Record of Decision

Empire Offshore Wind: Empire Wind Project (EW 1 and EW2) Construction and Operations Plan

November 20, 2023

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

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

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1. Introduction

This document constitutes the Bureau of Ocean Energy Management's (BOEM) and the National Ocean and Atmospheric Administration (NOAA) National Marine Fisheries Service's (NMFS)[1] joint Record of Decision (ROD) for the Final Environmental Impact Statement (EIS) prepared for the Empire Offshore Wind: Empire Wind Project (EW 1 and EW 2) Construction and Operations Plan (COP). The ROD addresses BOEM's action to approve the COP under subsection 8(p)(4) of the Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. § 1337(p), and NMFS' action to issue a Letter of Authorization (LOA) to Empire Offshore Wind LLC (Empire or Empire Wind) under Section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA), as amended, 16 U.S.C. § 1371(a)(5)(A). This ROD was prepared following the requirements of the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 *et seq*., and 40 C.F.R. §§ 1500-1508.[2]

BOEM prepared the Empire Offshore Wind Final EIS with the assistance of a third-party contractor, ICF Jones & Stokes, Inc. NMFS, the U.S. Army Corps of Engineers (USACE), the U.S. Coast Guard (USCG), the Bureau of Safety and Environmental Enforcement (BSEE), the U.S. Environmental Protection Agency (USEPA), the National Park Service (NPS), and the U.S. Maritime Administration were cooperating agencies during the development and review of the document. Cooperating state agencies included the New York State Department of Environmental Conservation, the New York State Department of State, and the New York State Energy Research and Development Authority (NYSERDA).

NMFS received a request for authorization to take marine mammals incidental to construction activities related to the Project, which NMFS may authorize under the MMPA. NMFS's issuance of an MMPA incidental take authorization in the form of a LOA for Incidental Take Regulations (ITRs) is a major Federal action and, in relation to BOEM's action, is considered a connected action (40 CFR § 1501.9(e)(1)). The purpose of the NMFS action—which is a direct outcome of Empire's request for authorization to take marine mammals incidental to specified activities associated with the Project (e.g., pile driving)—is to evaluate Empire Wind'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 U.S.C. § 1371(a)(5)(A)) and its implementing regulations.

In addition to analyzing potential impacts resulting from BOEM's approval of the COP pursuant to Section 8(p)(4) of OCSLA, the Final EIS also analyzed potential impacts resulting from the proposed action that are relevant to USACE permitting actions under Section 10 of the Rivers and Harbors Act of 1899 (RHA), 33 U.S.C. § 403; Section 14 of the RHA, 33 U.S.C. § 408; Section 404 of the Clean Water Act (CWA), 33 U.S.C. § 1344; and NMFS' action of issuing a LOA for incidental harassment of small numbers of marine mammals during construction to Empire Offshore Wind LLC under the MMPA, 16 U.S.C. § 1371(a)(5)(A). See also 40 C.F.R. § 1501.9(e)(1)).

[1] For purposes of this Record of Decision, NMFS is exercising authority under the Marine Mammal Protection Act to issue marine mammal incidental take authorizations.
[2] The associated Final EIS was prepared using the 2020 Council on Environmental Quality (CEQ) NEPA Regulations. Therefore, this ROD follows the 2020 CEQ Regulations.

1.1. Background

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

Table 1.-1 History of BOEM Planning and Leasing Offshore New York

Year	Milestone
2010	BOEM formed the BOEM New York Renewable Energy Task Force (Task Force) in its consideration of potential leasing activities on the Outer Continental Shelf (OCS) offshore New York. The Task Force allowed for coordination among affected federal agencies and tribal, state, and local governments throughout the leasing process. The first Task Force meeting was held on November 18, 2010; subsequent meetings were held on April 3, 2012; September 26, 2013; and April 28, 2016.
2011	On September 8, 2011, BOEM received an unsolicited request from New York Power Authority (NYPA), Long Island Power Authority (LIPA), and Consolidated Edison (ConEd) for a commercial lease from NYPA. The proposal included the installation of up to 194 3.6-megawatt (MW) wind turbines, yielding a potential 700 MW of wind energy generation.
2013	On January 4, 2013, BOEM issued a Request for Interest in the Federal Register under Docket No. BOEM-2012-0083 to assess whether there are other parties interested in developing commercial wind facilities in the same area proposed by NYPA. In addition to inquiring about competitive interest, BOEM also sought public comment on the NYPA proposal, its potential environmental consequences, and the use of the area in which the proposed project would be located. In response, BOEM received two indications of interest.
2014	After reviewing nominations of interest received in response to the Request for Interest, BOEM determined that competitive interest in the area proposed by NYPA existed, and BOEM initiated the competitive leasing process pursuant to 30 C.F.R. 585.211. On May 28, 2014, BOEM published a "Call for Information and Nominations" (Call) under Docket No. BOEM-2013-0087 to seek additional nominations from companies interested in commercial wind energy leases within the Call area. BOEM also sought public input on the potential for wind development in the Call area, including comments on site conditions, resources, and existing uses of the area that would be relevant to BOEM's wind energy development authorization process. In response to the Call, BOEM received three additional nominations, for a total of six, plus one additional qualifications package submission.
2014	On the same day (May 28, 2014), BOEM also published a Notice of Intent to prepare an EA for commercial wind leasing and site assessment activities within the Call area.
2016	On June 6, 2016, BOEM published a Proposed Sale Notice for Commercial Leasing for Wind Power on the Outer Continental Shelf Offshore New York (Docket No. BOEM-2016-0027) and a Notice of Availability for the EA for commercial wind leasing and site assessment activities (Docket No. BOEM-2016-0038).
2016	On October 27, 2016, BOEM published the Final Sale Notice for a lease sale offshore New York (Docket No. BOEM-2016-0071).

