttime monitoring plan. Regarding continuous pile driving for 24 hours, BOEM notes this is extremely unlikely to occur. It is not likely to be logistically nor technically feasible to pile continuously for 24 hours. BOEM is not aware of any offshore wind energy project that has piled continuously for 24 hours without a break in activity.

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

5 FINAL AGENCY DECISIONS

5.1 The Department of the Interior Decision

After carefully considering the final EIS alternatives, including comments from the public on the draft EIS, DOI has decided to approve, with modifications, the COP for Atlantic Shores by adopting the Preferred Alternative. By selecting the Preferred Alternative (hereinafter the "selected alternative"), DOI will allow for the construction, operation, maintenance, and eventual decommissioning of two offshore wind energy facilities (Project 1 and Project 2) together

[21] Appendix G 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 G.

consisting of up to 195[22] WTGs and up to 10 OSSs on the OCS offshore New Jersey within Lease Area OCS-A 0499, with transmission cables making landfall at Sea Girt, Monmouth County, New Jersey, and Atlantic City, New Jersey. The selected alternative would generate approximately 1,510 MW for Project 1 and an undetermined output for Project 2. Atlantic Shores has a goal of 1,327 MW for Project 2,[23] which would align with the interconnection construction and service agreements Atlantic Shores intends to execute for both projects with the RTO, PJM.[24]

The selected alternative combines aspects of Alternatives B, C4, D3, and E. The selected alternative will locate all permanent structures into the uniform grid spacing, microsite up to 29 WTGs, 1 OSS, and associated interarray cables outside of the 1,000-foot (305-meter) buffer of the ridge and swale features within the NMFS-identified AOCs 1 and 2, restrict the height of WTGs in Project 1 to a maximum hub height of 522 ft (159 m) AMSL and maximum blade tip height of 932 ft (284 m) AMSL, and provide a minimum 0.81-nmi (1,500-m) setback between the WTGs in Atlantic Shores South and the WTGs in Ocean Wind 1 (Lease Area OCS-A 0498) by removing two WTGs and micrositing one WTG from Project 1. The total number of permanent structures constructed (WTGs, OSSs, and/or met tower) may not exceed 197.

Selection of Alternative B would have resulted in the construction and installation, O&M, and eventual decommissioning of up to 200 WTGs (a 1,510 MW wind energy facility with between 105 and 136 WTGs for Project 1, and a wind energy facility with between 64 and 95 WTGs generating 1,327 MW for Project 2), up to 10 OSSs (up to 5 in each Project), up to 1 permanent met tower (Project 1), up to 4 temporary metocean buoys (up to 3 metocean buoys in Project 1, 1 metocean buoy in Project 2), interarray and interlink cables, 2 onshore substations, 1 O&M facility, and up to 8 transmission cables making landfall at two New Jersey locations; built within the range of the design parameters outlined in the Atlantic Shores South COP (Atlantic Shores 2024), subject to applicable mitigation measures. WTGs would be placed in all 200 positions in the Lease Area, including the NMFS-identified habitat AOC and within proximity to Ocean Wind 1's WTGs. Permanent structures (i.e., OSSs and one met tower) would be placed off-grid, and in a way that narrows linear rows and columns for navigational purposes to fewer than 0.6 nmi by 1 nmi. Alternative B would have had more permanent seafloor alteration compared to the selected alternative and would result in more total impacts on resources of concern than the selected alternative. Alternative B would allow for additional energy production compared to the other action alternatives. However, the action alternatives still allowed Atlantic Shores to meet Project 1's OREC 1,510 MW nameplate capacity, and sufficient energy production for Project 2 to meet the goal of 1,327 MW. Project 2 is anticipated to provide a

[22] 195 WTGs assumes that 197 total positions are available and that a minimum of 1 OSS is constructed in each project, with 195 remaining positions available for WTGs. Fewer WTGs may be constructed to allow for placement of additional OSSs and/or a met tower on grid.

[23] The State of New Jersey announced an OREC solicitation that seeks to aware between 1200 MW and up to approximately 4000 MW, for which Atlantic Shores intends to compete for Project 2. This solicitation (https://bpuoffshorewind.nj.gov/fourth-solicitation/) was released April 30, 2024.

[24] Atlantic Shores plans to enter into interconnection construction and service agreements with PJM to fund improvements to the onshore Cardiff and Larrabee substations, along with required grid updates. These agreements are distinct from purchase power agreements (applicable in Connecticut, Massachusetts, and Rhode Island) and ORECs (applicable in Maryland, New Jersey, and New York). An OREC represents the environmental attributes of one MWh of electric generation from an offshore wind project. New Jersey Board of Public Utilities awards ORECs through a competitive bidding process and they represent a long-term contract with the State of New Jersey.

supply of offshore wind energy to meet future state renewable energy goals. Therefore, BOEM has not selected the Proposed Action as the selected alternative.

Selection of Alternative C would exclude up to 16 WTGs and 1 OSS from the Lobster Hole designated area as identified by NMFS (Alternative C1), up to 13 WTGs within the NMFS-identified sand ridge complex (Alternative C2), up to 6 WTGs within 1,000 ft of the demarcated sand ridge complex (Alternative C-3), and/or micrositing of up to 29 WTGs, and 1 OSS, outside of the 1,000-ft buffers of sand ridges and swales within AOC 1 and 2. The sand ridge complex features are found throughout the OCS in the mid-Atlantic and provide important habitat for several species.

While Alternative C would exclude WTGs and their associated inter-array cables, the reduction to long-term impacts in comparison to the selected alternative equates to 1.1 to 2.9 percent and 1.7 to 4.4 percent reductions in the maximum temporary and permanent impacts on benthic habitat, respectively, compared to Alternative B. 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. The reduction in impacts would not be sufficient to change the level of impacts as compared with Alternative B. 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 Alternatives C1–C3 were selected, in comparison with the selected alternative, is substantial and will not be reduced over time.

BOEM considered the economic consequences of selecting a SubAlternative with fewer than 195 positions, which further informed the selection of the selected alternative. From an economics perspective, choosing fewer than 195 WTGs would make the Atlantic Shores South projects less profitable to the developer and the developer has asserted to BOEM that it needs all 195 positions to achieve economic viability. Therefore, BOEM has not selected Alternatives C in its entirety, but is incorporating Alternative C4.

Selection of Alternative D would eliminate between 6 and 31 WTG positions nearest to coastal communities. For example, for shoreline viewers of the Lease Area, the distance to the nearest WTG would increase from 8.7 mi under the selected alternative to between 10.8 (Alternative D3) and 12.75 (Alternative D2) mi under Alternative D. The analysis conducted in the final EIS indicates that Alternative D-2 and the selected alternative would have essentially the same presence on the horizon. While a reduction in horizontal and vertical field of view and contrasts would occur, the reduced impacts under Alternatives D1, D2, and D3 would not be sufficient to change the level of impacts as compared with Alternative B (Proposed Action). The height restriction in each alternative would soften the overall visibility but does not reach the threshold to shift impacts from major to moderate. Nonetheless, these alternatives present small but potentially meaningful changes to local communities to soften visibility. In addition, since the selection of Alternative D would eliminate WTGs, BOEM considered the economic consequences of selecting a SubAlternative with fewer than 195 positions that further informed the selection of the selected alternative. From an economics perspective, choosing fewer than 195 WTGs would make the Atlantic Shores South Project less profitable to the developer and the

developer has asserted to BOEM that it needs all 195 positions to achieve economic viability. Therefore, BOEM has not selected Alternative D3 in its entirety as the selected alternative, but is incorporating the height restriction for Project 1.

Selection of Alternative E would modify the WTG array layout by either excluding or micrositing up to five WTG positions. Separation between the WTGs in Ocean Wind 1 and Atlantic Shores South, as proposed by USCG and adopted by Atlantic Shores, is provided under the selected alternative. Excluding 2 additional WTG positions and the micrositing of 1 could allow for additional maneuverability for mariners transiting between the lease areas. The analysis conducted in Section 3.6.6 (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 E because the mutually agreeable separation scenario under the selected alternative provides sufficient maneuverability for mariners transiting between the lease areas. However, selection of Alternative E and exclusion of all 5 WTG positions would result in some waste of OCS resources when compared to the selected alternative. Therefore, BOEM has not selected Alternative E in its entirety as the selected alternative but is incorporating the negotiated setback, as agreed to with Ocean Wind 1 and USCG as part of the selected alternative.

Selection of Alternative F would have resulted in narrowing of the PDE to the use of piled foundations (Alternative F1), suction bucket foundations (Alternative F2), and/or gravity-based foundations (Alternative F3). Selection of Alternatives F1 through F3 would narrow the PDE for the WTG foundations and could create financial feasibility risks for Project 1 and Project 2 because the current supply chain for WTG foundations and installation vessels is highly constrained. In particular, suction bucket and gravity foundations for WTG foundations are not anticipated to be commercially viable for Projects 1 and 2 in the anticipated construction timeframe due to lack of fabrication capability and capacity in the region. Therefore, BOEM has not selected Alternative F as part of the selected alternative.

Under Alternative A (the No Action Alternative), DOI would not approve the Atlantic Shores South Project. In addition, no other permits or authorizations for this proposed Project would be issued. Adverse environmental impacts across resources would generally be less under the No Action Alternative as no construction, operation, maintenance, or decommissioning activities would occur on the OCS. As a result, impacts on physical, biological, social, or cultural resources from the selected alternative would be avoided. However, the No Action Alternative would still be expected to result in minor to 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 the action alternatives that would result in fewer environmental impacts and use conflicts, while meeting the purpose and need for the action. The final EIS found that the selected alternative would result in fewer impacts than other action alternatives

considered and is consistent with the purpose and need. Accordingly, DOI has selected the selected alternative in this ROD.

DOI coordinated with NMFS and USACE and 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 G of the final EIS. Concurrent with the NEPA process, BOEM conducted a thorough National Historic Preservation Act Section 106 review of the Project with federally recognized Tribal Nations, the New Jersey State Historic Preservation Office, the ACHP, and consulting parties and, through the Section 106 review, identified and assessed potential effects to historic properties, and identified measures to resolve adverse effects. Draft measures to resolve adverse effects were described and analyzed in the draft EIS. After the final EIS was made available to the public, BOEM addressed consulting party comments on the MOA and distributed the MOA for signature by the consulting parties. The Section 106 review concluded with the execution and implementation of the MOA, which was signed by BOEM; the New Jersey State Historic Preservation Office; ACHP; the Lessee; and the New Jersey Historic Trust on June 27, 2024. The following concurring parties also signed the MOA: City of Atlantic City, Save Lucy Committee, Chicken Bone Beach Historical Foundation, Borough of Longport, and BSEE. The MOA memorializes measures that will resolve the selected alternative's adverse effects to historic properties including avoidance, minimization, and mitigation measures.

Moreover, BOEM consulted with federally recognized Tribes regarding renewable energy leasing and development on the OCS. The following federally recognized Tribes were invited to consult: Eastern Shawnee Tribe of Oklahoma; Shawnee Tribe; Absentee-Shawnee Tribe of Indians of Oklahoma; Stockbridge-Munsee Community Band of Mohican Indians; The Delaware Nation; Delaware Tribe of Indians; The Shinnecock Indian Nation; The Narragansett Indian Tribe; Wampanoag Tribe of Gay Head (Aquinnah); The Mashpee Wampanoag Tribe; and The Mashantucket (Western) Pequot Tribe. BOEM held government-to-government and Tribal consultation meetings on the Atlantic Shores South NOI on November 15, 2021, and the draft EIS on June 27, 2023. The Delaware Tribe of Indians and The Shinnecock Indian Nation participated in the government-to-government meeting on November 15, 2021. The Stockbridge-Munsee Community Band of Mohican Indians, Mashantucket (Western) Pequot Tribal Nation, and Wampanoag Tribe of Gay Head (Aquinnah) participated in the Tribal consultation meeting on June 27, 2023. BOEM leaders also met the Houlton Band of Maliseet Indians; Mashantucket; Mashpee; Narragansett; Passamaquoddy Tribe, Indian Township; Passamaquoddy Tribe, Pleasant Point; Penobscot Indian Nation; Shinnecock; and Aquinnah at the Tribal Leaders Summit on April 10, 2023.

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

Marine Mammals, North Atlantic Right Whale (NARW): Under all alternatives, including the No Action alternative, when considering ongoing and planned activities, major adverse impacts

to NARWs could occur due to the risk of vessel strikes and fishing gear entanglement posed by those activities. The incremental impacts of the Project alone are not expected to include entanglements or vessel strikes. Mitigation measures such as vessels maintaining a safe distance from marine mammals and reduced vessel speeds are designed to avoid vessel interactions with marine mammals. The incremental impacts of all action alternatives to NARWs would be minor due to implementation of several mitigation measures, e.g., clearance and shutdown zones for pile driving and HRG surveys, use of sound attenuation measures during impact pile driving, numerous vessel strike avoidance measures, and use of Protected Species Observers (PSO) and Passive Acoustic Monitoring (PAM).

Commercial Fisheries and For-Hire Recreational Fishing: Major adverse impacts are anticipated to occur, primarily because of the presence of structures (e.g., through gear loss, navigational hazards, space use conflicts, potential impacts on fisheries surveys) (see final EIS Section 3.6.1). Such adverse impacts will be mitigated through a requirement for Atlantic Shores to establish and implement a direct fisheries compensation and mitigation fund for commercial and for-hire recreational fishermen impacted by the Project, through a requirement for Atlantic Shores to maintain a fisheries gear loss claims procedure throughout the life of the Project, and through a survey mitigation agreement between Atlantic Shores and NMFS that will describe how Atlantic Shores will mitigate Project impacts on NMFS scientific surveys. BOEM anticipates including conditions of COP approval (see ROD Appendix A, Sections 6.1 and 6.2) to address this issue.

Cultural Resources: Mitigation was developed with consulting parties through the NHPA Section 106 consultation process to resolve adverse effects on historic properties pursuant to 36 CFR § 800.6 and are stipulated in the MOA. Mitigation that would reduce major impacts on onshore and offshore cultural resources include Atlantic Shores' compliance with stipulations outlined in the MOA, such as the implementation of protective buffers to avoid marine archaeological resources per Stipulation I; completion of construction monitoring to avoid terrestrial archaeological resources per Stipulation I; implementation of measures in historic property treatment plans (HPTPs) for resolving adverse effects on ancient submerged landform features (ASLFs) and aboveground historic properties per Stipulation III; contributions to a mitigation fund for resolving adverse effects on aboveground historic properties per Stipulation III; and implementation of actions that are consistent with the Post Review Discovery Plans for marine and terrestrial archaeology per Stipulation XIII.

Navigation and Vessel Traffic: Major impacts would arise from the presence of structures, which increase the risk of collision/allision and navigational complexity. Impacts on non-Project vessels would include changes in navigation routes, delays in ports, degraded communication and radar signals, and increased difficulty of offshore search and rescue (SAR) or surveillance missions within the Wind Turbine Area (WTA), all of which would increase navigational safety risks. The OSS and met tower positioning outside of the gridded WTG layout increases risk of allision for vessels transiting through the WTA. Some commercial fishing, recreational, and other vessels would choose to avoid the WTA altogether, leading to some potential funneling of vessel traffic along the Project area borders. In addition, 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. The selected alternative includes a modification that would require the proposed OSSs, met tower, and WTGs to be aligned in a uniform grid with rows in an east-northeast to west-southwest direction spaced 1.0 nmi

(1,900 m) apart and rows in an approximately north to south direction spaced 0.6 nmi (1,100 m) apart with the exception of WTGs AX01, AZ08, BA09, BC07, BE10, BE12, BE14, BE15, BE16, BF14, BF15, and BG13. This modification would lessen potential impacts to vessel navigation, thereby reducing the overall impact from major to moderate.

Other Uses, Military and National Security Uses: While potential impacts on most military and national security uses are anticipated to be minor, installation of WTGs, OSSs, and the met tower throughout the geographic analysis area would hinder USCG SAR operations across a larger area, resulting in a major impact on SAR operations. Additionally, mariners may not be aware that there are up to 11 structures whose placement does not conform with the gridded layout of the WTGs. As described in Section 3.6.7 of the final EIS, Project structures would be marked as a navigational hazard per Federal Aviation Administration, BOEM, and USCG regulations and guidelines, and WTGs, OSSs, and the met tower would be visible on military and national security vessel and aircraft radar, minimizing the potential for allision and increased navigational complexity. The Preferred Alternative includes a modification that would require the proposed OSSs, met tower, and WTGs be aligned in a uniform grid with rows in an east-northeast to west-southwest direction spaced 1.0 nmi (1,900 m) apart and rows in an approximately north to south direction spaced 0.6 nmi (1,100 m) apart. This modification would lessen potential impacts to SAR operations from major to moderate.

Other Uses, Scientific Research and Surveys: As set forth in the final EIS, the selected alternative is anticipated to have major adverse effects 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)[25] to address the adverse impacts. BOEM and NMFS are of the view that the solution is a collaborative effort between both agencies and the offshore wind industry to establish project specific monitoring programs that follow specific guidelines, thereby allowing the information to be combined regionally into a programmatic approach (see final EIS section 3.17). There are 14 NMFS scientific surveys that overlap with wind energy development in the northeast region. Eleven of these surveys overlap with the Project. BOEM anticipates including a condition of COP approval (see ROD Appendix A, Section 6.3) to address this issue. Consistent with NMFS and BOEM Survey Mitigation strategy actions 1.3.1, 1.3.2, 2.1.1, and 2.1.2 in the *NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region*, the Lessee must submit to BOEM a survey mitigation agreement between NMFS and the Lessee. The survey mitigation agreement must describe how the Lessee will mitigate the Project's impacts on the eleven 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.

Scenic and Visual Resources: Due to distance, extensive field of views, strong contrasts, large scale of change, and level of prominence, as well as heretofore undeveloped ocean views, major impacts are anticipated on the open ocean character unit and viewer boating and cruise ship experiences. The daytime presence of offshore WTGs and OSSs, as well as their nighttime lighting, would change perception of ocean scenes from natural and undeveloped to a developed

[25] *See* 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.

wind energy environment characterized by WTGs and OSSs. In clear weather, the WTGs and OSSs would be an unavoidable presence in views from the coastline, with minor to moderate effects on seascape character and landscape character, and major effects on open ocean character. In coordination with BOEM, the Lessee must prepare and implement a scenic and visual resource monitoring plan (see Appendix A 7.2.1) that monitors and compares the visual effects of the wind farm during construction and O&M (daytime and nighttime) to the findings in the COP Visual Impact Assessment and verifies the accuracy of the visual simulations (photo and video). The monitoring plan must include monitoring and documenting the meteorological influences on actual WTG visibility over a duration of time from selected onshore key observation points, as determined by BOEM and the Lessee. In addition, the Lessee must include monitoring of the operation of Aircraft Detection Lighting System (ADLS) in the monitoring plan. The Lessee must monitor the ADLS operations, documenting when (dates and time) the aviation warning lights are in the on position and the duration of each event. Details for monitoring and reporting procedures must be included in the plan.

Additional anticipated engineering and technical conditions of COP approval are included in Appendix A of this ROD.[26] Atlantic Shores will be required to certify annually that it complies with the terms and conditions of its approved COP (30 CFR § 285.633(b)). BOEM is aware that Atlantic Shores has not yet secured necessary rights and authorizations to construct Project 2. Accordingly, BOEM anticipates imposing condition of COP approval 1.1.3 stating that the Lessees must not install on the OCS any facilities (as defined in 30 CFR § 585.113) that are solely part of Project 2 prior to issuance of all necessary federal, state and local approvals and conveyance of rights necessary for construction of Project 2. Atlantic Shores must also comply with all other applicable requirements of 30 CFR 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 12 enumerated goals.

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

STEVEN FELDGUS

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Date: 2024.07.01 14:46:25 -04'00'

Steven H. Feldgus
Principal Deputy Assistant Secretary
Land and Minerals Management

[26] 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 Atlantic Shores.

5.2 NMFS' Decision

This section documents NMFS' planned determination to promulgate ITR and issue an incidental take authorization in the form of a LOA to Atlantic Shores Project 1 Company pursuant to its authorities under the MMPA, if specific findings are made. It also references NMFS' decision to adopt the BOEM final EIS to support NMFS' anticipated decision to promulgate the ITR and issue the 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 potential ITR and LOA. In that memorandum, NMFS concluded: (i) the action analyzed in the final EIS covers NMFS' proposed decision to issue an LOA to Atlantic Shores Project 1 Company and meets all NEPA requirements under 40 CFR § 1506.3 (adopting an EIS); (ii) the analysis includes the appropriate scope and level of environmental impact evaluation for NMFS' proposed action and alternatives; and (iii) NMFS' comments and suggestions related to primary environmental effects of concern from the proposed action (i.e., effects to marine mammals), submitted in its role as a cooperating agency, have been satisfied.

On February 28, 2022, NMFS received an application from Atlantic Shores Project 1 Company pursuant to MMPA Section 101(a)(5)(A) for an authorization to take small numbers of marine mammals, by harassment, incidental to the construction of an offshore wind energy project on the OCS offshore New Jersey in Lease Area OCS-A 0499, for a period of five years.[27] NMFS reviews applications and, if specific findings are made, promulgates regulations and issues incidental take authorizations pursuant to the MMPA. Incidental take authorizations may be issued as either: (1) ITR 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 CFR §§ 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 Atlantic Shores Project 1 Company 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. On August 25, 2022, after NMFS determined Atlantic Shores Project 1 Company's 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' proposed action—which was based on Atlantic Shores Project 1 Company's request for authorization to take marine mammals incidental to specified activities associated with the Project (e.g., pile driving, marine site assessment and characterization surveys)—is to evaluate Atlantic Shores Project 1 Company's request under requirements of the MMPA (16 USC § 1371(a)(5)(A)) and its implementing regulations (50 CFR Part 216) administered by NMFS and to determine whether the findings necessary to promulgate the ITR and issue the LOA can be made, based on the best available information. NMFS must render a decision regarding the request for authorization under its MMPA responsibilities (16 USC § 1371(a)(5)(A)) and its

[27] The application was originally received by the parent company, Atlantic Shores Offshore Wind, LLC, and the applicant subsequently requested that the name be changed to Atlantic Shores Project 1 Company.

implementing regulations. In addition to its opportunity to comment on the draft EIS, the public was also involved in the MMPA decision-making process through its opportunity to comment on NMFS' Notice of Receipt of Atlantic Shores Project 1 Company's incidental take request, which was published in the *Federal Register* (87 Fed. Reg. 59,061 [September 29, 2022]), and NMFS' proposed rulemaking that was published in the *Federal Register* (88 Fed. Reg. 65,430 [September 22, 2023])[28]. NMFS' final action considers those comments, as well as the corresponding formal consultation process under Section 7 of the ESA for promulgation of the final ITR and issuance of the associated LOA.

5.2.1 NMFS Decision (40 CFR § 1505.2(a)(1))

Pending completion of all statutory processes, NMFS intends to promulgate an ITR and issue an LOA to Atlantic Shores Project 1 Company, if specific findings are made, which would authorize take of marine mammals incidental to specified construction activities associated with the proposed Project (i.e., pile driving and HRG site and characterization surveys) for five years. NMFS' final decision to promulgate the ITR and issue the requested LOA will be documented in separate Decision Memoranda prepared in accordance with internal NMFS' policy and procedures. The LOA would 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 BiOp that completes the formal Section 7 consultation process under the ESA. A final rule promulgating the regulations would describe NMFS' final determinations. Separately, NMFS would publish a notice in the *Federal Register* announcing an LOA has been issued, within 30 days of the action, in accordance with the MMPA.

5.2.2 Alternatives NMFS Considered (40 CFR § 1505.2(a)(2))

NMFS is required to consider a reasonable range of alternatives to a proposed action in accordance with NEPA and 40 CFR §§ 1502.10(a)(5) and 1502.14. NMFS considered two alternatives, the No Action Alternative in which NMFS would deny Atlantic Shores Project 1 Company's request for an authorization and an action alternative in which it would issue the requested LOA to Atlantic Shores Project 1 Company with mitigation, monitoring, and reporting requirements.

Consistent with BOEM's No Action Alternative, NMFS, under its No Action Alternative, would not issue the requested authorization to Atlantic Shores Project 1 Company, in which case, NMFS assumes Atlantic Shores Project 1 Company would not proceed with the proposed project as described in the application since it would be likely to cause harassment of marine mammals that is prohibited under the MMPA without an authorization. Since NMFS is also required by 40 CFR § 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.

[28] *See* https://www.federalregister.gov/documents/2023/09/22/2023-19733/takes-of-marine-mammals-incidental-to-specified-activities-taking-marine-mammals-incidental-to-the

The other alternative NMFS considered was its Proposed Action, the promulgation of regulations and issuance of the LOA to Atlantic Shores Project 1 Company, which would authorize take of marine mammals incidental to five years of specified construction activities as noted above, subject to specified mitigation, monitoring, and reporting measures. As part of that alternative, and through the public and agency review process, NMFS considered a range of mitigation measures to carry out its duty to identify other means of effecting the least practicable adverse impact on the species or stocks. These measures were initially identified in the proposed rule (88 Fed. Reg. 65,430 [September 22, 2023]) and may be modified in the final rule and LOA, if issued, in response to public comment, agency review, and ESA Section 7 consultation. The regulations and LOA, if issued, would also include monitoring and reporting requirements, as mandated under the MMPA. The Proposed Action alternative evaluated by NMFS (i.e., the promulgation of regulations and issuance of the LOA to Atlantic Shores Project 1 Company) will provide the incidental take authorization necessary to undertake the activities identified in the Preferred Alternative evaluated by BOEM in the final EIS and selected in this ROD.

5.2.3 Primary Factors NMFS Considers Favoring Selection of the Proposed Action (40 CFR § 1505.2(a)(2))

As noted earlier, NMFS must promulgate regulations and issue an LOA to Atlantic Shores Project 1 Company in response to its request for an incidental take authorization, if specific findings are made after consideration of public comments. NMFS' Proposed Action to promulgate regulations and issue an LOA for specified activities included as part of BOEM's selected alternative effectively meets NMFS' stated purpose and need.

5.2.4 Mitigation, Monitoring and Reporting Considered by NMFS (40 CFR § 1505.2(a)(3))

NMFS has a statutory requirement 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 (88 Fed. Reg. 65,430 [September 22, 2023]). If NMFS promulgates and issues the LOA to the applicant, the regulations and LOA will include the necessary mitigation to have the least practicable adverse impact on marine mammals, as well as monitoring and reporting requirements to be implemented by Atlantic Shores Project 1 Company. In summary, the mitigation, monitoring, and reporting measures generally include, but are not limited to, the following: vessel strike avoidance measures; seasonal moratorium on foundation pile driving; usage of PSOs and PAM operators; establishment of clearance and shutdown zones; soft-start and ramp-up procedures for impact pile driving and acoustic source use during high-resolution geophysical surveys, respectively; use of sound attenuation measures and PAM during foundation pile driving; requirements to conduct sound field verification (SFV) during foundation pile driving; fishery survey mitigation to avoid interactions and entanglements; and various situational and incremental (i.e., weekly, monthly, annual) reporting requirements. Appendix A of this ROD includes a listing of mitigation, monitoring, and reporting measures that have been considered by BOEM in formulating its NEPA analysis. Many of these measures align with those included in the

proposed ITR and LOA; however, if issued, the final LOA may contain modified or additional measures that are more protective than those listed in Appendix A.

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

Date

5.3 USACE's Decision

In accordance with 40 CFR § 1505.2, this section constitutes the ROD of the USACE Philadelphia District to issue Department of the Army (DA) permits pursuant to Section 10 of the Rivers and Harbors Act of 1899 (RHA; 33 USC § 403) and section 404 of the Clean Water Act (CWA; 33 USC § 1344) for the construction and maintenance of the Atlantic Shores South (Project 1 and Project 2) proposed by Atlantic Shores Offshore Wind, LLC. This document is prepared in accordance with the CEQ regulations implementing the NEPA (42 USC §§ 4321 et seq., 40 CFR Parts 1500-1508, and 33 C.F.R. §325 Appendix B).[29] This section also constitutes the USACE's CWA Section 404(b)(1) Guidelines Evaluation (40 CFR Part 230), and the Public Interest Review (33 CFR § 320.4) under the authority delegated to the District Engineer by 33 CFR § 325.8.

This ROD incorporates by reference the U.S. DOI, BOEM 2023 draft EIS and the 2024 final EIS for the Atlantic Shores Offshore Wind Project. USACE has been a cooperating agency under 40 CFR § 1501.8, with BOEM as lead agency under 40 CFR § 1501.7, for purposes of complying with NEPA. Additionally, BOEM has been the lead agency for the purposes of complying with Section 7 of the Endangered Species Act (ESA), Section 106 of the NHPA, and Section 305 of the Magnuson-Stevens Act.

USACE concurs with BOEM that this project constitutes a major federal action significantly affecting the quality of the human environment and that, therefore, an EIS was required. As a cooperating agency in accordance with NEPA, USACE provided appropriate input and review comments during the EIS process. USACE has independently reviewed the EIS and concludes, that its comments and suggestions have been satisfied. USACE has reviewed and evaluated the information in the final EIS in accordance with 40 CFR § 1506.3, and 33 CFR Part 325, Appendix B, and finds that the actions covered by the final EIS and those regulated by USACE under Section 10 of the RHA and Section 404 of the CWA are substantially the same. The final EIS and associated NEPA documents prepared by BOEM, with referenced materials, and comments received in response to them, are hereby adopted in full and in accordance with 40 CFR § 1506.3, for purposes of NEPA, the public interest review required by 33 CFR § 320.4, and the 404(b)(1) Guidelines analysis required by 40 CFR Part 230.

This section documents the decision of USACE to issue DA permits pursuant to Section 404 of the CWA and Section 10 of the RHA to Jennifer Daniels, representing Atlantic Shores Offshore Wind LLC. The DA permits will authorize the construction and maintenance of the energy generation facility including turbine generator towers, offshore substations, metocean towers, metocean buoys, passive acoustic monitoring devices, inter-array cables, interlink cables and transmission cables within BOEM's Renewable Energy Lease Area OCS-A 0499; as well as transmission cables carrying energy to shore, any installed nearshore cable protection, conduits under nourished beaches, transition joint bays, cables and associated vaults onshore, specialized converter substations and grid interconnections.

[29] The associated final EIS was prepared using the 2020 CEQ NEPA regulations; therefore, this ROD follows those regulations.

5.3.1 USACE Authorities and Jurisdictional Activities

5.3.1.1 USACE Authority and Jurisdiction under Section 404 of the CWA

Under Section 404 of the CWA, USACE regulates the discharge of dredged or fill material into the waters of the United States. The USACE's Section 404 jurisdiction in tidal waters extends from the high tide line to the seaward limits of the territorial seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three NM (see 33 CFR § 328.4(a) & (b)). The baseline from which the three NM limit of the territorial seas is measured is generally the line on the shore reached by the ordinary low tides but may also lie across the mouth of bays or elsewhere when the coast is not in direct contact with the open sea. For this project, the USACE's Section 404 jurisdiction in tidal waters coincides with the limits of New Jersey state waters.

The limit of Section 404 jurisdiction in non-tidal waters (33 CFR § 328.4(c)) is as follows: (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high-water mark, or (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high-water mark to the limit of the adjacent wetlands. When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

5.3.1.2 USACE Section 10 Jurisdiction in Navigable Waters of the U.S.

Under Section 10 of the RHA, USACE regulates construction of any structures and work that are located in or that affect "navigable waters of the U.S." In tidal waters, the shoreward limit of navigable waters extends to the mean high-water mark while the seaward limit coincides with the limit of the territorial seas as described above.

For this project, USACE has determined that the proposed structures and work within navigable waters subject to Section 10 jurisdiction will occur within the export cable corridor, and selected sections of the onshore cable route.

5.3.1.3 USACE Section 10 Jurisdiction on the Outer Continental Shelf

The USACE's authority to prevent obstructions to navigation in navigable waters of the United States was extended to artificial islands, installations, and other devices located on the seafloor, to the seaward limit of the OCS, by Section 4(f) of the OCSLA of 1953 as amended (43 USC 1333 and 33 CFR 320.2). Structures proposed to be located on the seafloor of the OCS and therefore regulated under Section 10 of the RHA include WTGs, OSSs, meteorological towers or buoys, passive acoustic monitoring devices attached to the seafloor, inter-array cables, interlink cables, and transmission export cables.

5.3.1.4 USACE Section 404 Jurisdiction and NJDEP 404 Assumption

In accordance with 40 CFR 233 and with the approval of EPA, the NJDEP has assumed the Section 404 permit program from the EPA under Section 404(g) (33 USC 1344(g)) of the CWA. USACE has retained authority for tidal waters, other waters affected by interstate and foreign commerce, and their adjacent wetlands. A 1993 Memorandum of Agreement between the Corps and the state of New Jersey, pursuant to 40 CFR 233.14, outlines the relevant spatial extent, joint

processing procedures, and other administrative considerations pertinent to assumption by the state program.

5.3.2 USACE Public Notice and Comments

USACE issued a public notice on May 19, 2023, soliciting comments and recommendations concerning issuance of a DA Permit for the proposed facility and supporting infrastructure; expanding the traditional comment period to 45 days given the unprecedented scope of materials referenced and to align with BOEM's comment period. The notice made explicit reference to the draft EIS and planned public meetings, encouraging public input through those mechanisms preferably to consolidate federal consideration. USACE received two directed comment letters that were forwarded to BOEM for inclusion in the EIS. USACE was represented at public meetings and directly engaged with members of the public to address questions and concerns. Comments and any relevant responses can be found in Appendix N of the final EIS.

5.3.3 Alternatives Considered by the USACE under the National Environmental Policy Act (NEPA)

5.3.3.1 Determination of USACE scope of analysis for NEPA

The analysis below covers the footprint of specialized substations, onshore export cable corridors where they intersect wetlands or tidally influenced flowing water bodies, staging or cable pulling areas in the immediate vicinity of those intersections, transition joint bays where cable is joined or spliced, staging or cable pulling areas in the immediate vicinity of transition joint bays or related horizontal directional drilling (HDD) equipment, dredge or excavation footprints sited below mean high water, subaqueous buried cable corridors for the purpose of carrying generated energy to shore, the footprint of scour protection placed over cables installed between high tide line at the shore and the 3-nmi, subaqueous buried array cable corridors for interconnection of WTGs and OSSs, the footprint of passive acoustic monitoring devices, and the footprint of WTGs and OSSs.

Each of these aspects of the project satisfy two or more of the four factors in 33 CFR 325 Appendix B and would thus be the responsibility of this office to consider.

5.3.3.2 Determination of Purpose and Need for USACE NEPA Review

Project purpose and need for the project as provided by the applicant and reviewed by the USACE:

The purpose of the Projects is to develop offshore wind energy generation facilities within Lease Area OCS-A 0499 to provide clean, renewable energy to the Northeastern U.S. by the mid-to-late 2020s. The Projects will help both the United States and New Jersey achieve their renewable energy goals, diversify the State's electricity supply, increase electricity reliability, and reduce greenhouse gas (GHG) emissions. The Projects will also provide numerous environmental, health, community, and economic benefits, such as the creation of substantial new employment opportunities, including within disadvantaged communities.

Presidential Executive Order 14008 (Tackling the Climate Crisis at Home and Abroad), signed on January 27, 2021, directs the Secretary of the Interior, in consultation with other federal agencies, to review siting and permitting processes to identify steps to double offshore wind energy production by 2030 (see Section 207; White House 2021). The State of New Jersey has also set ambitious renewable energy goals and mandates. New Jersey's Global Warming Response Act of 2007, as amended in 2019, mandates a reduction in the State's GHG emissions to 80 percent below its 2006 levels by 2050. New Jersey's renewable energy goals also include reaching 11,000 MW of offshore wind energy capacity by 2040, as outlined in Executive Order 307, and achieving 100 percent clean energy by 2050, as described in the 2019 Energy Master Plan (Ramboll 2020; NJDEP 2020).

In accordance with the New Jersey Offshore Wind Economic Development Act (OWEDA), on June 30, 2021, the New Jersey Board of Public Utilities (NJBPU) awarded Atlantic Shores an OREC allowance to deliver 1,510 megawatts (MW) of offshore renewable energy into the State of New Jersey. Project 1 that will be developed under this OREC award, referred to as Project 1, will be owned and operated by Atlantic Shores Offshore Wind Project 1, LLC (Atlantic Shores Project 1 Company). Pursuant to New Jersey Executive Orders #8 and #92, the State will be awarding additional OREC allowances to offshore wind energy projects through a competitive solicitation process every 2 years through 2026. Project 1 is being developed such that it could support the above-referenced solicitation. Project 2 is seeking NJBPU solicitation.

For purposes of USACE NEPA review, the basic project purpose is to construct and maintain two commercially viable offshore wind energy generation facilities and supporting infrastructure within Lease Area OCS-A 0499 providing energy to the New Jersey power grid. The overall project purpose is addressed above in section 2.2.

5.3.3.3 USACE Identification of Alternatives Under NEPA

The applicant is constrained to the assigned lease and directed point(s) of interconnection. As such, offsite alternatives for siting of the energy generation facility and points of interconnection were not available for consideration.

For purposes of NEPA, the above-described alternatives reflect those considered by USACE.

5.3.3.4 USACE Specification of Environmentally Preferable Alternatives

The Preferred Alternative analyzed in the final EIS is composed of a combination of Alternative B (the Proposed Action), Alternative C4 (Habitat Impact Minimization/Fisheries Habitat Impact Minimization: Micrositing), Alternative D3 (No Surface Occupancy of Up to 10.8 Miles (17.4 Kilometers) from Shore; Removal of Up to 6 Turbines), and Alternative E (Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1), as well as two proposed mitigation measures that require WTG removal identified in final EIS Appendix G, Mitigation and Monitoring, Table G-23 (BOEM-Proposed Mitigation Measure #5 and NOAA/NMFS-Proposed Mitigation Measure #1).

5.3.3.5 USACE Mitigation, Monitoring, and Reporting (40 CFR § 1505.2(a)(3))

As indicated above in Section 4, Appendix G of the final EIS identifies measures to avoid, minimize, and mitigate adverse environmental impacts that could result from the proposed activities and identifies the anticipated enforcing agency. BOEM is adopting all the measures identified in Tables G-2, G-3, and G-4 of Appendix G of the final EIS, except for those that are identified in those tables as outside of BOEM's or BSEE's authority to enforce. USACE anticipates adopting applicable measures to USACE authorities in considering pending decisions.

5.3.4 Alternatives Evaluations Under Section 404(b)(1) Guidelines

In addition to the alternatives considered above USACE required and reviewed a routing analysis summary detailing the screening criteria applied to select the offshore cable route(s) considered above as well as onshore cable routing.

In summary, Atlantic Shores considered the following constraints and opportunities:

- Threatened, endangered or otherwise protected species and habitat
- Wetlands, waterbodies, and floodways
- Historic and archaeological features
- Land use (residential, commercial, agricultural, etc.)
- Public spaces (schools, places of worship, cemeteries, etc.)
- Parks and recreation areas, including Green Acres encumbered parcels
- Federal and state lands
- Railroads and highways
- Communication infrastructure
- Existing transmission line and pipeline corridors
- Mapped soils
- Length of transmission line
- Width of potential transmission line corridor
- Number of major-minor angles

And the following engineering criteria for feasibility:

- Location. Areas within approximately 1,000 m (3,280 ft) of the coastline (maximum distance for horizontal directional drilling to be able to reach beyond the toe-of-slope of the beach).
- Size. Cable landfall area (transition between submarine cable and onshore cable) of 200 m by 100 m (656 by 328 ft) in size.

- Infrastructure. Areas that were either undeveloped or contained surface development (i.e., parking lots).

These criteria were applied to 15 preliminary submarine cable routes to potential landfall locations and 22 onshore routes to the potential points of interconnection with transmission and distribution networks, divided between the two proposed projects. Using this approach, the applicant has avoided or minimized siting in special aquatic sites as defined at 40 CFR 230.

5.3.4.1 Site Selection/Screening Criteria

In order to be practicable, an alternative must be available, achieve the overall project purpose (as defined by the Corps) and be feasible when considering cost, logistics and existing technology.