Year	Milestone
2016	On October 31, 2016, BOEM published a Notice of Availability for a revised EA (Docket No. BOEM-2016-0066). Within the EA, BOEM issued a "Finding of No Significant Impact," which concluded that reasonably foreseeable environmental effects associated with the activities that would likely be performed following lease issuance (e.g., site characterization surveys in the WEA and deployment of meteorological buoys) would not significantly affect the environment (BOEM 2016). In response to the public comments BOEM received on the original EA, five aliquots (approximately 1,780 acres [720 hectares]) were removed from the northwestern portion of the initial WEA due to concerns over the sensitive habitat on Cholera Bank.
2016	On December 15–16, 2016, BOEM held the lease sale for an area offshore New York, or the "New York Lease Area," pursuant to 30 C.F.R. 585.211. Statoil Wind US, LLC (subsequently renamed to Equinor Wind US, LLC in 2018) was awarded Lease Area OCS-A 0512.
2018	Equinor Wind US, LLC submitted a SAP for Lease Area OCS-A 0512 to BOEM in June 2018, with revisions filed in July, August, and October 2018. BOEM determined the SAP was complete on August 22, 2018, and BOEM approved the SAP on November 21, 2018.
2020	Empire Wind submitted its COP on January 10, 2020. Empire Wind submitted updates to the COP on September 25, 2020; July 2, 2021; May 20, 2022; June 13, 2022; and July 21, 2023.
2021	On June 24, 2021, BOEM published a Notice of Intent to Prepare an Environmental Impact Statement for the Empire Wind Project offshore New York (Docket No. BOEM-2021-0038).
2022	On November 18, 2022, BOEM published a Notice of Availability of a Draft EIS initiating a 60-day public comment period for the Draft EIS.
2023	On September 15, 2023, BOEM published a Notice of Availability of a Final EIS in the Federal Register initiating a minimum 30-day mandatory waiting period, during which BOEM is required to pause before issuing a ROD. On November 15, 2023, BOEM published errata on its website that included certain edits to the summary and comparison of impacts among alternatives table in the Chapter 2 of the Final EIS to correct impact conclusions for marine mammals. The errata also provide corrections to Chapter 3 to include identification of species-specific cumulative impacts of the Proposed Action. None of these corrections are substantive or affect the analysis or conclusions in the Final EIS.

COP = Construction and Operations Plan; EA = Environmental Assessment; EIS = Environmental Impact Statement; ESA = Endangered Species Act; FONSI = Finding of No Significant Impact; ITR = Incidental Take Regulations; ROD = Record of Decision; WEA = Wind Energy Area