Criteria for evaluating alternatives as evaluated and determined by the Corps:

Point(s) of Interconnection (POI), Onshore Substation(s), and Associated Cable Routing

- Shorter route lengths are preferred to reduce overall potential impacts and installation costs.
- A lower number of hard route angles requiring a dead-end or corner transmission structure is preferred since hard route angles are more challenging, potentially disruptive to local traffic, and costly to construct.
- Site characteristics: Routes utilizing established ROWs for larger highways, state routes, existing transmission lines, or railroads are preferred because of the widespread development along the coast that prevents the establishment of a new ROW.
- Existing uses and sensitive areas: Routes that avoid or minimize the distance of the onshore interconnection cable route in or proximate to residential neighborhoods are preferred to reduce temporary, construction-related noise impacts.
- Routes that minimize impacts to mapped threatened and endangered species habitat, tidelands, and wetlands are preferred.

Export Cable Landfall(s) (landfall)

- The landfall sites require adequate open space onshore and proximate to the coastline to accommodate the underground transition vaults and required HDD staging areas.
- Landfall sites with offshore water depths that are deep enough to accommodate a cable laying vessel at the offshore HDD entrance/exit point are preferred.
- Preferred landfall sites are not located proximate to residential communities and other sensitive receptor areas such as wildlife management areas, state parks, and other protected open spaces, which make up most of the open land along the New Jersey coast.
- The projects require areas that are either undeveloped or consist of surface development (i.e., parking lots), without conflicting subsurface infrastructure.

Offshore Export Cable Route within NJ State Waters

Technical considerations:

- The physical attributes of a cable route, such as cable bending radius, length, and distance to installation hazards, were considered in the evaluation of each route.

Site characteristics:

- Water depth maps were used to confirm feasibility for cable installation tools and to identify any areas of steep slopes, which are not preferred due to expected installation constraints.
- Publicly identified surficial and shallow geological characteristics were used to confirm feasibility for cable installation tools and to assess whether mobile sediments were present; areas of mobile sediments are not preferred because they may pose a risk of over-burial or exposure of the cable. Sandy sediments are preferred over rocky, stiff, or very fine sediments to ensure cable burial to a sufficient depth.

Existing uses and sensitive areas:

- Cable routes that avoid mapped shipwrecks are preferred to reduce impacts to cultural resources and potential installation challenges.
- Cable routes that avoid navigation channels or cross such channels as close to perpendicular as possible to minimize the crossing distance are preferred.
- Cable routes that avoid or minimize impacts to sensitive habitats for fish and other marine wildlife, such as artificial and natural reefs and other known critical habitat locations, are preferred.
- Cable routes that avoid or minimize the number of crossings of mapped offshore cables and pipelines, or known future offshore cables, are preferred.
- If a crossing is required, a route that allows the crossing to be as close to perpendicular as possible (to minimize the crossing distance) is preferred.

Hazards:

- Cable routes were selected to avoid known hazards, including rock outcrops, submerged infrastructure, and other structures or objects that present a hazard to vessel navigation.
- Cable routes were selected to avoid mapped munitions and explosives of concern (MEC) (e.g., bombs, bullets, shells, grenades, mines, etc.) and military areas given safety considerations.
- Cable routes were selected to avoid dredged material disposal areas and dumping grounds given the potential for cable installation constraints and the presence of contaminated sediments.

<u>Wind Turbine Generators and Offshore Substations</u>

- Alignment with available wind resources to optimize power production potential.
- Orientation that minimizes impacts to other marine uses, including fisheries and vessel traffic patterns.

- Minimization of visual impacts within the constraints of the designated lease.

5.3.4.2 Description of Section 404 Alternatives and Their Impacts

Refer to Alternatives above in Table 3-1.

5.3.4.3 Determination of the Least Environmentally Damaging Practicable Alternative under the 404(b)(1) Guidelines:

Table 3-2 above summarizes impacts contributed by each evaluated alternative to environmental resources, with the preferred alternative integrating and accounting for selected benefits of the others. The preferred alternative provides for uniform distribution of monopile mounted structures and provides for separation between facilities, improving navigational safety. The preferred alternative avoids and minimizes destruction or adverse modifications to existing habitats. The preferred alternative limits the scale of turbine generators to minimize visibility from the shores of New Jersey's barrier islands. In combination with these considerations, the discharges subject to the 404(b)(1) Guidelines required to construct this facility are principally limited to cable protection that is only deployed where burial to intended depth is obstructed or otherwise infeasible, including up to 34 acres for the transmission cables serving both projects.

Therefore, the Preferred Alternative was determined to be the least environmentally damaging practicable alternative (LEDPA) and meets the criteria specified in 40 C.F.R. 230. All environmental impacts of the preferred alternative were addressed in the NEPA process by BOEM in the final EIS, which USACE has adopted. Other cable route alternatives were not carried forward for analysis under NEPA. They were not permittable by USACE under Section 404 of the CWA because they were not the LEDPA.

5.3.5 Evaluation of the Discharge of Dredged and Fill Material Under the 404(B)(1) Guidelines (40 CFR Part 230, Subparts B through H)

The following sequence of evaluation is consistent with 40 CFR § 230.5. The impact assessment below may differ from the impact assessment in the final EIS in that the NEPA analysis assessed impacts from the Project as a whole, whereas this analysis considers only a subset of the Project, specifically the impacts from the discharge of dredged and fill material into waters of the United States. Thus, the proposed discharges of dredged and fill material under consideration do not include the structures proposed for installation on the OCS. It has been determined that there are no practicable alternatives to the proposed discharge (the preferred alternative) that would be less environmentally damaging (40 CFR § 230.10(a)). There is no practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, and the proposed discharge does not have other significant environmental consequences. Therefore, this section evaluates the discharge proposed in the preferred alternative.

5.3.5.1 Candidate Disposal Site Delineation (Subpart B, 40 CFR § 230.11(f))

The Project includes discharge of crushed stone where cable installation cannot achieve the target depth, such as intersections with existing cables.

5.3.5.2 Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C 40 CFR § 230.20-230.25)

The following has been considered in evaluating the potential impacts on physical and chemical characteristics: substrate; suspended particulates/turbidity, water, current patterns and water circulation, normal water fluctuations, and salinity gradients.

Fills discharged for cable protection are anticipated to permanently alter substrate composition by introducing crushed stone. This alteration is limited to the immediate vicinity of project components. Construction within the Atlantic Ocean will disturb fine sediments, resulting in short term suspension of particles in the water column that should dissipate over the course of a few hours. Water characteristics in the vicinity of operating project components and during construction are anticipated to be altered. Water clarity would be reduced temporarily when construction activities suspend fine sediments. WTGs occupy the full depth of the water column and could subtly alter current patterns and water circulation, though these features are not within the relevant jurisdiction. Given a lack of examples at the project scale, the cumulative change in current patterns and water circulation is estimated to be minor. Normal water fluctuations and salinity gradients are not expected to be affected given that the project is widely spread out and presents no consistent boundary to the tidal cycle and no sufficient chemical alteration to precipitate or add dissolved salt to the aquatic environment.

5.3.5.3 Potential Impacts on the Biological Characteristics of the Aquatic Ecosystem (Subpart D 40 CFR § 230.30-230.32)

The following has been considered in evaluating the potential impacts on biological characteristics: threatened and endangered species; fish, crustaceans, mollusks, and other aquatic organisms; and other wildlife.

Where consultation with the Secretaries of the Interior and of Commerce occurs under Section 7 of the ESA, the conclusions of the Secretaries concerning the impact(s) of the discharge on threatened and endangered species and their habitat shall be considered final. In the immediate vicinity of project components and construction activities, habitat alterations associated with discharges are anticipated to be permanent but strictly localized having a moderate adverse and minor beneficial effect on threatened and endangered species, fish, crustaceans, mollusks, other aquatic organisms, and other wildlife.

5.3.5.4 Potential impacts on special aquatic sites (Subpart E 40 CFR § 230.40-230.45)

The following has been considered in evaluating the potential impacts on special aquatic sites: sanctuaries and refuges; wetlands; mud flats; vegetated shallows; coral reefs; and riffle pool complexes.

There are no sanctuaries and refuges, coral reefs, or riffle pool complexes in the project vicinity for the purposes of this analysis. Mudflats in the project vicinity of the project will be avoided through the use of directional drilling to the maximum practicable extent. Unforeseen and unavoidable wetland impacts not proposed, will be restored to contours observed prior to project implementation and are not anticipated to adversely affect biological productivity or result in smothering, dewatering, permanent flooding, altering substrate elevations, or altering the

periodicity of water movement. The proponent intends to cross special aquatic sites in the project vicinity using only horizontal directional drilling and has routed project features to minimize relevant intersections.

5.3.5.5 Potential impacts on human use characteristics (Subpart F 40 CFR § 230.50-230.54)

The following has been considered in evaluating the potential impacts on human use characteristics: municipal and private water supplies; recreational and commercial fisheries; water-related recreation; aesthetics; and parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves.

No municipal or private water supplies were identified in the project vicinity. Recreational and commercial fisheries will be subjected to a period of adjustment to navigating around the discharges to access some of the prime fishing grounds within nearshore waters. Once placed stone fills for cable protection attract and supplement marine life communities, offsetting benefits would be anticipated to accrue. Numerous parks and historical monuments are in the vicinity but not anticipated to be affected by any discharges. Again, the proposed discharges of dredged and fill material under consideration do not include the structures proposed for installation on the OCS so cumulatively those under consideration would have a negligible effect on aesthetics, national seashores, wilderness areas, research sites, and similar preserves.

5.3.5.6 Evaluation and Testing (Subpart G, 40 CFR § 230.60-230.61)

The following has been considered in evaluating the biological availability of possible contaminants in dredged or fill material: physical substrate characteristics; hydrography in relation to known or anticipated sources of contaminants; results from previous testing of the material or similar material in the vicinity of the project; known, significant sources of persistent pesticides from land runoff or percolation; spill records for petroleum products or designated hazardous substances (Section 311 of the CWA); other public records or significant introduction of contaminants from industries, municipalities, or other sources; and known existence of substantial material deposits of substances that could be released in harmful quantities to the aquatic environment by man-induced discharge activities.

Fills are proposed to be sourced only from sources providing clean sand, clean soil, or clean crushed stone, free of any listed contaminants in 40 CFR 230.60-230.61. Dredging associated with the connected action, rehabilitation of a commercial port facility, is planned to be conducted under a previous approval granted to Atlantic City (PERMIT NUMBER NAP-2021-00573-95). No sampling is anticipated to be required beyond what was collected for site assessments.

5.3.5.7 Actions to Minimize Adverse Impacts (Subpart H, 40 CFR §§ 230.70 – 230.77)

The following actions, as appropriate, have been taken through application of 40 CFR 230.70-230.77 to ensure no more than minimal adverse effects of the proposed discharge: actions concerning the location of the discharge; actions concerning the material to be discharged; actions controlling the material after discharge; actions affecting the method of dispersion; actions related to technology; actions affecting plant and animal populations; actions affecting human use; and other actions.

Actions applicable to fill include:

- 40 CFR 230.72 (d) – Timing the discharge to minimize impact, for instance during periods of unusual high-water flows, wind, wave, and tidal actions;

- 230.74 (c & e) - Using machinery and techniques that are especially designed to reduce damage to wetlands. This may include machines equipped with devices that scatter rather than mound excavated materials, machines with specially designed wheels or tracks, and the use of mats under heavy machines to reduce wetland surface compaction and rutting. Employing appropriate machinery and methods of transport of the material for discharge;

- 230.75 (c) - Avoiding sites having unique habitat or other value, including habitat of threatened or endangered species;

- 230.76 (f) - Locating the disposal site outside of the vicinity of a public water supply intake; and

- 230.77 (d) - When a significant ecological change in the aquatic environment is proposed by the discharge of dredged or fill material, the permitting authority should consider the ecosystem that will be lost as well as the environmental benefits of the new system.

Actions applicable to disposal of dredged material include:

- 40 CFR 230.70 (c) - Selecting a disposal site that has been used previously for dredged material discharge;

- 230.70 (f) - Designing the discharge of dredged or fill material to minimize or prevent the creation of standing bodies of water in areas of normally fluctuating water levels, and minimize or prevent the drainage of areas subject to such fluctuations;

- 230.71 (a) - Disposal of dredged material in such a manner that physiochemical conditions are maintained and the potency and availability of pollutants are reduced;

- 230.72 (a)(1) - Using containment levees, sediment basins, and cover crops to reduce erosion;

- 230.72 (c) - Maintaining and containing discharged material properly to prevent point and nonpoint sources of pollution;

- 230.74 (a) - Using appropriate equipment or machinery, including protective devices, and the use of such equipment or machinery in activities related to the discharge of dredged or fill material;

- 230.74 (e) - Employing appropriate machinery and methods of transport of the material for discharge;

- 230.75 (c) - Avoiding sites having unique habitat or other value, including habitat of threatened or endangered species;
- 230.76 (b) - Selecting disposal sites which are not valuable as natural aquatic areas;
- 230.76 (d) - Following discharge procedures which avoid or minimize the disturbance of aesthetic features of an aquatic site or ecosystem;
- 230.76 (e) - Selecting sites that will not be detrimental or increase incompatible human activity, or require the need for frequent dredge or fill maintenance activity in remote fish and wildlife areas; and
- 230.76 (f) - Locating any disposal site outside of the vicinity of a public water supply intake.

5.3.5.8 Factual Determinations (Subpart B, 40 CFR § 230.11)

The following determinations are made based on the applicable information above, including actions to minimize effects and consideration for contaminants: physical substrate; water circulation, fluctuation and salinity; suspended particulates/turbidity; contaminants; aquatic ecosystem and organisms; proposed disposal site; cumulative effects on the aquatic ecosystem; and secondary effects on the aquatic ecosystem.

Factual Determinations of Potential Effects						
Site	**N/A**	**No Effect**	**Negligible Effect**	**Minor Effect (Short Term)**	**Minor Effect (Long Term)**	**Major Effect**
Physical substrate					X	
Water circulation, fluctuation and salinity			X			
Suspended particulates/turbidity				X		
Contaminants			X			

Aquatic ecosystem and organisms					X	
Proposed disposal site					X	
Cumulative effects on the aquatic ecosystem			X			
Secondary effects on the aquatic ecosystem			X			

Discussion: See discussions above.

5.3.5.9 Findings of Compliance or Non-compliance with the Restrictions on Discharges (40 CFR § 230.10(a-d) and 230.12)

Based on the information above, including the factual determinations, the preferred alternative has been evaluated to determine whether any of the restrictions on discharge would occur:

1. As evaluated above, there is no practicable alternative to the proposed discharge that would be less damaging to the environment (any alternative with less aquatic resource effects, or an alternative with more aquatic resource effects that avoids other significant adverse environmental consequences).
2. The discharge will not cause or contribute to violations of any applicable water quality standards.
3. The discharge will not violate any toxic effluent standards (under Section 307 of the CWA).
4. The discharge will not jeopardize the continued existence of endangered or threatened species or their critical habitat.
5. The discharge will not violate standards set by the Department of Commerce to protect marine sanctuaries designated under title III of the MPRSA of 1972.
6. The discharge will not cause or contribute to significant degradation of waters of the United States.
7. All appropriate and practicable steps (Subpart H, 40 CFR § 230.70-230.77) have been taken to minimize the potential adverse impacts of the discharge on the aquatic ecosystem. The discharge is determined to be compliant with the inclusion of the appropriate and practicable discharge conditions described in Appendix A, to minimize pollution and adverse effects to the affected aquatic ecosystems.

5.3.6 USACE Public Interest Review ((33 CFR § 320.4)

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest as stated at 33 CFR 320.4(a). To the extent appropriate, the public interest review below also includes consideration of additional policies as described in 33 CFR 320.4(b) through (r). The benefits that reasonably may be expected to accrue from the proposal are balanced against its reasonably foreseeable detriments.

5.3.6.1 USACE Review of Public Interest Factors (33 CFR § 320.4(a)(1))

Conservation (beneficial) (including as appropriate consideration for the policy at 33 CFR 320.4(p)): Implementing this activity will defer any anticipated need for development of energy producing facilities in or near communities of the New Jersey coast, to include natural gas burning facilities requiring significant pipeline infrastructure for supply and nuclear generating facilities requiring substantial water intakes for cooling and specialized disposal of radioactive wastes, to name a few.

Economics (beneficial) (including as appropriate consideration for the policy at 33 CFR 320.4(q)): This project will employ a significant workforce to construct and maintain.

Aesthetics (detrimental) (including as appropriate consideration for the policy at 33 CFR 320.4(e)): Approximately half of the north to south oriented coast of New Jersey will have clear view, in most light conditions, of WTGs installed by this project and any others receiving approval in the coming years. This will contribute an aesthetic effect by destroying vital elements that contribute to the compositional harmony or unity, visual distinctiveness, or diversity of the area. The proposal includes structures on the OCS of the Atlantic Ocean that will be visible from vantage points along much of the coast of New Jersey.

Wetlands (negligible) (including as appropriate consideration for the policy at 33 CFR 320.4(b)): All proposed wetland crossings are planned to be accomplished using directional drilling techniques that avoid surface disturbance.

Historic Properties (neutral/mitigated) (including as appropriate consideration for the policy at 33 CFR 320.4(e)): Given that ocean views are a contributing factor for listing historic properties, the visibility of project structures has a detrimental effect on the properties identified in Appendix I of the final EIS. The applicant through endorsement of the MOA, has committed to numerous mitigative measures to resolve adverse effects including but not limited to studies, documentation, and contribution of funds.

Fish and Wildlife Values (neutral/mitigated) (including as appropriate consideration for the policy at 33 CFR 320.4(c)): Conservation recommendations, reasonable and prudent measures, as well as the recommendations of the relevant state agency have been implemented by inclusion in the required mitigation and monitoring measures as part of the proposed action (Appendix G of the final EIS).

Flood Hazards(neutral/mitigated): (including as appropriate consideration for the policy at 33 CFR 320.4(k)) NJDEP has applied conditions to the water quality certification that satisfactorily limit and offset any cumulative contribution to flood hazard by this activity.

Floodplain Values (negligible) (including as appropriate consideration for the policy at 33 CFR 320.4(l)): NJDEP has applied conditions to the water quality certification that satisfactorily limit and offset any cumulative contribution to floodplain values by this activity.

Land Use (none) (including as appropriate consideration for the policy at 33 CFR 320.4(j)): The primary responsibility for determining zoning and land use matters rests with state, local and

tribal governments. The district engineer will normally accept decisions by such governments on those matters unless there are significant issues of overriding national importance.

Navigation (neutral/mitigated) (including as appropriate consideration for the policy at 33 CFR 320.4(o)): Mitigation measures include: installation of project features recommended by the United States Coast Guard to minimize impediments, the application of required markings, the notification of mariners of hazards, and the timing of restricted access.

Shoreline Erosion and Accretion (negligible) (including as appropriate consideration for the policy at 33 CFR 320.4(g)): Project features intersecting shorelines have been designed to circumvent entirely or to protect against any contribution to erosion or accretion, except where state and local recommendation favors accretion.

Recreation (neutral/mitigated) (including as appropriate consideration for the policy at 33 CFR 320.4(e)): The applicant has scheduled the construction of all project aspects to minimize conflict with recreation, marine and vehicular traffic, and commercial or recreational fisheries wherever feasible.

Water Supply and Conservation (none) (including as appropriate consideration for the policy at 33 CFR 320.4(m)): This activity will not alter availability or conservation efforts with regard to water supply.

Water Quality (neutral/mitigated) (including as appropriate consideration for the policy at 33 CFR 320.4(d)): The certifying authority is anticipated to evaluate and approve the proposed action conditionally. The Regional Administrator, U.S. EPA, is not anticipated to send notification to neighboring jurisdictions and would confirm processing of the license or permit may proceed without awaiting further action from EPA pursuant to CWA 401(a)(2).

Energy Needs (beneficial) (including as appropriate consideration for the policy at 33 CFR 320.4(n)): The project will supply significant energy to offset consumption of fossil fuels and provide for growing demand.

Safety (not applicable) (including as appropriate consideration for the policy at 33 CFR 320.4(k)): No structures intended for impoundment of water are proposed.

Food and Fiber Production (neutral/mitigated): The facility and supporting infrastructure have been sited to avoid designated fisheries resources to the maximum practicable extent.

Mineral Needs (none): With sand for beach renourishment being the predominant controlling mineral resource in the vicinity of the project, the applicant has sited and routed all project features to avoid deposits of interest, colloquially referred to as borrow areas, designated for such use.

Consideration of Property Ownership (none) (including as appropriate consideration for the policy at 33 CFR 320.4(g)): The applicant will obtain all necessary permission to access and utilize required properties to implement the project including potential conflicts with intersected federal projects.

Other (negligible) (including as appropriate consideration for the policy at 33 CFR 320.4(j) and other applicable policies): WTGs occupy the full depth of the water column and could subtly alter current patterns and water circulation. Given a lack of examples at the project scale, the cumulative change is estimated to be minor. Cables have associated magnetic fields that weaken significantly over a short distance but will be pervasive at the seabed in the immediate vicinity; cables carrying the current anticipated to be generated by the project dissipate heat that will alter temperature in the immediate vicinity that can indirectly affect suspended or dissolved chemical constituents such as oxygen.

5.3.6.2 USACE Evaluation of the Relative Extent of the Public and Private Need for the Proposed Structure or Work (33 CFR § 320.4(a)(2)(i))

The Project is designed to meet in part the need for competitively priced renewable energy and additional capacity in accordance with State and regional renewable energy demands and goals. Under the New Jersey Offshore Wind Development Act (OWEDA), the NJBPU is required to establish an OREC program requiring a percentage of electricity sold in the state be derived from offshore wind energy, in order to support at least 7,500 MW of generation from qualified projects. On June 30, 2021, the NJBPU selected the Atlantic Shores Offshore Wind South project to develop the offshore wind energy facilities proposed in these applications. In terms of the private need, in addition to providing financial gain to the companies investing in the project, the final EIS indicates that the project would have a minor beneficial impact on employment and economics (see Table 3-2).

5.3.6.3 If there are Unresolved Conflicts as to Resource Use, USACE Evaluation of the Practicability of Using Reasonable Alternative Locations and Methods to Accomplish the Objective of the Proposed Structure or Work (33 CFR § 320.4(a)(2)(ii))

There were no unresolved conflicts identified as to resource use.

5.3.6.4 USACE Evaluation of the Extent and Permanence of the Beneficial and/or Detrimental Effects Which the Proposed Structure or Work is Likely to Have on the Public and Private uses to Which the Area is Suited (33 CFR § 320.4(a)(2)(iii))

The tidal waters within which the proposed work would be located are also suited for navigation by vessels as well as recreational and commercial fishing. As indicated in Table 3-2, the project would be expected to have minor to moderate adverse impacts to navigation mitigated sufficiently to support the above neutral finding, and moderate to major adverse impacts to commercial fishing. The project would be expected to have minor to moderate adverse impacts, but also minor beneficial impacts to for hire recreational fishing. The positive impacts would be due to the reef effect created by the structural foundations. The project components that could impact public and private uses would be in place for the life of the project, which is up to 35 years. Thus, detrimental effects are expected to be minor to moderate and permanent. Beneficial effects are expected to be more than minimal and permanent.

The primary detriment of implementing this project is the immutable visibility of the structures, especially in combination with other planned facilities in the vicinity. The offsetting benefits to economics, energy need, environmental integrity, and offsetting land-based energy production outweigh that detriment and reflect a long-term investment in the needs and welfare of the people.

5.3.7 Compliance with Other Laws, Policies, and Executive Orders

5.3.7.1 Section 7(a)(2) of the Endangered Species Act (ESA)

BOEM is the lead federal agency, identifying the USACE as a cooperating agency. The "USACE action area" for Section 7 of the ESA includes all areas in the NEPA scope of analysis. The action area includes all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action. Consultation with USFWS and NMFS addressed all species that would likely be affected by the USACE action. USACE accepts the USFWS biological opinion dated December 1, 2023, including its ITS, which states that the proposed action is not likely to jeopardize listed terrestrial species or destroy or adversely modify critical habitat under USFWS jurisdiction. The requirement for the applicant to adhere to the terms and conditions of the ITS will be included as a binding condition of the USACE authorization. The consultation with USFWS has been found to be sufficient to ensure that the activity requiring USACE authorization is compliant with Section 7 of the ESA. USACE accepts the NMFS biological opinion dated December 18, 2023, including its ITS, which states that the proposed action is not likely to jeopardize listed marine species or destroy or adversely modify critical habitat under NMFS jurisdiction. The terms and conditions of the ITS relevant to the USACE action will be included as binding conditions of the USACE authorization. The consultation with NMFS has been found to be sufficient to ensure the activity requiring USACE authorization is complaint with Section 7 of the ESA.

5.3.7.2 Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Essential Fish Habitat (EFH)

1. USACE designated BOEM as the lead federal agency for complying with the consultation requirements of Section 305(b)(2) of the Magnuson-Stevens Act regarding EFH. Accordingly, BOEM consulted with NMFS on USACE's behalf. BOEM and USACE came to the following agreement regarding the analysis of EFH conservation recommendations (CRs) provided by NMFS:
2. USACE agreed to address any EFH CRs that only applied to work within the 3-nmi jurisdictional limit of navigable waters and waters of the United States as this area is outside of BOEM's geographic authority.
3. As the lead federal agency, BOEM agreed to address any EFH CRs that specifically applied to work on the OCS even though BOEM and USACE both have geographic authority in this location.
4. On behalf of USACE, BOEM agreed to communicate responses to NMFS for EFH CRs that only applied to work within the 3-nmi jurisdictional limit of waters of the United States.

NMFS provided BOEM with 46 EFH CRs for the proposed project on January 26, 2024. USACE analyzed 14 of the EFH CRs that were related to work within New Jersey's back bays that are outside of BOEM's geographic authority. For each of these 14 EFH CRs, USACE determined whether to adopt or not adopt the recommendation in a response to BOEM dated May 14, 2024. This USACE response was an enclosure to BOEM's EFH CR response letter that addressed the other EFH CRs. This combined EFH CR response was submitted to NMFS on May 21, 2024.

BOEM's scope covers the USACE action. The NMFS provided the following CRs to BOEM that were forwarded to the USACE, including a selection applicable to the OCS. The indicated numbers below correspond to those used by NMFS in the original document and that pertain to the USACE authorization. The USACE forwarded the recommendations to the applicant. USACE aligns with BOEM's implementation where jurisdictions overlap and has addressed what remains as follows:

32. Avoid in-water work including cable installation, seabed preparation, pile installation (i.e., for bulkheads/cofferdams, wharfs), HDD pit excavation, or other extractive or turbidity/sediment-generating activities from January 1 to May 31 of any given year in estuarine/inshore (back bay) waters of 6 m in depth or less to avoid impacts to winter flounder early life stages (spawning adults, eggs, larvae).

USACE: Adopted

33. Avoid in-water work including cable installation, seabed preparation, pile installation (i.e., for bulkheads/cofferdams, wharfs), HDD pit excavation, or other extractive or turbidity/sediment-generating activities from June 1 through September 15 of any given year in designated sandbar shark EFH-Habitats of Particular Concern - where depths exceed 2.6 ft at mean low water (MLW).

USACE: Adopted

34. In all inshore/estuarine areas where seafloor preparation and cable installation activities will occur, impacts to sensitive benthic habitats should be avoided and minimized through the use of HDD, micrositing, and re-rerouting. All disturbed areas should be restored to pre-construction conditions, inclusive of bathymetry, contours, and sediment types. Pre-construction surveys to determine conditions and post-construction surveys should be conducted to verify restoration has occurred. Survey results should be provided to NMFS HESD at NMFS.GAR.HESDoffshorewind@noaa.gov.

USACE: Adopted

35. Avoid trenching (without immediate backfill/infill), sidecasting, and other open-water disposal in open nearshore/estuarine waters. If open trenching is used, excavated materials should not be sidecast or placed in the aquatic environment. In areas with elevated levels of contaminants, a closed clamshell/environmental bucket dredge should be used. All materials should be stored on uplands or barges and placed back into the trench to restore the excavated areas, or removed to a suitable upland disposal site if the material contains elevated levels of contaminants. Trenched areas should be restored to pre-construction conditions with native and/or clean, compatible material.

USACE: Adopted

36. To minimize impacts to estuarine/nearshore habitats associated with excavation of the HDD pits for any water-to-land (i.e., sea-to-shore) transitions, unconfined dredging, side casting, and open-water material disposal should not be permitted.

USACE: Adopted

37. Entry and exit pits for HDD, pipe jacking, or jack-and-bore cable installation methods should not occur in sensitive benthic habitats, mudflats, or wetlands. Dredged materials from HDD exit pits should not be stored in the aquatic environment, but instead be stored on a barge or on uplands and used to backfill the excavated areas once construction and installation is complete. If the material excavated at the HDD pits contains elevated levels of contaminants, a closed clamshell/environmental bucket dredge should be used, all excavated material should be disposed of at a suitable upland location, and the HDD pit should be backfilled with suitable, clean material.

USACE: Adopted

38. Frac-out plans should be developed for all areas where HDD is proposed to be used. A copy of the final plan should be provided to NMFS HESD at NMFS.GAR.HESDoffshorewind@noaa.gov prior to construction.

USACE: Adopted

39. To minimize impacts from vessel operation in estuarine/nearshore habitats, all vessels should float at all stages of the tide (i.e., avoid vessel grounding); all vessels should be required to follow other EFH CRs associated with anchoring/avoidance.

USACE: Adopted

40. To minimize adverse effects to mapped shellfish habitat at the O&M facility: (1) bulkhead installation should be done in-place unless it can be demonstrated that in-place replacement is not feasible due to engineering considerations; and (2) all structures, including piers/docks (e.g., piles, stringers, etc.), and bulkheads should be not be constructed with treated wood products (e.g., creosote, CCA-C, ACZA, etc.), which are susceptible to leaching contaminants into the waterway unless the materials are coated with an inert polymer at the point of manufacture.

USACE: Adopted

41. Avoid excavation, cable installation, or the staging of equipment within tidal wetlands or mudflats. Where unavoidable impacts to wetlands or mudflats occur, provide compensatory mitigation in accordance with 33 CFR Parts 325 and 332 “Compensatory Mitigation for Losses of Aquatic Resources,” (Mitigation Rule) and NOAA’s Mitigation Policy for Trust Resource). The plan should be submitted to our office for review and include monitoring and maintenance/adaptive management plan, be monitored for a minimum of five years, and annual reports should be provided to our office.

USACE: Adopted

FWCA CRs

1. The project should be required to mitigate the major impacts to NMFS scientific surveys consistent with NMFS-BOEM Federal Survey Mitigation Strategy - Northeast U.S. Region. Atlantic Shores South's plans to mitigate these impacts at the project and regional levels should be provided to NMFS for review and approval prior to BOEM's decision on its acceptance. Mitigation is necessary to ensure that NMFS can continue to accurately, precisely, and timely execute our responsibilities to monitor the status and health of trust resources.

USACE: Adopted

2. Impacts to the Atlantic City Reef, Great Egg Reef, and the Little Egg Reef (NJDEP artificial reefs) should be avoided due to their importance as habitat for a variety of managed species in addition to the strong recreational fisheries they support.

    a. Additional noise attenuating devices such as isolation casings should be used during pile driving of WTGs and OSSs that may impact these artificial reef areas through elevated underwater noise (any pile driving within 11 km of these sites).
    b. The developer should conduct in-situ monitoring of artificial reefs pre-, during, and post-construction to evaluate temporary, short-term and permanent impacts to these habitats and the species (e.g., black sea bass, tautog, weakfish, scup) that use them:

        i. Hydrophones should be used to monitor/ directly measure noise at various reefs throughout the reef sites. This monitoring will provide insights (validations) on the expected noise levels and distances described in the EFH assessment and other documents and will enable comparisons of "observed" (real world) versus "expected" (modeled/predicted). Monitoring should establish ambient noise levels (pre-construction) and determine noise levels from pile installation activities (during) and operation (post-construction) of the WTGs and farm;

        ii. Camera systems (e.g., GoPro's) and other relevant methods (e.g., direct observation via divers) should be used to monitor fish behavior;

        iii. Traps and camera systems should be used to monitor fish species occurrence, community composition, and density/abundance.

        iv. Monitoring data should be analyzed using statistically rigorous methods to evaluate the potential impacts of elevated underwater noise from pile installation and WTG and wind farm operation on artificial reefs.

USACE: A permit condition like what was imposed for the Ocean Wind project will be included to address this recommendation: "Within 1 nmi of NJDEP artificial reef sites, the permittee shall achieve a minimum noise reduction of 15 decibels, applicable to all in-water project activities through either:

    a. Implementing the Protected Species Mitigation and Monitoring Plan, Pile Driving Monitoring Plan, Sound Field Verification Plan, and Passive Acoustic Monitoring Plan, and consistent application of noise mitigation systems, or;

b. Use of additional noise attenuation such as isolation casings during pile driving; in-situ monitoring of artificial reef sites using hydrophones to validate noise reduction, camera systems to monitor fish behavior in response to noise, as well as traps equipped with camera systems to monitor species occurrence and density; Monitoring data should be analyzed using statistically rigorous methods to evaluate the potential impacts of elevated underwater noise from pile installation and WTG and wind farm operation on artificial reefs."

3. Locations of relocated boulders, created berms, and scour protection, including cable protection measures (i.e., concrete mattresses) should be provided to all relevant marine users (including commercial and recreational fishing community), as soon as possible to help inform all interested parties of potential gear obstructions.

USACE: Adopted

4. Locations of cables requiring wet-storage (with or without cable protection such as concrete mattresses) should be provided to all relevant marine users (including commercial and recreational fishing community), as soon as possible to help inform all interested parties of potential gear obstructions to ensure that fishing vessels and other mariners are aware of the obstruction and the approximate length of time the obstruction will be present.

USACE: Adopted

The Corps has reviewed the documentation provided by BOEM and determined it is sufficient to confirm compliance for USACE authorization with the EFH provisions, and additional consultation is not necessary unless and until the proponent proposes a change in the scope or nature of project implementation.

5.3.7.3 Section 106 of the National Historic Preservation Act (NHPA)

BOEM is the lead federal agency, identifying the Corps as a cooperating agency. BOEM's scope covers the USACE action.

The USACE has reviewed the documentation provided by the agency and determined it is sufficient to constitute Section 106 compliance for this decision, and additional consultation is not necessary. Historic properties were added for consideration in response to comments on the draft EIS by the New Jersey Historic Preservation Officer, various organizations, and members of the public. Final EIS Appendix I details the finding of adverse effects. Visual effects documentation was expanded under the final EIS Appendix H as attachments, including comprehensive visual simulations.

Effect determination and basis for that determination: adverse effect, see final EIS Appendix I for determination basis.

Consultation was initiated and completed with the appropriate agencies, tribes and/or other parties. USACE concurs with the stipulations of the MEMORANDUM OF AGREEMENT AMONG THE BUREAU OF OCEAN ENERGY MANAGEMENT, THE DELAWARE NATION, THE DELAWARE TRIBE OF INDIANS, THE MASHANTUCKET (WESTERN)

PEQUOT TRIBAL NATION, THE MASHPEE WAMPANOAG TRIBE, THE SHINNECOCK INDIAN NATION, THE STOCKBRIDGE-MUNSEE COMMUNITY BAND OF MOHICAN INDIANS, THE WAMPANOAG TRIBE OF GAY HEAD (AQUINNAH) THE STATE HISTORIC PRESERVATION OFFICER OF NEW JERSEY, THE NEW JERSEY HISTORIC TRUST, ATLANTIC SHORES OFFSHORE WIND PROJECT 1, LLC, ATLANTIC SHORES OFFSHORE WIND PROJECT 2, LLC, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION REGARDING THE ATLANTIC SHORES OFFSHORE WIND SOUTH PROJECT (LEASE NUMBER OCS-A 0499).

5.3.7.4 Tribal Trust Responsibilities

Refer to Section 5.1 above.

5.3.7.5 Section 401 of the Clean Water Act – Water Quality Certification

An individual WQC is required and anticipated to be granted with conditions.. Those conditions will be made a part of the USACE permit through General Condition 5. Under CWA 401(a)(2), based on the location of the project, the anticipated 401 certification conditions, and the information available to EPA regarding the discharge. EPA is anticipated to direct USACE regarding the need to coordinate with certifying authorities of neighboring jurisdictions.

5.3.7.6 Coastal Zone Management Act

An individual CZMA consistency concurrence is required and is anticipated to be issued by the NJDEP. On April 1, 2024, the NJDEP concurred with the applicant's CZMA consistency certification with conditions. Those conditions would be made a part of the USACE permit.

5.3.7.7 Wild and Scenic Rivers Act

The project is not located in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system.

5.3.7.8 Effects on USACE Civil Works Projects (33 USC 408)

The proposed activity also requires authorization pursuant to Section 408 for potential alterations to the Absecon Island Coastal Storm Risk Management Federal Civil Works Project, Sea Bright to Manasquan, New Jersey Coastal Risk Management and Erosion Control Federal Civil Works Project, the Inside Thorofare portion of the Intracoastal Waterway Federal Navigation Project, and the New Jersey Back Bays Coastal Storm Risk Management Federal Study Area. Anticipated permissions under this authority are reliant on the preceding analysis.

5.3.7.9 USACE Wetland Policy (33 CFR § 320.4(b))

The project does not propose to impact wetlands. The project proponent will utilize horizontal direction drilling or jack and bore installation anywhere conduit needs to intersect wetlands; implementation of the provided Spill Containment plan will minimize any risk of unintended wetland impacts.

5.3.7.10 Presidential Executive Orders (EOs)

EO 11988, Floodplain Management

Alternatives to location within the floodplain, minimization and compensatory mitigation of the effects were considered above.

EO 12898 and EO 14008, Environmental Justice: final EIS Appendix F Section 3.6.4 details BOEM's analysis of the project alternatives with regard to Environmental Justice (EJ). BOEM utilized EPA's EJSCREEN to identify communities meeting specified criteria for minority or income status, and NOAA's social indicator mapping to identify EJ populations that also have a high level of fishing engagement or fishing reliance. Disadvantaged communities been identified within the vicinity of the proposed project. Refer to Figures 3.6.4-1 through 3.6.4-8 for maps of identified communities. Figure 3.6.4-10 depicts saltwater fishing access locations and environmental justice communities in the geographic analysis area and highlights communities with notable engagement and reliance on commercial and recreational fishing. BOEM, being the lead federal agency, was responsible for meaningful involvement. The USACE outlined our responsibility and involvement at the public hearings hosted by BOEM. Impacts on environmental justice communities from the Proposed Action would result from views of WTGs and impacts on shellfish, fish, and marine mammal populations. The Proposed Action would also result in impacts on low-income workers in the commercial/for-hire fishing, marine recreation, and supporting industries. The most impactful IPFs would likely include cable emplacement, vessel traffic during construction, and the presence of offshore structures, due to the potential impacts of these IPFs on submerged landforms, marine businesses (fishing and recreational), views of WTGs, and subsistence fishing.

BOEM concludes that environmental justice populations would not experience disproportionately high and adverse effects related to construction, O&M, and decommissioning of onshore infrastructure. Regional port utilization, use of the operations and maintenance facility in Atlantic City, construction, O&M, and decommissioning of offshore structures could have major impacts on some commercial fishing operations that use the Lease Area, with potential for indirect impacts on employment in related industries that could affect environmental justice populations. Cable emplacement and maintenance and construction noise would also contribute to impacts on commercial fishing. The long-term presence of offshore structures would also have major impacts on scenic and visual resources and viewer experience from some onshore viewpoints that could affect environmental justice populations. The Corps concurs with the findings in the final EIS. The impacts do not fall disproportionately on disadvantaged communities. See the conclusion for the preferred alternative in the final EIS Section 3.6.4.10. Based upon the discussion and analysis in the preceding sections, the Corps has determined that portions of the proposed project within our federal control and responsibility would not have a disproportionately high and adverse human health or environmental effect on disadvantaged communities.

EO 13112, Invasive Species, as amended by EO 13751: Through special conditions or applicable terms and conditions, the permittee will be required to control the introduction and spread of invasive species.

EO 13212 and EO 13302, Energy Supply and Availability: The review was expedited and/or other actions were taken to the extent permitted by law and regulation to accelerate completion of this energy related project while maintaining safety, public health and environmental protections.

5.3.8 U.S. Army Corps of Engineers Approval

I find that the issuance of the USACE decisions, as described by regulations published in 33 CFR Parts 320 through 332, with the scope of work described in this document and the Final EIS for the Atlantic Shores South Project, is based on a thorough analysis and evaluation of all issues set forth in this Joint ROD. Having completed the evaluation above, I have determined that the proposed discharge of dredged or fill material complies with the 404(b)(1) Guidelines. There are no less-environmentally damaging practicable alternatives available to Atlantic Shores South, to construct than under the selected alternative of the Final EIS.

The issuance of these decisions is consistent with national policy, statutes, regulations, and administrative directives; and on balance, issuance of USACE decisions to construct the Atlantic Shores South Project is not contrary to the public interest. As explained above, all practicable means to avoid and/or minimize environmental harm from the selected alternatives have been adopted and will be required by the terms and conditions of the USACE permits**.**

BEEMAN.JEFFREY.M.1034093047 Digitally signed by BEEMAN.JEFFREY.M.1034093047 Date: 2024.07.01 15:09:30 -04'00'

Jeffrey M Beeman, P.E.
Lieutenant Colonel, Corps of Engineers
District Commander

Date

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Appendix A

ANTICIPATED Conditions of Construction and Operations Plan Approval

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

Anticipated Conditions of Construction and Operations Plan Approval
Lease Number OCS-A 0499
July 1, 2024

Subject to the conditions set forth in this document, the Bureau of Ocean Energy Management (BOEM) approves Atlantic Shores Offshore Wind Project 1, LLC and Atlantic Shores Offshore Wind Project 2, LLC (Lessees or Atlantic Shores) to conduct activities under the construction and operations plan (COP)[1] for the Atlantic Shores Offshore Wind South Commercial Project (Project), consisting of two wind farms, Atlantic Shores South Offshore Wind Project 1 (Project 1) and Atlantic Shores South Offshore Wind Project 2 (Project 2) in Lease Area OCS-A 0499. The Department of the Interior (DOI) reserves the right to amend these conditions or impose additional conditions authorized by law or regulation on any future approvals of COP revisions.

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

Contents:

1 GENERAL PROVISIONS 2
2 TECHNICAL CONDITIONS 6
3 NAVIGATIONAL AND AVIATION SAFETY CONDITIONS 25
4 NATIONAL SECURITY CONDITIONS 28
5 PROTECTED SPECIES AND HABITAT CONDITIONS 32
6 CONDITIONS RELATED TO COMMERCIAL FISHERIES AND FOR-HIRE RECREATIONAL FISHING 74
7 VISUAL AND CULTURAL RESOURCES CONDITIONS 80
8 AIR QUALITY CONDITIONS 88
9 FEDERALLY RECOGNIZED TRIBAL NATIONS CONDITIONS 90

ATTACHMENT 1: LIST OF ACRONYMS
ATTACHMENT 2: ALTERNATIVE C4: MICROSITABLE POSITIONS FIGURE
ATTACHMENT 3: OCEAN WIND 1 AND ATLANTIC SHORES SOUTH SETBACK FIGURE

[1] Atlantic Shores Offshore Wind. May 2024. Construction and Operations Plan, Atlantic Shores Offshore Wind, Volumes I-II.

1 GENERAL PROVISIONS

1.1 Adherence to the Approved Construction and Operations Plan, Statutes, Regulations, Permits, and Authorizations. The Lessee must conduct all activities as proposed in its approved COP for the Project, as stated in these terms and conditions, and as described in any final plans with which the BOEM and/or the Bureau of Safety and Environmental Enforcement (BSEE) have concurred. Additionally, the Lessee must comply with all applicable requirements in commercial lease OCS-A 0499 (Lease), statutes, regulations, consultations, and permits and authorizations issued by federal, state, and local agencies for the Project. BOEM and/or BSEE, as applicable, may issue a notice of noncompliance, pursuant to 30 Code of Federal Regulations (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 provided in the COP and modified by the selected Alternative in the Record of Decision (ROD), the Lessee may construct and install on the Outer Continental Shelf (OCS) up to 195 wind turbine generators (WTGs; between 105 and 136 for Project 1, and between 64 and 95 for Project 2), up to 10 offshore substations (OSSs; up to 5 in each Project), up to 1 permanent meteorological (met) tower (Project 1), interarray and interlink cables, and up to 8 transmission cables within an export cable corridor of up to 383.4 nautical miles (nmi) in length on the OCS. The total number of permanent structures constructed must not exceed 197.

1.1.2 Limitations to Construct Project 1. The Lessee must not install on the OCS any facilities (as defined in 30 C.F.R. § 585.113) that are solely part of Project 1 prior to issuance of all necessary federal, state and local approvals and conveyance of rights necessary for construction of Project 1.

1.1.3 Limitations to Construct Project 2. The Lessee must not install on the OCS any facilities (as defined in 30 C.F.R. § 585.113) that are solely part of Project 2 prior to issuance of all necessary federal, state and local approvals and conveyance of rights necessary for construction of Project 2.

1.1.4 Limitation to OSSs. If the Lessee chooses to install a High Voltage Direct Current OSS, the Lessee must use a closed-loop cooling system.

1.2 Record of Decision. All mitigation measures selected in the 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 mitigation measures in the ROD and these terms and conditions, these terms and conditions will prevail.

1.3 Effectiveness. 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. In the event that these terms and conditions are, or become, inconsistent with the terms and conditions of the Project's Biological Opinion (BiOp) issued by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) on December 18, 2023;[2] the BiOp issued by the U.S. Fish and Wildlife Service (USFWS) on October 16, 2023;[3] the Letters of Authorization (LOAs) issued for the Project under the Marine Mammal Protection Act (MMPA); the Section 106 Memorandum of Agreement (MOA) executed on June 27, 2024, or amendments to any of these documents; the language in the NMFS BiOp, USFWS BiOp, LOAs, Section 106 MOA, or amendments to any of these documents, will prevail. To the extent the Lessee identifies inconsistencies within or between the language in the NMFS BiOp, USFWS BiOp, LOAs, Section 106 MOA, or amendments to any of these documents, it must direct questions regarding potential inconsistencies to BSEE and BOEM. BSEE, in consultation with BOEM, will determine how the Lessee must proceed. Activities authorized by COP approval will be subject to any terms and conditions and reasonable and prudent measures (RPMs) 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 Variance Requests. The Lessee may submit a written request via email to the BOEM Office of Renewable Energy Programs Deputy Chief for Atlantic Operations and to BSEE through TIMSWeb (https://timsweb.bsee.gov/), requesting a variance from the requirements of these Terms and Conditions. The request must explain why compliance with a particular requirement is not technically and economically practicable or feasible and any alternative actions the Lessee proposes to take. BSEE may require a Certified Verification Agent (CVA) to review and make a recommendation to BSEE and/or BOEM on the technical acceptability and compliance with the COP of the Lessee's variance request and any alternative actions the Lessee proposes to take. To the extent not otherwise prohibited by law and after consideration of all relevant facts and applicable legal requirements, BOEM or BSEE, in consultation with the other Bureau, may grant a request for variance if the appropriate Bureau determines that the variance: (1) would not result in a change in the Project impact levels described in the final Environmental Impact Statement (final EIS) and ROD for the Project, (2) would not alter obligations or commitments resulting from consultations performed by BOEM and BSEE under federal law in connection with this COP approval in a manner that would require BOEM to re-initiate or perform additional consultations (e.g., under the Endangered Species Act (ESA), Coastal Zone Management Act (CZMA), National Historic Preservation Act (NHPA), Magnuson-Stevens Fishery Conservation and Management Act (MSA)); and (3) would not

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[2] *See* BiOp Letter from Michael Petony, Regional Administrator, US Dept of Commerce National Oceanic and Atmospheric Administration NMFS GARFO, to Karen Baker, Chief Office of Renewable Energy Programs, BOEM. National Marine Fisheries Service Endangered Species Act Section 7 Biological Opinion (December 18, 2023), https://www.boem.gov/renewable-energy/state-activities/nmfs-esa-consultations [hereinafter NMFS BiOp]. This is inclusive of the avoidance, minimization, and mitigation measures described in the proposed action and included in the BiOp's ITS.

[3] *See* BiOp Letter from Louis A. Chiarella, Assistant Regional Administrator for Habitat and Ecosystem Services, Fish and Wildlife Serv., to Jessica Stromberg, Chief of Environmental Branch for Renewable Energy, BOEM. (October 16, 2023), https://www.boem.gov/renewable-energy/state-activities/fws-esa-consultations [hereinafter USFWS BiOp]. This is inclusive of the avoidance, minimization, and mitigation measures described in the proposed action and included in the BiOp's ITS.

alter BOEM's determination that the activities associated with the Project would be conducted in accordance with subsection 8(p)(4) of OCSLA. After making a determination regarding a request for a variance, BOEM or BSEE will notify the Lessee in writing whether the appropriate Bureau(s) will allow the proposed variance from the identified requirements set forth in this COP approval. Approvals of variance requests will be made publicly available. This provision applies to the extent it is not inconsistent with more specific provisions for variances or departures in these terms and conditions.

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

1.7 Inspections. As provided for in Terms and Conditions Item 11 of the NMFS BiOp, the Lessee must consent to on-site observations and inspections by federal agency personnel, including NOAA personnel, during activities described in the NMFS BiOp, for the purposes of evaluating the effectiveness and implementation of measures designed to minimize or monitor incidental take.

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

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

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

1.8.2.1 Locations where target burial depths were not achieved, locations of cable protection measures, and locations where cable burial conditions have deteriorated or changed significantly as identified in Section 2.7.

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

1.8.2.3 The Fisheries Communication Plan which includes outreach and communication with all mariners. Communications and outreach must cover all project phases from pre-construction to decommissioning.

1.8.2.3.1 Communications must include all mariners, including commercial shipping industry and recreational users.

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

1.9 Submissions. Unless otherwise stated, the Lessee must provide any submissions required under these conditions to the stated agencies through the following:

1.9.1 BOEM[4] and/or BSEE:

1.9.1.1 For Sections 1 through 4 of this appendix, via email to the Office of Renewable Energy Programs Project Coordinator for submissions to BOEM,

1.9.1.2 For Sections 5 through 9 of this appendix, via email to renewable_reporting@boem.gov for submissions to BOEM, and

1.9.1.3 1.9.1.3 TIMSWeb for all submissions to BSEE in addition, unless otherwise stated, for Section 5 a notification email to protectedspecies@bsee.gov, Section 7 a notification email to env-compliance-arc@bsee.gov, and Section 8 a notification email to oswsubmittals@bsee.gov.

1.9.2 U.S. Army Corps of Engineers (USACE) Philadelphia District at napregulatory@usace.army.mil. The Lessee must confirm any additional points of contact with USACE prior to submitting.

1.9.3 USFWS New Jersey Field Office at 4 E. Jimmie Leeds Road, Suite 4, Galloway, New Jersey 08205; Eric_Schrading@fws.gov; 609-382-5272. The Lessee must confirm the correct point of contact with the USFWS prior to submitting.

1.9.4 Environmental Protection Agency (EPA) at Jon.Frank@epa.gov. The Lessee must confirm the correct point of contact with the EPA prior to submitting.

1.9.5 United States Coast Guard (USCG) Fifth District. The Lessee must confirm the correct point of contact with the USCG prior to submitting.

1.9.6 NMFS:

[4] BOEM will notify the Lessee in writing if BOEM designates a different process for BOEM submissions.

1.9.6.1 NMFS Greater Atlantic Regional Fisheries Office Protected Resources Division (GARFO-PRD) at nmfs.gar.incidental-take@noaa.gov,

1.9.6.2 NMFS Office of Protected Resources (NMFS-OPR) at PR.ITP.MonitoringReports@noaa.gov,

1.9.6.3 NMFS GARFO Habitat and Ecosystem Services Division (GARFO-HESD) at NMFS.GAR.HESDoffshorewind@noaa.gov, and

1.9.6.4 NMFS Northeast Fisheries Science Center (NEFSC) at nefsc.survey.mitig@noaa.gov.

1.10 Calendar Days. Unless otherwise specified in the terms and conditions, the term "days" means "calendar days."

2 TECHNICAL CONDITIONS

2.1 MEC/UXO ALARP Certification. 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 As Low as Reasonably Practical (ALARP) levels. The certification must be made by a qualified third party. ALARP Certification must be made available prior to seabed preparation activities associated with Pre-Lay Grapnel Run Plan (Section 2.20), Sand Bedform Removal Plan (Section 5.4.2), and Boulder Identification and Relocation Plan (Section 5.4.5), and prior to commencing installation activities with the submission of the relevant Fabrication and Installation Report (FIR).

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

2.2.1 A narrative describing activities that resulted in the identification of confirmed MEC/UXO;

2.2.2 A description of the activity at the time of discovery (e.g., survey, seabed clearance, cable installation);

2.2.3 A description of the location (latitude [DDD°MM.MMM'], longitude [DDD°MM.MMM]), lease area, and block;

2.2.4 The water depth (meters (m)) of the confirmed MEC/UXO;

2.2.5 A description of the MEC/UXO type, dimensions, and weight; and

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

2.3 Safety Management System. 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) that will guide all activities described in the approved COP (hereinafter the "Lease Area's Primary SMS").

2.3.1 The Lessee will submit all SMS related documentation to BSEE via TIMSWeb.

2.3.2 The Lessee will submit its Lease Area's Primary SMS to BSEE within 30 days of COP approval. BSEE will review the Lease Area's Primary SMS and compare it to the regulations and requirements in Section 2.3.3 and verify that the submissions are acceptable.

2.3.3 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.

2.3.4 Pursuant to 30 C.F.R. § 285.811, the Lease Area's Primary SMS must be fully functional when the Lessee begins activities described in the approved COP. The Lessee must conduct all activities described in its approved COP in accordance with the SMS. The Lessee must provide to BSEE a description of any changes to the Lease Area's Primary SMS to address new or increased risk before each phase of the Project commences (i.e., construction, operation, maintenance, decommissioning). In addition, the Lessee must demonstrate, to BSEE's satisfaction, the functionality of the Lease Area's Primary SMS by providing evidence of such functionality no later than 30 days prior to the scheduled beginning of the relevant activities described in the COP.

2.3.5 The Lessee must conduct periodic Lease Area Primary SMS audits and provide BSEE with a report summarizing the results of the most recent audit at least once every 3 years, and upon BSEE's request. The report must include any corrective actions implemented or being implemented as a result of that audit, and an updated description of the Lease Area's Primary SMS highlighting changes that were made since the last such submission to BSEE. Following BSEE's review of the report, the Lessee must engage with and respond to BSEE until any questions or concerns that BSEE has are resolved and BSEE is satisfied that the Lease Area Primary SMS is effective and functional.

2.3.6 In addition to maintaining an acceptable Lease Area's Primary SMS, the Lessee, designated operator, contractor, and subcontractor(s) constructing, operating, or decommissioning renewable energy facilities on the OCS must follow the policies and procedures of any other SMS(s) applicable to their contracted activities and

must take corrective action whenever there is a failure to follow the relevant SMS(s), or where the relevant SMS(s) failed to ensure safety.

2.4 Emergency Response Procedure. Prior to the construction of the Project, the Lessee must submit an Emergency Response Procedure to address non-routine events for review and concurrence by BSEE. The Lessee must submit any revisions to the procedure once every 3 years and upon BSEE's request, consistent with Section 2.3.5. The Emergency Response Procedure must address the following:

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

2.4.2 Communications. The Lessee must describe the capabilities the control center will maintain in order to communicate with the USCG.

2.4.3 Monitoring. The Lessee must ensure that the control center maintains the capability to monitor (e.g., utilizing cameras already installed to support Lessee's operations) the Lessee's installation and operations in real-time, including at night and in periods of poor visibility.

2.5 Oil Spill Response Plan. Pursuant to 30 C.F.R. § 585.627(c), the Lessee must submit an Oil Spill Response Plan (OSRP) to the BSEE Oil Spill Preparedness Division (OSPD) at BSEEOSPD_ATL_OSRPs@bsee.gov for review and approval prior to the installation of any component that may handle or store oil on the OCS. The Lessee should not include confidential or proprietary information in the OSRP. The OSRP may be lease-specific, or it may be a regional OSRP covering multiple leases. Facilities and leases covered in a regional OSRP must have the same owner or operator (including affiliates) and must be located in the Atlantic OCS region. For a regional OSRP, subject to BSEE OSPD approval, the Lessee may group leases into sub-regions for the purposes of determining worst-case discharge (WCD) scenarios, conducting stochastic trajectory analyses, and identifying response resources. The Lessee's OSRP must be consistent with the National Contingency Plan, Regional Contingency Plan, and the appropriate Area Contingency Plan(s), as defined in 30 C.F.R. § 254.6. To continue operating, the Lessee must operate consistent with the OSRP approved by BSEE. The Lessee's OSRP, including any regional OSRP, must contain the following information:

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

2.5.2 Table of Contents.

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

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

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

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

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

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

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

2.5.6.1 "Qualified Individual" 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.

2.5.6.2 "Incident Management Team" (IMT) means the group of personnel identified within the Lessee's organizational structure who manage the overall response to an incident in accordance with the Lessee's OSRP. The IMT consists of the Incident Commander (IC), Command and General

Staff, and other personnel assigned to key ICS positions designated in the Lessee's OSRP. With respect to the IMT, the Lessee must identify at least one alternate in the OSRP as the IC, Planning Section Chief (PSC), Operations Section Chief (OSC), Logistics Section Chief (LSC), and Finance Section Chief (FSC). If a contract has been established with a third-party IMT, the Lessee must provide evidence of such a contract in the OSRP.

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

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

2.5.7.2 IMT members, including phone numbers and email addresses;

2.5.7.3 Federal, state, and local regulatory agencies that must be notified when a spill occurs, including, but not limited to, the National Response Center at 1-800-424-8802;

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

2.5.7.5 Other response organizations and subject matter experts that the Lessee will rely on for the Lessee's response, including nongovernmental wildlife response and rehabilitation services.

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

2.5.8.1 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).

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

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

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

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

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

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

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

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

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

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

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

2.5.12 Training. The OSRP must include a description of the training necessary to ensure that the QI, IMT, OSRO(s), and SROT(s) are sufficiently trained to perform their respective duties. The Lessee must ensure that the IMT, OSRO(s), and SROT(s) receive annual training. The Lessee's OSRP must provide the most recent dates of applicable training(s) completed by the QI, IMT, OSRO(s), and SROT(s). The

Lessee must maintain and retain training records for three years and must provide the training records to BSEE upon request.

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

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

2.5.13.2 The WCD facility must be identified on the facility map consistent with the "Facility and Oil Information" Section 2.5.4.

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

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

2.5.14.1 Be based on the WCD volume.

2.5.14.2 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.

2.5.14.3 Identify the probabilities for oiling on the water's surface and on shorelines and the minimum travel times for the transport of the oil over the duration of the model simulation. Oiling probabilities and minimum travel times must be calculated for exposure threshold concentrations reaching 10 g/m^2. The stochastic analysis must incorporate a minimum of 100 different trajectory simulations using random start dates selected over a multi-year period.

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

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

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

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

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

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

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

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

2.5.16 OSRP Review and Update. The Lessee must review and update the OSRP at least once every 3 years and more frequently as needed, starting from the date the OSRP was initially approved. The Lessee must send a written notification to BSEE OSPD upon completion of this review and submit any updates for concurrence. BSEE OSPD may require the Lessee to make changes to the OSRP at any time if it is determined to be outdated or to contain significant inadequacies as discovered through a review of the Lessee's OSRP, information obtained during exercises or actual spill responses, or other relevant information obtained by BSEE OSPD.

2.5.17 OSRP Maintenance. The Lessee must submit a revised OSRP to BSEE OSPD within 15 days if any of the following conditions occur:

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

2.5.17.2 The calculated WCD volume has significantly increased.

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

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

2.6 Cable Routings. 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 with the relevant Facility Design Report (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.

2.7 Cable Burial. The Lessee must install the export, interconnector and inter-array cables using jetting, control flow excavation, trenching, or plowing, as described in Section 4.5.4 of the approved COP. For the approved COP, BOEM has determined the proper burial depth to be a minimum of 4.9 feet (1.5 m) below the seabed for 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 COP Appendix II-A5. 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, interconnector and inter-array cable length on the OCS, excluding cable crossings and approaches to foundations. The Lessee must demonstrate proper burial depth by providing cable monitoring reports (Section 2.10) and final, as-built information (Section 2.17).

2.8 Cable Protection Measures. In areas where the final cable burial depth is less than 1.5 m below seabed, excluding cable crossings and within the vicinity of WTG/OSS foundations where cables are enclosed within a cable protection system, the Lessee must install secondary protection such as concrete mattresses, rock bags, or rock placement and must adhere to the scour and cable protection measures in Section 5.4.8

2.8.1 The use of cable protection measures must not exceed 10 percent of the total export, interconnector and inter-array cable length, excluding cable crossings and approaches to foundations. The Lessee must employ cable protection measures when proper burial depth, as defined in Section 2.7, is not achieved. The Lessee must include design information and drawings as part of the relevant FDR and must include installation information as a part of the relevant FIR. The Lessee must also provide BSEE with detailed drawings/information of the actual burial depths and locations where protective measures were used within 6 months following installation of the export and inter-array cables. The Lessee must post on the project website (Section 1.8, Project Website) notice of locations where target burial depths were not achieved and where cable protection measures were used, including an accessible graphic/geo-referenced repository.

2.8.2 If the Lessee requests a variance under Section 1.5, the Lessee must include with the request CVA verification of the proposed alternative.

2.9 Crossing Agreements. The Lessee must provide final cable crossing agreements for each active, in-service submarine cable or other types of in-use infrastructure which occur within 500 m of such infrastructure, such as pipelines, to BOEM at least 60 business days before seabed preparation activities, including boulder clearance. The Lessee must also provide information on cable crossing agreements which have not been finalized, including draft agreements and communication logs between owners or operators. The Lessee must make the agreements and crossing designs available to the CVA for review unless otherwise determined by BOEM.

2.9.1 If the Lessee concludes that it will be unable to reach a cable crossing agreement, the Lessee must inform BOEM as soon as possible, and no later than 60 business days before seabed preparation activities which occur within 500 m of the in-use infrastructure, including boulder clearance. A cable crossing agreement will not be required if BOEM has determined—at its sole discretion and based on its review of the record of relevant communications from the Lessee to owners or operators of active, in-service submarine cables or other types of in-use infrastructure—that the Lessee made reasonable efforts to enter an agreement and was unable to do so. Information to support a claim of reasonable efforts may include call logs, emails, letters, or other methods of communication.

2.10 Post-Installation Cable Monitoring. The Lessee must conduct an inspection of each interconnector, inter-array and export cable to determine cable location, burial depths, and site conditions, and to assess the state of the cables. Inspections must occur within 6 months following installation of the export, interconnector and inter-array cables, and additional inspections within 1 year following completion of the initial post-installation inspection and every 3 years thereafter. These inspections must also be conducted within 180 days of a storm event (as defined in the Post-Storm Event Monitoring Plan, described in Section 2.14). The Lessee must provide BSEE and BOEM with a cable monitoring report within 90 days following each inspection. Inspections of the cable location and burial must include high-resolution geophysical (HRG) methods, involving, for example, multibeam bathymetric survey equipment; and must identify seabed features, natural and man-made hazards, and site conditions along federal sections of the cable routing, to be included in the cable monitoring report. The cable monitoring report must also include summary records from monitoring systems used to assess the state of the cables, such as distributed temperature sensing (DTS) or other condition assessment techniques. Additionally, the Lessee must notify BSEE within 30 days if monitoring systems detect changes that exceed thresholds of the cable design associated with the chosen monitoring technique.

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

2.10.2 If BSEE determines that conditions along the cable corridor or the state of the cable have deteriorated or changed significantly and remedial actions are warranted,

BSEE will notify the Lessee that the Lessee must submit to BSEE the following within 90 days of being notified: a seabed stability analysis and/or cable integrity 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.

2.10.3 If the Lessee determines that conditions along the cable corridor or the state of the cable have deteriorated or changed significantly and remedial actions are warranted, the Lessee must submit the following to BSEE within 90 days of making the determination: the data used to make the determination, a seabed stability analysis and/or cable integrity 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.

2.11 WTG and OSS Foundation Depths. 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 pursuant to BOEM's March 9, 2023, departure approval.[5] The geotechnical investigations at each OSS must include, at a minimum, one deep boring located within the footprint of each OSS. One deep boring is also required at the proposed met tower location.

2.12 Structural Integrity Monitoring. In accordance with 30 C.F.R. § 285.824 (Annual Self-Inspection Plan), the Lessee must submit the inspection plan covering the design life of the facility to BSEE for concurrence with the FDR.

2.12.1 Underwater Inspection: The Lessee must conduct a baseline underwater inspection to establish the as-installed platform condition. The baseline underwater inspection must be conducted prior to implementation of a risk-based inspection plan for the platform. The minimum scope of work must include the following, unless the information is available from the installation records: a) a visual survey of the platform for structural damage, from the mudline to waterline, including coating integrity through the splash zone; b) a visual survey to verify the presence and condition of the anodes; c) a visual survey to confirm the presence and condition of installed appurtenances; d) measurement of the as-installed mean water surface elevation, with appropriate correction for tide and sea state conditions; e) record the as-installed platform orientation; and f) measurement of the as-installed platform elevation from the mean lower low water datum.

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[5] BOEM March 9, 2023, Departure Request Approval to Atlantic Shores Offshore Wind, LLC, https://www.boem.gov/sites/default/files/documents/renewable-energy/OCS-A0499%20FINAL_Departure%20Request%20Approval%20ASOW.pdf.

2.12.2 Above-water Inspection: The Lessee must conduct annual above-water inspections to ensure structural integrity is maintained. The Lessee must inspect the condition of cathodic protection system(s) and for indications of obvious overloading, deteriorating coating systems, 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 30 C.F.R. § 285.824(b). See Section 2.14 for post-storm structural integrity monitoring.

2.13 Foundation Scour Protection Monitoring. The Lessee must inspect scour protection performance. The Lessee must submit an Inspection Plan to BSEE with the relevant FDR submittal. BSEE will review the Inspection Plan and provide comments, if any, on the plan within 60 business days of its submittal. The Lessee must resolve all comments on the Inspection Plan to BSEE's satisfaction and receive concurrence prior to initiating the inspection program. If BSEE does not send comments within 60 business days, the Lessee may presume concurrence.

2.13.1 The Lessee must carry out an initial foundation scour inspection within 6 months of completing the installation of each foundation location; thereafter at intervals not greater than 5 years; and within 180 days after a storm event (as defined in the Post-Storm Event Monitoring Plan, described in Section 2.14).

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

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

2.14 Post-Storm Event Monitoring Plan. The Lessee must provide a plan for post-storm event monitoring of the facility infrastructure, foundation scour protection, and cables to BSEE with the relevant FDR. The plan must describe how the Lessee will measure and monitor environmental conditions and duration of storm events; specify the environmental condition thresholds (and their associated technical justification) above which post-storm event monitoring or mitigation is necessary; describe potential monitoring, mitigation, and damage identification methods; and state when the Lessee must notify BSEE of post-storm event-related activities. At a minimum, initial post-storm event inspections must be conducted for each OSS, met tower, and 10% of the WTGs including associated scour protection, following each storm where any condition(s) exceed one-half the design return period. For example, a WTG platform designed for 50-year environmental conditions must

be inspected following a storm event that exceeds 25-year environmental conditions. Cables must be inspected in accordance with Section 2.10. To change the post-storm event environmental condition threshold the Lessee must submit a revised plan with supporting documentation for BSEE review and concurrence. BSEE reserves the right to require post-storm mitigations and additional inspections to address conditions that could result in safety risks and/or impacts to the environment.

2.15 High-Frequency Radar Interference Analysis and Mitigation. 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 the NOAA pursuant to the Integrated Coastal and Ocean Observation System Act of 2009 (Pub. L. No. 111-11), as amended by the Coordinated Ocean Observation and Research Act of 2020 (Pub. L. No. 116-271, Title I), codified at 33 U.S.C. §§ 3601–3610 (referred to herein as "IOOS HF-radar"). IOOS HF-radar measures the sea state, including ocean surface current velocity and waves in near real-time. These data have many vital uses, including tracking and predicting the movement of spills of hazardous materials or other pollutants, monitoring water quality, and predicting sea state for safe marine navigation. The USCG also integrates IOOS HF-radar data into its Search and Rescue systems. The Lessee's Project is within the measurement range of eight oceanographic HF radar systems listed in Table 2-1 below:

Table 2-1: Identified IOOS HF Radar Systems

Radar Name	Radar Operator
Seaside Park, NJ SeaSonde (SPRK)	Rutgers University
Brant Beach, NJ SeaSonde (BRNT)	Rutgers University
Strathmere, NJ SeaSonde (RATH)	Rutgers University
North Wildwood, NJ SeaSonde (WOOD)	Rutgers University
Hempstead, NY SeaSonde (HEMP)	Rutgers University
Loveladies, NJ SeaSonde (LOVE)	Rutgers University
Brigantine, NJ SeaSonde (BRMR)	Rutgers University
Wildwood, NJ SeaSonde (WILD)	Rutgers University

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

2.15.2 Mitigation Review. The Lessee must submit to BOEM documentation demonstrating how it will mitigate unacceptable interference with IOOS HF-radar systems in accordance with Section 2.15.1. The Lessee must submit this documentation to BOEM at least 120 days prior to commissioning the first WTG or

the start of blades spinning, whichever is earlier. If, after consultation with the NOAA IOOS Office, BOEM deems the mitigation acceptable, the Lessee must conduct activities in accordance with the proposed mitigations. If, after consultation with NOAA IOOS Office, BOEM deems the mitigation unacceptable, the Lessee must resolve all comments on the documentation to BOEM's satisfaction.

2.15.3 Mitigation Agreement. The Lessee is encouraged to enter into an agreement with the NOAA IOOS Office to implement mitigation measures, and any such Mitigation Agreement may satisfy the requirement to mitigate unacceptable interference with IOOS HF-radar. The point of contact for the development of a Mitigation Agreement with the NOAA IOOS Office is the Surface Currents Program Manager, whose contact information is available at https://ioos.noaa.gov/about/meet-the-ioos-program-office/ and upon request from BOEM. If the parties reach a mitigation agreement, the Lessee must submit the agreement to BOEM. A Lessee may satisfy its obligations under Section 2.15.2 by providing BOEM with an executed Mitigation Agreement between the Lessee and NOAA IOOS. If there is any discrepancy between Section 2.15.2 and the terms of a Mitigation Agreement, the terms of the Mitigation Agreement will prevail.

2.15.4 Mitigation Data Requirements. Mitigation required under Section 2.15.2 must address the following:

2.15.4.1 Before commissioning the first WTG or before blades start spinning, whichever is earlier, and continuing throughout the life of the Project until the point of decommissioning when all rotor blades are removed, the Lessee must make publicly available via NOAA IOOS near real-time, accurate numerical telemetry of surface current velocity, wave height, wave period, wave direction, and other oceanographic data measured at Project locations selected by the Lessee in coordination with the NOAA IOOS Office.

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

2.15.5 Additional Notification and Mitigation.

2.15.5.1 If at any time the NOAA IOOS Office or an HF-radar operator informs the Lessee that the Project will cause unacceptable interference to an HF-radar system, the Lessee must notify BOEM of the determination and propose new or modified mitigation pursuant to Section 2.15.5.2 as soon as possible and no later than 30 days from the date on which the determination was communicated.

2.15.5.2 If a mitigation measure other than that identified in Section 2.15.2 is proposed, then the Lessee must submit information on the proposed

mitigation measure to BOEM for its review and concurrence. If, after consultation with the NOAA IOOS Office, BOEM deems the mitigation acceptable, the Lessee must conduct activities in accordance with the proposed mitigations. The Lessee must resolve all comments on the documentation to BOEM's satisfaction, prior to implementation of the mitigation.

2.16 Critical Safety Systems and Equipment. The Lessee must provide to BSEE a qualified third-party verification of (1) the identification, (2) proper installation, and (3) commissioning of all critical safety systems and equipment designed to prevent or ameliorate fires, spillages, or other 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 using appropriate methodologies as defined by the operator's risk management standards, were installed and commissioned in conformity with the Original Equipment Manufacturer's (OEM's) standards and the Project's functional requirements, and are functioning properly, as required by the surveillance reporting requirements in Section 2.16.5.

2.16.1 Qualified Third Party. A qualified third party must be 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.

2.16.2 Critical Safety Systems. Critical safety systems include but are not limited to equipment, devices, engineering controls, or system components that are designed to prevent, detect, or mitigate impacts from fires, spillages, or other major accidents that could result in harm to health, safety or the environment including systems that facilitate the escape and survival of personnel.

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

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

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

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

2.16.4.3 The systems and equipment function as designed.

2.16.4.4 The completion of the final commissioning records.

2.16.5 Surveillance Reporting. The Lessee must submit to BSEE surveillance records, including for the examination of commissioning records and witnessing, (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, 2018)]) for the critical safety systems identified in Section 2.16.2. Surveillance records for each OSS must be submitted within one month of verification by the qualified third party. After the commissioning of the critical safety systems has been completed for the first WTG, the Lessee must, on a monthly basis, submit the surveillance records or Conformity Statement and supporting summary documentation for all WTGs that have been verified by a qualified third party within the previous month. If BSEE has not responded to the surveillance records or Conformity Statement and supporting documentation submitted by the qualified third party within 5 business days, the Lessee may presume concurrence and continue operating. If the surveillance records or Conformity Statement and supporting documentation are not submitted within a month of qualified third-party verification of the commissioning of the safety systems or if BSEE objects to the submission, BSEE may require the facility to which the surveillance records or Conformity Statement pertains to cease operations.

2.17 Engineering Drawings. The Lessee must compile, retain, and make available to BSEE the drawings and documents specified in Table 2-2.

Table 2-2: Engineering Drawings

Drawing Type	Time Frame to Submit "Issued for Construction" (IFC) Drawings	Deadline to Submit Final, As-Built Drawings
Complete set of structural drawing(s), including major structural components and evacuation routes[6]	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	Submit no later than March 31st of each calendar year, for all structures installed the prior year and submitted annually until completion of installation.
Front, side, and plan view drawings[7]	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer. Include a table with: (1) vertical datum planes including HAT, MLLW, MSL, and others as applicable, (2) 1000-year crest elevation, and (3) elevation to the underside of the deck.	N/A
Location plat for all Project facilities[8]	With FDR submittal. Drawings must be reviewed and stamped by a registered professional land surveyor.	Submit no later than March 31st of each calendar year, for all facilities installed the prior year and updated annually until completion of installation. Drawings must be reviewed and stamped by a registered professional land surveyor.
Complete set of cable drawing(s)	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	Submit preliminary as-built reports quarterly for all facilities installed in the previous quarter. Submit final as-built reports within 6 months following installation of the export and inter-array cables.
Proposed Anchoring Plat as required by Section 5.4.3	120 days before anchoring activities. If there are fewer than 120 days between anchoring activities and this COP approval, no later than 60 days prior to commencing anchoring activities.	N/A
As-placed Anchor Plats for all anchoring activities	N/A	Submit 90 days after completion of an activity or construction of a major facility component.
Piping and instrumentation diagram(s)	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	Submit quarterly for all facilities installed in the previous quarter.

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

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

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

Table 2-2: Engineering Drawings

Drawing Type	Time Frame to Submit "Issued for Construction" (IFC) Drawings	Deadline to Submit Final, As-Built Drawings
Safety diagram(s)[9]	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	Submit quarterly for all facilities installed in the previous quarter.
Electrical drawings, i.e., Electrical one-line drawing(s) and Protective Relay Coordination Study/Diagram	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	Submit quarterly for all facilities installed in the previous quarter.
Cause and Effect Chart	With FDR submittal.	N/A
Schematics of fire and gas-detection system(s)	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	Submit quarterly for all facilities installed in the previous quarter.
Area classification diagrams	With FDR submittal.	Submit quarterly for all facilities installed in the previous quarter.

2.17.1 Engineering drawings, as outlined in Table 2-2, and the associated engineering report(s) must include the lease number, "OCS-A 0499", on all drawings and reports and, where applicable, the Area Name, Block Number and Structure Designation on all drawings and reports. Also, these drawings and reports must be reviewed and stamped by a licensed professional engineer or a professional land surveyor. Pursuant to 30 C.F.R § 285.705, any changes to the approved design must be evaluated by BSEE to determine if the Lessee is required to use a CVA for any project modifications under 30 C.F.R § 285.703(c). This applies beginning from the submission date of FDR and FIR through construction, commissioning, and operations and includes structural, mechanical, electrical, and safety systems. For modified systems, only the modifications are required to be stamped by a licensed professional engineer(s) or a professional land surveyor. The professional engineer or land surveyor must be licensed in a State or Territory of the United States and have sufficient expertise and experience to perform the duties. The Lessee must ensure that the engineer of record submits a stamped report showing that the as-built design documents have been reviewed, do not make material changes from the IFC drawings, and accurately represent the as-installed facility. The Lessee must also ensure that the engineer of record 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.

[9] 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.

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

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

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

2.20 Pre-lay Grapnel Run Plan. The Lessee must submit a Pre-lay Grapnel Run Plan for BSEE review and concurrence. The plan must be submitted at least 120 days prior to pre-lay grapnel run activities. BSEE will review the plan and provide comments, if applicable, within 60 business days of submittal. The Lessee must resolve BSEE's comments to BSEE's satisfaction. If BSEE does not provide comments on the plan within 60 business days of its submittal, then the Lessee may presume BSEE's concurrence with the plan. The plan must be consistent and meet the conditions of the SMS in Section 2.3.

2.20.1 The plan must include the following:

2.20.1.1 Figures of the location of pre-lay grapnel run activities.

2.20.1.2 A description of pre-lay grapnel run methods, including expected grapnel penetration depth, vessel specifications, metocean limits on operation, etc.

2.20.1.3 A description of removal and disposal methods of debris collected by grapnel run and applicable environmental regulations for disposal.

2.20.1.4 A description of safety distances or zones to limit pre-lay grapnel activities near third-party assets. Descriptions should be consistent with Cable Crossing Agreements (Section 2.9).

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

2.20.1.6 A description of MEC/UXO ALARP certified areas, which must be consistent with MEC/UXO ALARP Certification (Section 2.1).

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

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

3 NAVIGATIONAL AND AVIATION SAFETY CONDITIONS

3.1 Design Conditions.

3.1.1 Placement of Permanent Structures. The Lessee must not place or microsite permanent structures in a way that narrows any linear rows or columns to fewer than 0.6 nautical miles (1.1 kilometers) by 1.0 nautical mile (1.9 kilometers), or in a layout that eliminates two distinct lines of orientation in a grid pattern, with the exception of WTGs AX01, AZ08, BA09, BC07, BE10, BE12, BE14, BE15, BE16, BF14, BF15, BG13, which may be relocated to the positions shown in Attachment 2. The Lessee must submit the final as-built structure locations as part of the as-built documentation outlined in Section 2.17.

3.1.1.1 Setback. The Lessee must remove the two gridded positions from the Project layout within the setback area consistent with the positions indicated in yellow in the figure entitled *Ocean Wind 1 and Atlantic Shores South Setback Figure* in Attachment 3. The gridded position indicated in red in the Attachment 3 figure must be microsited so that it is at least 1,500 meters from the nearest WTG in lease OCS-A 0498.

3.1.2 Marking. The Lessee must mark each WTG, OSS, and met tower with "OCS-A 0499" in addition to the USCG private aids to navigation. No sooner than 180 days and no less than 60 days before foundation installation, the Lessee must file an application (form CG-2554, or CG-4143, as appropriate), with the Commander of the Fifth Coast Guard District to establish Private Aids to Navigation (PATON), as provided in 33 C.F.R. Part 66. USCG acceptance of the application must be obtained before the Lessee begins installation of the facilities. The lighting, marking, and signaling plan, and design specifications for maritime navigation lighting must be included in the PATON application. The Lessee must:

3.1.2.1 Provide a lighting, marking, and signaling plan, at least 120 days before foundation installation, for a 60 business day review by BOEM, BSEE, and the USCG. The Lessee must obtain concurrence by BOEM and BSEE prior to foundation installation. The plan must conform to applicable federal law and regulations, and guidelines, e.g., International Association of Marine Aids to Navigation and Lighthouse Authorities Recommendation G1162, *The Marking of Man-Made Offshore Structures* (Ed. 1.1, Dec. 2021); and BOEM's Guidelines for Lighting and Marking

of Structures Supporting Renewable Energy Development (April 28, 2021).

3.1.2.2 Clearly and visibly mark each individual WTG, OSS, and met tower with "OCS-A 0499" and the unique, alpha-numeric identification characters as identified in the lighting, marking, and signaling plan. "OCS-A 0499" must be inscribed directly above or below the alpha-numeric identification characters on each met tower, WTG, and OSS. The Lessee must additionally display "OCS-A 0499" and the alpha-numeric identification character as identified in the lighting, marking, and signaling plan on each WTG nacelle and on the OSS's heli-hoist and/or heli-pad area, visible from above.