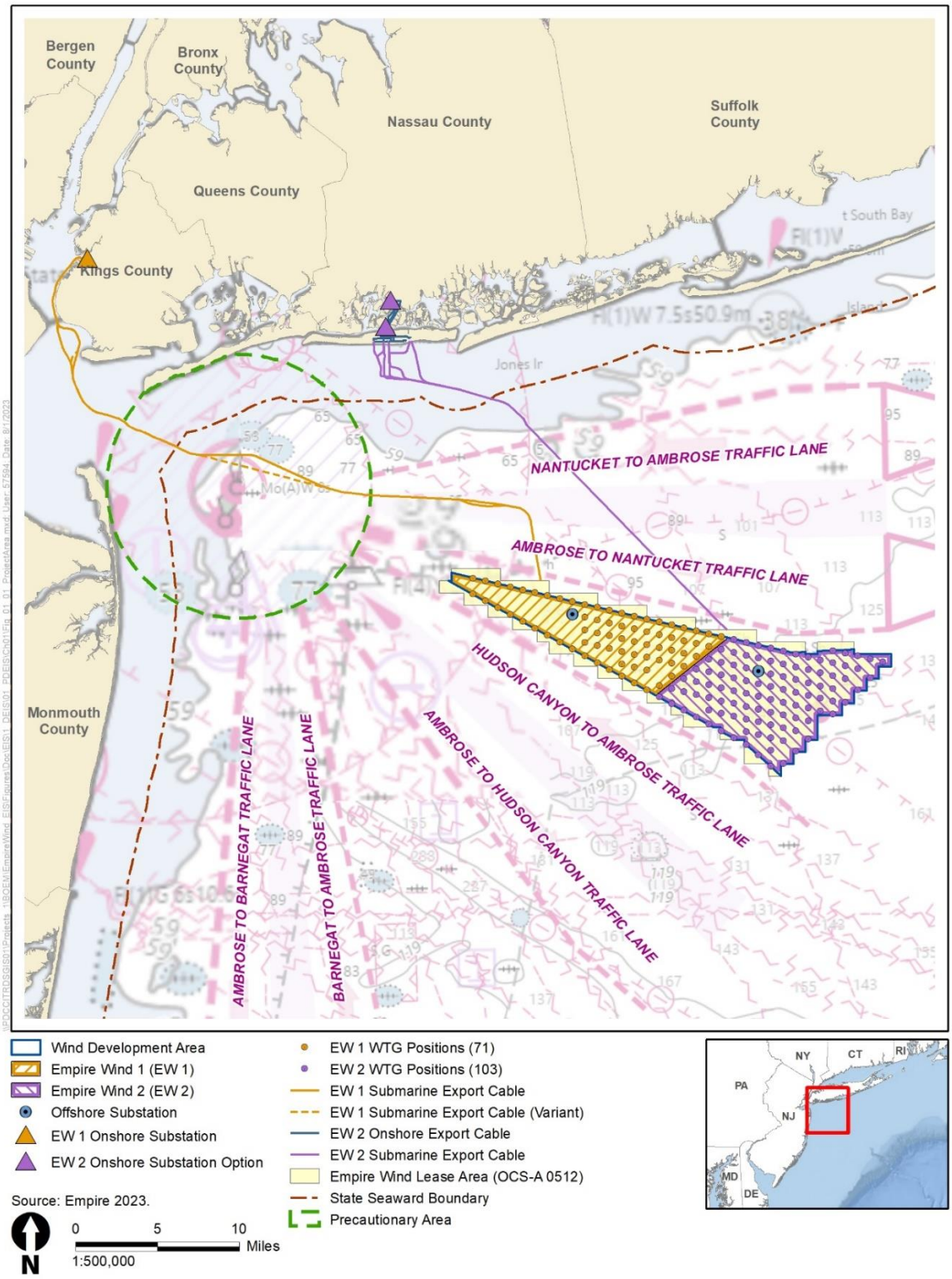

Figure 1-1 Proposed Project Area and Facilities

1.2. Authorities

The following summarizes BOEM's authority regarding the approval of the proposed Project, and NMFS' authority to authorize the incidental take by harassment of marine mammals incidental to the proposed Project. The Final EIS includes a description of consultations, authorizations, and permits related to the Project in Appendix A. The agencies adopting the Final EIS are those agencies that have defined authorizations and permitting responsibilities for the Project itself or for effects related to the Project. The NMFS MMPA LOA is briefly discussed 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. Issuance of an LOA under the MMPA triggers independent NEPA compliance obligations, which may be satisfied by adopting the Final EIS prepared by BOEM. Aside from BOEM and NMFS, additional agencies participated in the NEPA process as cooperating agencies and may sign their ROD and make their permitting decisions at a later time (e.g., USACE). Other cooperating or participating agencies either are not required to authorize the Project; have completed any authorizations that are required of them; or are performing actions that are exempt from NEPA (e.g., USEPA's Clean Air Act permitting) and, therefore, reviewed separately.

1.2.1. BOEM Authority

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

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

The Secretary of the Interior's authorization must comply with OCSLA subsection 8(p)(4), 43 U.S.C. § 1337(p)(4), which "imposes a general duty on the Secretary to act in a manner providing for the subsection's [various policy] goals." Sol. Op. M-37067, "Secretary's Duties under Subsection 8(p)(4) of the Outer Continental Shelf Lands Act When Authorizing Activities on the Outer Continental Shelf" (Apr. 9, 2021). According to M-Opinion 37067, "[t]he subsection does not require the Secretary to ensure that the goals are achieved to a particular degree, and she retains wide discretion to determine the appropriate balance between two or more goals that conflict or are otherwise in tension."[3]

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

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

met. 16 U.S.C. § 1371(a)(5)(A), (D). To authorize the incidental take of marine mammals, NMFS evaluates the best available scientific information to determine whether the take would have a negligible impact on affected species or stocks and whether the activity would have an unmitigable adverse impact on the availability of the species or stocks for subsistence use (if applicable). NMFS cannot issue an authorization if NMFS finds the taking would result in more than a negligible impact on marine mammal species or stocks or would result in an unmitigable adverse impact on the species or stocks for subsistence uses. NMFS must also prescribe the permissible methods of take and other means of effecting the least practicable adverse impact on the species or stocks of marine mammals and their habitat, paying particular attention to rookeries, mating grounds, and other areas of similar significance. All incidental take authorizations include additional requirements pertaining to monitoring and reporting.

Pursuant to Section 7(a)(2) of the Endangered Species Act (ESA), NMFS must also ensure that issuing the marine mammal incidental take authorization is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. 16 U.S.C. § 1536(a)(2).

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

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

2. Proposed Project

2.1. Project Description

The Proposed Action would construct, operate, maintain, and decommission the 816-MW Empire Wind 1 (EW 1) Project and the 1,260-MW Empire Wind 2 (EW 2) Project within Lease Area OCS-A 0512 and associated export cables (Figure 1-1). EW 1 would consist of up to 57 wind turbine generators (WTGs), up to 116 nm (214 kilometers) of interarray cable, one offshore substation (OSS), a submarine export cable route of up to 41 nm (76 kilometers), a cable landfall at South Brooklyn Marine Terminal (SBMT), one onshore substation, and interconnection cable to the point of interconnection (POI) at Gowanus Substation in Brooklyn, New York. EW 2 would consist of up to 90 WTGs, up to 144 nm (267 kilometers) of interarray cable, one OSS, a submarine export cable route of up to 26 nm (48 kilometers), up to two out of four proposed cable landfalls in Long Beach or Lido Beach, New York, onshore cable route options, one onshore substation, and interconnection cable to a POI in Oceanside, New York. Development of the wind energy facility would occur within the range of design parameters described in Volume I of the Empire Offshore Wind: Empire Wind Project (EW 1 and EW 2) COP (Empire 2023), subject to applicable mitigation measures. The Final EIS considered the impacts resulting from the improvements to be performed to the SBMT as a connected action to the Project.

2.2. Purpose and Need for the Proposed Action

Through a competitive leasing process under 30 C.F.R. 585.211, Empire Wind was awarded Renewable Energy Lease Number OCS-A 0512 covering an area offshore New York (the Lease Area). Under the terms of the lease, Empire Wind has the exclusive right to submit a COP for activities within the Lease Area, and it has submitted a COP to BOEM proposing the construction and installation, operations and maintenance (O&M), and conceptual decommissioning of the Projects in accordance with BOEM's COP regulations under 30 C.F.R. 585.626, et seq..

Empire's stated goal is to construct and operate commercial-scale offshore wind energy facilities in the Lease Area. The Projects would contribute to New York's goal of 9 gigawatts (GW) of offshore wind energy generation by 2035 as outlined in the New York State Climate Leadership and Community Project Act, and likewise advance the goals of the 2015 New York State Energy Plan as amended on April 8, 2020. In furtherance of New York's goals, NYSERDA awarded its November 8, 2018, solicitation for 800 MW of offshore wind to Empire Wind and its 816-MW EW 1 Project on July 18, 2019, and NYSERDA awarded its July 21, 2020, solicitation for up to 2,500 MW of offshore wind to Empire Wind and its 1,260-MW EW 2 Project on January 13, 2021.[4]

[4] In June of 2023, Empire Wind, along with other parties, submitted petitions to the New York Public Service Commission seeking to amend the offshore renewable energy credit agreements that resulted from these solicitations (along with other analogous agreements) to account for unforeseen economic conditions that resulted in cost increases for both EW1 and EW2. On October 12, 2023, the commission denied these petitions, and shortly thereafter, NYSERDA issued a Request for Information to support an expedited solicitation. Empire has stated to BOEM its intention to participate in NYSERDA's solicitation. As of the date of this ROD, Empire has not amended its COP nor otherwise changed its goa1 of developing the proposed projects, which are expected to be considered by NYSERDA in its upcoming solicitation. If that solicitation results in changes to the COP that are outside the proposed project design envelope or inconsistent with the selected alternative, BOEM would require revisions to Empire's COP.