3.1.2.3 For each WTG, install red obstruction lighting that is consistent with the Federal Aviation Administration (FAA) Advisory Circular [AC] 70/7460-lM, (Nov. 2020).

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

3.1.2.5 Submit documentation to BSEE 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 3.1.2.1 through 3.1.2.4

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

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

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

3.1.3.2 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 lease area at least annually. The Lessee must submit the results of testing to BSEE with the Project's annual inspection results.

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

3.1.3.4 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.

3.2 Installation Conditions.

3.2.1 Installation Schedule. Not less than 60 days prior to commencing offshore construction activities, the Lessee must provide the USCG with a plan that describes the schedule and process for seabed preparation, export and inter-array cable installation, and WTGs and OSSs installation, including all planned mitigations to be implemented to minimize any adverse impacts to navigation while installation is ongoing. Appropriate LNM submissions must accompany the plan and its revisions.

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

3.2.3 Cable Burial. A detailed cable burial plan, containing the proposed locations and burial depths, must be submitted to the USCG no later than the relevant FIR submittal. In accordance with Section 2.17, the Lessee must submit to BOEM and the USCG a copy of the final as-built cable burial report containing a positioning list that depicts the precise location and burial depths of the entire cable system (export and array routes).

3.2.4 Nautical Charts/Navigation Aids. The Lessee must submit as-built cable burial reports (containing precise locations and burial depths), OSS locations, WTG, and met tower locations to USCG and NOAA, consistent with Section 2.17, to facilitate government-produced and commercially available nautical charts; and aid USCG cross-reference structures and navigation aids.

3.3 Reporting Conditions.

3.3.1 Complaints. On a monthly basis, the Lessee must provide BSEE with (1) 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) a description of remedial action(s) taken in response to complaints received, if any. BSEE reserves the right to require additional remedial action consistent with 30 C.F.R. Part 285.

3.3.2 Correspondence. On a monthly basis, the Lessee must provide BSEE, BOEM, and the USCG with copies of any correspondence received from other federal, state, or local agencies regarding navigation safety issues.

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

4 NATIONAL SECURITY CONDITIONS

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

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

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

4.2 Communication Protocol for Construction and Operations. The Lessee must establish a point-of-contact through the DoD Clearinghouse (osd.dod-siting-clearinghouse@mail.mil) to coordinate with the Eastern Air Defense Sector and the Fleet Area Control and Surveillance Facilities for the following conditions:

4.2.1 The Lessee will communicate and coordinate the planned construction and operations schedule with appropriate military department commands to deconflict planned construction and operations activities to the extent practicable.

4.2.2 The Lessee and military department commands will mutually determine an appropriate meeting frequency to facilitate communication.

4.2.3 This protocol will serve as a forum to communicate the project schedule and identify potential military mission compatibility concerns or conflicts experienced due to construction activities. The Lessee will seek resolution to conflicts as it is determined to be practicable.

4.3 North American Aerospace Defense Command (NORAD) Operations. The Lessee must enter into a mitigation agreement with the DoD/NORAD for purposes of implementing Section 4.3. If there is any discrepancy between Section 4.3 and the terms of the mitigation agreement, the terms of the mitigation agreement will prevail. Within 15 days of entering into the mitigation agreement, the Lessee must provide BOEM and BSEE with a copy of the executed mitigation agreement. The DoD point-of-contact for the development of the agreement is osd.dod-siting-clearinghouse@mail.mil. The NORAD point-of-contact for the development of the agreement is John Rowe: John.Rowe.14@us.af.mil. If the NORAD point-of-contact is no longer active, the Lessee must identify a point-of-contact through the DoD Clearinghouse at osd.dod-siting-clearinghouse@mail.mil. Within 45 days of completing the requirements in Section 4.3, the Lessee must provide BOEM with evidence of compliance with those requirements.

4.3.1 Radar Adverse Impact Management (RAM) Scheduling. To mitigate impacts on the NORAD of the Gibbsboro New Jersey Air Route Surveillance Radar (ARSR-4) and Wrightstown-McGuire AFB New Jersey Airport Surveillance Radar System (ASR-11), the Lessee must complete the following:

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

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

4.4 Department of the Navy Operations. To mitigate potential impacts on the Department of the Navy's (DON) operations, the Lessee must coordinate with the DON for purposes of implementing Section 4.4. Within 45 days of completing the requirements in Section 4.4.1

through 4.4.3, the Lessee must provide BOEM with evidence of compliance with those requirements. The DON point-of-contact for coordination is Matthew Senska: matthew.senska@navy.mil; 571-970-8400. If the DON point-of-contact is no longer active, the Lessee must identify a point-of-contact through the DoD Clearinghouse at osd.dod-siting-clearinghouse@mail.mil.

4.4.1 Distributed Fiber-Optic Sensing Technology and Acoustic Monitoring Devices. At least 240 days prior to deployment, the Lessee must provide all information necessary for evaluation of the potential submarine power cables, data cables, and acoustic monitoring devices to be used in the Project to osd.dod-siting-clearinghouse@mail.mil and opnavn4imissioncompatibility@us.navy.mil for a 180-day review. If the DoD requests additional information, the Lessee must provide it within 15 days of the request. The following information must be provided:

- Sensor deployment dates and duration;
- Siting routes and locations of acoustic monitoring devices;
- Shore station location;
- DOFS and acoustic monitoring capabilities;
- Make and model of integrated (or planned integration/deployment of) and standalone scientific sensors;
- Manufacturers and vendors;
- Plans for data storage;
- Transmission and usage; and
- Associated physical and cybersecurity protocols.

4.4.1.1 The Lessee must provide DoD with notice of the intent to change this information at least 30 days prior to any change.

4.4.1.2 If the DoD determines through the evaluation in Section 4.4.1 that the use of DOFS or other acoustic monitoring devices presents risk to national security or military operations, the Lessee must work with DoD to implement mitigation measures to address the risk (Section 4.4.3). DoD mitigation measures must be implemented within 30 days of notification from the DoD.

4.4.1.3 As-Builts. The Lessee must provide DoD with as-built schematics and diagrams showing the exact makes and models of all DOFS equipment and acoustic monitoring devices used at commissioning. Thereafter, this information must be updated within 10 business days of any change.

4.4.2 National Security Review. Within 45 days following approval of the COP, the Lessee must provide DoD with the names of each entity and person having beneficial ownership or control of 5 percent or more of the Lessee and the project operator, all material vendors and manufacturers who will regularly visit the project, who supply or manufacture equipment used on the project, control equipment used on the project, or have access to associated data systems. In addition, such information must be provided for each director and the top five

executives of the Lessee and the project operator. The following information must be provided for each identified person: full legal name, date of birth, country of citizenship, and permanent address.

4.4.2.1 The Lessee and DoD must establish a process to review additional entities not previously reviewed during the initial screening based on when the information will be available during the project planning process. This process will include Lessee's provision to DoD of information regarding any foreign entities and persons allowed to access the wind turbine structures and associated data systems.

4.4.2.2 DoD will screen the names of the entities and persons identified. Once submitted for screening, DoD Parties will identify to the Lessee, no later than 60 days after the receipt of the name of any entity and person posing a security concern.

4.4.2.3 The Lessee must provide written notice to the DoD Parties at least 45 days in advance of the intended use of any material vendor not previously screened pursuant to this section. The Lessee must allow the DoD 45 days following such notice to conduct a security review and assess any security concern. Notwithstanding the foregoing, the Lessee need not wait 45 days if an unexpected situation arises for which employing services or vendors immediately is prudent for the safe operation of the Project.

4.4.2.4 In any case in which the DoD identifies any entity and any person screened in accordance with this section as posing national security risk, the Lessee agrees to enter into negotiations with DoD to mitigate the risk to national security that arises as a result of the proximity of any entity and person posing a national security concern to military activities. Except in unexpected situations as previously described, the threat to national security must be resolved to the satisfaction of the DoD Parties prior to allowing access to the site or its associated data systems by representatives of any entity and person posing a national security concern or the use of wind turbines or other permanent on-site equipment or associated data systems manufactured by any entity and person posing a national security concern. In any case in which an entity and person is identified as posing a national security concern following an unexpected situation, the threat to national security must be resolved to the satisfaction of DoD at the earliest opportunity.

4.4.3 Mitigation Measures. As a result of the analyses conducted pursuant to Sections 4.4.1 and 4.4.2, the DoD and Lessee will coordinate to implement mitigation required to address national security risk. To implement mitigation measures, DoD may determine it necessary for the Lessee to enter into an additional mitigation agreement to detail the agreed upon terms. Mitigation measures may include, but are not limited to, the following:

4.4.3.1 Lessee appointment of a DoD-approved Security Officer, subject to citizenry and other requirements, to monitor compliance with mitigation measures.

4.4.3.2 Restrictions on DOFS, multi-phenomenological sensing, or acoustic monitoring equipment operating modes, parameters, locations, and/or capabilities; these may include programmed modes to avoid distributed sensing on specified portions of a cable when required by DoD.

4.4.3.3 Equipment and component restrictions and requirements, to include prohibitions on usage, installation, or connection of equipment or components manufactured in specified foreign countries; no equipment may be used on the Project if banned by any agency of the United States.

4.4.3.4 Physical and cybersecurity protections at, and Government inspections of, locations where the Lessee's DOFS and/or acoustic monitoring equipment and components are installed and monitored.

4.4.3.5 Temporary or permanent shutdown or data diversion of cable distributed sensing, multi-phenomenological sensing, or acoustic monitoring devices in sensitive locations, as determined and required by DoD.

4.4.3.6 Reporting requirements for the Lessee and subcontractor reporting requirements concerning business and ownership relationships with foreign entities and use of non-citizens for installation and maintenance work.

4.4.4 Deconfliction of Activities. To mitigate the potential impacts on DoD operations, the Lessee must coordinate with DoD ocean users and schedulers during construction and major maintenance activities. The DoD points-of-contact for coordination relating to ocean use and scheduling are: osd.dod-siting-clearinghouse@mail.mil and opnavn4imissioncompatibility@us.navy.mil.

5 PROTECTED SPECIES[10] AND HABITAT CONDITIONS

5.1 General Environmental Conditions.

5.1.1 Aircraft Detection Lighting System. The Lessee must use an FAA-approved vendor for the Aircraft Detection Lighting System (ADLS), which will activate the FAA hazard lighting only when an aircraft is in the vicinity of the wind facility, to reduce visual impacts at night once the system is commissioned. The Lessee must confirm

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

the use of, and submit to BOEM and BSEE, information about the FAA-approved vendor for ADLSs on WTGs and the OSS at the time the relevant FIR is submitted.

5.1.2 Marine Debris[11] Awareness and Elimination.

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

5.1.2.2 Marine Debris Awareness Training and Certification. The Lessee must ensure that all vessel operators, employees, and contractors engaged in offshore activities pursuant to the approved COP complete marine debris awareness training prior to engaging in offshore activities and annually thereafter, pursuant to the approved COP. 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:

- Training through viewing of either a marine debris video or training slide pack posted on the BSEE website (https://www.bsee.gov/debris) or by contacting BSEE;
- Receiving an explanation from management personnel that emphasizes their commitment to the requirements; and
- Documented certification that all personnel listed above have completed their initial and annual training. The Lessee must make this certification 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 previous 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 such a shape or configuration that make them 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 must be properly secured to prevent loss overboard. All markings must clearly identify the owner and must be able

[11] 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.

to resist the effects of the environmental conditions to which they may be exposed.

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

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

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

5.1.2.7.1 Recovery Plan. If BSEE requires the Lessee to recover the marine debris, the Lessee must submit a Recovery Plan to BSEE within 10 days after receiving BSEE's order. Unless BSEE objects within 48 hours after the Recovery Plan has been accepted or is in review status by BSEE in TIMSWeb, the Lessee may proceed with the activities described in the Recovery Plan. Recovery activities must be completed 30 days from the date on which marine debris was released, unless BSEE grants the Lessee an extension.

5.1.2.7.2 Recovery Completion Notification. Within 30 days after the marine debris is recovered, the Lessee must provide notification to BSEE that recovery was completed and, if

applicable, describe any substantial variance from the activities described in the Recovery Plan.

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 24 Hour Reporting and Recovery Plan and the referenced TIMSWeb Submittal ID (SID). The Lessee is not required to submit a report for those months in which no marine debris was lost or discarded. The monthly report must include the following:

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

5.1.2.8.2 The date and time of the incident;

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

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

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

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

5.1.2.8.7 An explanation of how the object was lost; and

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

5.1.2.9 Annual Surveying and Reporting, Periodic Underwater Surveys, Reporting of Monofilament and Other Fishing Gear Around WTG Foundations. The Lessee must conduct a survey around at least 10 WTG foundations for lost fishing gear annually for the first three years following COP approval and every 5 years thereafter. The Lessee may conduct surveys by remotely operated vehicles, divers, or other means to determine the quantity and locations of marine debris. The Lessee must report the results of the surveys to BOEM and BSEE in an annual report,

submitted by January 31, for the preceding calendar year. Annual reports must be submitted in both Microsoft Word and Adobe PDF format. Photographic and videographic materials (TIFF or Motion JPEG 2000) must be provided in TIMSWeb with the submittal of the annual report. Photographic and videographic files can also be submitted to marinedebris@bsee.gov if the files cannot be uploaded in TIMSWeb. Survey design and effort (i.e., the number of WTGs and frequency of reporting) may be modified only upon review and concurrence by BOEM and BSEE.

5.1.2.9.1 Annual reports must include a summary of the survey reports including survey date(s); contact information of the operator; location and pile identification number; photographic and/or video documentation of the survey and debris encountered; any animals sighted; and the disposition of any located debris (i.e., removed or left in place).

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. § 285.906.

5.2 Avian and Bat Protection Conditions.

5.2.1 The Lessee must submit all required documents related to avian and bat protection conditions in Sections 5.2.2 through Section 5.2.7 to BOEM; to BSEE via TIMSWeb and with a notification email to protectedspecies@bsee.gov; and to USFWS at (wendy_walsh@fws.gov). The Lessee must confirm the relevant point of contact before submitting the required documents and must also confirm that the agencies have received the documents.

5.2.2 Bird-Deterrent Devices and Plan. To minimize the attraction of birds that are prone to perching, the Lessee must, where safety permits, install bird perching deterrent device(s) on each WTG and OSS. The Lessee must submit for BOEM and BSEE approval a plan to deter perching on offshore infrastructure by roseate terns and other marine birds. BOEM, BSEE, and USFWS will review the Bird Perching Deterrent Plan and provide any comments on the plan to the Lessee within 60 business days of its submittal. The Lessee must resolve all comments on the Bird Perching Deterrent Plan to BOEM's satisfaction before the Lessee may begin installation of WTGs or OSSs. The Bird Perching Deterrent Plan must include the type(s) and locations of bird perching deterrent devices, include a maintenance plan for the life of the Project, allow for modifications and updates as new information and technology become available, track the efficacy of the deterrents, and include a timeline for installation. The plan will be based on best available science regarding the efficacy of perching deterrent devices on avoiding and minimizing collision risk. The location of bird 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 include the bird perching deterrents from the Plan with the appropriate FDR. The Bird Perching Deterrent Plan must be approved before the Lessee may commence with 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.

5.2.3 Navigation Lighting Upward Illumination Minimization. Nothing in this condition supersedes or is intended to conflict with lighting, marking, and signaling requirements of FAA, USCG, or BOEM. The Lessee must use lighting technology that minimizes impacts on avian species to the extent practicable including lighting designed to minimize upward illumination. The Lessee must provide USFWS with a courtesy copy of the final Lighting, Marking, and Signaling plan, and the Lessee's approved application to USCG to establish PATONs (Section 3.1.2).

5.2.4 Avian and Bat Monitoring Program. The Lessee must develop and implement an Avian and Bat Post-Construction Monitoring Plan (ABPCMP) based on the Atlantic Shores South Bird and Bat Monitoring Framework (Appendix G of the final EIS) in coordination with USFWS, New Jersey Department of Environmental Protection (NJDEP), and other relevant regulatory agencies. BOEM and BSEE will use annual monitoring reports to determine the need for adjustments to monitoring approaches and to consider new monitoring technologies, and/or additional periods of monitoring. Prior to or concurrent with offshore construction activities, including seabed preparation activities, the Lessee must submit an ABPCMP for BOEM, BSEE, and USFWS review. BOEM, BSEE, and USFWS will review the ABPCMP and provide any comments on the plan to the Lessee within 60 business days of its submittal. The Lessee must resolve all comments on the ABPCMP to BOEM's and BSEE's satisfaction before implementing the plan and before commissioning the first WTG.

5.2.4.1 Monitoring. The Lessee must conduct monitoring as outlined in the Appendix G Atlantic Shores South Bird and Bat Monitoring Framework which will include acoustic monitoring of bat presence radio tags to monitor movement of listed birds in the vicinity of the projects (BA Table 2-7, Measure 3.a). The ABPCMP will allow for changing methods over time (see Conservation Measure 5.d, USFWS BiOp) in order to regularly update and refine collision estimates for listed birds. The plan must include an initial monitoring phase involving deployment of Motus radio tags on listed birds in conjunction with installation and operation of Motus receiving stations on turbines 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).

5.2.4.2 Annual Monitoring Reports. The Lessee must submit a comprehensive report after each full year of post-construction monitoring within 12 months of completion of the survey season (see addresses in Section 5.2.1). The report must include all data, analyses, and summaries regarding ESA-listed and non-ESA-listed birds and bats. In addition, the

Lessee must report observations of injured or dead piping plovers, rufa red knots, and roseate terns; any listed species perching on Project infrastructure (including offshore substations); implementation and effectiveness of avoidance and minimization measures; and any other relevant activity and information related to the proposed action and potential impacts to listed species.

5.2.4.3 Post-Construction Quarterly Progress Reports. During the first 12 months that the Project is fully operational and commissioned (all installed WTGs producing power), the Lessee must submit quarterly progress reports concerning the implementation of the ABPCMP to BOEM, BSEE, and USFWS by the 15th day of the first month following the end of each quarter (see addresses in Section 5.2.1). The Lessee must include a summary of all work performed, an explanation of overall progress, and any technical problems encountered.

5.2.4.4 Monitoring Plan Revisions. Within 30 business 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 ABPCMP, including technical refinements or additional monitoring, and the potential need for any additional efforts to reduce impacts. If, following that meeting, BOEM and BSEE, in consultation with USFWS, determine that revisions to the ABPCMP are necessary, the Lessee must modify the ABPCMP. If the reported monitoring results deviate substantially from the impact analysis included in the final EIS,[12] the Lessee must transmit to BOEM, BSEE, and USFWS recommendations for new mitigation measures and/or monitoring methods. In consultation with USFWS, BOEM and BSEE may adjust the frequency, duration, and methods for various monitoring efforts in future revisions of the ABPCMP based on current technology (including its cost), and the evolving weight of evidence regarding the likely levels of collision mortality for each listed bird species (See Conservation Measure 5. Monitoring and Data Collection, USFWS BiOp).

5.2.4.5 Operational Reporting. Upon commissioning of the first WTG, the Lessee must submit to BOEM and BSEE an annual report, due by January 31, summarizing monthly operational data from the preceding year, calculated from 10-minute supervisory control and data acquisition data, for all WTGs together in tabular format, including the proportion of time the WTGs were spinning each month, the average rotor speed (monthly revolutions per minute) of spinning WTGs plus 1 standard deviation, and the average pitch angle of blades (degrees relative to rotor plane) plus 1 standard deviation. Any data considered by the Lessee to be privileged or

[12] https://www.boem.gov/renewable-energy/state-activities/atlantic-shores-offshore-wind-south-final-environmental-impact

confidential must be clearly marked as confidential business information and will be handled by BOEM and BSEE in a manner consistent with 30 C.F.R. § 585.114.

5.2.5 Raw Data. The Lessee must store the raw data from all avian and bat surveys and monitoring activities using accepted archiving practices, including data collected during COP preparation. Such data must be accessible to BOEM, BSEE, and USFWS upon request for the duration of the Lease. The Lessee must work with BOEM to ensure the data are publicly available. All avian tracking data (i.e., from radio and satellite transmitters) must be stored, managed, and made available to BOEM and USFWS following the protocols and procedures outlined in the USFWS document entitled, *Guidance for Coordination of Data from Avian Tracking Studies* effective at time of COP approval.

5.2.6 Annual Bird/Bat Mortality Reporting. The Lessee must provide an annual report to BOEM, BSEE, and the USFWS documenting any dead (or injured) birds or bats found on vessels and structures during construction, operations, and decommissioning. The report must contain the following information: the name of the 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, available at www.pwrc.usgs.gov/BBL/bblretrv/. The Lessee must also submit to BOEM, BSEE, and USFWS an annual report covering each calendar year, due by January 31, documenting the implementation of any collision-prevention measures during the preceding year. Additionally, annual reporting of injured or dead listed species will be recorded in the Injury & Mortality Reporting (IMR) system (https://ecos.fws.gov/imr/welcome).

5.2.6.1 Immediate Reporting. Any occurrence of a dead or injured ESA-listed bird or bat in or within 1 mile of the lease area must be reported to BOEM, BSEE, and USFWS (Senior Resident Agent, Division of Law Enforcement Sea Land Building, 2nd Floor, 1210 Corbin Street Elizabeth, New Jersey 07201, (973) 645-5910 and New Jersey Field Office, 4 E. Jimmie Leeds Road, Suite 4, Galloway, New Jersey 08205, (609) 646-9310) as soon as practicable (taking into account crew and vessel safety), no later than 72 hours after the sighting and, if practicable, the dead specimen will be carefully collected and preserved in the best possible state. BOEM will coordinate with USFWS on procedures and required permits for processing and handling specimens.

5.2.7 Collision Minimization. Within 5 years of the commissioning of the first WTG and every 5 years thereafter for the operational life of the Project, the Lessee must provide BOEM with a review of best available scientific and commercial data on technologies and methods that have been implemented or are being studied to reduce or minimize bird collisions at WTGs. The review must be worldwide and include both offshore and onshore WTGs. This review will inform BOEM's Collision Minimization Report, consistent with Term and Condition 1b of the

USFWS BiOp. Within 60 business days of BOEM's issuance of the final Collision Minimization Report, the Lessee must participate in a meeting to discuss the report with BOEM, BSEE, USFWS, and appropriate state agencies.

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

5.4 Pre-Seabed Disturbance Conditions.

5.4.1 The Lessee must submit all required documents related to pre-seabed disturbance conditions in Sections 5.4.2 through 5.4.8 (e.g., sand bedform removal plan, anchoring plans, as-placed anchor plats, boulder identification and relocation, micrositing plan, and scour and cable protection) to BOEM, BSEE, and NMFS GARFO-HESD.

5.4.2 Sand Bedform Removal Plan. The Lessee must prepare and implement a Sand Bedform Removal Plan. The Lessee must submit the Plan to BOEM and BSEE for the agencies' 60 business day review (in coordination with NMFS GARFO-HESD), at least 120 days prior to sand bedform removal activities within the scope of the plan. The Lessee must resolve all comments on the Sand Bedform Removal Plan to BOEM's and BSEE's satisfaction prior to implementation of the plan. If BOEM or BSEE do not provide comments on the plan within 60 business days of its submittal, then the Lessee may presume concurrence with the plan.

5.4.2.1 The plan must include the following:

5.4.2.1.1 Figures of the location of sand bedform removal activities, including Lessee proposed safety zones associated with third-party assets;

5.4.2.1.2 Consistent with Section 4.5.3.2 of the COP, a description of sand bedform removal methods, including expected penetration depth, vessel specifications, equipment specifications, and metocean limits on operation;

5.4.2.1.3 A description of how dredged material will be handled and disposed;

5.4.2.1.4 A description of safety distances or zones to limit sand bedform removal activities near third-party assets;

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

5.4.2.1.6 A summary of consultation and outreach with resource agencies and the fishing industry in development of the plan to include LNM.

5.4.2.1.7 The plan must demonstrate that sand bedform removal is limited to the extent required to achieve adequate cable burial depth and must not exceed more than 20% of the export and inter-link cable routes length and 10% of the inter-array cable routes length, as consistent with the COP.

5.4.2.2 Sand Bedform Removal Report. The Lessee must provide to BSEE and BOEM, and make available to the approved CVA, a Sand Bedform Removal Report. The report must be submitted within 60 days of completion of the Sand Bedform Removal activities and prior to or with the relevant FIR. The report must include a summary of the activities performed and outline any deviations from the Sand Bedform Removal Plan. The Lessee must also provide to BOEM and BSEE a comprehensive list and shapefile of sand bedform removal activities and sediment relocation (latitude, longitude).

5.4.3 Anchoring Plans/Plats. The Lessee must prepare and implement an Anchoring Plan(s) for all areas where anchoring or buoy placement occurs and jack-up barges are used during construction and operations/maintenance within 1,640 ft (500 m) of habitats, resources, and submerged infrastructure that are sensitive, including sensitive benthic habitats; boulders greater than or equal to 0.5 m; ancient submerged landform features (ASLFs); known and potential shipwrecks; potentially significant debris fields; potential hazards; third-party infrastructure, and any related facility installation activities (such as cable, WTG, and OSS installation). Avoidance buffers must be consistent with the following: exclusion zones for potential and confirmed unexploded ordnances consistent with risks identified in the MEC/UXO Desktop Study (Section 2.1) and relative to risks of planned activities; avoidance of cultural resources and shipwrecks and ASLFs will be consistent with Section 7.1.2 and 7.1.4.

The Lessee must provide to all construction and support vessels the locations where anchoring or buoy placement must be avoided to the extent technically

and/or economically practicable or feasible, including sensitive benthic habitats, boulders greater than or equal to 0.5 m, ASLFs, known and potential shipwrecks, potentially significant debris fields, potential hazards, and any related facility installation activities (such as cable, WTG, and OSS installation). If avoidance and minimization is determined to be infeasible, the plans must describe in detail the rationale for such infeasibility. Dynamic positioning systems should be used in these areas instead of anchoring, as practicable. 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 sensitive benthic 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 practical or feasible; or (2) a different alternative is as safe and provides the same or greater environmental protection.

If placement of jack-up barge spud cans is necessary in sensitive benthic habitats, locations for the spud cans must be selected to avoid or minimize impacts according to the following list, including complex habitat sub-types (using NMFS complexity categories), prioritized from highest to lowest priority: (i) complex habitats with boulders; (ii) complex habitats absent boulders; (iii) heterogeneous complex habitats; (iv) biogenic habitat (i.e., clam beds); and (v) areas with benthic or bathymetric features,[13] as technically practicable or feasible. Benthic habitat (NOAA complexity categories) and benthic feature/habitat type maps in conjunction with backscatter, bathymetry, and boulder layers should be used to inform the anchoring plan. In the event of any misalignment in avoidance buffers described above with any other permits or authorizations, please refer to Section 1.4.

5.4.3.1 The Lessee must provide the proposed Anchoring Plan to BOEM and BSEE, for the agencies' 60-day review (in coordination with NMFS GARFO-HESD), at least 120 days before anchoring activities or at least 120 days before construction begins for export and inter-array cables, whichever is earlier. The Lessee must resolve all comments on the Anchoring Plan to BOEM's and BSEE's satisfaction before conducting any OCS seabed-disturbing activities that require anchoring. If there are fewer than 120 days between anchoring activities and this COP approval, the Lessee must submit the plan as soon as practicable and no later than 60 days prior to commencing activities. The final version of each Anchoring Plan must be provided to BOEM, BSEE, NMFS GARFO-HESD, and

[13] Benthic features are defined as sand waves, megaripples, and ripples; Bathymetric features are defined as topographic features of the seafloor such as lumps, scarps, ledges, and banks.

USACE. Additionally, the plan and maps depicting locations/extents of sensitive benthic habitats should be provided to vessel operators so that avoidance and minimization measures can occur in real time.

5.4.4 Micrositing Plan(s). The Lessee must prepare and implement a Micrositing Plan(s) that describes how inter-array cables, export cable routes, WTGs, and OSSs will be microsited to avoid or minimize impacts (as technically and/or economically practicable or feasible) to archaeological resources (Sections 7.1.2 and 7.1.4), sensitive benthic habitats, boulders greater than or equal to 0.5 meters in diameter, and potential and confirmed MEC/UXO. The plan(s) must describe MEC/UXO ALARP Certified areas, which should be consistent with MEC/UXO ALARP Certification (Section 2.1). To the extent practicable, cables should cross sensitive benthic habitat areas perpendicularly at the narrowest points; cables unable to avoid benthic features such as sand waves should be sited along natural benthic contours within troughs/lows, to maximize cable burial while minimizing disturbance to local submarine topography. The Lessee must submit detailed supporting data and analysis as part of the FDR or FIR, including relevant geophysical and geospatial data. The submission of the data may be incorporated by reference or submitted as an attachment to the FDR or FIR. The Micrositing Plan(s) must be consistent with, Cable Routings (Section 2.6) and the Boulder Identification and Relocation Plan(s) (Section 5.4.5).

5.4.4.1 The Micrositing Plan(s) must include a figure for each microsited cable segment, including benthic habitat delineations showing sensitive benthic habitat and locations of boulders greater than or equal to 0.5 m. The plan(s) must include a figure encompassing the lease area, depicting large boulder locations, benthic habitat delineations, and the proposed microsited locations for cables, WTGs, and OSSs. Benthic habitat (NOAA complexity categories) and benthic feature/habitat type maps in conjunction with multibeam backscatter, bathymetry, and boulder layers should be used to inform the Micrositing Plan.

5.4.4.2 For cables, OSSs, and/or WTGs that cannot be microsited to avoid impacts to sensitive benthic habitat or boulders greater than or equal to 0.5 m, the micrositing plan must identify technically and/or economically practicable or feasible impact minimization measures and use the following prioritized list, including complex habitat sub-types (using NMFS complexity categories), to avoid during micrositing: (i) complex habitats; (ii) heterogeneous complex habitats; (iii) biogenic habitat (i.e., clam beds); and (iv) areas with benthic features (e.g., sand waves) or bathymetric features (e.g., ridge crest, ridge flank, swale/trough/depression.

5.4.4.3 The Micrositing Plan(s) must be submitted to BOEM and BSEE for a 60-day review (in coordination with NMFS GARFO-HESD), 120 days prior to site preparation activities for cables, WTGs, and OSS(s) within the scope of the plan. The Lessee must resolve all comments on the

Micrositing Plan(s) to BOEM's and BSEE's satisfaction prior to implementation of each plan(s). If there are fewer than 120 days between site preparation activities and this COP approval, the Lessee must submit the plan as soon as practicable and no later than 60 days prior to commencing activities. The final version of each Micrositing Plan must be provided to BOEM, BSEE, NMFS, and USACE. Additionally, the plan must describe how information regarding sensitive benthic habitats is shared with vessel operators.

5.4.4.4 Post-Installation Micrositing Report. The Lessee must provide a post-installation Micrositing Report to BOEM and BSEE for coordination with NMFS GARFO-HESD. The report must include a summary of the micrositing activities for WTGs, inter-array cables, and the export cables and demonstrate (i.e., figures of as-built locations overlaid on multibeam echosounder backscatter survey data) how impacts to complex habitats and benthic features were avoided and/or minimized within the lease area and export cable corridors. The report must also identify and depict (i.e., figures) areas in which WTGs or cables could not be microsited to avoid complex habitats with a description of the complex habitat sub-types impacted (see prioritized list of complex habitat sub-types listed under the Micrositing Plan Section 5.4.4) and include documentation of technical feasibility issues encountered. The report must be submitted within 60 days of completion of all WTG and cable installations. The Lessee must also provide BOEM, BSEE, and NMFS GARFO-HESD a shapefile of as-built WTGs, inter-array cables, and the export cables, as well as best-available multibeam echosounder backscatter survey data (i.e., as a raster file for use in ArcGIS).

5.4.5 Boulder Identification and Relocation Plan(s). The Lessee must submit a Boulder Identification and Relocation Plan(s) to BOEM and BSEE for the agencies' 60-day review (in coordination with NMFS GARFO-HESD), 120 days prior to boulder relocation activities within the scope of the plan. The Lessee must resolve all comments on the Boulder Identification and Relocation Plan to BOEM's and BSEE's satisfaction prior to implementation of the plan. If BOEM or BSEE do not provide comments on the plan within 60 days of its submittal, then the Lessee may presume concurrence with the plan. Concurrence with the plan will be determined by BSEE. The plan(s) must detail how the Lessee will avoid or minimize impacts to sensitive benthic habitats and fishing operations.[14] The plan(s) must provide for relocation of boulders as closely as practicable to the original location, in areas of soft bottom that are immediately adjacent to existing similar habitat from which the

[14] Sensitive benthic habitats include complex habitat, benthic features, and bathymetric features, Complex habitat is defined as coarse unconsolidated mineral substrates (i.e., substrates containing 5% or greater gravels), rock substrates (e.g., bedrock), and shell substrates (e.g., mussel reef) consistent with CMECS definitions, as well as vegetated habitats (e.g., SAV). Benthic features are defined as sand waves, megaripples, and ripples. Bathymetric features are defined as topographic features of the seafloor such as lumps, scarps, ledges, and banks.

boulder originated and placed in a manner that minimizes risk to navigation and commercial fishing (based on data depicting fishing locations such as vessel monitoring system (VMS). The plan(s) must include multibeam backscatter data and boulder (greater than or equal to 0.5 m in diameter) data layers to inform the siting of boulders and areas for relocation. The plan(s) must include sufficient scope to mitigate boulders for facility installation and operational risks. The plan(s) must be consistent with and meet the conditions of the SMS in Section 2.3. If avoidance and minimization was not feasible, the plan(s) should describe in detail the rationale for this infeasibility. All plans and maps depicting locations/extents of sensitive benthic habitats should be provided to vessel operators so that avoidance and minimization measures can be taken in real time. The plan must include the following for boulders that are proposed to be relocated:

5.4.5.1 A summary and detailed description of locations along the cable routes and wind turbine areas where surface and subsurface boulders greater than 0.5 m in diameter have been found.

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

5.4.5.3 Figures of the location of boulder relocation activities specified by activity type (e.g., pick or plow, removal, or placement). Separate submissions of these depictions overlaid on multibeam bathymetry and backscatter data and fishing activity data must also be submitted;

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

5.4.5.5 The areal extent of the environmental footprint of disturbance activities by habitat type and specific measures taken to avoid further adverse impacts to archaeological resources, complex habitat and fishing activity, and a description of how information regarding these resources is shared with vessel operators;

5.4.5.6 A comprehensive list and shapefile of locations of boulders that would be relocated (latitude, longitude), boulder dimensions (m), buffer radius (m), areas of active (within last 5 years) fishing (latitude, longitude), areas where boulders greater than 2 m in diameter are anticipated to occur (latitude, longitude), and identification of approximate areas to which boulders would be relocated (latitude, longitude);

5.4.5.7 The specific strategies and measures taken to minimize the impacts to complex habitats and quantity of seafloor obstructions from relocated boulders in areas of active fishing, as technically and/or economically feasible;

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

5.4.5.9 A description of MEC/UXO ALARP Certified areas, which should be consistent with MEC/UXO ALARP Certification (Section 2.1);

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

5.4.5.11 A statement of consistency with the Micrositing Plan (Section 5.4.4).

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

5.4.6 Boulder Relocation. The Lessee must implement methods identified in the approved COP and described in the Boulder Identification and Relocation Plan (Section 5.4.5) for boulder relocation activities. The Lessee must consider the spatial extent of boulder relocation in the micrositing of WTGs and OSS foundations and inter-array and export cables for this Project and must relocate boulders as closely as practicable to the original location, in areas of soft bottom immediately adjacent to existing similar habitat. The relocation of boulders must be consistent with the Project easement.

5.4.7 Boulder Relocation Report. The Lessee must provide a Boulder Relocation Report to BSEE, BOEM, NMFS GARFO-HESD, and the approved CVA. The report must include a post-relocation summary of the boulder relocation activities and information to certify boulder risks related to the installation and operation of the facility have been properly mitigated. The report must also identify boulders that could not be relocated with documentation of technical feasibility concerns, including information on how, if at all, the final boulder placement differs from the Boulder Relocation Plan and why such changes were necessary. The report must be submitted within 60 days of completion of the boulder relocation activities and prior to or with the relevant FIR. The Lessee must also provide BOEM and BSEE a comprehensive list and shapefile of boulder locations to which boulders were relocated (latitude, longitude), boulder dimensions (m), any safety distances or zones to limit boulder relocation near third-party assets (m), and areas of active (within last 5 years) fishing (i.e., as a raster file for use in ArcGIS).

5.4.8 Scour and Cable Protection Plan. The Lessee must prepare and implement a Scour and Cable Protection Plan(s) that includes descriptions and specifications for all scour and cable protection materials. The plan(s) must include a depiction of the location and extent of cable protection, the habitat delineations for the areas of cable protection measures, and detailed information on the proposed scour or cable

protection materials for each area and habitat type. The Scour and Cable Protection Plan(s) must demonstrate consistency with the Micrositing Plan(s), as appropriate.

5.4.8.1 The Lessee must avoid the use of engineered stone or concrete mattresses in complex habitat, as practicable and/or feasible. 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 practicable and feasible. If concrete mattresses are necessary, bioactive concrete (i.e., with bio-enhancing admixtures) must be used as practicable as the primary scour protection (e.g., concrete mattresses) or veneer to support biotic growth.

5.4.8.2 Cable protection measures must have tapered or sloped edges to reduce hangs for mobile fishing gear. The Lessee must avoid the use of plastics/recycled polyesters/net material (i.e., rock-filled mesh bags, fronded mattresses) for scour protection.

5.4.8.3 The Scour and Cable Protection Plan(s) must be submitted to BOEM and BSEE for a 60-day review (in coordination with NMFS GARFO-HESD), at least 120 days prior to placement of scour and cable protection within the area covered by the scope of the Plan(s). BOEM and BSEE must concur with the Scour and Cable Protection Plan(s) prior to BSEE issuing a no-objection to an FDR covering the scour and/or cable protection materials.

5.4.8.4 The Lessee must resolve all comments on each Plan to BOEM's and BSEE's satisfaction before placement of the scour and cable protection materials. The final version of the Scour and Cable Protection Plan(s) must be provided to BSEE, NMFS, and USACE.

5.5 Benthic Habitat and Fisheries Monitoring Conditions.

5.5.1 Atlantic City Artificial Reef Site. The Lessee must remove the single turbine position from the Project layout that is located approximately 150-200 feet (45.8-61 meters) from the observed Fish Haven (Atlantic City Artificial Reef Site).

5.5.2 Berm Survey and Report. Where plows, jets, grapnel runs, or other similar methods are used, post-construction geophysical surveys required as part of the Post-Installation Cable Monitoring must be capable of detecting bathymetry changes of 0.5 meters or less and must be completed to determine the height and width of any created berms. The Lessee must capture bathymetry changes greater than 3 feet during the first and second post-installation surveys along the cable routes (as described in Section 2.10). If there are bathymetric changes in berm height greater than 1 meter above grade after the second survey, 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

practical or feasible. The Lessee must submit the Berm Remediation Plan to BOEM and BSEE for a 60-day review (in coordination with NMFS) within 90 days of completion of the post-construction survey where the change was detected. The Lessee must resolve all comments on the Berm Remediation Plan to BOEM's and BSEE's satisfaction prior to initiating restoration activities. The final version of the Berm Remediation Plan must be provided to BOEM, BSEE, NMFS, and USACE.

5.5.3 Benthic and Fisheries Monitoring Plans. The Lessee must submit the most current Benthic and Fisheries Habitat Monitoring Plan to BOEM and NMFS within 120 days of COP approval for a 60-day review. The Monitoring Plans must address Agency comments received on the Plans. The Lessee must conduct benthic and fisheries monitoring consistent with the Lessee's Benthic Monitoring Plan (Appendix II-H of the COP) and Fisheries Monitoring Plan (Appendix II-K of the COP) as revised to assess benthic habitat and fisheries in the Project area pre-, during, and post-construction. The Lessee must submit any revisions to the plans to BOEM, to BSEE with status updates of submittals in the Annual Certification, and to NMFS GARFO-HESD. Benthic and Fisheries monitoring plan reports and resulting data should also be submitted to NMFS GARFO-HESD.

5.5.4 Sacrificial Anodes. To the extent it is technically and economically feasible, the Lessee must avoid using Zinc sacrificial anodes on external components of WTG and OSS foundations to reduce the release of metal contaminants in the water column.

5.6 Non-Avian Protected Species Mitigation and Monitoring Plan Conditions.[15]

5.6.1 The Lessee must submit all required documents related to protected species in accordance with all the Terms and Conditions of the December 18, 2023, NMFS BiOp (e.g., marine mammal and sea turtle monitoring plan, reduced visibility monitoring plan/nighttime pile-driving monitoring plan, passive acoustic monitoring (PAM), sound field verification (SFV), and vessel strike avoidance plan). All documents must be submitted to BOEM, BSEE via TIMSWeb with a notification email sent to BSEE at protectedspecies@bsee.gov, NMFS GARFO-PRD, NMFS-OPR, and USACE. Once plan compliance with the BiOp is reached, BOEM will provide concurrence on all applicable plans to the Lessee. The Lessee must follow final plans.

5.6.2 If BOEM and BSEE inform the Lessee that the plan is inconsistent with the ITS and NMFS BiOp, the Lessee must submit a modified plan that addresses the identified issues within 30 business days of the receipt of the comments but at least 15 business days before the start of the associated activities for which a plan is

[15] The requirements in this section set forth BOEM's conditions pursuant the reasonable and prudent measures and the implementing terms and conditions of the NMFS Biological Opinion. See Reasonable and Prudent Measure 5 and Term and Condition 11, in the Incidental Take Statement. BOEM intends to implement its conditions of approval, including those in this section, consistently with the Terms and Conditions in the Biological Opinion. See, Condition 1.4, above.

required. BOEM, BSEE, NMFS GARFO-PRD, and NMFS-OPR will review the modified plan within the Lessee's proposed schedule to the maximum extent practicable. The Lessee must obtain BOEM's and BSEE's concurrence with the Plan(s) prior to the start of any specified activity.

5.7 Endangered and Threatened Species Conditions for Fishery Monitoring.

5.7.1 The Lessee must submit all required documents related to endangered and threatened species conditions for fishery monitoring in Sections 5.14.2 through 5.14.9 to BOEM, BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov or marinedebris@bsee.gov (if related to marine debris/lost gear), and NMFS GARFO-PRD.

5.7.1.1 The Lessee must ensure that any lost survey gear is reported and recovered according to the Marine Debris Awareness and Elimination conditions in Section 5.1.2. All lost gear must also be reported to NMFS GARFO-PRD, NMFS-OPR, 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.

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

5.7.1.3 If marine mammals are sighted in the area within 15 minutes before deploying gear and are considered by survey staff 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 marine mammal sightings within 1 nautical mile (1,852 m) of sampling location for 15 minutes. If this occurs, this information must be included in PSO reporting.

5.7.1.4 The Lessee must ensure all vessels deploying fixed gear 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" (2019).

5.7.2 Conditions for Trawl Surveys

5.7.2.1 The Lessee must ensure all vessels have at least one survey team member onboard each trawl survey who has completed Northeast Fisheries Observer Program (NEFOP) observer training, or equivalent training (i.e., another training in protected species identification and safe handling, inclusive of taking genetic samples from Atlantic sturgeon), within the last

5 years or other training in protected species identified and safe handling (inclusive of taking genetic samples from Atlantic sturgeon). 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. The Lessee must provide documentation of training to NMFS and BSEE at least 15 days prior to the start of the trawl surveys, for which a non-NEFOP trained observer will be deployed, and at any later time that a different observer is deployed on the survey. If the Lessee will deploy non-NEFOP trained observers, the Lessee must submit a training plan to BOEM and NMFS GARFO-PRD describing the training that will be provided to the survey observers. The Lessee must submit the PSO Training Plan for Trawl Surveys no later than 7 days prior to the start of trawl surveys. This plan must include a description of the elements of the training (i.e., curriculum, virtual or hands on, etc.) and identify who will carry out the training and their qualifications. Once the training is complete, confirmation of the training and a list of trained survey staff must be submitted to NMFS GARFO-PRD; this list must be updated if additional staff are trained for future surveys. The Lessee must submit a list of trained survey staff to NMFS GARFO-PRD at least one business day prior to the beginning of the survey. The Lessee must obtain BOEM's and BSEE's concurrence (in consultation with NMFS) with this plan before starting any trawl surveys.

5.7.2.1.1 The Lessee must ensure that any sea turtles or Atlantic sturgeon incidentally caught and/or collected in any fisheries survey gear are identified to species or species group and reported to BOEM, BSEE, and NMFS GARFO-PRD, then be properly documented using appropriate equipment and the NMFS data collection form.[16] Biological data, samples, and tagging must occur as outlined below. The Lessee must follow the Sturgeon and Sea Turtle Take Standard Operating Procedures.[17]

5.7.2.1.2 The Lessee must equip survey vessels with a passive integrated transponder (PIT) tag reader onboard capable of reading 134.2 kHz and 125 kHz encrypted tags (e.g., Biomark GPR Plus Handheld PIT Tag Reader), and this reader must be used to scan any captured sea turtles and sturgeon for tags. Any recorded tags must be recorded on the take reporting form[18] and reported to BOEM, BSEE, and NMFS GARFO-PRD.

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[16] https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%2007162021.pdf?null
[17] https://media.fisheries.noaa.gov/2021-11/Sturgeon-Sea-Turtle-Take-SOPs-external-11032021.pdf
[18] https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%2007162021.pdf?null

5.7.2.1.3 The Lessee must take genetic samples from all captured Atlantic sturgeon (alive or dead) to allow for identification of the distinct population segment (DPS) of origin of captured individuals and the tracking of the amount of incidental take. This sample collection must be done consistent with the Procedures for Obtaining Sturgeon Fin Clips.[19]

5.7.2.1.4 The Lessee must send fin clips to a NMFS GARFO-PRD-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-PRD within 6 months of the sample collection.

5.7.2.1.5 The Lessee must hold and submit subsamples of all fin clips and accompanying metadata form to the Atlantic Coast Sturgeon Tissue Research Repository on a quarterly basis using the Sturgeon Genetic Sample Submission Form.[20]

5.7.2.2 The Lessee must ensure that 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 incidentally caught and retrieved in gear used in any fisheries survey must 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 who are handling and resuscitating the animal(s).

5.7.2.2.1 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 must be minimized (i.e., kept to 15 minutes or less) to limit the amount of stress placed on the animals.

5.7.2.2.2 All survey vessels must be equipped with copies of the sea turtle handling and resuscitation requirements found at 50 C.F.R. § 223.206(d)(1) prior to the commencement of any on-water activity.[21] These handling and resuscitation

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

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

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

procedures (the latter, when necessary) must be executed any time a sea turtle is incidentally captured and brought onboard a survey vessel.

5.7.2.2.3 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 survey staff are unable to contact the hotline (e.g., due to distance from shore or lack of ability to communicate via phone), then survey staff must contact the USCG via very high frequency (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 conditions during holding are authorized by the NMFS GARFO-PRD 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.

5.7.2.2.4 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.[22]

5.7.2.2.5 Carcasses of incidentally caught sea turtles and sturgeon must 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 GARFO-PRD, which may include transfer to an appropriately permitted partner or facility on shore. Following reporting of an incidental capture, NMFS may authorize that incidentally captured 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.

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[22] https://media.fisheries.noaa.gov/dam-migration-miss/Resuscitation-Cards-120513.pdf. The Lessee shall comply with the version effective at the time of COP approval.

5.7.2.3 The captain and/or a member of the scientific crew must conduct marine mammal monitoring before, during, and after haul back.

5.7.2.3.1 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.

5.7.2.3.2 The Lessee must initiate marine mammal watches (visual observation) within 1 nm (1,852 m) of the site 15 minutes prior to sampling.

5.7.2.3.3 If a marine mammal is sighted within 1 nautical mile (1,852 m) 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.

5.7.2.3.4 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.

5.7.2.3.5 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.

5.7.2.3.6 The Lessee must empty gear as close as possible to the deck/sorting area and as quickly as possible after retrieval.

5.7.2.3.7 The Lessee must fully clean and repair trawl nets (if damaged) before setting again.

5.7.2.3.8 In the case of a marine mammal interaction, the Lessee must contact the Marine Mammal Stranding Hotline immediately at 866-755-6622 and report the incident to NMFS-OPR, and, for ESA-listed marine mammals, NMFS GARFO-PRD.

5.7.3 Notification Report. The Lessee must notify BOEM, BSEE, and NMFS GARFO-PRD via email within 24 hours of any interaction with a sea turtle or sturgeon and

include the NMFS take reporting form.[23] 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.

5.7.4 Annual Report. The Lessee must submit an annual report by February 15 each year for the previous year (i.e., the report for 2024 activities is due by February 15, 2025) to BOEM, BSEE, and NMFS GARFO-PRD. 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.

5.8 Protected Species Training and Coordination. Before beginning any in-water activities involving vessel use (transit), cable installation, pile-driving, and HRG surveys, and when new personnel join the work, the Lessee must conduct briefings for construction supervisors and crews, PSO and PAM teams, vessel operators, and all staff to explain responsibilities, communication procedures, and protected species mitigation, monitoring, and reporting requirements.

5.8.1 The Lessee must submit all required documents and reports related to protected species training and coordination to BOEM, BSEE, and NMFS-OPR (see Section 5.8).

5.8.2 Vessel Crew and Protected Species Observer (PSO) Training Requirements. The Lessee must provide Project-specific training to all vessel crew members, PSOs, PAM Operators, and Trained Lookouts on the identification of sea turtles and marine mammals, vessel strike avoidance and reporting protocols, how and when to communicate with the vessel operator, the authority of the PSOs, PAM Operator teams, and the associated regulations for avoiding vessel collisions with protected species prior to the start of in-water construction activities. The Lessee must make available aboard all Project vessels reference materials for identifying sea turtles and marine mammals, copies of the Marine Mammal and Sea Turtle Monitoring Plan (Section 5.6.1) and Vessel Strike Avoidance Plan (Section 5.6.1).

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

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, BSEE, and NMFS-OPR 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 to all crew members its expectation that the crew report sightings of sea turtles and marine mammals (including live, entangled, and dead individuals) to the designated vessel contact. The Lessee must post the reporting instructions, including communication channels, in highly visible locations aboard all Project vessels.

5.8.3 PSO and PAM Operator Requirements. The Lessee must use independent, dedicated, qualified PSOs and PAM Operators provided by a third party. The PSOs' and PAM Operators' sole Project-related duty must be to observe, collect and report data, and communicate with and instruct relevant vessel crew regarding the presence of protected species and mitigation requirements (including brief alerts regarding maritime hazards). PSOs or PAM operators serving as PSOs must have completed a commercial PSO or PAM Operator training program (as applicable) for the Atlantic with an overall examination score of 80 percent or greater.[24] The Lessee must use NMFS-approved PSOs and PAM operators. The Lessee must provide training certificates for individual PSOs and PAM Operators to BOEM or BSEE upon request. PSOs and PAM operators must be approved by NMFS before the start of construction activities. Application requirements to become a NMFS-approved PSO and/or PAM Operators for construction activities can be found in NMFS-OPR's LOA. 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.

5.9 Vessel Strike Avoidance Conditions and Plan Conditions.

5.9.1 The Lessee must submit any required documents related to vessel strike avoidance consistent with the December 18, 2023, NMFS BiOp to BOEM, BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov, and NMFS GARFO-PRD.

5.9.2 Regardless of vessel size, vessel operators must reduce vessel speed to 10 knots (18.5 mph) or less while operating in any Seasonal Management Area (SMA) and Dynamic Management Area (DMA) or Slow Zone or North Atlantic right whales, unless the vessel is operating in a designated DMA or Slow Zone where right whales have not been detected and it is not reasonable to expect the presence of North Atlantic right whales (e.g., Long Island Sound, shallow harbors).

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

5.9.3 Vessel captain and crew must maintain a vigilant watch for all protected species and reduce speed, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any listed species. The presence of a single individual at the surface may indicate the presence of submerged animals in the vicinity; therefore, precautionary measures should always be exercised. If pinnipeds or small delphinids of *Delphinus*, *Lagenorhynchus*, *Stenella*, or *Tursiops* are visually detected approaching the vessel (i.e., to bow ride) or towed equipment, vessel speed reduction, course alteration, and shutdown are not required.

5.9.4 If a vessel is underway, a PSO must monitor a protected species separation distance of 100 m for sea turtles and 500 m or greater for North Atlantic right whales and ESA-listed marine mammals (as well as any unidentified large whales), 100 m or greater for non-ESA listed large whales, and 50 m or greater from all dolphins, cetaceans and pinnipeds (with the exception from Section 5.9.3 noted for those genus who are known to bow-ride), to ensure detection of that animal in time to take necessary measures to avoid striking the animal. If the vessel does not require a PSO for the type of activity being conducted, the vessel may use crew as a Trained Lookout to meet this requirement.

5.9.5 A minimum separation distance of 500 m from all ESA-listed whales (including unidentified large whales) must be maintained around all surface vessels at all times.

5.9.6 If a large whale (inclusive of ESA-listed species and any species that is not identifiable to the species-level) is identified within 500 m of the forward path of any vessel, the vessel operator must steer a course away from the whale at 10 knots (18.5 km/hr) or less until the 500 m minimum separation distance has been established. Vessels must also shift to neutral.

5.9.7 If a large whale (inclusive of ESA-listed species and any species that is not identifiable to the species-level) is sighted within 500 m of the forward path of a vessel, the vessel operator must reduce speed to 10 knots and shift the engine to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 500 m. If stationary, the vessel must not engage engines until the large whale has moved beyond 500 m. The appropriate measures must also be undertaken for species other than ESA-listed large whales, per the final MMPA ITA, if issued.

5.9.8 If a sea turtle or manta ray is sighted at any distance within the operating vessel's forward path, the vessel operator must slow down to 4 knots and steer away (unless unsafe to do so). The vessel may resume normal vessel operations once the vessel has passed the turtle or ray.

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

avoid striking marine mammals or sea turtles, consistent with identified requirements.

5.9.9.1 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 NARW), or other marine mammal, as well as identify sea turtles. Crew members serving as visual observers must not have other duties while observing for marine mammals while the vessel is operating over 10 knots.

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

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

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

5.9.11 Vessel Strike Avoidance of Sea Turtles.

5.9.11.1 On 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 vessel operator so that the requirements below can be implemented.

5.9.11.2 On 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.

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

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

5.9.11.5 The trained lookout must maintain a vigilant watch and monitor a Vessel Strike Avoidance Zone (500 m) at all times to maintain minimum separation distances from ESA-listed sea turtle species. Alternative monitoring technology (e.g., night vision, thermal cameras, etc.) must be available and utilized by the lookout to ensure effective watch at night and in any other low visibility conditions. If the trained lookout is a vessel crew member, this 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.

5.9.11.6 If a sea turtle is sighted within 100 m 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 m, at which time the vessel may resume normal operations. If a sea turtle is sighted within 50 m 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 when the sea turtle is no longer in the forward path of the vessel. The vessel may resume normal operations after it has passed 100 m from the turtle.

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

5.9.11.8 All vessel crew members must be briefed in the identification of sea turtle 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.

5.9.11.9 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-PRD within 24 hours.

5.9.11.9.1 Vessel transits to and from the Project area that require PSOs must maintain a speed commensurate with weather conditions and effectively detecting sea turtles.

5.10 Passive Acoustic Monitoring (PAM) During Construction. Consistent with the requirements outlined in the MMPA LOA and December 18, 2023, NMFS BiOp, the Lessee must conduct PAM to supplement visual monitoring of marine mammals before, during, and after all monopile and jacket foundation installations.

5.11 Clearance and Shutdown Zones During Construction. Pile-driving will not proceed unless the visual PSOs can effectively monitor the full extent of the minimum visibility zones and identified clearance zones for marine mammals and sea turtles as described in the MMPA LOA and the December 18, 2023, NMFS BiOp. The Lessee will not proceed with pile-driving unless the visual PSOs can effectively monitor the full extent of the minimum visibility zones. Detection of an animal within the clearance zone triggers a delay of initiation of pile-driving and detection of an animal in the shutdown zone triggers the identified shutdown requirements. The following clearance and shutdown zones must be established and monitored for the specified activity unless otherwise approved by BOEM and BSEE (in consultation with NMFS).

Table 5.11-1. Clearance and Shutdown Zones

Species	Clearance Zone (m)	Shutdown Zone (m)
Impact Pile-Driving for WTG, OSS, and Met Tower Foundation Installation:		
1,900 m minimum visibility zone from each PSO platform (pile driving vessel and at least two PSO vessels), PAM monitoring out to 10,000 m		
NARW (visual and PAM monitoring)	At any distance (Minimum visibility zone (1,900 m) plus any additional distance observable by the visual PSOs on all PSO platforms); At any distance within the 10,000 m monitoring zone monitored by PAM	At any distance (Minimum visibility zone (1,900 m) plus any additional distance observable by the visual PSOs on all PSO platforms); At any distance within the 10,000 m monitoring zone monitored by PAM
Fin, Sei, and Sperm Whales (visual and PAM monitoring)	2,300 m	1,900 m
Sea Turtles (visual detection)	250 m	250 m
Vibratory Pile-Driving for Cable Landfall Activities – visual PSOs		
NARW, Fin, Sei, and Sperm whales	100 m	100 m
Sea Turtles	50 m	50 m
HRG Surveys – visual PSOs		

NARW	500 m	500 m
Fin, Sei, and Sperm Whales	500 m	100 m
Sea Turtles	100 m	100 m

Note: These are the clearance and shutdown zones incorporated into the proposed action; the zones for marine mammals reflect the proposed conditions of the MMPA ITA, as modified during the consultation period, and the zones for sea turtles reflect the zone sizes identified in BOEM's BA as modified for UXOs by this ITS. Further modification may be included in the final MMPA ITA.

NA = not applicable; *On any day that concurrent pile driving is planned, we expect the "concurrent" zone sizes will be in effect.

5.11.1 Noise Abatement Systems. Consistent with the requirements of the MMPA LOA and December 18, 2023, NMFS BiOp, the Lessee must employ noise abatement systems during all foundation pile-driving in a manner that achieves maximum noise attenuation levels practicable, but, at minimum, results in noise levels equal to or less than those modeled assuming 10 dB attenuation.

5.11.2 The Lessee must follow pre-clearance, soft start, shutdown, and restart procedures according to the Terms and Conditions and Appendix A of the December 18, 2023, NMFS BiOp and the final MMPA ITA.

5.11.3 Adaptive Monitoring Conditions. The purpose of the SFV plan (see Section 5.6.1) is to ensure that the Lessee does not exceed the distances to the auditory injury (i.e., harm) or behavioral harassment threshold (Level A and Level B harassment respectively) for marine mammals, the harm or behavioral harassment thresholds for sea turtles, or the harm or behavioral disturbance thresholds for Atlantic sturgeon that are identified in the December 18, 2023, NMFS BiOp. The Lessee must monitor through SFV and the required reporting, adaptive attenuation measures, and monitoring measures consistent with the MMPA LOA and the December 18, 2023, NMFS BiOp. The Lessee must send all raw SFV PAM data to the NCEI Passive Acoustic Data archive within 12 months following the completion of WTG/OSS/met tower foundation installation and the Lessee must follow NCEI guidance for packaging the data and metadata unless such submission conflicts with conditions in Section 4, in which case the language in Section 4 will govern the submission of PAM data.

5.11.4 Long-term PAM. The Lessee must conduct long-term monitoring of ambient noise and baleen whale, and commercially important fish vocalizations in the Lease Area before, during, and following construction. The Lessee must conduct continuous[25] recording at least 1 year before the start of pile installation, through pile installation, initial operation, and for at least 3 but no more than 10 full calendar years of

[25] 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.

operations[26] to monitor for potential impacts. The Lessee must meet with BOEM and BSEE at least 60 days prior to conclusion of the third full calendar year of operation monitoring (and at least 60 days prior to the conclusion of each subsequent year until monitoring is concluded) to discuss: 1) monitoring conducted to-date, 2) the need for continued monitoring, which need will be determined by BOEM, and 3) if monitoring is continued, whether adjustments to the monitoring are warranted. The monitoring instrument(s) must be configured to ensure that the specific locations (with confidence intervals) of vocalizing NARW anywhere within the lease area can be identified, assuming a 10 km detection range for their calls. The Lessee may satisfy this condition through either of the options set forth more fully below but must notify BOEM of its choice at least 120 days before pile driving is scheduled to begin. PAM deployment and data submission requirements of this Section must be consistent with Section 4. In the case where there is a conflict, the Lessee must follow the language in Section 4.

5.11.4.1 Option 1 - Lessee Conducts Long-term PAM. If the Lessee chooses to comply with Section 5.11.4 using this option, the Lessee must conduct PAM, including data processing and archiving following the Regional Wildlife Science Collaborative (RWSC) best practices[27] to ensure data comparability and transparency. PAM instrumentation must be deployed to allow for identification of any NARW that vocalize anywhere within the lease area, as well as Atlantic cod.

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

The Lessee must follow the best practices outlined in the RWSC best practices document,[28] unless otherwise required through conditions of COP approval. The best practices include engaging with the RWSC, calibrating the instruments, running QA/QC on the raw data, following the templates for reporting species vocalizations, and preparing the data for archiving at National Centers for Ecological Information (NCEI). Although section III of the RWSC best practices document specifies steps for Section 106 compliance, the Lessee must instead follow the conditions

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

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

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

outlined in Section 7.1.1 and the Section 106 Memorandum of Agreement.

The Lessee must document the occurrence of mysticete vocalizations (as well as odontocete clicks, as available based on sample rate) using automatic or manual detection methods. In addition, data must be processed with either manual or automatic detection software to detect vocalizations of spawning cod. The Lessee must submit a log of these detections as well as the detection methodology to BOEM, BSEE (at and TIMSWeb) and NMFS (at nmfs.pacmdata@noaa.gov) within 120 days following each recorder retrieval. All raw data must be sent to the NCEI Passive Acoustic Data archive on an annual basis and the Lessee must follow NCEI guidance for packaging the data.

5.11.4.1.1 Long-term Passive Acoustic Monitoring Plan. The Lessee must prepare and implement a Long-term PAM Plan under this option. No later than 120 days prior to instrument deployment and before any construction begins, the Lessee must submit to BOEM and BSEE (renewable_reporting@boem.gov; renewableenergyoperations@bsee.gov and TIMSWeb) the Long-term PAM Plan that describes all proposed equipment (including number and configuration of instruments), deployment locations, mooring design, detection review methodology, and other procedures and protocols related to the required use of PAM. If there are fewer than 120 days between the commencement of any construction activity and this COP approval, the Lessee must submit the plan as soon as practicable and no later than 60 days prior to commencing activities. As the Lessee prepares the Long-term PAM Plan, it must coordinate with the RWSC.

BOEM and BSEE will review the Long-term PAM Plan and provide comments, if any, on the plan within 45 days of its submittal. The Lessee may be required to submit a modified Long-term PAM Plan based on feedback from BOEM and BSEE. The Lessee must address all outstanding comments to BOEM's and BSEE's satisfaction and will need to receive written concurrence from BOEM. If BOEM does not provide comments on the Long-term PAM Plan within 45 days of its submittal, the Lessee may conclusively presume BOEM's concurrence with the Long-term PAM Plan.

5.11.4.2 Option 2 – Financial and Other Contributions to BOEM's Environmental Studies Program.[29] As an alternative to conducting long-term PAM in the Lease Area, the Lessee may make a financial contribution to BOEM's Environmental Studies Partnership for an Offshore Wind Energy Regional Observation Network (POWERON) initiative on an annual basis and cooperate with the POWERON team to allow the team's access to the Lease Area for deployment, regular servicing, and retrieval of instruments. In the event the Lessee selects this Option, BOEM and the Lessee will enter into a separate agreement. The Lessee's financial contribution must provide for all activities necessary to conduct PAM within and adjacent to the Lease Area, such as vessel and staff time for regular servicing of instruments, QA/QC on data, data processing to obtain vocalizations of sound-producing species and ambient noise metrics, as well as long-term archiving of data at NCEI. At the Lessee's request, BOEM will provide an estimate of the necessary amount of the financial contribution. BOEM will also invite the Lessee to contribute to discussions about the scientific approach of the POWERON initiative via the RWSC. The Lessee may request temporary withholding of the public release (i.e., the placement into the NCEI public data archive) of raw acoustic data collected within the Lease Area for up to 180 days after collection of that data. During this temporary hold, BOEM may elect to provide the Lessee may with a copy of the raw PAM data collected under this option after the DON has cleared the data for national security concerns.

5.12 WTG, OSS, and Met Tower Foundation Installation Conditions. Monopiles must be no larger than 15 m in diameter. For all monopiles, 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 4,400 kilojoules. Pin piles must be no larger than 5 m in diameter. Hammer energies must not exceed 2,500 kJ for pin pile installation.

5.12.1 The Lessee must submit all required documents related to WTG, OSS, and met tower foundation installation conditions in Sections 5.12.2 through 5.12.3 to BOEM, BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov, and NMFS GARFO-PRD.

5.12.2 Seasonal and Daily Restrictions. No foundation impact pile driving activities are allowed to occur January 1 through April 30. No more than three foundation monopiles and four pin piles are allowed to be installed per day, and continuous pile-driving for 24 hours per day will not be permitted. Additionally, mandatory quiet periods of at least 4 hours (per 24 hour-period) are required. 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

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

the clearance and shutdown zones. The lead PSO must determine when sufficient light exists to allow effective visual monitoring in all cardinal directions. If light is insufficient, the lead PSO must call for a delay until the visual clearance zone is visible in all directions or must implement the Reduced Visibility Monitoring Plan/Nighttime Pile Driving Monitoring Plan (see Section 5.6.1).

5.12.3 Use of PSOs and PAM Operators for Pile-Driving. Consistent with the requirements in the MMPA LOA and December 18, 2023, NMFS BiOp, the Lessee must use NMFS-approved PSOs and PAM operators to monitor the identified clearance and shutdown zones (see Section 5.11) before, during, and after all foundation installation activities. At minimum, nine visual PSOs must be actively observing for marine mammals and sea turtles before, during, and after pile driving. At least three visual PSOs must be stationed on the pile driving vessel and at least three visual PSOs must be stationed on each of the two secondary, PSO-dedicated vessels. The dedicated PSO vessels must be positioned in locations that maximize ability to monitor the full extent of the minimum visibility, clearance, and shutdown zones. The Lessee must adjust this distance as required based upon SFV results. 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 (per the final MMPA ITA). These PSOs must maintain watch at all times when impact pile driving 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.

5.12.3.1 The Lessee must ensure that PSO coverage is sufficient to reliably detect marine mammals and sea turtles at the surface in the identified clearance and shutdown zones (Section 5.11) 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 marine mammals 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 for Pile Driving (Section 5.6.1). Determinations during construction must be based on review of the weekly reports and other information, as appropriate.

5.12.3.2 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 m that a clearance or shutdown zone is expanded beyond the initial clearance and shutdown zones (Table 5.11-1; Section 5.11). In the event that the clearance or shutdown zone for protected species needs to be expanded, the Lessee must submit a

proposed monitoring plan for the expanded zones to BOEM and BSEE, who will coordinate with NMFS-OPR and NMFS-GARFO-PRD prior to granting approval. Expansion of the zones will be reconsidered after additional sound attenuation measures are in place that reduce distances to at or below those modeled assuming 10 dB, as verified by SFV.

5.13 Project Design Criteria and Best Management Practices for Protected Species. The Lessee must comply with all applicable Project Design Criteria and Best Management Practices for Protected Species at https://media.fisheries.noaa.gov/2021-12/OSW-surveys-NLAA-programmatic-rev-1-2021-09-30-508-.pdf that implement the integrated requirements for threatened and endangered species in the June 29, 2021, programmatic consultation under the ESA. Survey Plans must be submitted to BOEM and BSEE (via TIMSWeb with a notification email at protectedspecies@bsee.gov) for review and concurrence at least 90 days prior to the planned start of geophysical and geotechnical surveys. If HRG surveys are necessary during periods of low visibility (e.g., darkness, rain, fog, etc.), an Alternative Monitoring Plan (AMP) must be submitted to BOEM and BSEE detailing the monitoring methodology that will be used during nighttime and low-visibility conditions and an explanation of how it will be effective at ensuring that the shutdown zone(s) can be maintained during nighttime and low-visibility survey operations. The AMP must be submitted 60 days before survey operations are set to begin.

5.14 Reporting for Protected Species. The Lessee must implement the reporting requirements necessary to document the amount of and extent of authorized incidental take exempted through the NMFS BiOp under the ESA consistent with RPM 3 and according to Terms and Conditions 4 and 5 of the December 18, 2023, NMFS BiOp, and any reporting requirements included as specified in the final ITA under the MMPA, and as specified in the following conditions. Unless otherwise specified, all reports must be submitted to NMFS GARFO-PRD, NMFS-OPR, and BSEE (see Section 5.7.1 above).

5.14.1 The Lessee must report to BOEM and BSEE within 24 hours of confirmation any incidental take of an endangered or threatened species.

5.14.2 The Lessee must report all NARW sightings.

5.14.2.1 If a NARW is observed at any time by PSOs or Project personnel on or in the vicinity of any project vessel, or during vessel transit, the Lessee must immediately report sighting information to the NMFS North Atlantic Right Whale Sighting Advisory System (866) 755-6622, through the WhaleAlert app (https://www.whalealert.org/), and to the USCG via channel 16, as soon as feasible but no later than 24 hours after the sighting. The sighting report must include the time in UTC (HH:MM), date (YYYY-MM-DD), and location (latitude/longitude in decimal degrees; coordinate system used) of the sighting, number of whales, animal description/certainty of sighting (provide photos/video if taken), Lease Area/Project Name, PSO/personnel name, PSO provider company (if applicable), and reporter's contact info.

5.14.2.1.1 If in the Greater Atlantic Region (ME to VA/NC border) call (866-755-6622).

5.14.2.1.2 If in the Southeast Region (NC to FL) call (877-WHALE-HELP or 877-942-5343).

5.14.2.1.3 If calling the hotline is not possible, reports can also be made to the U.S. Coast Guard via channel 16 or through the WhaleAlert app (http://www.whalealert.org/).

5.14.2.2 If a North Atlantic right whale is detected via PAM, the date, time, location (i.e., latitude and longitude of recorder) of the detection as well as the recording platform that had the detection must be reported to nmfs.pacmdata@noaa.gov as soon as feasible, but no longer than 24 hours after the detection. The Lessee must submit full detection data and metadata monthly on the 15th of every month for the previous month via the webform on the NMFS North Atlantic Right Whale Passive Acoustic Reporting System website at https://www.fisheries.noaa.gov/resource/document/passive-acoustic-reporting-system-templates.

5.14.2.3 The Lessee must send a summary report within 24 hours to NMFS GARFO-PRD and NMFS-OPR with the information submitted to the hotline/template and confirmation the sighting/detection was reported to the respective hotline, the vessel/platform from which the sighting/detection was made, activity the vessel/platform was engaged in at time of sighting/detection, Project construction and/or survey activity ongoing at time of sighting/detection (e.g., pile driving, cable installation, HRG survey), distance from vessel/platform to animal at time of initial sighting/detection, closest point of approach of whale to vessel/platform, vessel speed, and any mitigation actions taken in response to the sighting.

5.14.3 Reporting of ESA Listed Species within Shutdown Zone During Active Pile-Driving. The Lessee must report any threatened or endangered species that is observed within the identified shutdown zone during active pile driving (vibratory or impact). The Lessee must file a report with BOEM, BSEE, and NMFS GARFO-PRD within 48 hours of the incident and include the following: description of the activity (i.e., vibratory or impact pile driving) and duration of pile driving prior to the detection of the animal(s), location of PSOs and any factors that impaired visibility or detection ability, time of first and last detection of the animal(s), distance of animal at first detection, closest point of approach of animal to pile, behavioral observations of the animal(s), time the PSO called for shutdown, hammer log (number of strikes, hammer energy), time the pile driving began and stopped, and any measures implemented (e.g., reduced hammer energy) prior to shutdown. 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).

5.14.4 Detected or Impacted Protected Species Reporting. The Lessee must report within 48 hours all observations or collections of injured or dead whales, sea turtles, or sturgeon to BSEE, NMFS-OPR, and NMFS GARFO-PRD, including observations and interactions during the fisheries surveys. 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 or sturgeon, or sea turtle or sturgeon parts, to BOEM, BSEE, NMFS GARFO-PRD, and to appropriate NOAA stranding hotline (for marine mammals between Maine-Virginia, report to 866-755-6622, and from North Carolina-Florida to 877-942-5343 and for sea turtles from Maine-Virginia, report to 866-755-6622, and from North Caroline-Florida to 844-732-8785) as soon as feasible. The Lessee must include in the report the following information: (1) time, date, and location (latitude/longitude in decimal degrees) of the incident; (2) species identification (if known) or description of the animal(s) involved; (3) vessel's speed during and leading up to the incident; (4) vessel's course and heading, and what operations were being conducted (if applicable); (5) status of all sound sources in use; (6) description of avoidance measures and requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike; (7) environmental conditions (e.g., wind speed and direction, Beaufort scale, cloud cover, visibility) immediately preceding the strike; (8) estimated size and length of animal that was struck; (9) description of the behavior of the animal immediately preceding and following the strike; (10) 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 (11) photographs or video footage of the animal(s), to the extent practicable.

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-OPR, and NMFS-GARFO-PRD, and the appropriate hotline (options above), as soon as feasible, but no later than 24 hours from the sighting. The Lessee must include in the report the following information: (1) time, date, and location (latitude/longitude in decimal degrees) of the first discovery (and updated location information if known and applicable); (2) species identification (if known) or description of the animal(s) involved; (3) condition of the animal(s) (including carcass condition if the animal is

dead); (4) observed behaviors of the animal(s), if alive; (5) photographs or video footage of the animal(s), if available; and (6) 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.

5.14.5 Detected or Impacted Dead Non-ESA-Listed Fish. The Lessee must report any occurrence of at least 10 dead non-ESA-listed fish within established shutdown or monitoring zones to BOEM via email at renewable_reporting@boem.gov and to BSEE via email to protectedspecies@bsee.gov 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-HESD. In the email the Lessee must confirm the relevant point of contact for questions regarding the report and confirm with BOEM and BSEE that the report was received.

5.14.6 SFV Reports. The Lessee must submit all SFV reports to BOEM, BSEE via TIMSWeb with a notification email sent to BSEE at protectedspecies@bsee.gov, NMFS GARFO-PRD, and NMFS-OPR.

5.14.6.1 SFV Interim Reports for Pile Driving. The Lessee must provide, as soon as they are available but no later than 48 hours after the installation of each of the first three monopiles and all piles driven for each of three jacket foundations the initial results of the SFV measurements in an interim report. If technical or other issues prevent submission within 48 hours, the Lessee must notify NMFS-OPR and NMFS-GARFO-PRD within that 48-hour period with the reasons for delay and provide an anticipated schedule for submission of the report. This report is required for each of the first three monopiles and all piles driven for each of three jacket foundations installed and any additional piles for which SFV is required. The interim report must include data from hydrophones identified for interim reporting in the SFV Plan and include a summary of pile installation activities (pile diameter, pile weight, pile length, water depth, sediment type, hammer type, total strikes, total installation time [start time, end time], duration of pile driving, max single strike energy, NAS deployments), pile location, recorder locations, modeled and measured distances to thresholds, received levels (rms, peak, and SEL) results from Conductivity, Temperature, and Depth (CTD) casts/sound velocity profiles, signal and kurtosis rise times, pile driving plots, activity logs, and weather conditions. If additional SFV is required after the first 3 monopiles are installed (see Section 5.4.5) the Lessee must submit additional SFV interim reports to BOEM, BSEE, and NMFS GARFO for the next three monopiles and for the next three jacket foundations where all pin piles for a given foundation have been installed. If the measured sound fields continue to exceed the modeled results, the Lessee must submit additional SFV interim reports.

5.14.6.2 SFV Final Reports. The Lessee must submit the final results of SFV for monopile and pile driven jacket foundation installations as soon as possible, but no later than 90 days following completion of pile driving of the three or more monopiles for which SFV was carried out.

5.14.7 Weekly Reports. The Lessee must compile and submit weekly reports during construction that document pile driving and HRG survey activities, including associated PSO, SFV, and noise abatement activities. These weekly reports must include the information required by the December 18, 2023, NMFS BiOp Terms and Conditions 2 and 9e and be submitted to NMFS-OPR, NFMS GARFO-PRD, BOEM, and BSEE (protectedspecies@bsee.gov). The Lessee may submit the reports directly from the PSO providers and the reports may consist of raw data. The Lessee must submit weekly reports no later than Wednesday for the previous week (Sunday – Saturday). Weekly reports must include:

5.14.7.1 Summaries of pile driving activities and piles installed, including pile ID, type of pile, pile diameter, start and finish time of each pile driving event, hammer log (number of strikes, max hammer energy, duration of piling) per pile, any changes to noise attenuation systems and/or hammer schedule, details on the deployment of PSOs and PAM Operators, including the start and stop time of associated observation periods by the PSOs and PAM Operators, and a record of all observations/detections of marine mammals and sea turtles as detailed in Section 5.14.8.1 below;

5.14.7.2 A summary of SFV, including the results of abbreviated SFV monitoring conducted. and NAS implemented during pile driving;

5.14.7.3 Which turbines become operational and when (a map must be provided);

5.14.7.4 Summaries of HRG survey activities;

5.14.7.5 Vessel operations (including port departures and destinations, number of vessels, type of vessel(s), and route);

5.14.7.6 All protected species detections. This includes: species identification, number of animals, time at initial detection, time at final detection, distance to pile/vessel at initial detection, closest point of approach to pile/vessel, and animal direction of travel relative to pile/vessel; description of animal behavior, features used to identify species, and for moving vessels: speed (knots), distance and bearing to animal at initial detection, closest point of approach and bearing to animal, distance and bearing to animal at final detection, and animal direction of travel relative to vessel. Sightings/detections during pile driving activities (clearance, active pile driving, post-pile driving) and all other (transit, opportunistic, etc.) sightings/detection must be reported and identified as such; and

5.14.7.7 Vessel strike avoidance measures taken.

5.14.8 Monthly Reports. Starting the first month that in-water activities occur on the OCS, the Lessee must compile and submit monthly reports that include a summary of all Project activities carried out in the previous month, including dates and locations of any fisheries surveys, vessel transits (number of transits, name and type of vessel, ports used, and route inclusive of foreign and domestic ports), piles installed (number and ID), HRG surveys conducted, and all observations of ESA-listed whales, sea turtles, and sturgeon inclusive of any mitigation measures taken as a result of those observations. Sightings/detections must include species ID, time, date, initial detection distance, vessel/platform name, vessel activity, vessel speed, bearing to animal, Project activity, and if any, mitigation measures taken. These reports must include the information identified in the December 18, 2023, NMFS BiOp Terms and Conditions 3a and 5f, and the Lessee must submit the reports to BOEM, BSEE, and NMFS-OPR, and NMFS-GARFO-PRD no later than the 15th of the month for the previous month.

5.14.8.1 Reporting Instructions for Monthly 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 Microsoft 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.

5.14.8.2 The PSO must 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. The PSO must review and revise all forms for completeness and resolve incomplete data fields before submittal. The file name must follow this format: Lease#_ ProjectName_PSOData_YearMonthDay toYearMonthDay.xls. Data fields must be reported in Excel format. Data categories must include Project, Operations, Monitoring Effort, and Detection, as further specified below. The Lessee must generate all PSO data through software applications or otherwise recorded electronically by PSOs and provide it to BOEM and BSEE in electronic format (CSV files or similar format) to be checked for quality assurance and quality control. Applications developed to record PSO data are encouraged if 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, infrared cameras)
- Distance finding method used
- PSO names (Last, First) and training
- Observation height above sea surface

Operations Information:

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

Monitoring Effort Information:

- Date (YYYY-MM-DD)
- Noise source (ON=Hammer On; OFF=Hammer Off)
- PSO name(s) (Last, First)
- If visual, how many PSOs on watch at one time?
- Time pre-clearance visual monitoring began in UTC (HH:MM)
- Time pre-clearance monitoring ended in UTC (HH:MM)
- Time pre-clearance PAM monitoring began in UTC (HH:MM)
- Time PAM monitoring ended in UTC (HH:MM)
- Duration of pre-clearance PAM and visual monitoring
- Time power-up or ramp-up began
- Time equipment full power was reached
- Duration of power-up or 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 (m)
- Water depth (m)
- 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 must 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 (m)
- Water depth (m)
- 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
- Percent certainty of identification
- Number of adults
- Number of juveniles

- Total number of animals
- Bearing to animals when first detected (ship heading + clock face)
- Bearing to animals at closest approach (ship heading+ clock face)
- Bearing to animal at final detection (ship heading+ clock face)
- Range from vessel and pile (reticle distance in meters)
- Description (include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow, etc.)
- Detection narrative (note behavior, especially changes in relation to activity and distance from service vessel)
- Direction of animal travel in first approach relative to vessel and pile
- Behaviors observed: indicate behaviors and behavioral changes observed in sequential order (use behavioral codes)
- If any bow-riding behavior observed, record total duration during detection (UTC HH:MM)
- Initial heading of animals (degrees)
- Final heading of animals (degrees)
- Shutdown zone size during detection (m)
- Was the animal inside the shutdown zone?
- Closest distance to vessel and pile (reticle distance in m)
- Time at closest approach to vessel and pile (UTC HH:MM)
- Time animal entered shutdown zone (UTC HH:MM)
- Time animal left shutdown zone (UTC HH:MM)
- If observed or detected during ramp-up or power-up: first distance (reticle distance in m), closest distance (reticle distance in m), last distance (reticle distance in m), 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

5.14.9 Annual Reports. Beginning one calendar year after the commissioning of the first WTG, 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, ports used, and route), repair and maintenance activities, survey activity, and all observations of ESA-listed species. The Lessee must submit the annual reports to BOEM, BSEE, NMFS-OPR, and NMFS GARFO-PRD. The Lessee must submit these reports by April 1 of each year for the previous calendar year (i.e., the 2026 report is due by April 1, 2027). BOEM and BSEE (in consultation with NMFS) may approve changes to the frequency and timing of reports.