Based on BOEM's authority under the OCSLA to authorize renewable energy activities on the OCS; Executive Order 14008; the Administration's goal to deploy 30 GW of offshore wind energy capacity in the United States by 2030 while protecting biodiversity and promoting ocean co-use;[5] and in consideration of Empire's goal; the purpose of BOEM's action is to determine whether to approve, approve with modifications, or disapprove Empire's COP. BOEM is making this determination after weighing the factors in subsection 8(p)(4) of the OCSLA that are applicable to plan decisions and in consideration of the above goals. BOEM's action is needed to fulfill its duties under the lease, which require BOEM to make a decision on the Lessee's plans to construct and operate a commercial-scale offshore wind energy facility within the Lease Area (the Proposed Action).

NMFS, 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).

[5] 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").

3. Alternatives

The Final EIS considered a reasonable range of alternatives to the Proposed Action.[6] BOEM carried forward eight action alternatives for detailed analysis (one of which includes sub-alternatives) and the No Action Alternative. Other action alternatives were considered but not analyzed further 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
No Action Alternative	Under the No Action Alternative, BOEM would not approve the COP. Construction and installation, O&M, and conceptual decommissioning of the 816-MW EW 1 Project and the 1,260-MW EW 2 Project would not occur, and no additional permits or authorizations for the Projects would be required.[7] Any potential environmental and socioeconomic impacts, including benefits, associated with the Projects as described under the Proposed Action would not occur. The current resource condition, trends, and effects from ongoing activities under the No Action Alternative serve as the baseline against which all action alternatives are evaluated. Over the life of the proposed Projects, 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 Final EIS, Appendix F (*Planned Activities Scenario*) without the Proposed Action serves as the baseline for the evaluation of cumulative impacts.
Alternative A: Proposed Action	Under Alternative A, the Proposed Action, the construction, O&M, and conceptual decommissioning of the 816-MW EW 1 Project and the 1,260-MW EW 2 Project within Lease Area OCS-A 0512 and associated export cables would occur within the range of design parameters outlined in the COP, subject to applicable mitigation measures. EW 1 would consist of up to 57 WTGs, up to 116 nm (214 kilometers) of interarray cable, one OSS, a submarine export cable route of up to 41 nm (76 kilometers), a cable landfall at SBMT, one onshore substation, and interconnection cable to the POI at Gowanus Substation in Brooklyn, New York. EW 2 would consist of up to 90 WTGs, up to 144 nm (267 kilometers) of interarray cable, one OSS, a submarine export cable route of up to 26 nm (48 kilometers), up to two out of four proposed cable landfalls in Long Beach or Lido Beach, New York, onshore cable route options, one of two proposed onshore substations, and interconnection cable to a POI in Oceanside, New York. The Proposed Action wind turbine layout includes the following requirements to reduce impacts on navigation safety and preserve fishing opportunity: • 1-nm setback from the Traffic Separation Scheme • Southern perimeter WTG positions aligned with Hudson Canyon to Ambrose traffic lane • North-south search and rescue lanes across the Lease Area

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

[7] Under the No Action Alternative, impacts on marine mammals incidental to construction activities would not occur. Therefore, NMFS would not issue the requested authorization under the MMPA to the Applicant.

Alternative	Description
	• Minimum WTG spacing of 0.65 nm[8] • Grid orientation facilitating southwest-to-northeast trawling • Open area in the northwestern portion of the Lease Area to reduce conflicts with squid fisheries
Alternative B: Remove Up to Six WTG Positions from the Northwest End of EW 1	Under Alternative B, Remove Up to Six WTG Positions from the Northwest End of EW 1, the construction, O&M, and conceptual decommissioning of the 816-MW EW 1 Project and the 1,260-MW EW 2 Project within Lease Area OCS-A 0512 and associated export cables would occur within the range of design parameters outlined in the COP, subject to applicable mitigation measures. However, the EW 1 turbine layout would be modified to remove up to six WTG positions from the northwestern end of EW 1 to reduce potential impacts at the edge of Cholera Bank on scenic resources and on navigation safety. Alternative B would also establish a No Surface Occupancy area where WTG positions would be excluded. Submarine export and interarray cables are not excluded from the No Surface Occupancy area. Between the Draft EIS and Final EIS, Empire Wind completed additional site investigations and studies to quantify the extent of glauconite deposits across the Lease Area as well as their potential impact on pile drivability. The pile drivability analyses determined that 22 of the 71 positions analyzed in EW 1 pose a high risk of pile refusal, leaving 49 suitable positions for WTG installation that include the six WTG positions identified for removal under Alternative B. BOEM and NREL independently reviewed Empire's analysis and, based on this review, determined that Alternative B would no longer meet the purpose and need because selection of Alternative B would not allow Empire Wind to install the minimum number of WTGs necessary to fulfill Empire's contractual obligations with NYSERDA.
Alternative C: EW 1 Submarine Export Cable Route	Under Alternative C, EW 1 Submarine Export Cable Route, the construction, O&M, and conceptual decommissioning of the 816-MW EW 1 Project and the 1,260-MW EW 2 Project within Lease Area OCS-A 0512 and associated export cables would occur within the range of design parameters outlined in the COP, subject to applicable mitigation measures. However, BOEM would approve only one of the two EW 1 submarine export cable route options that would traverse either the Gravesend Anchorage Area or the Ambrose Navigation Channel on the approach to SBMT. Each of the below sub-alternatives may be individually selected or combined with any or all other action alternatives or sub-alternatives. • Alternative C-1: Gravesend Anchorage Area. In the vicinity of Gravesend Bay, the EW 1 submarine export cable route would traverse a charted anchorage area identified on NOAA Chart 12402 for the Port of New York (U.S. Coast Guard Anchorage #25). • Alternative C-2: Ambrose Navigation Channel. In the vicinity of Gravesend Bay, the EW 1 submarine export cable route would traverse the Ambrose Navigation Channel.
Alternative D: EW 2 Submarine Export Cable Route Options to Minimize Impacts on the Sand Borrow Area	Under Alternative D, EW 2 Submarine Export Cable Route Options to Minimize Impacts on the Sand Borrow Area, the construction, O&M, and conceptual decommissioning of the 816-MW EW 1 Project and the 1,260-MW EW 2 Project within Lease Area OCS-A 0512 and associated export cables would occur within the range of design parameters outlined in the COP, subject to applicable mitigation measures. However, BOEM would only approve submarine export cable route options for EW 2 that avoid the sand borrow area offshore Long Island by at least 500 meters.
Alternative E: Setback between EW 1 and EW 2	Under Alternative E, Setback between EW 1 and EW 2, the construction, O&M, and conceptual decommissioning of the 816-MW EW 1 Project and the 1,260-MW EW 2 Project within Lease Area OCS-A 0512 and associated export cables would occur within the range of design parameters outlined in the COP, subject to applicable mitigation measures. Alternative