5.15 Other Protected Species Conditions. On December 18, 2023, NMFS issued a BiOp, including an ITS for the Project. The ITS includes RPMs and terms and conditions that

NMFS determined were necessary and appropriate to minimize and monitor the amount or extent of incidental take of species listed as endangered or threatened under the ESA and under NMFS jurisdiction. For the ESA Section 7 take exemptions to apply, the Lessee must execute the proposed action in compliance with all avoidance and minimization measures described in the NMFS BiOp and comply with all conditions in Appendix A as well as the RPMs and implementing terms and conditions included in the NMFS BiOp's ITS. Those RPMs and terms and conditions are incorporated by reference in this document. This includes all measures specified in the NMFS BiOp including measures from the final MMPA ITA to minimize effects of foundation installation, and other activities on marine mammals.

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

6.1 Fisheries Compensation and Mitigation Funds. No later than 120 days prior to offshore construction activities, the Lessee must establish and implement a direct compensation program to provide monetary compensation to commercial and for-hire fishermen and shoreside support services impacted by the Project and funded in accordance with Section 6.1.1 and 6.1.2 below. Calculation steps are shown in Section 6.1.3 below.

6.1.1 Direct Compensation Program. The Lessee must ensure that the Direct Compensation Fund (hereinafter sometimes referred to as "Fund") includes an amount sufficient to be used to pay claims brought by both commercial and for-hire fishermen and shoreside support services and must be based, at a minimum, on the annual average commercial fisheries landings values stated in Tables 3.6.1-17 and 3.6.1-32 of the Atlantic Shores South final EIS and the monetary impacts identified in the Shoreside Support Services Report described in Section 6.1.2. The Fund amount must be determined by the formula set out in Section 6.1.3.

6.1.1.1 In the Fund, the Lessee must reserve the amount of, at a minimum, 100 percent of annual revenue exposure during the post-COP approval pre-construction and construction period and (pending BSEE's approval of the Lessee's decommissioning application) projected decommissioning period. The Lessee must reserve 100 percent of annual revenue exposure for the first year after construction, 80 percent of revenue exposure 2 years after construction, 70 percent of revenue exposure 3 years after construction, 60 percent after 4 years, and 50 percent for the 5th year post-construction. DOI will evaluate effectiveness of the mitigation consistent with the Annual Certification under 30 C.F.R. § 285.633(a).

6.1.1.2 The compensation calculations described above must be normalized using the latest annual gross domestic product (GDP) Implicit Price Deflator

(U.S. Bureau of Economic Analysis,[30] Table 1.1.9. Implicit Price Deflators for Gross Domestic Product) to the year construction begins and thereafter for the 5-years post-construction. The reserve amounts for mitigation during decommissioning must also be normalized.

6.1.2 Shoreside Support Services. At least 90 days prior to establishment of the Direct Compensation Program described in Section 6.1.1, the Lessee must submit to BOEM a Shoreside Support Services report for a 60-day review and approval. The report must include a description of the structure of the Direct Compensation Fund and identification of the revenue exposure and an analysis of the impacts of the Project to shoreside support services (such as seafood processing and vessel repair services) within communities near the ports listed below.

- Atlantic City, NJ
- Cape May, NJ
- Newport News, VA
- New Bedford, MA
- Barnegat, NJ
- Hampton, VA
- Beaufort, NC
- Point Pleasant, NJ
- North Kingstown, RI
- Davisville, RI
- Ocean City, MD
- Point Judith, RI
- Sea Isle City, NJ
- Wanchese, NC
- Long Beach, NJ
- Wildwood, NJ
- Chincoteague, VA
- Oriental, NC
- Montauk, NY
- Shinnecock, NY
- Barnegat Light, NJ
- Hobucken, NC
- Belford, NJ

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

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

As described in Section 6.1.1, the Lessee must ensure the reserve amount allows for, at a minimum, 100 percent of annual revenue exposure during the projected post-COP approval pre-construction and construction years and, pending BSEE approval of the 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 final EIS Tables 3.6.1-17 (page 3-521) and 3.6.1-32 (page 3-536), respectively, of the Project final EIS. If the Lessee opts to construct the Project using a phased approach, the Lessee may phase the fund to reflect the phased construction, as long as the appropriate amount of funding for each phase is available at the time of construction of that phase.

Before rolling forward any unclaimed funds, the total fund reserve requirements for Construction, Decommissioning, and Operating Years 1–5[31] (as shown in Table 6.1.3-2) is calculated using the following formula:

$$\boldsymbol{k}\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)(\mathbf{1}+\mathbf{M}) + \boldsymbol{j}\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)(\mathbf{1}+\mathbf{M}) + \left(\$2{,}806{,}488 \times \frac{\boldsymbol{n_i}}{117.973} + \$75{,}600 \times \frac{\boldsymbol{n_i}}{104.008}\right)(\mathbf{1}+\mathbf{M}).$$

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

Table 6.1.3-1. Calculation Subcomponents for Construction and Decommissioning

Project Status	Base Annual Average Fishing Revenue Exposed to the Wind Farm Area[1]	Shoreside Support Services Multiplier[2]	Exposure Ratio	Adjusted Base Annual Average Fishing Revenue Exposed to the Wind Farm Area	Reserve Requirements
Construction	$\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	1	$\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	$\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)(1 + \mathrm{M})$
Decommissioning[3]	$\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	1	$\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	$\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)(1 + \mathrm{M})$

Notes:

[1] Inflation-adjusted revenues are derived from Tables 3.6.1-17 and 3.6.1-32 of the Atlantic Shores South final EIS. The inflation-adjusted base equation is:

$$\textit{Annual Average Commercial Fishing Revenues} \times \frac{\boldsymbol{n_i}}{117.973} + \textit{Annual Average Recreational Fishing Revenues} \times$$

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

[3] Decommissioning funds may be required pending BSEE's approval of Lessee's decommissioning application. If Construction is expected to last *k* years and Decommissioning *j* years, the Lessee must calculate the reserve requirements as follows:

$$\boldsymbol{k}\left(\$\mathbf{779{,}580} \times \frac{\boldsymbol{n_i}}{\mathbf{117.973}} + \$\mathbf{21{,}000} \times \frac{\boldsymbol{n_i}}{\mathbf{104.008}}\right)(\mathbf{1} + \boldsymbol{M}) + \boldsymbol{j}\left(\$\mathbf{779{,}580} \times \frac{\boldsymbol{n_i}}{\mathbf{117.973}} + \$\mathbf{21{,}000} \times \frac{\boldsymbol{n_i}}{\mathbf{104.008}}\right)(\mathbf{1} + \boldsymbol{M}).$$

Table 6.1.3-2. Calculation Subcomponents by Operating Year

Project Status	Base Annual Average Fishing Revenue Exposed to the Wind Farm Area[1]	Exposure Ratio	Adjusted Base Annual Average Fishing Revenue Exposed to the Wind Farm Area	Shoreside Support Services Multiplier[2]	Reserve Requirements
Operating Year 1	$\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	1	$\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	$\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)(1 + \mathrm{M})$
Operating Year 2	$\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	0.8	$\left(\$623{,}664 \times \frac{\boldsymbol{n_i}}{117.973} + \$16{,}800 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	$\left(\$623{,}664 \times \frac{\boldsymbol{n_i}}{117.973} + \$16{,}800 \times \frac{\boldsymbol{n_i}}{104.008}\right)(1 + \mathrm{M})$
Operating Year 3	$\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	0.7	$\left(\$545{,}706 \times \frac{\boldsymbol{n_i}}{117.973} + \$14{,}700 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	$\left(\$545{,}706 \times \frac{\boldsymbol{n_i}}{117.973} + \$14{,}700 \times \frac{\boldsymbol{n_i}}{104.008}\right)(1 + \mathrm{M})$
Operating Year 4	$\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	0.6	$\left(\$467{,}748 \times \frac{\boldsymbol{n_i}}{117.973} + \$12{,}600 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	$\left(\$467{,}748 \times \frac{\boldsymbol{n_i}}{117.973} + \$12{,}600 \times \frac{\boldsymbol{n_i}}{104.008}\right)(1 + \mathrm{M})$
Operating Year 5	$\left(\$779{,}580 \times \frac{\boldsymbol{n_i}}{117.973} + \$21{,}000 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	0.5	$\left(\$389{,}790 \times \frac{\boldsymbol{n_i}}{117.973} + \$10{,}500 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	M	$\left(\$389{,}790 \times \frac{\boldsymbol{n_i}}{117.973} + \$10{,}500 \times \frac{\boldsymbol{n_i}}{104.008}\right)(1 + \mathrm{M})$
Operating Total[3]	-	-	$\left(\$2{,}806{,}488 \times \frac{\boldsymbol{n_i}}{117.973} + \$75{,}600 \times \frac{\boldsymbol{n_i}}{104.008}\right)$	-	$\left(\$2{,}806{,}488 \times \frac{\boldsymbol{n_i}}{117.973} + \$75{,}600 \times \frac{\boldsymbol{n_i}}{104.008}\right)(1 + M)$

Notes:

[1] Inflation-adjusted revenues are derived from Tables 3.6.1-17 and 3.6.1-32 of the Atlantic Shores South final EIS. The inflation-adjusted base equation is:

$$Annual\ Average\ Commercial\ Fishing\ Revenues \times \frac{\boldsymbol{n_i}}{117.973} + Annual\ Average\ Recreational\ Fishing\ Revenues \times \frac{\boldsymbol{n_i}}{104.008}.$$

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

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

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

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

6.2 Fisheries Gear Loss Compensation. The Lessee must maintain throughout the life of the Project, a fisheries gear loss claims procedure as described in in Appendix II-R of the COP, Fisheries Communication Plan. 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. There are 14 NMFS scientific surveys that overlap with wind energy development in the northeast region. Eleven 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,*[32] within one year plus 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 11 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

[32] 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.

activities, actions, and procedures described in Sections 6.3.1 and 6.3.2 below, within one year plus 180 days of COP approval. BOEM will review the survey mitigation plan in consultation with NMFS Northeast Fisheries Science Center (NEFSC). The Lessee must resolve comments to BOEM's satisfaction and must conduct activities in accordance with the plan.

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

6.3.2 The survey mitigation agreement must identify activities that will result in the generation of data equivalent to data generated by NMFS' affected surveys for the duration of the Project. The survey mitigation agreement must describe the implementation procedures by which the Lessee will work with NEFSC to generate, share, and manage the data required by NEFSC for each of the surveys impacted by the Project, as mutually agreed upon between the Lessee and NMFS/NEFSC. The survey mitigation agreement must also describe the Lessee's participation in the NMFS NEFSC Northeast Survey Mitigation Program to support activities that address regional-level impacts for the surveys listed above.

7 VISUAL AND CULTURAL RESOURCES CONDITIONS

7.1 Section 106 MOA Conditions.

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

7.1.2 Avoidance of Known and Potential Shipwrecks, Debris Fields, and Ancient Submerged Landform Features (ASLFs). The Lessee must avoid known and potential shipwrecks and potentially significant debris fields, and ASLFs as

described below. The Lessee must identify avoidance requirements on proposed anchoring plats, as-placed plats, and drawings associated with seabed disturbances (e.g., relevant FDR/FIR documents for export cables, inter-array cables, WTGs, 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 consultation with consulting parties under Section 106 of the NHPA and additional measures to resolve adverse effects. If any vessel conducting work on behalf of the Lessee or any other activity associated with planning, construction, operation, or decommissioning disturbs the seabed within the avoidance areas noted below, the Lessee must submit an incident report to BOEM and BSEE within 24 hours.

7.1.2.1 Avoidance of Marine Archaeological Resources. The Lessee must comply with protective buffers recommended by the Qualified Marine Archaeologist (QMA) for all 22 identified marine archaeological resources such that protective buffers are provided for:

7.1.2.1.1 Twenty-two (22) marine archaeological resources (i.e., Targets 01–21 and 232) measuring a distance of no less than 164 feet (50 meters) from the outer edge of magnetic anomalies or acoustic contacts for each of the resources;

7.1.2.2 Avoidance of ASLFs. The Lessee must avoid 21 ASLFs (ASLFs 41, 205, 207, 212–226, and 229–231) to the defined spatial extent of each ASLF. No additional avoidance buffer is required for these ASLFs given 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.

7.1.3 To demonstrate avoidance of marine archaeological resources and historic properties, the Lessee will provide as-placed and as-laid maps with both the horizontal and vertical extent of all seafloor impacts. These seafloor impacts may include anchoring activities (location of all anchors, anchor chains, cables, and wire ropes on the seafloor, including sweep but excluding the vertical extent of anchor penetration of the seafloor), cable installation (including trenching depths and seafloor footprint of the installation vessel), and WTG installation (anchoring and spudding/jack-up vessel placement). The as-built or as-laid position plats must be submitted at a scale of 1-in. = 1,000-ft., with Differential Global Positioning System (DGPS) accuracy demonstrating that these seafloor disturbing activities complied with the avoidance criteria applied to the archaeological sites or historic properties established in the Section 106 MOA. These documents and maps must be submitted to BOEM no later than 90 days after completion of the seafloor disturbing/construction activities.

7.1.4 Implementation of Mitigation Measures to Resolve Adverse Effects to ASLFs. The Lessee must implement mitigation measures to resolve adverse effects to 38 ASLFs (i.e., ASLFs 22–40, 42–46, 48, 50–52, 54, 57, 204, 206, 208–211, 227, and 228) as identified in the MARA (COP, Volume II, Appendix II-Q) that are located in the Area of Potential Effects (APE) and cannot be avoided. The Lessee must coordinate with Tribal Nations to provide them an opportunity to participate as monitors during the implementation of the mitigation measures and provide compensation for participation in the implementation of the measures. The Lessee must execute all aspects of the Section 106 MOA to resolve adverse effects to 38 ASLFs (Stipulation III.B; Attachment 6, Mitigation Funding Amounts; and Attachment 7, Historic Property Treatment Plan for Ancient Submerged Landform Features).

7.1.5 Implementation of Minimization Measures in the Terrestrial Area of Potential Effects. The Lessee must conduct archaeological monitoring during onshore construction in areas identified as having high or moderate archaeological sensitivity (including "medium-high" or "medium" archaeological sensitivity as described in the Section MOA Attachment 3: Cultural Resources Avoidance, Minimization, and Mitigation Plan, and including undisturbed, paved areas within 1,000 feet of a previously identified archaeological site, consistent with the protocol described in the Terrestrial Archaeology Monitoring and Post-Review Discovery Plan (Section 106 MOA Attachment 5)). If archaeological resources or human remains are identified during construction, operations, or decommissioning of the Project, the onsite construction supervisor must stop work immediately and follow the protocols outlined in the Terrestrial Archaeology Monitoring and Post-Review Discovery Plan. The Lessee must coordinate with Tribal Nations to provide them an opportunity to participate as monitors during onshore ground disturbing activities in areas identified for monitoring and provide reasonable compensation for participation in the implementation of the monitoring. The Lessee must execute all aspects of the Section 106 MOA (Stipulation III.B and Attachment 5, Terrestrial Archaeology Monitoring and Post-Review Discovery Plan).

7.1.6 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. The Lessee must color the WTGs an off white/grey color (no lighter than RAL 9010 Pure White and no darker than RAL 7035 Light Grey) prior to installation. The Lessee must confirm the planned paint color as part of the FDR and confirm the WTG was painted consistent with this condition as part of the final FIR.

7.1.7 Implementation of Minimization Measures in the Visual Area of Potential Effects. The Lessee must use uniform WTG design, height, and rotor diameter to reduce visual contrast and decrease visual clutter.

7.1.8 Lighting and Marking of Structures. The Lessee must use ADLS or related means (e.g., dimming or shielding) to limit visual impact, pursuant to approval by the FAA and BOEM and commercial and technical feasibility at the time of FDR/FIR approval. The WTGs, meteorological towers, and OSS must be lit and marked in

accordance with FAA and USCG lighting standards and will be consistent with BOEM's Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development (April 28, 2021) to reduce light intrusion.

7.1.9 Implementation of Mitigation Measures to Resolve Visual Adverse Effects to Historic Properties. The Lessee must fund and implement mitigation measures consistent with the Section 106 MOA, Stipulation III.C to resolve visual adverse effects to 29 historic properties. The Lessee must execute all aspects of Stipulation III.C of the Section 106 MOA; Attachment 6, Mitigation Funding Amounts; Attachment 8, Historic Property Treatment Plan for Atlantic City Convention Hall (Jim Whelan Boardwalk Hall); Attachment 9, Historic Property Treatment Plan for Lucy the Margate Elephant; Attachment 10, Historic Property Treatment Plan for Barnegat Lighthouse, Forked River Coast Guard Station No. 112, Island Beach State Park Historic District, and Absecon Lighthouse; Attachment 11, Historic Property Treatment Plan for Atlantic City Boardwalk Historic District; Attachment 12, Historic Property Treatment Plan for Great Egg Coast Guard Station; Attachment 13, Historic Property Treatment Plan for Missouri Avenue Beach (Chicken Bone Beach); and Attachment 14, Historic Property Treatment Plan for Saint Leonard's Tract Historic District. The 29 adversely affected historic properties in the visual APE in New Jersey are:

In Atlantic County:

- Atlantic City:
  - Absecon Lighthouse;
  - Atlantic City Boardwalk Historic District;
  - Atlantic City Convention Hall (Jim Whelan Boardwalk Hall; NHL);
  - Central Pier;
  - Haddon Hall (Resorts Casino Hotel);
  - Missouri Avenue Beach (Chicken Bone Beach);
  - Ritz Carlton Hotel;
  - Riviera Apartments;
  - U.S. Coast Guard Station;
  - 120 Atlantic Avenue;
- Brigantine City:
  - Brigantine Hotel;
- Galloway Township:
  - Seaview Golf Club, Clarence Geist Pavilion;
- Longport Borough:
  - Great Egg Coast Guard Station;
- Margate City:
  - Lucy, The Margate Elephant (NHL);
  - Margate Fishing Pier;
  - 108 South Gladstone Avenue;
  - 114 South Osborne Avenue;
- Ventnor City:
  - John Stafford Historic District;
  - Saint Leonard's Tract Historic District;

- Vassar Square Condominiums;
- Ventnor City Fishing Pier;
- 114 South Harvard Avenue.

In Cape May County:

- Ocean City:
  - The Flanders Hotel;
  - Music Pier;
  - Ocean City Boardwalk;

In Ocean County:

- Barnegat Light:
  - Barnegat Lighthouse;
- Berkeley Township:
  - Forked River Coast Guard Station No. 112;
  - Island Beach State Park Historic District;
- Little Egg Harbor:
  - Little Egg Harbor U.S. Life Saving Station #23.

7.1.10 Annual Monitoring and Reporting on the Section 106 MOA. 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, minimization, and mitigation measures (Section 106 MOA Stipulations I, II, and III) were implemented; any scheduling changes proposed; any project modifications; any changes to the attachments of the MOA; any amendments to the MOA; 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 may satisfy this reporting requirement by providing the relevant portions of the Annual Certification required under 30 C.F.R. § 285.633.

7.1.11 Phased Identification. The Lessee must conduct phased identification to identify historic properties, assess effects, and resolve adverse effects within limited areas of the terrestrial APE in New Jersey. The phased identification and evaluation of historic properties will occur after publication of the final EIS and ROD , consistent with the Section 106 MOA, Stipulation IV and Attachment 15, Terrestrial Archaeology Phased Identification Plan. The Lessee must implement phased identification to ensure potential historic properties are identified, effects assessed, and adverse effects are resolved prior to initiation of onshore construction at the locations subject to phased identification as specified in the Section 106 MOA Attachment 15, Terrestrial Archaeology Phased Identification Plan.

7.1.12 Implementation of Post-Review Discovery Plans. If properties are discovered that may be historically significant or unanticipated effects on historic properties are

found, the Lessee must implement the Post-Review Discovery Plans found in Section 106 MOA Attachment 4, Marine Archaeology Monitoring and Post-Review Discovery Plan and Attachment 5, Terrestrial Archaeology Monitoring and Post-Review Discovery Plan.

7.1.13 Post-Review Discoveries. In the event of a post-review discovery of a historic 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:

7.1.13.1 Immediately halt all ground- or seabed-disturbing activities within the area of discovery while considering whether stabilization and further protections are warranted to keep the discovered resource from further degradation and impact.

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

7.1.13.3 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.

7.1.13.4 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, with the assistance of the Lessee, will work with the other relevant signatories and consulting parties to the Section 106 MOA who have a demonstrated interest in the affected historic property on the further avoidance, minimization, or mitigation of adverse effects.

7.1.13.5 If there is any evidence that the discovery appears to contain materials or artifacts associated with 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.

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

7.1.14 Emergency Situations and Section 106 Consultation. 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, the Lessee must notify BOEM and BSEE. BOEM and/or BSEE, with the assistance of the Lessee, will notify the consulting federally recognized Tribal Nations, SHPOs, and the Advisory Council on Historic Preservation (ACHP) of the condition that has initiated the situation and the measures taken to respond to the emergency or hazardous condition consistent with the Section 106 MOA. BOEM and/or BSEE will make this notification as soon as reasonably possible, but no later than 48 hours from when the Bureau(s) becomes aware of the emergency or disaster. Should the consulting federally recognized Tribal Nations, SHPOs, or the ACHP desire to provide technical assistance to BOEM and/or BSEE, they will submit comments within 7 days from notification if the nature of the emergency or hazardous condition allows for such coordination.

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

7.2 Visual Conditions.

7.2.1 Scenic and Visual Impact Monitoring Plan. In coordination with BOEM, the Lessee must prepare and implement a scenic and visual resource monitoring plan that monitors and compares the visual effects of the wind farm during construction and operations and maintenance (daytime and nighttime) to the findings in the COP Visual Impact Assessment and verifies the accuracy of the visual simulations (photo and video). Consistent with the NJDEP-issued federal consistency certification, the monitoring plan must include monitoring and documenting the meteorological influences on actual WTG visibility over an agreed duration of time from selected onshore key observation points, as determined by BOEM and the Lessee. In addition, the Lessee must include monitoring the operation of ADLS in the monitoring plan. The Lessee must monitor the frequency that the ADLS is operative, documenting when (dates and time) the aviation warning lights are in the

on position and the duration of each event. The Lessee must include details for monitoring and reporting procedures in the plan.

7.2.2 Onshore Visual Mitigation. To reduce the visual impacts the Lessee must incorporate the following design measures into the onshore substation/ converter station locations (Lane Pond Road, Brook Road, and Randolph Road sites) near the existing Larrabee substation point of interconnection (POI) located in Howell Township, NJ and the Fire Road Substation/Converter Station near the Cardiff POI in Egg Harbor Township, NJ:

7.2.2.1 Screening. The Lessee must install vegetative screening at the substation and converter station sites to minimize views into the sites from nearby residential, commercial, and industrial districts.

7.2.2.2 Color Treatment. The Lessee must select neutral colors, treatments, or coatings of materials used for buildings, and specular steel structures throughout the Substation/Converter Station to reduce visual contrast. Other elements that require galvanized steel must be dulled during the manufacturing process to minimize glare resulting from these materials.

7.2.2.3 Non-specular electrical conductors. Where applicable and practicable the Lessee must use non-specular conductors and galvanized materials that will use a dulling technique during the manufacturing process.

7.2.2.4 Lighting. The Lessee must design and install lighting at the Substation/Converter Station using sustainable outdoor lighting specifications in accordance with local and state regulations to minimize impact to natural night skies and minimize offsite light trespass in accordance with the National Park Service Sustainable Outdoor Lighting best practices and the BLM's Night Sky and Dark Environments: Best Management Practices for Artificial Light at Night on BLM-Managed Lands (https://www.blm.gov/noc/blm-library/night-sky-and-dark-environments-best-management-practices-artificial-light-night).

7.2.2.5 Maintenance. The Lessee must maintain the Substation/Converter Station components and site to ensure a clean and orderly appearance.

7.2.3 Wind Turbine Generator Height Restriction of Project 1. The WTGs in Project 1 may not exceed a hub height of 522 feet (159 meters) above mean sea level (AMSL) and maximum blade tip height of 932 feet (284 meters) AMSL. The Lessee must submit the final as-built structure dimensions as part of the as-built documentation outlined in Section 2.17.

7.3 Other Conditions.

7.3.1 PAM Placement Review. 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 QMA as to whether any potential

archaeological resources are present in the area. This activity may have already been performed 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 7.1.2 above, the PAM placement activities must avoid potential archaeological resources by a minimum of 50 meters from the outer edge of magnetic anomalies or acoustic contacts for each of the resources, and the avoidance distance must be calculated from the maximum discernible extent of the archaeological resource. As-placed PAM system plats must be submitted to BSEE within 90 days of placement.

7.3.1.1 If PAM placement activities impact potential historic properties, the Lessee must take the actions described in Post-Review Discoveries (Section 7.1.13).

7.3.1.2 If PAM placement activities impact potential historic properties identified in the archaeological surveys without BOEM's prior authorization, the Lessee and the Qualified Marine Archaeologist who prepared the archaeological resources report must provide to BOEM and BSEE a statement documenting the extent of these impacts. This statement must be made to BOEM and BSEE consistent with Stipulation 4.3.7 of Addendum C of the Lease and Section 7.1.3, above. BOEM may require the Lessee to implement additional mitigation measures as appropriate based on a review of the results and supporting information.

8 AIR QUALITY CONDITIONS

8.1 Reporting. The Lessee must submit all monitoring, reporting, and survey requirements related to air quality to BOEM, to BSEE via TIMSWeb with a notification email sent to oswsubmittals@bsee.gov, USFWS at jaron_ming@fws.gov, and the EPA at chan.suilin@epa.gov and petriman.viorica@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. 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; the mechanism for the transfer of any funding from the Lessee to USFWS; and reporting to demonstrate completion of implementation.

8.2.2 The Lessee must submit the framework to BOEM, BSEE, USFWS, and EPA for review at least 30 days prior to publication of the issued OCS Air Permit.

8.3 Sulfur Hexafluoride (SF_6) - Free Switchgear. The Lessee must use switchgear that does not contain SF_6 to the extent practicable based on technical, economic, and supply chain considerations. If the implementation of SF_6 -free technology is infeasible, the Lessee must

submit to BOEM and BSEE, at the time of the FDR/FIR, a detailed, stepwise analysis and consideration of the alternative(s), justifying the infeasibility of the use of SF_6-free switchgear. If BOEM and BSEE do not send comments within 60 business days, the Lessee may presume concurrence.

8.4 Sulfur Hexafluoride (SF_6) Leak Rate Monitoring and Detection. The Lessee must follow International Electrotechnical Commission and requirements in EPA's OCS air permits for SF_6 leak detection and monitoring requirements. The Lessee must also follow manufacturer recommendations for service and repair of the affected breakers and switches and conduct visual inspections of the switchgears and monitoring equipment according to manufacturer recommendations.

8.4.1 The Lessee must use enclosed-pressure SF_6 circuit breakers (or switches) and create alarms based on the pressure readings in the breakers and switches, so leaks can be detected when substantial sulfur hexafluoride leakage occurs. Upon a detectable pressure drop that is greater than 10 percent of the original pressure (accounting for ambient air conditions), the Lessee must implement a plan of action within 30 days of the leakage event detailing the corrective measures required to fix the compliance deficiency if completion of repairs within 30 days or within EPA permit requirements (whichever is earlier) is not possible. If an event requires the removal of SF_6, the affected major component(s) must be replaced with new component(s). An event means when any component of a switchgear is damaged and results in SF_6 leakage.

8.4.2 The Lessee must report to BOEM and BSEE any detectible pressure drop that is greater than 10 percent as soon as practicable and no later than 72 hours after the discovery and provide an estimated timeframe for maintenance or replacement.

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

8.4.4 National Ambient Air Quality Standards and PSD Class I and Class II Air Quality Increments and Air Quality Related Values. The Lessee is required under the Clean Air Act 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 of Air Quality Increments. The Federal Land Manager of the nearby Class I Area also has the affirmative responsibility to ensure that Air Quality Related Values (including visibility) are protected. 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.

9 FEDERALLY RECOGNIZED TRIBAL NATIONS CONDITIONS

9.1 Environmental Data Sharing with Federally Recognized Tribal Nations. No later than 90 days after COP approval, the Lessee must make a request to both the BSEE Tribal Liaison Officer and the Eastern Seaboard Tribal Liaison at the same email address, tribalengagement@bsee.gov, to coordinate with federally recognized Tribal Nations with geographic, cultural, or ancestral ties to the project area (hereinafter "interested Tribal Nation"), including, but not limited to: the Delaware Nation, the Delaware Tribe of Indians, the Eastern Shawnee Tribe of Oklahoma, the Mashantucket (Western) Pequot Tribal Nation, the Mashapee Wampanoag Tribe, the Narragansett Indian Tribe, the Shawnee Tribe, the Shinnecock Indian Nation, the Stockbridge-Munsee Community Band of Mohican Indians, and the Wampanoag Tribe of Gay Head (Aquinnah). The purpose of this coordination is to (1) solicit Tribal Nation interest in participating as an environmental liaison during construction and/or maintenance activities, so the environmental liaison can safely monitor, and participate in postmortem examinations of mortality events, as a result of these activities; and (2) provide open access to the following: reports generated as a result of the Fisheries Research and 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 schedule changes; and any interim and final SFV reports, and its associated data. If an interested Tribal Nation expresses interest in participating as an environmental liaison, the Lessee must provide the interested Tribal Nation information regarding training(s), certification(s), and safety measures, required for participation. Environmental liaisons must be invited to monitor/participate from a safe platform, such as a vessel. The Lessee must provide to the interested Tribal Nation, in a manner suitable to the Tribal Nation, access to all ESA reports, Post Review Discovery Plans, and other documents listed in this paragraph no later than 30 days after the information becomes available. The Lessee may redact or withhold a document(s) listed in this paragraph when it includes information that the Lessee would not generally make publicly available and the disclosure of which the Lessee considers to be contrary to the Lessee's commercial interests. The Lessee must submit a justification for the request to redact/withhold in writing to the BSEE Tribal Liaison Officer and the Eastern Seaboard Tribal Liaison at tribalengagement@bsee.gov. Only upon approval of such request may the document be redacted/withheld.

ATTACHMENT 1: LIST OF ACRONYMS

ACHP	Advisory Council on Historic Preservation
ADLS	Aircraft Detection Lighting System
ALARP	As Low as Reasonably Practical
APE	Area of Potential Effects
ASLF	Ancient Submerged Landform Feature
ASR	Airport Surveillance Radar
BHMP	Benthic Habitat Monitoring Plan
BiOp	Biological Opinion
BOEM	Bureau of Ocean Energy Management
BSEE	Bureau of Safety and Environmental Enforcement
CBRA	Cable Burial Risk Assessment
C.F.R.	Code of Federal Regulations
CHIRPs	compressed high-intensity radiated pulses
COP	construction and operations plan
CVA	Certified Verification Agents
CVOW	Coastal Virginia Offshore Wind
CZMA	Coastal Zone Management Act
dB	deCIbels
DGPS	Differential Global Positioning System
DoD	Department of Defense
DOI	Department of the Interior
DON	Department of the Navy
DPS	distinct population segment
DTS	Desktop Study
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FDR	Facility Design Report
FEIS	Final Environmental Impact Statement
FIR	Fabrication and Installation Report
FMMP	Fisheries Mitigation and Monitoring Plan
GARFO	Greater Atlantic Fisheries Office
GDP	Gross Domestic Product
GIS	Geographic Information System
GPS	Global Positioning System
HESD	Habitat and Ecosystem Division
HF	high frequency
HRG	high resolution geophysical
IC	Incident Commander

ICS	Incident Command System
IFC	issued for construction
IMT	Incident Management Team
IOOS	U.S. Integrated Ocean Observing System
IR	infrared
ITA	Incidental Take Authorization(s)
ITS	Incidental Take Statement
km	kilometer(s)
KP	kilometer post
kts	knots
Lease	commercial lease OCS-A 0483
LNM	Local Notice to Mariners
LOA	Letter of Agreement
m	meter(s)
m^2	meters squared
MEC	Munitions and Explosive of Concern
MMPA	Marine Mammal Protection Act
MOA	Memorandum of Agreement
Motus	Motus Wildlife Tracking System
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NARW	North Atlantic right whale
NAS	Naval Air Station or Noise Attenuation System
NAWCAD	Naval Air Warfare Center Aviation Division
NCEI	National Centers for Environmental Information
NEFSC	Northeast Fisheries Science Center
NHPA	National Historical Preservation Act
nmi	nautical miles
NMFS	National Marine Fisheries Service
NMS	noise mitigation systems
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
OPR	Office of Protected Resources
OSPD	Oil Spill Preparedness Division
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
PIT	passive integrated transponder
POWERON	Partnership for an Offshore Wind Energy Regional Observation Network
Project	Coastal Virginia Offshore Wind Commercial Export Cable Project
PSO	Protected Species Observer
PTS	permanent threshold shift
QA/QC	quality assurance/quality control
QI	Qualified Individual
QMA	Qualified Marine Archaeologist
RAL	Reichs-Ausschuß für Lieferbedingungen und Gütesicherung
RAM	Radar Adverse-Impact Management rms root mean square
ROD	Record of Decision
RVMP	Reduced Visibility Monitoring Plan
RWSC	Regional Wildlife Science Collaborative
SEL	sound exposure level(s)
SF_6	Sulfur Hexafluoride
SFV	Sound Field Verification
SMS	Safety Management System
SROT	Spill Response Operating Team
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USFFC	United States Fleet Forces Command
USFWS	United States Fish and Wildlife Service
UAS	unmanned aircraft systems
UTC	Coordinated Universal Time
UXO	unexploded ordnance
VHF	Very High Frequency
WCD	worst-case discharge
WTG	wind turbine generator

ATTACHMENT 2: ALTERNATIVE C4: MICROSITABLE POSITIONS FIGURE

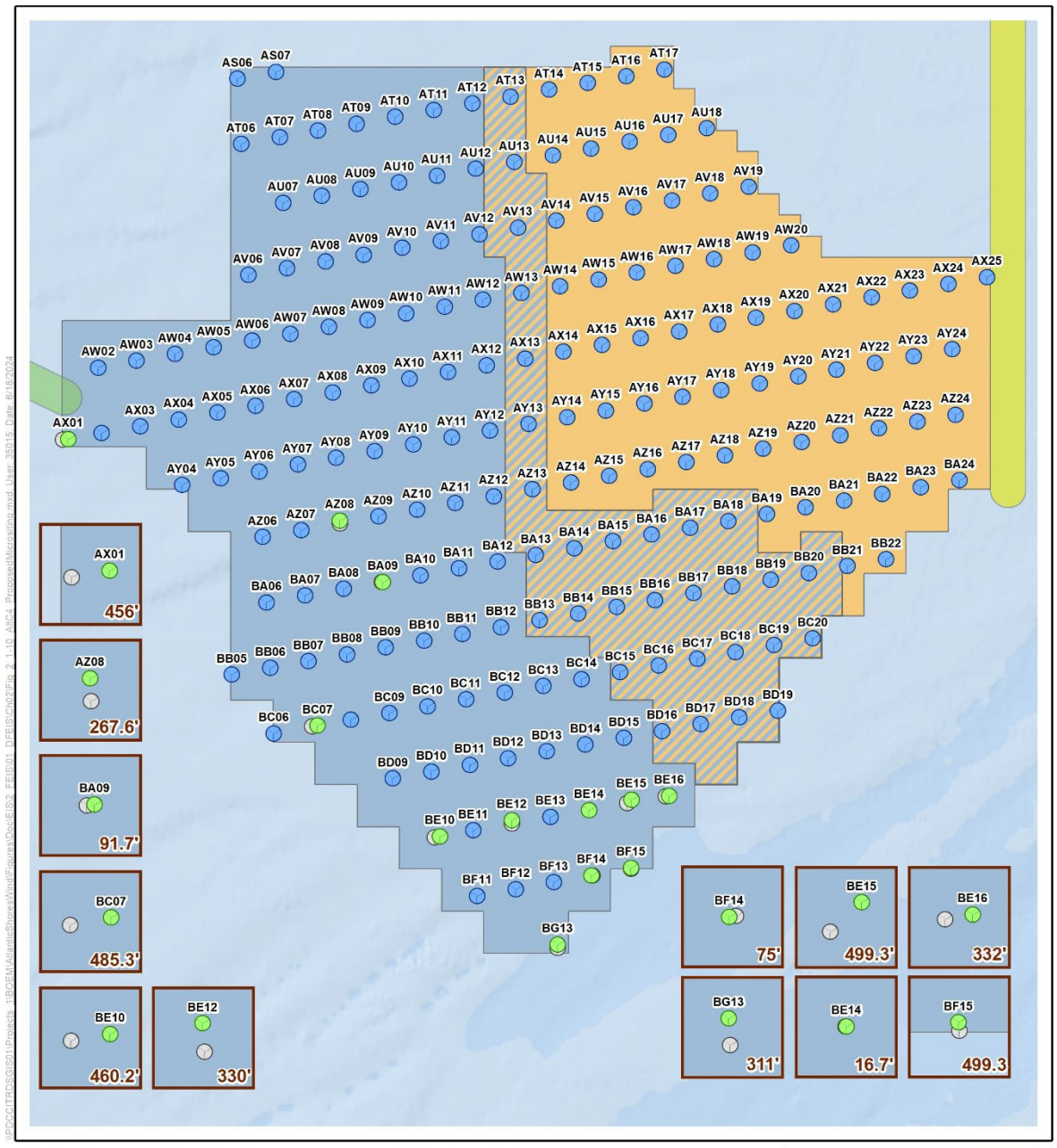
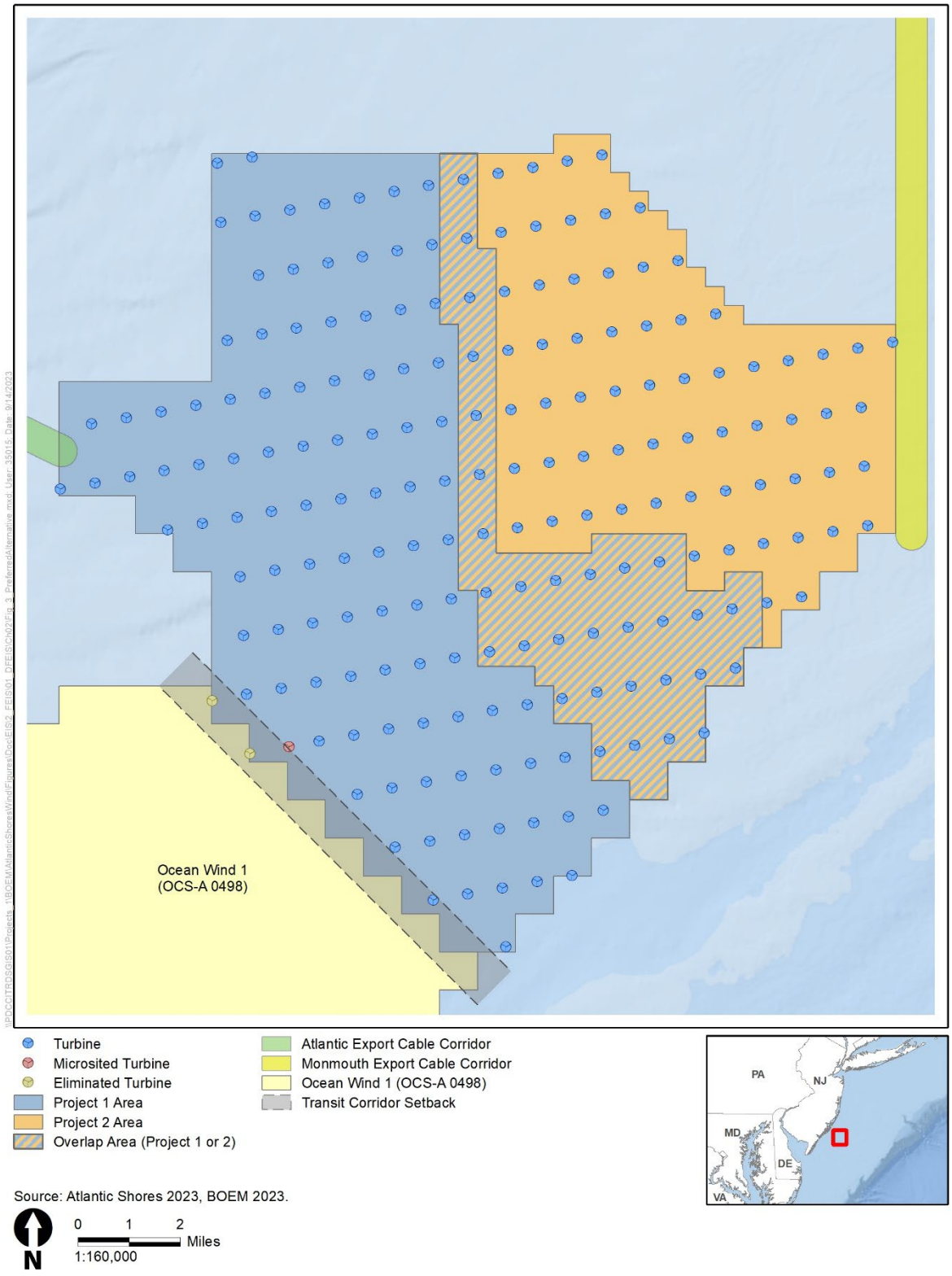


Figure 2.1-10
Alternative C4

ATTACHMENT 3: OCEAN WIND 1 AND ATLANTIC SHORES SOUTH SETBACK FIGURE



Appendix B

OCSLA Compliance Review of the Construction and Operations Plan for the Atlantic Shores Offshore Wind South 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: David Diamond
DAVID DIAMOND
Digitally signed by DAVID DIAMOND
Date: 2024.07.01 16:17:08 -04'00'
Deputy Chief for Operations, Atlantic Outer Continental Shelf, Office of Renewable Energy Programs

Subject: Compliance Review of the Construction and Operations Plan for the Atlantic Shores Offshore Wind South Projects for Commercial Lease OCS-A 0499

1 SUMMARY

Subsection (4) of the Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. § 1337(p)(4), requires the Secretary of the Interior (Secretary) to approve activities in a manner that provides for 12 enumerated factors. This memorandum documents the Bureau of Ocean Energy Management's (BOEM) compliance review of the construction and operations plan (COP)[1] for the Atlantic Shores Offshore Wind South Project (Atlantic Shores) consisting of Project 1 and Project 2 (hereinafter "Project")[2] on Commercial Lease OCS-A 0499, and BOEM's consideration of the 12 factors (hereinafter "8(p)(4) factors").[3]

[1] Atlantic Shores Construction and Operations Plan (May 2024), https://www.boem.gov/renewable-energy/state-activities/atlantic-shores-offshore-wind-construction-and-operations-plan.