[8] The ideal spacing for U.S. Coast Guard aviation assets to conduct search and rescue operations is at least 1 nm between WTGs.

Alternative	Description
	E would remove seven WTG positions from EW 2 to create a 1-nm setback between the EW 1 and EW 2 Projects to improve access for fishing. Between the Draft EIS and Final EIS, Empire Wind completed additional site investigations and studies to quantify the extent of glauconite deposits across the Lease Area as well as their potential impact on pile drivability. BOEM and NREL independently reviewed Empire's analysis and, based on this review, determined that Alternative E would no longer meet the purpose and need because selection of Alternative E would not allow Empire Wind to install the minimum number of WTGs necessary to fulfill Empire's contractual obligations with NYSERDA.
Alternative F: Wind Resource Optimization with Modifications for Environmental and Technical Considerations	Under Alternative F, Wind Resource Optimization with Modifications for Environmental and Technical Considerations, the construction, O&M, and conceptual decommissioning of the 816-MW EW 1 Project and the 1,260-MW EW 2 Project within Lease Area OCS-A 0512 and associated export cables would occur within the range of design parameters outlined in the COP, subject to applicable mitigation measures. However, the wind turbine layout would be optimized to maximize annual energy production and minimize wake loss while addressing geotechnical considerations. Geotechnical site investigations and laboratory studies have shown that the geotechnical properties of glauconite make it an extremely difficult material to build upon, specifically for the installation of fixed-bottom foundations that support offshore wind turbine towers. Empire Wind performed site investigations and studies to quantify the extent of glauconite deposits across the Lease Area as well as their potential impact on pile drivability. An indicative WTG and interarray cable layout for Alternative F based on the pile drivability analysis is shown on Final EIS **Error! Reference source not found.**. This layout m ay be further refined (within the limits of the COP PDE) based on additional review of geotechnical constraints related to the presence of glauconite in the Lease Area.
Alternative G: Cable Bridge Crossing of Barnums Channel Adjacent to Long Island Railroad Bridge	Under Alternative G, Cable Bridge Crossing of Barnums Channel Adjacent to Long Island Railroad Bridge, the construction, O&M, and conceptual decommissioning of the 816-MW EW 1 Project and the 1,260-MW EW 2 Project within Lease Area OCS-A 0512 and associated export cables would occur within the range of design parameters outlined in the COP, subject to applicable mitigation measures. However, EW 2 would use an above-water cable bridge to construct the onshore export cable crossing at Barnums Channel.
Alternative H: Dredging for EW 1 Export Cable Landfall	Under Alternative H, Dredging for EW 1 Export Cable Landfall, the construction, O&M, and conceptual decommissioning of the 816-MW EW 1 Project and the 1,260-MW EW 2 Project within Lease Area OCS-A 0512 and would occur within the range of design parameters outlined in the COP, subject to applicable mitigation measures. However, construction of the EW 1 export cable landfall would use a method of dredge or fill activities (clamshell dredging with environmental bucket) that would reduce the discharge of dredged material compared to other dredging options considered in the Empire Wind PDE (i.e., open cut trenching/jetting, suction hopper dredging, hydraulic dredging) (COP Section 3.4.2.1; Empire 2023).

NREL = National Renewable Energy Laboratory

3.2. Environmental Consequences of Alternatives

Table 3-2 summarizes and compares the potential impacts from the proposed Projects under each action alternative assessed in Chapter 3 of the Final EIS. Under the No Action Alternative, BOEM would not approve the COP and any potential environmental and socioeconomic impacts associated with the Project, including both adverse impacts and benefits, would not occur. However, as described under the cumulative impact analysis in Chapter 3, impacts from other activities could still occur. As described in more detail in Chapters 2 and 3 of the Final EIS, the impacts summarized in the following table reflect BOEM's analysis of the Proposed Action as well as activities proposed by Empire Wind and the New York City Economic Development Corporation (NYCDEC) to upgrade the SBMT in a separate application to the State and to the USACE. In addition to incorporating a

discussion of the impacts resulting from SBMT upgrades where relevant throughout the Final EIS, BOEM included the Appendix Q, which consisted of the "Environmental Analysis of the South Brooklyn Marine Terminal Port Infrastructure Improvement Project," prepared by Empire Wind and NYCDEC, dated May 2023, and which was intended to inform both federal agencies under NEPA and New York state and local agencies under New York's State Environmental Quality Act. Since publication of the Final EIS, Empire Wind and NYCDEC have prepared an updated version of that Environmental Analysis,[9] which included additional and refined information on traffic data. The updated information did not change any of the conclusions regarding impact to any resource from the version that published in Appendix Q of the Final EIS. BOEM has considered the updated information and determined that the new or updated information is not significant new information that warrants a supplement to the Final EIS under 40 C.F.R. § 1502.9.