[2] This memorandum considers the Project as modified by the preferred alternative in the final EIS, Alternative B, in combination with BOEM-Proposed Mitigation Measure #5, NMFS Proposed Mitigation Measure #1, and Alternatives C4, D3, and E. Bureau of Ocean Energy Mgmt., BOEM 2024-018, Atlantic Shores Offshore Wind South Project Final Environmental Impact Statement, (2024) [hereinafter final EIS].

[3] *See* M-Opinion 37067, entitled, "*Secretary's Duties under Subsection 8(p)(4) of the Outer Continental Shelf Lands Act When Authorizing Activities on the Outer Continental Shelf*," which provides that subsection 8(p)(4) of OCSLA "does not require the Secretary to ensure that the goals are achieved to a particular degree, and she retains wide discretion to determine the appropriate balance between two or more goals that conflict or are otherwise in tension." Solicitors' M-Opinions are legal interpretations that are binding on DOI as a whole. Dep't of the Interior, Departmental Manual, 209 DM 3.1, 3.2A(11) (2020).

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

2 BACKGROUND AND PROJECT OVERVIEW

Subsection 8(p)(7) of OCSLA, 43 U.S.C. § 1337(p)(7), directs the Department of the Interior (DOI), through BOEM, to provide for coordination and consultation with the Governor of any state or the executive of any local government that may be affected by a lease, easement, or right-of-way authorizing renewable energy activities on the Outer Continental Shelf (OCS). 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; January 28, 2014; April 22, 2014; and May 19, 2016. The BOEM/New Jersey Task Force was integrated into the New York Bight Task Force in December 2017.

2.1 Planning, Analysis, and Leasing

Working with the Task Force, BOEM 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[5] 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. 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). This 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.

[4] All part 585 citations in this memorandum are to the regulations as they existed prior to July 15, 2024, when the provisions of the Renewable Energy Modification Rule will become effective. 89 Fed. Reg. 42602 (May 15, 2024).
[5] *See* the baseline studies, January 2008-December 2009 at the New Jersey State Library website: https://dspace.njstatelib.org/xmlui/handle/10929/68435.

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. The lease sale resulted in BOEM's issuance of Commercial Lease OCS-A 0499 to US Wind Inc. The lease became effective on March 1, 2016.

2.2 Lease Assignment and Segregation

On November 16, 2018, BOEM received an application from US Wind Inc. to assign 100 percent of Lease Area OCS-A 0499 to EDF Renewables Development, Inc. BOEM approved the assignment on December 4, 2018.[6] On April 29, 2019, BOEM received an application from EDF Renewables Development, Inc. to assign 100 percent of commercial lease OCS-A 0499 to Atlantic Shores Offshore Wind, LLC. BOEM approved the assignment on August 13, 2019.[7] On September 28, 2021, BOEM received an application from Atlantic Shores Offshore Wind, LLC to assign 100 percent interest of the southern portion of Lease Area OCS-A 0499 (which contains the Atlantic Shores South Project 1 and 2 areas) to Atlantic Shores Offshore Wind Project 1, LLC and Atlantic Shores Offshore Wind Project 2, LLC with each entity having a 50 percent interest. On April 18, 2022, BOEM approved the request and a partial assignment that effected a segregation of lease OCS-A 0499 into two separate and distinct leases.[8] The northern portion of OCS-A 0499 was retained by Atlantic Shores Offshore Wind, LLC and given a new lease number (OCS-A 0549) by BOEM. The southern portion retains the original lease number assigned by BOEM (OCS-A 0499) and is assigned to Atlantic Shores Offshore Wind Project 1, LLC and Atlantic Shores Offshore Wind Project 2, LLC (collectively Atlantic Shores Offshore Wind, or Atlantic Shores). Lease OCS-A 0499 is commonly referred to ASOW South and Lease OCS-A 0549 is commonly referred to as ASOW North.

Lease OCS-A 0499 does not by itself authorize Atlantic Shores to conduct any activities within the leased area. Under Lease OCS-A 0499[9] and 30 C.F.R. part 585, Atlantic Shores must first submit and receive approval of a Site Assessment Plan (SAP) or a COP before any activities may take place on the OCS.[10]

2.3 Site Assessment

On December 8, 2019, Atlantic Shores submitted a SAP for Lease OCS-A 0499. The SAP was subsequently revised on February 4, 2020; March 26, 2020; April 6, 2020; August 21, 2020; September 17, 2020; and November 16, 2020. BOEM approved the SAP on April 18, 2021. The plan detailed the methods and procedures Atlantic Shores would use to collect and analyze data and information on the meteorological and oceanographic conditions of the Lease Area. The

[6] *See* https://www.data.bsee.gov/PDFDocs/Scan/RENLEASES/0/344.pdf
[7] *See* https://www.data.bsee.gov/PDFDocs/Scan/RENLEASES/0/423.pdf
[8] *See* https://www.data.bsee.gov/PDFDocs/Scan/RENLEASES/0/564.pdf
[9] https://www.boem.gov/sites/default/files/documents/oil-gas-energy/OCS-A%200499%20Lease.pdf
[10] *See* 30 C.F.R. § 585.600(b).

SAP approval allowed for the installation, operation, and decommissioning of up to two met buoys.[11]

2.4 Construction and Operations

Submittal and processing of the COP is governed by the provisions set forth in 30 C.F.R. §§ 585.620 through 585.628. Atlantic Shores submitted a COP to BOEM for the southern portion of Lease OCS-A 0499 on March 26, 2021, with subsequent revisions, including the revision submitted on May 1, 2024, that was used to develop the final EIS.[12] The COP proposes the construction and installation, operations and maintenance (O&M), and eventual decommissioning of two electrically distinct offshore wind energy facilities (Project 1 and Project 2, which together make up the Atlantic Shores South Project and that we refer to as "the Project" in this memorandum) limited to an area within Lease OCS-A 0499, as shown in Figure 1 below. Projects 1 and 2 will be located in an approximately 102,124-acre (413.3-km^2) Wind Turbine Area (WTA) located in the southern portion of the Lease Area. Project 1 is located in the western 54,175 acres (219.2 km^2) of the WTA and Project 2 is located in the eastern 31,847 acres (128.9 km^2) of the WTA, with a 16,102-acre (65.2-km^2) overlap area that could be used for either Project 1 or Project 2. At its closest point, the WTA is approximately 8.7 miles (mi) (14 kilometers [km]) from the New Jersey shoreline. The offshore components of the Project would include up to 200 wind turbine generators (WTGs) (between 105 and 136 for Project 1, and between 64 and 95 for Project 2), up to 10 offshore substations (OSSs) (up to 5 in each Project), up to 1 permanent meteorological (met) tower (Project 1), and up to 4 temporary meteorological and oceanographic (metocean) buoys (up to 3 metocean buoys in Project 1, 1 metocean buoy in Project 2). In addition, there will be up to 547 miles (mi) of interarray cables (up to 273.5 mi for each project) and up to 37 mi interlink cables (up to 18.6 mi for each project), all of which will be located on the OCS within the Lease Area.

BOEM conducted its analysis under the National Environmental Policy Act (NEPA) in its final EIS to assess the reasonably foreseeable impacts on the physical, biological, socioeconomic, and cultural resources that could result from the construction and installation (construction), operations and maintenance (operations), and conceptual decommissioning (decommissioning) of the Project. BOEM considered a reasonable range of alternatives during the EIS development process, including comments on the draft EIS from Tribal Nations, the public, cooperating agencies, key stakeholder groups (such as commercial fishermen), and the applicant.

Atlantic Shores 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. The final EIS identified the Preferred Alternative, which falls within the

[11] *See* Bureau of Ocean Energy Mgmt., Atlantic Shores South, https://www.boem.gov/renewable-energy/state-activities/atlantic-shores-south.

[12] *See* Atlantic Shores South (OCS-A 0499) Construction and Operations Plan, https://www.boem.gov/renewable-energy/state-activities/atlantic-shores-south.

Project Design Envelope (PDE). The Preferred Alternative is a hybrid alternative combining elements of Alternative B (Proposed Action Alternative), Alternative C4 (Habitat Impact Minimization/Fisheries Habitat Impact Minimization: Micrositing), Alternative D3 (No Surface Occupancy of Up to 10.8 Miles (17.4 Kilometers) from Shore; Removal of Up to 6 Turbines), and Alternative E (Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1), as well as two proposed mitigation measures that require a WTG removal from the Project layout (BOEM-Proposed Mitigation Measure #5 and NOAA/NMFS-Proposed Mitigation Measure #1 of the final EIS in Appendix G).

- **BOEM #5 Navigational Safety:** No permanent structures will be placed in a way that narrows any linear rows and columns to fewer than 0.6 nautical mile (1.1 kilometers) by 1.0 nautical mile (1.9 kilometers) or in a layout that eliminates two distinct lines of orientation in a grid pattern. The Project's proposed OSSs, met tower, and WTGs will be aligned in a uniform grid with rows in an east-northeast to west-southwest direction spaced 1.0 nautical mile (1.9 kilometers) apart and rows in an approximately north to south direction spaced 0.6 nautical mile (1.1 kilometers) apart.
- **NMFS #1 Artificial reef buffer for turbines:** The Lessee must remove a single turbine position from the Project layout approximately 150–200 feet (45.8–61 meters) from the observed Fish Haven (Atlantic City Artificial Reef Site).

Specifically, the Preferred Alternative would entail the construction, operations, maintenance, and eventual decommissioning of up to 195 WTGs[13] (between 105 and 130 WTGs for Project 1, and between 64 and 93 WTGs for Project 2), up to 10 OSSs (up to 5 in each Project), up to 1 permanent met tower (Project 1), up to 4 temporary metocean buoys (up to 3 metocean buoys in Project 1, 1 metocean buoy in Project 2), interarray and interlink cables, 2 onshore substations and/or converter stations, 1 O&M facility, and up to 8 transmission cables making landfall at two New Jersey locations. The permanent structures must be located in a uniform grid spacing; no permanent structures will be placed in a way that narrows any linear rows and columns to fewer than 0.6 nautical miles (1.100 meters) by 1 nautical mile or in a layout that eliminates two distinct lines or orientation in a grid pattern. The total number of permanent structures constructed (WTGs, OSSs, and/or met tower) may not exceed 197.

As proposed in the COP, the Project would generate an annual output of approximately 1,510 megawatts (MW) from Project 1 and an annual output from Project 2 that has not yet been determined. Atlantic Shores has a goal of 1,327 MW from Project 2, which would align with the interconnection construction and service agreements Atlantic Shores intends to execute for both

[13] 195 WTGs assumes that 197 total positions are available and that a minimum of 1 OSS is constructed in each project, with 195 remaining positions available for WTGs. In practice, fewer WTGs may be constructed to allow for placement of additional OSSs and/or a met tower on grid.

Projects with the regional transmission organization (RTO), PJM Interconnection.[14] The Projects, as proposed, would be located on the OCS offshore New Jersey within Lease Area OCS-A 0499, with export cables making landfall at the Atlantic landfall in Atlantic City, New Jersey, and at the Monmouth landfall in Sea Girt, New Jersey. BOEM does not have authority under OCSLA to approve proposed facilities that would be located within the state of New Jersey. BOEM coordinated with cooperating agencies regarding this aspect of the Project.

The Preferred Alternative would locate all permanent structures in a uniform grid spacing where permanent structures will not be placed in a way that narrows any linear rows and columns to fewer than 0.6 nm (1.100 meters) by 1 nm or in a layout that eliminates two distinct lines or orientation in a grid pattern; microsite up to 29 WTGs[15], 1 OSS, and associated interarray cables outside of the 1,000-foot (305-meter) buffer of the ridge and swale features within the NMFS-identified Areas of Concern (AOC) 1 and 2; restrict the height of WTGs in Project 1 to a maximum hub height of 522 feet (159 meters) at mean sea level (AMSL) and maximum blade tip height of 932 feet (284 meters) AMSL; and provide a minimum 0.81-nautical mile (1,500-meter) setback between the WTGs in Atlantic Shores South and the WTGs in Ocean Wind 1 (Lease Area OCS-A 0498) by removing two WTGs and micrositing one WTG from Project 1 and the removal of a single turbine approximately 150 to 200 feet (45.8 to 61 meters) from the observed Fish Haven (Atlantic City Artificial Reef Site). The total number of permanent structures constructed (WTGs, OSSs, and/or met tower) may not exceed 197.

2.5 Project Easements

The regulations at 30 C.F.R. § 585.200(b) state that a lease issued under part 585 confers on the lessee the right to one or more project easements, without further competition, for the purpose of installing and gathering transmission and distribution cables; pipelines; and appurtenances on the OCS as necessary for the full enjoyment of the lease. In accordance with 30 C.F.R. § 585.622(b), Atlantic Shores requested project easements as part of its COP. As proposed in the COP, the two Projects will include up to 383 nm (710 km) of submarine export cables, consisting of up to two routes to New Jersey. The COP further proposes that the Project 1 export cable will interconnect in Atlantic City, New Jersey, and the Project 2 export cable will interconnect in Sea Girt, Monmouth County, New Jersey. The project easement for Project 1 contains up to 4 High

[14] Atlantic Shores plans to enter into interconnection service agreements and interconnection construction service agreements with PJM to fund improvements to the onshore Cardiff and Larrabee substations, along with required grid updates. These agreements are distinct from purchase power agreements (applicable in Connecticut, Massachusetts, and Rhode Island) and Offshore Wind Renewable Energy Certificates (ORECs) (applicable in Maryland, New Jersey, and New York). An OREC represents the environmental attributes of one MWh of electric generation from an offshore wind project. New Jersey Board of Public Utilities awards ORECs through a competitive bidding process and they represent a long-term contract with the State of New Jersey.

[15] Micrositing would not materially change the grid layout. No microsited permanent structures would be placed in a way that narrows any linear rows and columns to fewer than 0.6 nautical mile (1.1 kilometers) by 1.0 nautical mile (1.9 kilometers), with the exception of WTGs AX01, AZ08, BA09, BC07, BE10, BE12, BE14, BE15, BE16, BF14, BF15, and BG13 as shown in Figure 2.1-10-C4 of the final EIS, or in a layout that eliminates two distinct lines or orientation in a grid pattern.

Voltage Alternating Current (HVAC) cables and up to 1 High Voltage Direct Current (HVDC) export cable bundle (composed of two HVDC cables), for a total of up to 5 cables, and ranges from a maximum width of 5,900 ft (1,800 m) to a minimum width of 3,300 ft (1,000 m). The proposed Project 2 project easement also contains up to 4 HVAC and up to 1 HVDC export cables, for a total of up to 5 cables, and ranges from a maximum width of 4,200 ft (1,280 m) to a minimum width of 3,300 ft (1,000 m). Atlantic Shores requested an easement width greater than 200 ft to provide the minimum required spacing between the export cables in each export cable corridor and to allow adequate room for potential future cable repairs.

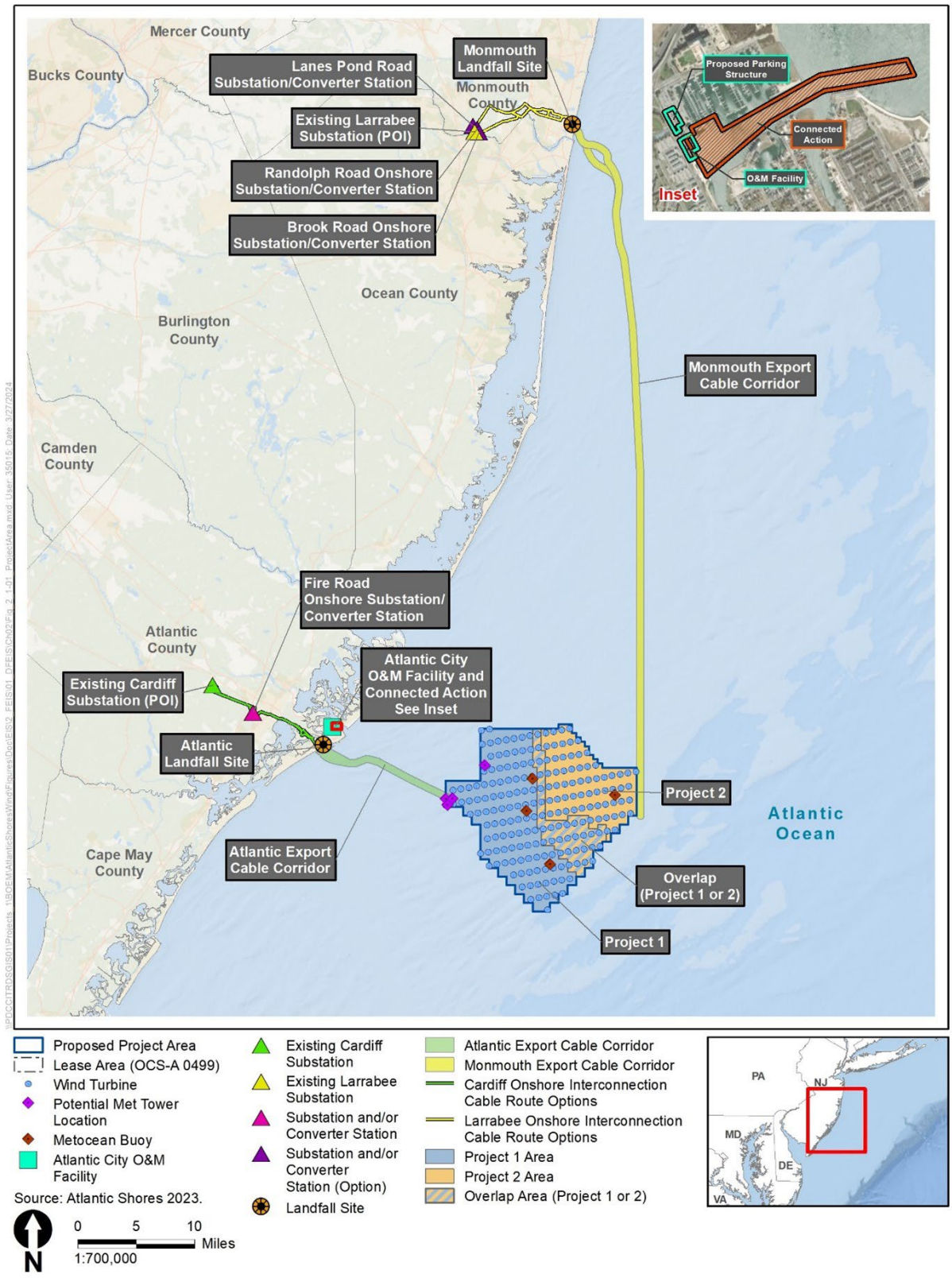


Figure 1: Project Overview – Lease Area, Submarine Export Cable Routes, and Points of Interconnection

3 SECTION 585.628 REVIEW

As noted in Section 2, the regulations at 30 C.F.R. §§ 585.620 through 585.628 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 the Atlantic Shores COP.

3.1 Completeness and Sufficiency Review

The BOEM-administered regulations at 30 C.F.R. § 585.620 provide the general requirements of what must be described in a COP. Section 30 C.F.R. 585.626 requires the Lessee to include in its COP the results of surveys listed in 30 C.F.R. 585.626(a) as well as project-specific information listed in 30 C.F.R. 585.626(b). Pursuant to 30 C.F.R. § 585.627, the Lessee also must submit detailed information and certifications to assist BOEM in complying with NEPA and other relevant laws.

In a letter submitted on June 14, 2021, Atlantic Shores requested a regulatory departure from 30 C.F.R. § 585.626(a)(4)(ii), which requires that detailed in situ geotechnical data at each proposed foundation location be provided at the time of COP submittal. In the same letter, Atlantic Shores also requested a regulatory departure from 30 C.F.R. § 585.626(a)(4)(iii), which requires the results of a minimum of one deep soil boring (with soil sampling and testing) at each edge of the project area and within the project. Instead of submitting the in situ geotechnical data and deep soil boring data with the COP, Atlantic Shores proposed to provide the data no later than with its submittal of the Facility Design Report (FDR) when the Project design and associated Project design envelope was more mature. OREP's Engineering and Technical Review Branch (ETRB) evaluated the departure request and concluded that the geotechnical information submitted by the Lessee at that point was sufficient to allow for review of the COP. Therefore, BOEM approved both departure requests, allowing Atlantic Shores to submit in situ geotechnical investigations at final foundation locations with or prior to the FDR along with results of geotechnical analyses and foundation design parameters.

On March 25, 2021, Atlantic Shores submitted a COP to BOEM for review and approval. On June 9, 2021, OREP's Projects and Coordination Branch (PCB), in coordination with ETRB and Environment Branch for Renewable Energy (EBRE), verified that the COP and the information provided pursuant to 30 C.F.R. §§ 585.626 and 585.627 contained all the required information necessary for BOEM to conduct its technical and environmental reviews. PCB coordinated

BOEM's sufficiency review of the Atlantic Shores COP. Throughout the review process, BOEM evaluated the information provided in response to its requests for additional information (RFIs), as well as the updated COPs Atlantic Shores submitted, and determined that the information provided was sufficient in accordance with the regulations.

BOEM has determined that the COP includes all the information required in 30 C.F.R. §§ 585.626 and 585.627, except the information described in 30 C.F.R. § 585.626(a)(4)(ii) and (iii), for which BOEM approved regulatory departures. Following COP approval, Atlantic Shores must submit the following information no later than when it submits its FDR:

- Updated information required in 30 C.F.R. § 585.626(a)(4)(ii); the results of in situ testing, boring, and sampling at each foundation location.
- Updated information required in 30 C.F.R. § 585.626(a)(4)(iii); the results of deep borings within the Project Area.

In June 2024, BOEM also considered the revisions to 30 C.F.R. §§ 585.626 and 585.627 that will become effective on July 15, 2024. The information requirements of the new regulations are substantially similar to the requirements of the previous regulations, which, as relevant here, were revised for clarification and to provide flexibility in the timing—not substance—of submittal of certain data. The new regulations became effective *after* submission of Atlantic Shores' COP and BOEM's review of the COP, and the regulations therefore do not govern the prior submission of that COP. In all events, BOEM verified that the information Atlantic Shores submitted in its COP, and information submitted in response to RFIs as well as updated COPs submitted during BOEM's review process, meets the information requirements under the new regulations. This information enabled BOEM to comply with NEPA and to complete environmental consultations under the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Coastal Zone Management Act (CZMA) as well as consultations with Tribal Nations, all of which are discussed in Subsection 3.3 below.

3.2 Technical Review

OREP's 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;
- Federal Aviation Administration (FAA), for aviation and radar interference; and

- USCG, for vessel navigation.

Furthermore, ETRB and BSEE reviewed the statement of work and qualifications submitted in the COP for the Certified Verification Agent (CVA) nomination. On May 30, 2024, BSEE approved the nomination of Bureau Veritas to be the CVA for the Project. Bureau Veritas will review Atlantic Shores' FDR and Fabrication and Installation Report (FIR) and must certify that the project facilities are designed, fabricated, and installed in conformance with accepted engineering practices.

As a result of these reviews and BSEE's approval of the CVA, ETRB has determined both the technical information and supporting data provided with the COP meet the requirements of 30 C.F.R. § 585.626 and are sufficient to allow the safe installation of the Project as proposed in the COP 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 Conditions of COP Approval; Appendix A to the ROD).

3.3 Environmental Review

OREP's EBRE conducted an environmental review of the COP. On September 30, 2021, BOEM published the Notice of Intent (NOI) to prepare an EIS for Atlantic Shores' COP,[16] 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 May 15, 2023.[17] The U.S. Army Corps of Engineers (USACE), NMFS, BSEE, USCG, U.S. Fish and Wildlife Service (USFWS), and the U.S. Environmental Protection Agency (USEPA) were cooperating federal agencies during the development and review of the final EIS. Participating federal agencies were National Park Service (NPS) and the Advisory Council on Historic Preservation (ACHP). Cooperating state agencies included New York State Department of State (NYSDOS), New Jersey Department of Environmental Protection (NJDEP), and New Jersey Board of Public Utilities (NJBPU).

BOEM invited federally recognized Tribes to participate in government-to-government or Tribal consultation meetings with BOEM after public scoping and after publication of the draft EIS. The following federally recognized Tribes were invited to consult: Eastern Shawnee Tribe of Oklahoma; Shawnee Tribe; Absentee-Shawnee Tribe of Indians of Oklahoma; Stockbridge-Munsee Community Band of Mohican Indians; The Delaware Nation; Delaware Tribe of

[16] *See* Notice of Intent To Prepare an Environmental Impact Statement for the Atlantic Shores Offshore Wind Project Offshore New Jersey, 86 Fed. Reg. 54,231 (September 30, 2021), https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/86-FR-54231.pdf.

[17] *See* Notice of Availability of a Draft Environmental Impact Statement for Atlantic Shores Offshore Wind Project 1, LLC and Atlantic Shores Offshore Wind Project 2, LLC's Proposed Wind Energy Facilities Offshore New Jersey, 88 Fed. Reg. 32,242 (July 3, 2023), https://www.federalregister.gov/documents/2023/05/19/2023-10691/notice-of-availability-of-a-draft-environmental-impact-statement-for-atlantic-shores-offshore-wind.

Indians; The Shinnecock Indian Nation; The Narragansett Indian Tribe; Wampanoag Tribe of Gay Head (Aquinnah); The Mashpee Wampanoag Tribe; and The Mashantucket (Western) Pequot Tribe. BOEM held government-to-government and Tribal consultation meetings on the Atlantic Shores South NOI on November 15, 2021, and the draft EIS on June 27, 2023. The Delaware Tribe of Indians and The Shinnecock Indian Nation participated in the government-to-government meeting on November 15, 2021. The Stockbridge-Munsee Community Band of Mohican Indians, Mashantucket (Western) Pequot Tribal Nation, and Wampanoag Tribe of Gay Head (Aquinnah) participated in the Tribal consultation meeting on June 27, 2023. BOEM leaders also met with the Houlton Band of Maliseet Indians; Mashantucket; Mashpee; Narragansett; Passamaquoddy Tribe, Indian Township; Passamaquoddy Tribe, Pleasant Point; Penobscot Indian Nation; Shinnecock; and Aquinnah at the Tribal Leaders Summit on April 10, 2023.

On May 31, 2024, BOEM published the NOA of the final EIS in the *Federal Register*.[18] The Preferred Alternative is a combination of Alternatives B, C4, D3, and E, as well as two proposed mitigation measures that require WTG removal from the Project layout (BOEM-Proposed Mitigation Measure #5 and NOAA/NMFS-Proposed Mitigation Measure #1 of the final EIS in Appendix G). The final EIS included in Appendix N BOEM's responses to comments on the draft EIS. The final EIS found that the Project would have negligible to moderate adverse impacts on most resources and only the potential for major adverse impacts on (i) North Atlantic Right Whale (NARW), (ii) commercial fisheries and for-hire recreational fisheries, (iii) cultural resources, and (iv) other uses (scientific research and surveys). The final EIS also found that the Project could have, to some extent, beneficial impacts on the following resources: (i) sea turtles, (ii) benthic resources, (iii) birds, (iv) air quality, (v) finfish, invertebrates, and essential fish habitat, (vi) marine mammals (odontocetes and pinnipeds), (vii) for-hire recreational fishing, (viii) land use and coastal infrastructure, (ix) recreation and tourism, (x) demographics, (xi) employment, (xii) economics, (xiii) environmental justice, and (xiv) scenic and visual resources. On June 25, 2024, BOEM published an errata[19] on its website that included certain edits to Appendix G: Mitigation and Monitoring Table G-2. This correction is not substantive and does not affect the analysis or conclusions in the final EIS.

Regarding 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: NARW, scenic and visual resources, commercial fisheries and for-hire recreational fisheries, cultural resources, navigation and vessel traffic, and other uses (USCG search and rescue (SAR) operations, and scientific research and surveys).

[18] *See* Notice of Availability of a final EIS for Atlantic Shores Offshore Wind, 89 Fed. Reg. 47,174 (May 31, 2024), https://www.federalregister.gov/documents/2024/05/31/2024-11947/notice-of-availability-of-a-final-environmental-impact-statement-for-atlantic-shores-offshore-wind.

[19] *See* https://www.boem.gov/renewable-energy/state-activities/atlantic-shores-south

The final EIS also found that future planned actions, including the Project, could have beneficial impacts on the following resources: sea turtles, benthic resources, birds, air quality, finfish, invertebrates, and essential fish habitat, marine mammals (odontocetes and pinnipeds), for-hire recreational fisheries, land use and coastal infrastructure, recreation and tourism, demographics, employment, economics, and environmental justice. Cumulative impacts on all resources range from negligible to major. The 30-day waiting period for the final EIS closed on July 1, 2024.

Several consultations were conducted as part of the environmental review process. On December 18, 2023, NMFS issued a Biological Opinion (BiOp)[20] for the Project as proposed in the COP under Section 7 of the ESA.[21] The BiOp concluded that the proposed action is likely to adversely affect but is not likely to jeopardize the continued existence of fin, sei, sperm, or NARW or 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, shortnose sturgeon, or any of the five DPSs of Atlantic sturgeon. The proposed action, specifically the transit of vessels to/from the New Jersey Wind Port (NJWP), is likely to adversely affect, but is not likely to destroy or adversely modify critical habitat designated for the New York Bight DPS of Atlantic sturgeon. The proposed action is not likely to adversely affect blue whales, Rice's whales, giant manta rays, hawksbill sea turtles, or gulf sturgeon. The BiOp also determined that the Project will have no effect on oceanic whitetip sharks, the Gulf of Maine DPS of Atlantic salmon, Nassau grouper, scalloped hammerhead sharks, smalltooth sawfish, any species of ESA listed corals, or critical habitat designated for the NARW, the Northwest Atlantic DPS of loggerhead sea turtles, or elkhorn, or staghorn corals. NMFS concurs with BOEM's determination that the proposed action is not likely to adversely affect blue whales, Rice's whales, giant manta rays, hawksbill sea turtles, or oceanic whitetip sharks. 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.

On December 1, 2023, USFWS transmitted a BiOp and concluded consultation and conference for the Project as proposed in the COP. The BiOp concluded the Project is not likely to adversely affect the bog turtle, Eastern black rail, saltmarsh sparrow, norther long-eared bat, tricolored bat, monarch butterfly, swamp pink, Knieskern's beaked-rush, American chaffseed, or seabeach amaranth. All project effects to the piping plover, *rufa* red knot, and roseate tern are expected to be insignificant and/or discountable except for the risk of colliding with an operating offshore

[20] *See* Biological Opinion Letter from Michael Pentony, Regional Administrator, Greater Atlantic Regional Fisheries Office, U.S. Dept of Commerce, National Oceanic and Atmospheric Administration, NMFS, to Karen Baker, Chief Office of Renewable Energy Programs, BOEM. National Marine Fisheries Service, Endangered Species Act, Section 7, Biological Opinion (Dec. 18, 2023).
[21] https://www.fws.gov/law/endangered-species-act

WTG where the USFWS expects lethal take of 23 piping plovers, 1,188 rufa red knots, and one roseate tern over the 30 year life of the Atlantic Shores South Project.[22]

BOEM also completed an Essential Fish Habitat (EFH) consultation under the MSA[23] and received conservation recommendations from NMFS on October 16, 2023, pursuant to Section 305(b)(4)(A) of the MSA. According to Section 304(b)(4)(B) of the MSA, BOEM is required to provide NMFS a detailed response to each EFH conservation recommendation within 30 days of receipt. BOEM indicated to NMFS on November 21, 2023, that due to the complex nature of the Project, more than 30 days would be needed to respond. The interim response notified NMFS of BOEM's intent to provide a response no later than 10 days before the ROD is issued on July 1, 2024. BOEM issued a detailed response letter to NMFS on May 21, 2024. The detailed response to the conservation recommendations provided draft conditions of COP approval that adopt or partially adopt NMFS's conservation recommendations, which BOEM has included in Appendix A of the ROD.

BOEM also conducted an NHPA[24] Section 106 review of the Project, as proposed in the COP pursuant to the Section 106 implementing regulations, "Protection of Historic Properties" (36 C.F.R. part 800). BOEM elected to use NEPA substitution pursuant to 36 C.F.R. § 800.8(c) to fulfill the requirements of Section 106 in lieu of the procedures set forth in 36 C.F.R. §§ 800.3 through 800.6. Through the Section 106 consultation, BOEM made a finding of adverse effect for the undertaking and determined that 29 aboveground historic properties, including two National Historic Landmarks (NHLs), may be visually adversely affected and that 38 ancient submerged landform features may be adversely affected as a result of COP approval. BOEM identified two NHLs (Lucy the Margate Elephant, Margate City, New Jersey, and Atlantic City Convention Hall, Atlantic City, New Jersey) that may be visually adversely affected by the Project. BOEM followed the requirements for compliance with NHPA Section 110(f) (54 U.S.C. § 306107) and its implementing regulations (36 C.F.R. § 800.10) regarding assessment of effects to NHLs and consulted with the NPS, New Jersey State Historic Preservation Officer (SHPO), the ACHP, and interested consulting parties, including parties managing the NHLs, to assess and undertake planning and actions as may be necessary to minimize harm to NHLs. BOEM documented this process and finding in Appendix I, Finding of Adverse Effect for the Atlantic Shores Offshore Wind South Project COP of the final EIS. The Section 106 review and consultation conducted for the Project as proposed in the COP resulted in the development of measures included in the Section 106 Memorandum of Agreement (MOA) to resolve the adverse effects. Consultation under Section 106 of the NHPA concluded with the execution of the MOA, which was signed by the Lessee, BOEM, the New Jersey SHPO, ACHP, and the New Jersey Historic Trust, and fully executed on June 27, 2024. The following concurring parties also signed

[22] *See* Letter & Biological Opinion from Eric Schrading, Field Supervisor, New Jersey Ecological Services Field Office, Fish and Wildlife Serv., to Kimberly Sullivan, OREP, BOEM (December 1, 2023).
[23] https://www.fisheries.noaa.gov/resource/document/magnuson-stevens-fishery-conservation-and-management-act
[24] https://www.nps.gov/subjects/archeology/national-historic-preservation-act.htm

the MOA: City of Atlantic City, Save Lucy Committee, Chicken Bone Beach Historical Foundation, Borough of Longport, and BSEE.

Atlantic Shores submitted a request for Federal Consistency Certification to the State of New Jersey under the CZMA.[25] Acting under Section 307 of the Federal CZMA (Pub. L. No. 92-583), as amended, the coastal management programs for the State of New Jersey concurred with Atlantic Shores' consistency certification, finding the Project as proposed in the COP is consistent to the maximum extent practicable with the enforceable policies of the State of New Jersey's coastal management plan. Atlantic Shores provided BOEM with the CZMA concurrence letter issued by New Jersey on April 1, 2024.

4 COMPLIANCE REVIEW[26]

The regulations at 30 C.F.R. part 585 set forth responsibilities for both BOEM and Atlantic Shores that are similar to those imposed by the 8(p)(4) factors.[27] 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 Atlantic Shores has planned and is prepared to conduct the proposed activities in a manner that conforms to its responsibilities listed in 30 C.F.R. § 585.105(a), as well as 7 other goals listed therein. BOEM and Atlantic Shores 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 Atlantic Shores (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 Atlantic Shores' Commercial Lease[28]

Consultations and reviews for the Project under NEPA, ESA, CZMA, MSA, and NHPA are complete. Further, BOEM's approval of the COP would prohibit Atlantic Shores from commencing construction activities for which additional permits and authorizations are required, including permits and permissions requested by Atlantic Shores 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 Marine Mammal Protection Act from NMFS. Section 1.3.2 of the COP (Permits,

[25] *See* 16 U.S.C. §§ 1451 *et seq*.
[26] *See* 43 U.S.C. § 1337(p)(4) (OCSLA Subsection 8(p)(4)); 30 C.F.R. §§ 585.102, 585.621.
[27] *See* 30 C.F.R. §§ 585.102, 585.621.
[28] *See id.* §§ 585.102(b), 585.621(a).

Approvals, and Consultations) lists all expected federal, New Jersey State, regional (county), and local-level reviews and permits for the Project.[29]

4.2 Safety, Best Available and Safest Technology, Best Management Practices, and Properly Trained Personnel[30]

The Atlantic Shores Project COP proposed the following major offshore components:

- Up to 200 WTGs supported by monopile or piled jacket foundations. Project 1 will use monopile foundations. Project 2 will use monopile or piled jacket foundations. Only one WTG foundation type (monopile or piled jackets) will be used for all WTG positions in Project 2;
- Up to 10 offshore substations supported by monopile, piled jacket, suction bucket, or gravity -base foundations;
- One meteorological tower supported by a monopile, piled jacket, suction bucket, or gravity -base foundation;
- Inter-array cables with an operating voltage of 66-150 kilovolts (kV);
- Inter-link cables with an operating voltage of 66-275 kV; and
- Up to (8) submarine high-voltage alternating-current export cables buried to a target depth of 5 to 6.6 feet (1.5 to 2 meters).