[9]Environmental Analysis of the South Brooklyn Marine Terminal Port Infrastructure Improvement Project, available at https://www.boem.gov/renewable-energy/state-activities/vol6partaenvironmentalassessmentform-0]

Table 3-2 Comparison of Impacts by Alternative

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
3.4 Air Quality	Under the No Action Alternative, air quality would continue to follow current regional trends and respond to IPFs introduced by other ongoing activities. Ongoing non-offshore wind activities would have continuing regional impacts primarily through air pollutant emissions and accidental releases. Impacts of ongoing non-offshore wind activities, including air pollutant emissions and GHGs, would be **moderate** because the emissions would incrementally increase ambient pollutant concentrations, though not by enough to cause a violation of the NAAQS, New Jersey AAQS, or New York AAQS or contribute substantially to an existing violation. Planned non-offshore wind activities may also contribute to impacts on air quality because air pollutant and GHG emissions would increase through construction and operation of new energy generation facilities to meet future power demands. BOEM expects the cumulative impact of ongoing and planned activities other than offshore wind to result in **moderate** impacts on air quality, primarily driven by recent market and permitting trends indicating future fossil-	Under the Proposed Action, air quality impacts would occur due to emissions associated with construction, O&M, and eventual decommissioning, but these impacts would be relatively small and limited in duration. Impacts would be **minor** because the emissions would incrementally increase ambient pollutant concentrations, though not by enough to cause a violation of the NAAQS, New Jersey AAQS, or New York AAQS or contribute substantially to an existing violation. There would be a **minor beneficial** impact [3] on air quality in the region overall to the extent that energy produced by the Projects would displace energy produced by fossil-fueled power plants. The Proposed Action would result in air quality–related health effects avoided in the region due to the reduction in emissions associated with fossil-fueled energy generation. Cumulative impacts of the Proposed Action along with ongoing and planned non-offshore wind activities as well as ongoing and planned offshore wind activities would be **moderate** because the emissions would incrementally increase ambient pollutant concentrations, although not by enough to cause a violation of the	Alternatives B, E, F, and the Preferred Alternative would remove specific WTG positions but would not alter the maximum number of WTGs that could be installed within the PDE. Construction, O&M, and decommissioning emissions, and the associated impacts, could be less than for the Proposed Action to the extent that the number of WTGs were reduced. Regional benefits due to reduced emissions associated with fossil-fueled energy generation could be less than with the Proposed Action to the extent that a reduced number of WTGs would reduce total generating capacity. Alternatives G and H would have the same number of WTGs and OSS as the Proposed Action but would use an alternate onshore export cable route that would use a cable bridge to cross Barnums Channel or an alternate method of dredge and fill activities at SBMT. Air quality impacts under Alternatives G and H are expected to be similar to those for the Proposed Action: minor adverse and minor beneficial. BOEM anticipates that the overall impacts associated with the Proposed Action and the other action alternatives including the Preferred Alternative when combined with the impacts from ongoing and planned activities would be **moderate adverse** and **moderate beneficial**. The overall adverse impact on air quality would likely be moderate because pollutant concentrations are not expected to exceed the NAAQS, New Jersey AAQS, or New York AAQS. The Proposed Action and the other action alternatives including the Preferred Alternative and other offshore wind projects would benefit air quality in the region surrounding the Projects to the extent that energy produced by the Projects would displace energy

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
	fueled electric generating units would most likely include natural-gas-fired facilities. BOEM anticipates that the ongoing activities combined with all other planned activities (including other offshore wind activities) would result in **moderate** adverse impacts due to emissions of criteria pollutants, VOCs, HAPs, and GHGs, mostly released during construction and decommissioning, because these emissions would incrementally increase ambient pollutant concentrations (more than would activities without offshore wind or offshore wind alone), although not by enough to cause a violation of the NAAQS, New Jersey AAQS, or New York AAQS or contribute substantially to an existing violation. Offshore wind projects likely would lead to reduced emissions from fossil-fueled power generating facilities and consequently **minor** to **moderate beneficial** impacts on air quality and climate.	NAAQS, New Jersey AAQS, or New York AAQS or contribute substantially to an existing violation. BOEM expects **moderate beneficial** impacts[2] on regional air quality and climate after the Proposed Action and other offshore wind projects are operational because these projects likely would lead to reduced emissions from fossil-fueled power generating facilities.	produced by fossil-fueled power plants. BOEM anticipates an overall moderate beneficial impact because the magnitude of this potential reduction would be small relative to total energy generation emissions in the area.
3.5 Bats	Continuation of existing environmental trends and activities under the No Action Alternative would result in **negligible** impacts on bats. The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in	The Proposed Action would have **negligible** impacts on bats, especially if tree clearing is conducted outside of the active season. The primary risks would be from potential onshore removal of habitat and operation of offshore WTGs; however, occurrence of bats offshore is low, and mortality is	Alternatives B, E, and F would have the same number of WTGs as the Proposed Action, which would result in the same impacts on bats; the overall impact level would not change—**negligible**. Alternative C, D, or G would not materially change the analysis compared to the Proposed Action because the cable route options that would be constructed under these alternatives are already covered under the Proposed Action as part of the

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
	negligible impacts because bat presence on the OCS is anticipated to be limited and onshore bat habitat impacts are expected to be minimal.	anticipated to be rare in the onshore or offshore environment. BOEM would also require Empire Wind to make recommendations for new mitigation or monitoring should Empire's Bird and Bat Monitoring Framework indicate bat impacts offshore have deviated from the analysis in the EIS. BOEM anticipates that the cumulative impact of the Proposed Action in combination with ongoing and planned activities (including offshore wind activities) would result in **negligible** impacts on bats in the geographic analysis area.	PDE approach. Therefore, the overall impact level on bats would not change—**negligible**. Under Alternative H, an alternative method of dredge and fill activity would occur in waters around the SBMT, which would not materially change the analysis of any IPF compared to the Proposed Action because the Onshore Project area is heavily developed with no bat habitat. Therefore, the overall impact level on bats would not change—**negligible**. In context of reasonably foreseeable environmental trends, the cumulative impacts of Alternatives B, C, D, E, F, G, and H when each is combined with the impacts from ongoing and planned activities would be the same as for the Proposed Action—**negligible**. As with the Proposed Action, construction, O&M, and decommissioning of the Preferred Alternative would have **negligible** impacts on bats, especially if conducted outside the active season, due to their low occurrence offshore. Mitigation recommended for inclusion in the Preferred Alternative is analyzed in Section 3.5.11.
3.6 Benthic Resources	Continuation of existing environmental trends and activities under the No Action Alternative would result in **negligible** to **moderate**[1] impacts on benthic resources. The No Action Alternative, when combined with all planned activities (including other offshore wind activities), would result in **moderate** adverse impacts and could potentially include **moderate beneficial** impacts resulting from emplacement of structures (habitat conversion).	The Proposed Action would have **negligible** to **moderate**[1] adverse impacts and **moderate beneficial** impacts on benthic resources. Adverse impacts would primarily result from new cable emplacement, pile-driving noise, anchoring, and the presence of structures. Beneficial impacts would result from the presence of new structures. The cumulative impact of the Proposed Action and the connected action in combination with ongoing and planned activities would range from **negligible** to **moderate** and **moderate beneficial**.	Alternatives C, D, E, F, G, and H would have the same **negligible** to **moderate**[1] adverse impacts and **moderate beneficial** impacts on benthic resources as described under the Proposed Action. Adverse impacts would primarily result from new cable emplacement, pile-driving noise, anchoring, and the presence of structures. Beneficial impacts would result from the presence of new structures. Alternative B would result in fewer impacts on Cholera Bank, an important fishing area, due to the removal of up to six WTG positions from the northwestern end of EW 1. Alternatives E and F would improve access for fishing; however, the resultant increase in vessel traffic through the Project area compared to the Proposed Action could increase the occurrence of accidental releases of fuels/fluids/hazardous materials and trash and debris and permitted discharges within the Project

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
			area. Alternatives C-1, C-2, and D were included as part of the PDE and maximum-case scenarios evaluated for the Proposed Action and therefore do not represent any change from the Proposed Action for benthic resources. Alternative G would involve changes to only the onshore portion of the EW 2 export cable route, and therefore the impact of Alternative G on benthic resources would be the same as that of the Proposed Action. Under Alternative H, construction at the SBMT would use an alternate method of dredge or fill activities that would reduce the discharge of dredged material compared to other dredging options considered in the PDE. This alternate method would reduce releases of contaminants to the benthic environment; however, other cable emplacement activities for EW 1 and EW 2 submarine export cables and interarray cables would occur within the PDE for the Proposed Action and the overall impacts of Alternative H would be similar to those of the Proposed Action. Cumulative impacts of Alternatives B, C, D, E, F, G, and H when each is combined with the impacts from ongoing and planned activities would be the same as for the Proposed Action—**negligible** to **moderate adverse**[1] and **moderate beneficial**. Overall, the Preferred Alternative would be similar to the Proposed Action in terms of impacts on benthic resources and would result in **negligible** to **moderate**[1] adverse impacts and **moderate beneficial** impacts on benthic resources in the geographic analysis area. Mitigation recommended for inclusion in the Preferred Alternative is analyzed in Section 3.6.11.
3.7 Birds	Continuation of existing environmental trends and activities under the No Action Alternative would result in **minor** adverse impacts on birds.	The Proposed Action would have **minor** adverse impacts on birds, primarily associated with habitat loss and collision-induced mortality from rotating WTGs and permanent	Alternatives B, E, and F would have the same number of WTGs as the Proposed Action, which would result in the same impacts on species with high collision sensitivity and high displacement sensitivity; the overall impact level would not

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
	The No Action Alternative combined with all planned activities (including offshore wind activities) would have a **moderate** adverse impact on birds but could include **moderate beneficial** impacts because of the presence of offshore structures.	habitat loss and conversion from onshore construction. **Minor beneficial** impacts would result from increased foraging opportunities for marine birds. BOEM would also require Empire Wind to make recommendations for new mitigation or monitoring should Empire's Bird and Bat Monitoring Framework indicate bird impacts offshore have deviated from the analysis in the EIS. The cumulative impact of the Proposed Action in combination with ongoing and planned activities (including offshore wind activities) would be **moderate** impacts, as well as **moderate beneficial** impacts.	change—**minor** with **minor beneficial** impacts. Alternative C, D, or G would not materially change the analysis compared to the Proposed Action because the cable route options that would be constructed under these alternatives are already covered under the Proposed Action as part of the PDE approach. Therefore, the overall impact level would not change—**minor** with **minor beneficial** impacts. Under Alternative H, an alternative method of dredge and fill activity would occur in waters around the SBMT, which would not materially change the analysis of any IPF compared to the Proposed Action because the Onshore Project area is heavily developed with little or no bird habitat. Therefore, the overall impact level would not change—**minor** with **minor beneficial** impacts. Considering all the IPFs together, BOEM anticipates that the cumulative impact of Alternatives B, C, D, E, F, G, and H to the impacts from ongoing and planned activities would result in **moderate** and **moderate beneficial** impacts on birds in the geographic analysis area. As with the Proposed Action (Alternative A), activities associated with the construction, installation, O&M, and eventual decommissioning of the Preferred Alternative would have **minor** impacts on birds, depending on the location, timing, and species affected by an activity. Mitigation recommended for inclusion in the Preferred Alternative is analyzed in Section 3.7.11.
3.8 Coastal Habitat and Fauna	Continuation of existing environmental trends and activities under the No Action Alternative would result in **moderate** impacts on coastal habitat and fauna, primarily driven by climate change. Currently, there are no other offshore wind activities proposed in the geographic analysis area.	The Proposed Action would have **minor** impacts on coastal habitat and fauna due to small, isolated areas of habitat that could be affected within the urbanized landscape that dominates the geographic analysis area. The cumulative impact of the Proposed Action in combination with ongoing and planned activities	Because Alternatives B, C, D, E, and F involve modifications only to offshore components, and because Alternative G is already covered under the Proposed Action as part of the PDE approach, impacts on coastal habitat and fauna from those alternatives would be the same as those under the Proposed Action: **minor**. Under Alternative H, an alternative method of dredge and fill activity would occur in waters around the SBMT, which would not materially change the