As documented in ETRB's Review Memo (Appendix B.1 to the ROD), BOEM expects Atlantic Shores to use the most current technology available for commercial production that meets or exceeds current industry standards. In some cases, this could include technologies currently in prototyping and/or working toward type certification by a recognized certification body but not yet commercially available. ETRB has determined that the information on the proposed major components provided in the COP is sufficient to determine that the Project proposes to use the best available and safest technology pursuant to 30 C.F.R. § 585.621(e), which will meet or exceed the current international industry standards. The approved CVA will confirm as much by certifying that the facility is designed, fabricated, and installed in accordance with the COP and approved industry standards. BSEE will also confirm that the design is in accordance with the COP through review of the FDR and FIR.

The engineering design of the WTGs and their ability to sufficiently withstand weather events—which include hurricane-level events—are independently evaluated by a CVA when reviewing the FDR and FIR according to international standards. One of these standards calls for the WTG

[29] *See* Bureau of Ocean Energy Mgmt., Atlantic Shores South (OCS-A 0499) Construction and Operations Plan, https://www.boem.gov/renewable-energy/state-activities/atlantic-shores-offshore-wind-construction-and-operations-plan.

[30] *See* 43 U.S.C. § 1337(p)(4)(A); 30 C.F.R. §§ 585.102(a)(1), 585.621(b), 585.621(e)-(g).

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. WTGs are designed to withstand the oceanographic and meteorological conditions expected in the Lease Area, including hurricane force winds.

OREP consulted with BSEE and the USCG on safety requirements during the COP review process. BSEE's and USCG's recommendations and relevant requirements have been incorporated into the proposed conditions of approval for the COP to ensure the Project is carried out in a safe manner.[31] Additionally, oversight of the review of future submissions (e.g., FDR and FIR activities) will allow BSEE to evaluate whether the "facilities are designed, fabricated, and installed in conformance with accepted engineering practices."[32]

The COP also provides a description of the Project's proposed SMS,[33] 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 Atlantic Shores' proposed implementation thereof. Furthermore, the finalized SMS must describe the methods that are used and maintained to control the identified risks. BSEE determined that Atlantic Shores' proposal is consistent with acceptable industry practices and standards.

For these reasons, ETRB concluded that the technical information and supporting data provided with the COP is sufficient to allow the safe installation of the proposed Project on the OCS, uses best available and safest technology, best management practices, and uses properly trained personnel, pursuant to 30 C.F.R § 585.621(b), (e), (f), and (g).

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[34]

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, 2024) 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 to the NARW; commercial fisheries and for-hire recreational fisheries; cultural resources; and other uses (scientific research and surveys).[35] 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 Project could have, to some extent, beneficial impacts on the following resources: (i) sea turtles, (ii) benthic

[31] *See* infra. Anticipated Terms and Conditions of COP Approval, Appendix A to the ROD.
[32] *See* 30 C.F.R. § 285.705(a)(1).
[33] *See* COP Vol. I, app. E.
[34] *See* 43 U.S.C. § 1337(p)(4)(B); 30 C.F.R. §§ 585.102(a)(2), 585.621(d).
[35] *See* Bureau of Ocean Energy Mgmt., Atlantic Shores South BOEM 2024-0008, https://www.boem.gov/renewable-energy/state-activities/atlantic-shores-offshore-wind-south-final-environmental-impact

resources, (iii) birds, (iv) air quality, (v) finfish, invertebrates, and essential fish habitat, (vi) marine mammals (odontocetes and pinnipeds), (vii) for-hire recreational fishing, (viii) land use and coastal infrastructure, (ix) recreation and tourism, (x) demographics, (xi) employment, (xii) economics, (xiii) environmental justice, and (xiv) scenic and visual resources.

The numerous consultations performed under various federal statutes, and the analysis in the final EIS, indicate that approval of the Project would not result in undue harm to environmental 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.

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 G 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 Projects on December 18, 2023, and USFWS on December 1, 2023. BiOp conclusions are discussed above in Section 3.3. To minimize impacts, both the FWS and NMFS BiOps include Reasonable and Prudent Measures and implementing Terms and Conditions that must be made conditions of approval of the COP. BOEM also consulted with NMFS in accordance with Section 305(b)(2) of the MSA. BOEM analyzed potential adverse impacts of the Projects on EFH in an EFH Assessment deemed complete by NMFS on July 19, 2023.[36] NMFS issued a letter on October 16, 2023, in which the agency provided 46 conservation recommendations to avoid and minimize impacts to EFH for activities within the OCS and state waters. Ten of the 46 recommendations, and the four under the Fish and Wildlife Coordination Act, are recommendations that applied to activities in state waters and are under USACE's jurisdiction for implementation. BOEM provided a detailed response to NMFS via a May 21, 2024, letter regarding how each of the conservation recommendations would be applied to the Project. BOEM fully or partially adopted 28 of the 46 conservation recommendations under BOEM's jurisdiction as authorized under OCSLA. BOEM did not fully adopt, or only partially adopted, some conservation recommendations based on technical and economic feasibility concerns.

BOEM also conducted NHPA Section 106 consultation with consulting parties made up of federal agencies (including NPS and the ACHP), federally recognized Tribes, State agencies (including the New Jersey Historic Preservation Officer), local governments, nongovernmental organizations and/or groups with a demonstrated interest in the affected historic properties, private property owners representing historic properties, and Atlantic Shores. BOEM held 5 consulting party meetings.[37] Through that consultation, BOEM identified 29 aboveground

[36] *See* BOEM, OREP, Atlantic Shores Offshore Wind Essential Fish Habitat Assessment (2023).
[37] 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.

historic properties and 38 ancient submerged landform features that may be adversely affected by activities resulting from COP approval. BOEM also identified and determined through consultation that two NHLs may be visually adversely affected by activities resulting from COP approval and followed the requirements for compliance with NHPA Section 110(f). Through the Section 106 consultation, BOEM developed and finalized measures to resolve these adverse effects. On June 27, 2024, an NHPA Section 106 MOA[38] was executed stipulating how the adverse effects of the Project on historic properties will be resolved. As discussed above in section 3.3, BOEM also conducted government-to-government consultation meetings with Tribes in which potential impacts to the environment and cultural resources were discussed.

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 Atlantic Shores can be found at the end of each section of the COP Volume II, and include measures to avoid, minimize, and mitigate impacts to resources such as air quality, birds, and bats, among others.[39] As described in the ROD, BOEM will incorporate Atlantic Shores' proposed measures as COP conditions of approval and require Atlantic Shores 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 associated with construction, operation, and maintenance activities across the various resources analyzed in the final EIS. Appendix G 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[40]

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 Volume II, Section 4 of the Atlantic Shores 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

[38] Memorandum of Agreement Among BOEM, et al, Regarding the Atlantic Shores Offshore Wind Project, (Lease Number OCS-A 0499)
[39] COP Vol. II; Atlantic Shores Offshore Wind COP (May 2024), https://www.boem.gov/renewable-energy/state-activities/atlantic-shores-cop-volume-ii-affected-environment.
[40] *See* 43 U.S.C. § 1337(p)(4)(C)-(D); 30 C.F.R. §§ 585.102(a)(3)-(4), 585.105(a).

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.

BOEM's issuance of Lease OCS-A 0499 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 covered by Lease OCS-A 0499. The analysis conducted in Section 3.6.7 of the final EIS concluded that the Project would result in minor impacts on non-energy marine minerals (primarily sand and gravel). There are no existing oil gas leases in the Atlantic at this time and there are no oil and gas lease sales in the Atlantic included in the next National OCS oil and gas leasing program, which was approved on December 14, 2023.[41] There is no evidence that the Project will waste oil, gas, or other mineral resources.

The proposed COP reflects current industry practices (e.g., equipment, design, and orientation) for the Project Area. The mitigation measures to be adopted with the Project's selection strike a rational balance between deconflicting OCS uses and maximizing wind energy harvesting in the proposed Project Area.

4.5 Coordination with Relevant Federal Agencies[42]

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 Environmental Assessment (EA)[43] and on BOEM's website.[44] Throughout the environmental and technical review of the COP, BOEM met with various federal agencies, including BSEE, the Department of Defense (DoD), EPA, USACE, USFWS, NOAA-NMFS, NPS, and USCG. Through the NOI to prepare the EIS, BOEM invited federal agencies with jurisdiction and/or special expertise to become Cooperating or Participating Agencies. BOEM provided Cooperating Agencies with the

[41] *See* Bureau of Ocean Energy Mgmt., National OCS Oil and Gas Leasing Program, https://www.boem.gov/oilgas-energy/national-program/national-ocs-oil-and-gas-leasing-program.
[42] Throughout the COP review and approval process, DOI engaged in meaningful consultation with federally recognized Tribes. For more detail see final EIS Appendix A. *See* also 43 U.S.C. § 1337(p)(4)(E); 30 C.F.R. § 585.102(a)(5).
[43] BOEM, OCS EIS/EA BOEM 2012-003, Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore New Jersey, Delaware, Maryland, and Virginia (2012), https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Mid-Atlantic-Final-EA-2012.pdf.
[44] https://www.boem.gov/renewable-energy/state-activities/renewable-energy-task-force-meetings-1

preliminary draft EIS on August 2, 2022, for review and comment. 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. On May 19, 2023, BOEM published the draft EIS. The Cooperating Agencies also supported preparation of the final EIS. BOEM provided Cooperating Agencies with the preliminary final EIS on April 8, 2024, for review and comment. Before publishing the final EIS, BOEM considered and addressed comments received, and provided a revised preliminary final EIS with a request that Cooperating Agencies confirm that their comments were adequately addressed. During the EIS process, BOEM met with all the Cooperating and Participating agencies eight times (November 18, 2020; May 13, 2021; May 21, 2021; June 7, 2021; August 19, 2021; November 3, 2021; May 16, 2022; and April 12, 2023), met with agencies individually on multiple occasions, and hosted two sets of public meetings (3 virtual scoping meetings, and 2 virtual and 2 in-person meetings on the draft EIS). USACE has indicated its intention to adopt the final EIS and sign a joint ROD with BOEM. NOAA has indicated its intention to adopt the final EIS and sign a joint ROD.

4.6 Protection of National Security Interests of the United States[45]

At each stage of the regulatory process involving Lease OCS-A 0499, BOEM has consulted with DoD for the purposes of assessing national security considerations in its decision-making processes. On April 11, 2011, BOEM published a 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 included 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 4.5 above), 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.

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

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

Military Aviation and Installation Assurance Siting Clearinghouse (DoD Clearinghouse) coordinate a review of the COP within the DoD. As a result of this review, DoD identified potential impacts on the North American Aerospace Defense Command (NORAD) and the Department of the Navy (DON).

DoD provided the following measures to mitigate potential impacts to NORAD:

- The Project owner will notify NORAD 30-60 days prior to Project completion and again when the Projects are complete and operational for Radar Adverse Impact Management (RAM) scheduling.
- The Project owner will contribute $80,000 toward the execution of the RAM for each affected radar, for a total contribution of $160,000.
- Curtailment for National Security or Defense Purposes, as described in the leasing agreement.

DON provided the following measures to mitigate potential impacts to distributed optical fiber sensing (DOFS) and Acoustic Monitoring:

- The Project owner shall agree that DoD retains the right to unilaterally require the Project owner to implement mitigation measures that are necessary to safeguard against potential threats to national security and military operations as defined by DoD.
- The Project owner shall provide to DoD all information necessary for evaluating the potential for the submarine power and data cables to be used in the Project and planned deployment of acoustic monitoring devices. This information must be provided no later than 240 days prior to deployment of such equipment. If DoD requests additional information, the Project owner shall provide it within 15 calendar days of the request.
- Notice of the intent to make changes to any of the above items or approaches must be provided to DoD at least 30 calendar days prior to any change.
- On completion of each acoustic monitoring platform, the Project owner shall provide DoD with as-built schematics and diagrams showing the exact makes and models of all DOFS equipment used, which shall be updated within 10 business days of any change.

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

The Lessee's lease also includes a provision allowing BOEM to suspend operations in accordance with Suspension of Operations for National Security or Defense Purposes as described in Section 3(c) of Lease OCS-A 0499.[46]

[46] Commercial Wind Lease OCS-A 0499, https://www.boem.gov/NJ-SIGNED-LEASE-OCS-A-0499/.

4.7 Protection of the Rights of Other Authorized Users of the OCS[47]

BOEM must ensure that activities described in 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.[48] 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 Project, 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, or shell resources, 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 0549, is held by Atlantic Shores Offshore Wind, LLC (and was part of the original lease OCS-A 0499, until BOEM approved the lease segregation on April 18, 2022). The other wind energy lease, OCS-A 0498, is subject to a separation agreement with Atlantic Shores,[49] which establishes a separation distance of at least 1,500 meters between the Lessees' bordering WTGs.

4.8 A Fair Return to the United States[50]

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. As described in Section 2.2 above, BOEM auctioned the New Jersey WEA on November 9, 2015, offering the area as two separate leases, referred to as the South Lease Area (Lease OCS-A 0498) and the North Lease Area (Lease OCS-A 0499). The North Lease Area consisted of about 183,353 acres and the South Lease Area consisted of about 160,480 acres. RES Americas Developments Inc. was the winner of the South Lease Area because they submitted the highest Live-Bid Price of $880,715. US 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 $1,866,955 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

[47] *See* 43 U.S.C. § 1337(p)(4)(G); 30 C.F.R. § 585.102(a)(7).
[48] 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.
[49] Atlantic Shores and Ocean Wind 1, 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 on July 21, 2022.
[50] *See* 43 U.S.C. § 1337(p)(4)(H); 30 C.F.R. § 585.102(a)(8).

considered. As published in the final sale notice for this lease sale,[51] the minimum bid for the North Lease Area was $2 per acre, or $366,706. The minimum bid for the South Lease Area was $2 per acre, or $320,960. US Wind 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.

Lease payments are enumerated in Lease OCS-A 0499, Addendum B, and describe annual rent payment requirements that are 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. The annual rent for Lease OCS-A 0499 is $550,059.00. Once a project begins commercial generation of electricity, a lessee must pay an operating fee, which is calculated in accordance with the formula in Addendum B and the BOEM-administered regulations.[52] 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, Atlantic Shores 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 0499.

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[53]

Under OCSLA and its implementing regulations, the Secretary must ensure that any authorized activities are carried out in a manner that provides for the prevention of interference with reasonable uses (as determined by the Secretary) of the Exclusive Economic Zone, the high seas, and the territorial seas;[54] and that activities authorized by the Secretary will "not unreasonably interfere with other uses of the OCS."[55]

Throughout the planning and leasing process for Lease OCS-A 0499, 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 certain areas from consideration to strike a rational balance between identifying an area suitable for wind energy development and preventing

[51] *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.
[52] *See* 30 C.F.R. § 585.506.
[53] *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).
[54] *See* 43 U.S.C. § 1337(p)(4)(I); 30 C.F.R. § 585.102(a)(9).
[55] *See* 30 C.F.R. § 585.621(c).

interference with other reasonable uses of the OCS. As a result of the Call, 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, would have created a navigational obstacle in the New York Harbor.[56] 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 navigational routes.

During the NEPA process for the COP, BOEM assessed alternatives and mitigation measures that could further avoid, minimize, or mitigate impacts to reasonable uses on the OCS, including national security and defense, navigation and vessel traffic, commercial fisheries and for-hire recreational fishing, and scientific research and surveys. The discussion below summarizes how BOEM considered these other OCS uses in the Lease Area[57] 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 unreasonable interference with those uses.

- **National Security and Defense**

  As explained in Section 4.6, BOEM has consulted extensively with the DoD. BOEM will include any mitigation measures identified during the consultations as part of the COP approval.

- **Navigation and Vessel Traffic**[58]

  The Lease Area is just outside the Delaware Bay and River, which offers access to several ports of call (such as Wilmington, Philadelphia, and Trenton) for large commercial deep-draft ships, tug/barge units as well as smaller commercial and non-commercial vessels. Other 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 vessel traffic passing through the project area was analyzed in the Port Access Route Study: Seacoast of New Jersey Including Offshore Approaches to the Delaware Bay (NJPARS). The USCG recommends a combination of modifications of International Maritime Organization (IMO) routing measures such as extending the Traffic Separation Scheme (TSS), creating fairways, and precautionary areas. In the NJPARS, USCG also recommends a uniform turbine layout throughout the Lease Area, providing vessels the ability to maneuver in accordance with the

[56] *See* Atlantic Wind Lease Sale 5 (ATLW5) for Commercial Leasing for Wind Power on the Outer Continental Shelf Offshore New Jersey- Proposed Sale Notice, 79 Fed. Reg. 42,361 (July. 21, 2014), https://www.govinfo.gov/content/pkg/FR-2014-07-21/pdf/2014-16864.pdf.
[57] Here, BOEM intends the "Lease Area" to encompass both the existing lease boundaries and the requested project easement.
[58] *See* Chapter 3.6.6 in the final EIS, https://www.boem.gov/renewable-energy/state-activities/atlanticshoressouthvol1feis.

International Regulations for Preventing Collisions at Sea (COLREGS). On March 24, 2022, the USCG published the final NJPARS in the *Federal Register*.

The project-specific Navigation Safety Risk Assessment (NSRA) shows that it is technically feasible for mariners to navigate through the Project.[59] The USCG and BOEM reviewed the NSRA. The NSRA involves several analyses including a detailed assessment of existing vessel traffic in the Project area, a review of the characteristics of the existing waterways, an analysis of meteorological and oceanographic (metocean) conditions affecting navigation, and an evaluation of historical search and rescue activity in the region. Atlantic Shores' COP had proposed to site all the OSSs and one met tower off-grid. The EIS Preferred Alternative incorporates a mitigation measure to align the OSSs and met tower on the grid, allowing straight transit through the Lease Area. All the structures will be placed east-northeast to west-southwest and spaced 1.0 nm and north to south spaced no less than 0.6 nm apart to align with the predominant flow of vessel traffic. Atlantic Shores consulted with USCG and the fishing industry on the grid layout to minimize the project effects to navigation safety, and SAR operations for the Project area.

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

While there are no restrictions on navigation in the Project area, vessels will need to navigate with greater caution. Navigation within the Project Area will be aided by marked and lit WTGs and offshore substations. Atlantic Shores would ensure proper lighting, marking, and signaling of Private Aids to Navigation pursuant to USCG requirements,[60] as well as BOEM's guidelines.[61]

As described in the final EIS,[62] Atlantic Shores committed to employing a Marine Coordinator to monitor daily vessel movements and implement communication protocols with external vessels both in port and offshore to avoid conflicts, monitor safety zones, and liaise with the USCG as required during SAR operations. Atlantic Shores also developed a "For Mariners" project webpage (www.atlanticshoreswind.com/mariners/), which contains

[59] *See* COP https://www.boem.gov/renewable-energy/state-activities/appendix-ii-s-navigation-safety-risk-assessment.
[60] *See* Local Notice to Mariners, District 5, https://www.dco.uscg.mil/Featured-Content/Mariners/Local-Notice-to-Mariners-LNMs/District-5/.
[61] *See* https://www.boem.gov/sites/default/files/documents/renewable-energy/2021-Lighting-and-Marking-Guidelines.pdf
[62] *See* Chapter 3.6.6 in the final EIS, https://www.boem.gov/renewable-energy/state-activities/atlanticshoressouthvol1feis.

the latest news and events, real-time Project buoy data display and Project vessel tracking chart, Project vessel schedules, and fishing industry representative contact information. This communication would be available for the life of the Project.

In addition to the consideration of navigation, vessel traffic, and SAR operations, BOEM also examined potential project impacts on aviation and air traffic and determined that air traffic is expected to continue at current levels in and around the Project.

- **Commercial Fisheries and For-Hire Recreational Fishing**[63]

Federally permitted fishing occurs in the Lease Area. NMFS has issued permits for approximately 4,300 vessels 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 152 commercial fishing vessels per year over 15 years have reported fishing in the Lease Area.[64] Of these 152 vessels, NMFS data from 2008 to 2022 show that most commercial fisheries permit holders source less than 0.21 percent of their annual revenue from the Lease Area.[65] 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 most of these outliers was below 10 percent of annual revenue for commercial fishing permit holders and below 9 percent of annual revenue was attributable to for-hire recreational fishing permit holders. The final EIS concluded that the Project would result in moderate to major adverse impacts to commercial fisheries and minor to moderate adverse impacts on for-hire recreational fishing, depending on the fishery and fishing vessel. Minor beneficial impacts to some for-hire recreational fishing operations could also occur. The final EIS states that the cumulative impacts of future planned actions, including future offshore wind approvals, could result in major adverse and minor beneficial impacts to commercial fisheries and for-hire recreational fishing.

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.[66] For example, temporary safety zones may be established in coordination with the USCG around active construction. During this time, all fishing and other vessels transiting the Project Area 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

[63] *See* Chapter 3.6.1 in the final EIS, https://www.boem.gov/renewable-energy/state-activities/atlanticshoressouthvol1feis.
[64] *Id.* Average number of commercial fishing vessels in combined project area by fishing port.
[65] *See* Chapter 3.6.1 in the final EIS, https://www.boem.gov/renewable-energy/state-activities/atlanticshoressouthvol1feis.
[66] *Id.*

concerns. It is anticipated that vessel operators that choose to avoid the area will fish or transit in other locations. Static gear fishing including hook and line, lobster and crab traps, and gillnets are not anticipated to have the same operational constraints as mobile gear fishing, although fishing methodology (e.g., direction of setting the gear and/or length of set gear) may need to be adjusted for fishing within the Project Area.

While BOEM expects that, with time, many fishermen will adapt to the spacing and be able to fish successfully in the Project Area,[67] the Lessee has identified ways to reduce the level of interference that the Projects would have with commercial fisheries.[68] For instance, all permanent structures would be aligned in a uniform grid within the Lease Area, with rows in an east-northeast to west-southwest direction spaced 1.0 nm (1.9 kilometers) apart and rows in an approximately north to south direction spaced not less than 0.6 nm (1.1 kilometers) apart that align with the predominant flow of vessel traffic. As proposed in the COP, Atlantic Shores would also implement measures to avoid, minimize, and mitigate impacts of navigational hazards on commercial and for-hire recreational fisheries, including marking all offshore structures with marine navigation lighting in accordance with USCG and BOEM guidance.

BOEM is including a fisheries mitigation program condition, which consists of a gear claim procedure under which requests for reimbursement related to lost and/or damaged gear would be processed and a Direct Compensation Program for reimbursement of lost revenues established. The Direct Compensation Program must include losses to shoreside business and requires Atlantic Shores 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 Projects. The Direct Compensation Program includes a reserve fund to be used to pay claims brought by both commercial and for-hire recreational 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)[69] and must be based on the annual average commercial fisheries landings values and for-hire recreational fishing revenue stated in the final EIS (Tables 3.6.1-17 and 3.6.1-32). The amount of the reserve fund must be determined by the formula specified in the conditions of approval. The reserve fund 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 Projects are expected to have on commercial fisheries and for-hire recreational fisherman and will prevent unreasonable interference with said fishing interests.

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[67] *Id.*
[68] *Id.*
[69] *See* Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Draft Guidelines for Mitigating Impacts to Commercial and Recreational Fisheries on the OCS Pursuant to 30 C.F.R. Part 585 (June 23, 2022), https://www.boem.gov/renewable-energy/draft-fisheries-mitigation-guidance.

- **Scientific Research and Surveys**[70]

  As described in Section 3.6.7 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)[71] to address these adverse impacts. As described in Section 3.6.7 of the final EIS, 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. Nine of these surveys overlap with the Project. BOEM is including Term and Condition 6.4 in ROD Appendix A to address this issue. Consistent with NMFS and BOEM Survey Mitigation strategy actions 1.3.1, 1.3.2, 2.1.1, and 2.1.2 in the *NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region*, the Lessee must submit to BOEM a survey mitigation agreement between NMFS and the Lessee. The survey mitigation agreement must describe how the Lessee will mitigate the Projects' impacts on the nine NMFS surveys. The Lessee must conduct activities in accordance with such agreement. If the Lessee and NMFS fail to reach a survey mitigation agreement, then the Lessee must submit a survey mitigation plan to BOEM.

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, or Navigation[72]

For a discussion on how BOEM selected the Lease Area, see Section 2.1. The Preferred Alternative would locate all structures into the uniform grid spacing, such that no permanent structures will be placed in a way that narrows any linear rows and columns to less than 0.6 nm (1,111 meters) by 1 nm or in a layout that eliminates two distinct lines or orientation in a grid pattern.

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

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[70] *See* Section 3.6.7 in the final EIS, https://www.boem.gov/renewable-energy/state-activities/atlanticshoressouthvol1feis.

[71] *See* 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.

[72] *See* 43 U.S.C. § 1337(p)(4)(J); 30 C.F.R. § 585.102(a)(10).

4.11 Public Notice and Comment on any Proposal Submitted for a Lease or Easement[73]

For a detailed discussion on public notice and comment opportunities associated with the issuance of the lease, please see Chapter 1 and Appendix A of the final EIS[74] and Section 5.1 of the Mid-Atlantic EA.[75]

Before preparing the draft EIS, BOEM held three virtual public scoping meetings (on October 19, October 21, and October 25, 2021) to solicit feedback and to identify issues and potential alternatives for consideration. The topics most referenced in the scoping comments included marine mammals, birds, climate change, commercial fisheries and for-hire recreational fishing, employment and job creation, mitigation and monitoring, NEPA/public involvement, planned activities scenario/cumulative impacts, and scenic and visual resources.[76] 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-2021-57.

On May 18, 2023, 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.[77] The draft EIS was made available to the public on BOEM's website. The NOA commenced the public review and comment period of the draft EIS. BOEM held two virtual public hearings (on June 26 and June 28, 2023) and two in-person public meetings (on June 21 and June 22, 2023) to solicit feedback and identify issues for consideration in preparing the final EIS. Throughout the public review and comment period, federal agencies; Tribal, state, and local governments; and the general public had the opportunity to provide comments on the draft EIS. The topics most referenced during the draft EIS comment period included air quality, climate change, commercial fisheries and for-hire recreational fishing, demographics, 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-2023-0030.

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[73] *See* 43 U.S.C. § 1337(p)(4)(K); 30 C.F.R. § 585.102(a)(11).
[74] *See* Appendix N in the final EIS, https://www.boem.gov/renewable-energy/state-activities/atlanticshoressouthvol1feis.
[75] BOEM, 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.
[76] *See* Bureau of Ocean Energy Mgmt., Atlantic Shores South Construction and Operations Plan Scoping Report, https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Atlantic-Shores-South-Scoping-Report-Summary-Appendix.pdf.
[77] *See* Notice of Availability of a Draft Environmental Impact Statement for Atlantic Shores Offshore Wind Project 1, LLC and Atlantic Shores Offshore Wind Project 2, LLC's Proposed Wind Energy Facilities Offshore New Jersey, 88 Fed. Reg. 32,242 (May 19, 2023), https://www.federalregister.gov/documents/2023/05/19/2023-10691/notice-of-availability-of-a-draft-environmental-impact-statement-for-atlantic-shores-offshore-wind.

On May 31, 2024, BOEM published an NOA for the final EIS in the *Federal Register*.[78] The final EIS was also made available in electronic form at https://www.boem.gov/renewable-energy/state-activities/atlantic-shores-south. BOEM's 30-day waiting period for the final EIS closed on July 1, 2024. BOEM's responses to comments on the draft EIS are included in Appendix N of the final EIS.

4.12 Oversight, Inspection, Research, Monitoring, and Enforcement Relating to a Lease, Easement, or Right-of-Way[79]

Secretarial 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.[80] On September 14, 2022, DOI delegated relevant authorities to BSEE and BOEM in Departmental Manual Part 219, Chapter 1, and Part 218, Chapter 1, respectively.

On January 31, 2023, DOI published a final rule in the *Federal Register*[81] that moved portions of the existing OCS renewable energy regulations to BSEE, consistent with the Secretary's order and the Departmental Manual. Following approval of the COP, BSEE will exercise its authority to perform oversight, inspection, research, monitoring, and enforcement relating to Lease OCS-A 0499. 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, civil penalties, and other appropriate means.

Under this delegation of authority, BSEE and BOEM will ensure that offshore renewable energy development in Lease OCS-A 0499 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 are anticipated conditions of COP approval.

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[78] *See* https://www.federalregister.gov/documents/2024/05/31/2024-11947/notice-of-availability-of-a-final-environmental-impact-statement-for-atlantic-shores-offshore-wind
[79] *See* 43 U.S.C. § 1337(p)(4)(L); 30 C.F.R. § 585.102(a)(12).
[80] *See* "Memorandum from Principal Deputy Assistant Secretary - Land and Minerals Management on the Department of the Interior's Offshore Renewable Energy Program Roles and Responsibilities," December 22, 2020.
[81] *See* Reorganization of Title 30-Renewable Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf, 88 Fed. Reg. 6376 (Jan. 31, 2023), https://www.federalregister.gov/documents/2023/01/31/2023-00871/reorganization-of-title-30-renewable-energy-and-alternate-uses-of-existing-facilities-on-the-outer.

5 STATUS OF THE LEASE

Atlantic Shores is currently in compliance with the terms of Lease OCS-A 0499. Atlantic Shores maintains the lease in full force and effect by virtue of annual rent payments, all of which have been timely paid.

6 FINANCIAL ASSURANCE

As required by 30 C.F.R. § 585.626(b)(19), Section 1.10 of the COP[82] contains Atlantic Shores Offshore 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. Atlantic Shores Offshore Wind Project 1, LLC has provided and currently maintains Surety Bond Nos. K1538623A and 107521285, each in the amount of $126,155.50. Atlantic Shores Offshore Wind Project 2, LLC has provided and currently maintains Surety Bond Nos. K15386241 and 107521286, each in the amount of $126,155.50. These bonds, totaling $504,622, meet the initial $100,000 lease-specific and $404,622 SAP supplemental financial assurance requirements on lease OCS-A 0499 and guarantee compliance with all terms and obligations of the lease. The BOEM-administered 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. Atlantic Shores 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.[83]

7 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 Finding of No Significant Impact (FONSI), which concluded that reasonably foreseeable environmental effects associated with lease issuance, including those resulting from

[82] Atlantic Shores South (OCS-A 0499) Construction and Operations Plan, Section 1.10 (May 2024), https://www.boem.gov/renewable-energy/state-activities/atlantic-shores-offshore-wind-construction-and-operations-plan.
[83] *See* 30 C.F.R. § 585.517.

site characterization surveys in the WEA and the deployment of meteorological towers and/or buoys, would not significantly impact the environment.

On November 9, 2015, BOEM held a lease sale that led to the issuance of lease OCS-A 0499 to US Wind Inc., now Atlantic Shores Offshore Wind Project 1, LLC and Atlantic Shores Offshore Wind Project 2, LLC (collectively, Atlantic Shores Offshore Wind, or Atlantic Shores). Atlantic Shores submitted its COP in March of 2021, and 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 selection of the Preferred Alternative conforms with the 8(p)(4) factors and implementing regulations.

As reflected in the ROD for the Project, the Preferred Alternative, i.e., the combination of elements of Alternative B (Proposed Action Alternative), Alternative C4 (Habitat Impact Minimization/Fisheries Habitat Impact Minimization: Micrositing), Alternative D3 (No Surface Occupancy of Up to 10.8 Miles (17.4 Kilometers) from Shore; Removal of Up to 6 Turbines), and Alternative E (Wind Turbine Layout Modification to Establish a Setback between Atlantic Shores South and Ocean Wind 1), and two proposed mitigations (BOEM-Proposed Mitigation Measure #5 and NOAA/NMFS-Proposed Mitigation Measure #1 of the final EIS in Appendix G) balance the need to prevent interference with OCS uses with BOEM's duty to further the U.S. policy to make OCS energy resources available for expeditious and orderly development, subject to environmental safeguards, including the consideration of natural resources and existing ocean uses. The final EIS demonstrates that approving the Project, as modified by the Preferred Alternative, will have negligible to moderate adverse impacts on most resources and only the potential for major adverse impacts on (i) NARW, (ii) commercial fisheries and for-hire recreational fisheries, (iii) cultural resources, and (iv) other uses (scientific research and surveys). However, the Preferred Alternative could also have, to some extent, beneficial impacts on the following resources: (i) sea turtles, (ii) benthic resources, (iii) birds, (iv) air quality, (v) finfish, invertebrates, and essential fish habitat, (vi) marine mammals (odontocetes and pinnipeds), (vii) for-hire recreational fishing, (viii) land use and coastal infrastructure, (ix) recreation and tourism, (x) demographics, (xi) employment, (xii) economics, (xiii) environmental justice, and (xiv) scenic and visual resources.

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.[84]

[84] *See* Chapters 3.4 and 3.5 in the final EIS, https://www.boem.gov/renewable-energy/state-activities/atlanticshoressouthvol1feis.

In conclusion, OREP has evaluated all the information that Atlantic Shores provided in its COP and has assessed it in relation to the 8(p)(4) factors and BOEM's implementing regulations at 30 C.F.R. part 585. Approval of the COP, as modified by the Preferred Alternative and the proposed Terms and Conditions included with the ROD, would be in accordance with the regulations at 30 C.F.R. part 585 and would ensure that all Project activities on the OCS are carried out in a manner that provides for the 8(p)(4) factors.

Appendix B.1

ETRB Review Memorandum

United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
WASHINGTON, DC 20240-0001

Memorandum

To: David MacDuffee
Chief, Projects and Coordination Branch

From: Marilyn Sauls
Chief, Engineering and Technical Review Branch

MARILYN SAULS
Digitally signed by MARILYN SAULS
Date: 2024.05.21 15:45:24 -04'00'

Subject: Review of the Atlantic Shores Offshore Wind South Construction and Operations Plan (COP) for Commercial Lease OCS-A 0499

Atlantic Shores Offshore Wind, LLC (Atlantic Shores) submitted a COP to the Bureau of Ocean Energy Management (BOEM) on March 25, 2021, for the Atlantic Shores Offshore Wind South Project (ASOW South) on lease OCS-A 0499. The COP for the ASOW South project proposes the installation of the following major offshore components:

- Up to 200 wind turbine generators (WTGs) supported by monopile or piled jacket foundations. Project 1 will utilize monopile foundations. Project 2 will utilize either monopile or piled jacket foundations. Only one WTG foundation type (monopile or piled jackets) will be utilized for all WTG positions in Project 2;
- Up to 10 offshore substations supported by monopile, piled jacket, suction bucket, or gravity -base foundations;
- One meteorological tower supported by a monopile, piled jacket, suction bucket, or gravity -base foundation;
- Inter-array cables with an operating voltage of 66-150 kilovolts (kV);
- Inter-link cables with an operating voltage of 66-275 kV; and
- Up to (8) submarine high-voltage alternating-current export cables buried to a target depth of 5 to 6.6 feet (1.5 to 2 meters).

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 (Safety Management System [SMS]), Oil Spill Response Plan (OSRP), and Certified Verification Agent (CVA) Nomination;
- Federal Aviation Administration (FAA) for aviation and radar interference;
- National Oceanic and Atmospheric Administration (NOAA), for radar interference; and
- The United States Coast Guard (USCG), for vessel navigation.

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 Atlantic Shores meets the requirements of 30 CFR §585.626 and 30 CFR §585.627[1]. This review is documented in BOEM's COP Review Matrix located on the Office of Renewable Energy Program's share drive at AEAU: S:\State of New Jersey\ASOW-South OCS-A 0499\COP.

ETRB expects Atlantic Shores to use the most current technology available for commercial production that meets or exceeds current industry standards. In some cases, this includes technologies currently in prototyping and/or working toward type certification by a recognized industry standards organization but may not yet be commercially available. ETRB has determined that the technologies proposed within the Project Design Envelope (PDE) of the COP are the same as those currently being commercial utilized or prototyped around the world and constitute the most current and advanced technologies available. ETRB has determined that the information provided in the COP is sufficient to determine that the project proposes to use the best available and safest technology which will meet or exceed the current international industry standards.

The COP also provides a description of its proposed SMS,[2] 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 Atlantic Shores' proposed implementation thereof. BOEM determined that Atlantic Shores' proposals are consistent with acceptable industry practices and standards (i.e., best management practices). 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.

OREP has consulted with BSEE and the USCG on safety requirements and best practices during the COP review process. Their recommendations and relevant requirements have been incorporated into the proposed conditions of approval for the COP to ensure that the ASOW South project is carried out in a safe manner. Additionally, oversight of the review of future submissions (e.g., Facility Design Report [FDR] and Fabrication and Installation Report [FIR]) will allow BSEE to ensure that the "facilities are designed, fabricated, and installed in conformance with accepted engineering practices."[3]

Furthermore, ETRB and BSEE reviewed the statement of work and qualifications submitted in the COP for the CVA nomination. Atlantic Shores has nominated Bureau Veritas North America, Inc. (Bureau Veritas) to be the CVA for the ASOW South project. Bureau Veritas will review Atlantic Shores' FDR and FIR and must certify that the project facilities are designed, fabricated, and installed in conformance with accepted engineering practices. BOEM anticipates BSEE approval of the CVA nomination prior to submission of the FDR and FIR to BSEE.

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[1] Where ETRB review is appropriate inclusive of 30 CFR 585.627(a)(1) and portions of 585.627(a)(8), vessel traffic.
[2] See ASOW South Construction and Operations Plan Volume I, Appendix E.
[3] See 30 C.F.R. § 285.705(a)(1).

As a result of these reviews and consultations, ETRB has determined the technical information and supporting data provided with the COP is sufficient to allow the safe installation of the ASOW South project on the Outer Continental Shelf (OCS), does not unreasonably interfere with other uses of the OCS, uses best available and safest technology, best management practices, and properly trained personnel, pursuant to 30 CFR §585.621(b), (c), (e), (f), and (g).

ETRB recommends approval of the COP, along with the inclusion of the following terms and conditions (T&C), provided as Appendix A – Anticipated Terms and Conditions of COP Approval 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 G: Mitigation and Monitoring of the Final Environmental Impact Statement (FEIS). The table below provides a cross-reference.

#	Terms and Conditions	Regulation	Information Requirement
2.1	MEC/UXO ALARP Certification	§585.627(a)(1)	Hazard information – manmade hazards
2.2	MEC/UXO Discovery Notification	§585.627(a)(1)	Hazard information – manmade hazards
2.3	Safety Management System	§585.627(d)	Safety Management System
2.4	Emergency Response Procedure	§585.626(b)(12)(ii)	Operating procedures – accidents or emergencies
2.5	Oil Spill Response Plan	§585.627(c)	Oil Spill Response Plan
2.6	Cable Routings	§585.626(b)(7)	Cables
2.7	Cable Burial	§585.626(b)(7)	Cables
2.8	Cable Protection Measures	§585.626(b)(7)	Cables
2.9	Crossing Agreements	§585.626(b)(7)	Cables
2.10	Post-Installation Cable Monitoring	§585.626(b)(7)	Cables
2.11	WTG and OSS Foundation Depths	§585.626(a)(4)	Geotechnical survey
2.12	Structural Integrity Monitoring	§585.626(b)(12) §285.824	Operating procedures, self-inspections
2.13	Foundation Scour Protection Monitoring	§585.626(a)(6)	Overall site investigation – scouring of the seabed
2.14	Post-Storm Event Monitoring Plan	§585.627(a)(1)	Hazard information – meteorology, oceanography
2.15	High Frequency Radar Interference Analysis and Mitigation	§585.626(b)(23); FEIS	Other information as required by BOEM
2.16	Critical Safety Systems and Equipment	§585.626(b)(20);	CVA nomination and reports

2.17	Engineering Drawings	§585.626(b)(20);	CVA nomination and reports
2.18	Construction Status	§585.626(b)(21);	Construction Schedule
2.19	Maintenance Schedule	§585.626(b)(12);	Operating procedures
2.20	Pre-lay Grapnel Run Plan	§585.626(b)(7); §585.626(b)(15)	Cables; Environmental Impacts
3	Navigational and Aviation Safety Conditions	§585.626(b)(23)	Other information as required by BOEM
5.4.2	Sand Bedform Removal Plan	§585.627(a)(1); §585.626(b)(15)	Hazard Information-Shallow Geological Hazards; Environmental Impacts
5.4.4	Micrositing Plan(s)	§585.626(b)(15)	Environmental Impacts
5.4.5	Boulder Identification and Relocation Plan	§585.627(a)(1); §585.626(b)(15)	Hazard Information-Shallow Geological Hazards; Environmental Impacts
5.4.7	Boulder Relocation	§585.627(a)(1); §585.626(b)(15)	Hazard Information-Shallow Geological Hazards; Environmental Impacts
5.4.8	Boulder Relocation Report	§585.627(a)(1); §585.626(b)(15)	Hazard Information-Shallow Geological Hazards; Environmental Impacts
5.4.9	Scour and Cable Protection Plan	§585.626(b)(7) §585.626(b)(15)	Cables; Environmental Impacts