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
		(including offshore wind activities) would result in **moderate** impacts on coastal habitat and fauna in the geographic analysis area.	analysis of any IPF compared to the Proposed Action because the Onshore Project area is heavily developed with little or no habitat. Therefore, the overall impact level would not change—**minor**. In context of reasonably foreseeable environmental trends, the cumulative impact of Alternatives B, C, D, E, F, G, and H on individual IPFs in combination with ongoing and planned activities would be the same as that of the Proposed Action: **minor**. Considering all the IPFs together, BOEM anticipates that the cumulative impact of Alternative B, C, D, E, F, G, or H in combination with ongoing and planned activities would result in **moderate** impacts on coastal habitats and fauna in the geographic analysis area. Ongoing and planned activities contributing to impacts on coastal habitats and fauna in the geographic analysis area include climate change and habitat impacts. Overall, the Preferred Alternative would be similar to the Proposed Action in terms of impacts on coastal habitat and fauna. Accordingly, impacts of the Preferred Alternative alone would remain the same as those of the Proposed Action: **minor**.
3.9 Commercial Fisheries and For-Hire Recreational Fishing	Continuation of existing environmental trends and activities under the No Action Alternative would result in **moderate** to **major** impacts on commercial fisheries and **minor** to **moderate** impacts on for-hire recreational fishing fishing[2], depending on the fishery and fishing vessel. The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in a **major** adverse cumulative impact	The Proposed Action would have an overall **moderate** to **major** adverse impact on commercial fisheries and **minor** to **moderate** impacts on for-hire recreational fishing. The moderate impact rating is primarily driven by the presence of structures. The impacts of the Proposed Action could also include long-term **minor beneficial** impacts for some for-hire recreational fishing operations due to the artificial reef effect. The Proposed Action would contribute an appreciable increment to the **major** cumulative impact on	<u>*Commercial Fisheries*</u> Alternatives B, E, and F would remove specific WTG positions from the Lease Area and are expected to result in an expansion of commercial fishing activity and a reduction in adverse impacts on commercial fisheries relative to other action alternatives, including the Proposed Action. Alternative G would provide a slight indirect benefit to commercial fisheries by using a cable bridge to cross Barnums Channel, reducing the impact on nursery habitat for some commercially harvested species, but the area of tidal wetlands avoided by this alternative would be small and is not expected to produce a measurable reduction in impacts on commercial fisheries relative to other action alternatives. Alternatives C and D would change the

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
	because some commercial fisheries and fishing operations would experience substantial long-term disruptions. This impact rating is primarily driven by the presence of offshore structures, regulated fishing effort, and climate change.	commercial fisheries and for-hire recreational fishing fishing[2], depending on the fishery and fishing vessel. from the combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities).	alignment of the nearshore portion of the export cable routes but would not have any direct impact (adverse or beneficial) on commercial fisheries relative to the other action alternatives. Alternatives B, E, and F would have an overall **moderate** to **major** adverse impact on commercial fisheries[2]. *For-Hire Recreational Fisheries* Alternatives C and D would change the alignment of the nearshore portion of the export cable routes but would not have any direct impact (adverse or beneficial) on for-hire recreational fisheries relative to the other action alternatives. Installation of WTGs would have beneficial effects for for-hire recreational fishing due to reef effects. Alternatives B, E, and F would remove specific WTG positions but would not alter the maximum number of WTGs that could be installed within the PDE. Alternatives B and F would remove WTG positions that are closest to shore and therefore most accessible to recreational fishing vessels. Alternatives B, E, and F would have overall **minor** to **moderate** adverse impacts on for-hire recreational fishering[2] and **minor beneficial** impacts for some for-hire recreational fishing operations due to the artificial reef effect. *Preferred Alternative* The Preferred Alternative would reduce impacts on commercial and for-hire recreational fisheries by removing WTG positions from a contiguous area of EW 1 and avoiding cable routing in the Ambrose Navigation Channel. Mitigation recommended for inclusion in the Preferred Alternative is analyzed in Section 3.9.11.

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
3.10 Cultural Resources	Continuation of existing environmental trends and activities under the No Action Alternative would result in **minor** to **major[2]** impacts on cultural resources, primarily as a result of onshore ground-disturbing activities, the introduction of intrusive visual elements, dredging, cable emplacement, and activities that disturb the seafloor. The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **moderate** impacts on cultural resources.	The Proposed Action would have **negligible** to **major[2]** impacts on cultural resources primarily from the introduction of intrusive visual elements, which alter character-defining ocean views of historic properties onshore that contribute to the resource's eligibility for the NRHP and result in a loss of historic or cultural value; and dredging, cable emplacement, and activities that disturb the seafloor, which result in damage to or destruction of submerged archaeological sites or other underwater cultural resources (e.g., shipwreck, debris fields, ancient submerged landforms) from offshore bottom-disturbing activities, resulting in a loss of scientific or cultural value. The Proposed Action would contribute an appreciable increment to the **major** impacts on cultural resources from the combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities).	Modifications under Alternatives B, C, D, E, F, G, and H, or the combination of alternatives that compose the Preferred Alternative, are not anticipated to result in substantive differences in impacts on cultural resources as compared to the Proposed Action and would therefore result in similar impacts as the Proposed Action. Mitigation recommended for inclusion in the Preferred Alternative is analyzed in Section 3.10.13. In context of reasonably foreseeable environmental trends, the contribution of Alternatives B, C, D, E, F, G, and H to the impacts of individual IPFs from ongoing and planned activities would be the same as that of the Proposed Action.
3.11 Demographics Employment, and Economics	Continuation of existing environmental trends and activities under the No Action Alternative would result in **negligible** to **minor** adverse impacts and **minor beneficial** impacts on demographics, employment, and economics. The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in	The Proposed Action would have **negligible** adverse and **minor** to **moderate[1] beneficial** impacts on demographics, employment, and economics. Overall, the impacts of the Proposed Action would be **negligible** and **minor beneficial**. Cumulative impacts of the Proposed Action, combined with all ongoing and planned activities (including other	Alternatives B, E, and F would remove specific WTG positions but would not alter the maximum number of WTGs that could be installed within the PDE and still maintain **negligible** adverse economic impacts. Alternatives C, D, and G would also be expected to have **negligible** adverse impacts on the economy as a result of the alternative submarine or onshore cable routes. Similarly, Alternative H is anticipated to have **negligible** adverse economic impacts. Alternative H proposes an alternate method of dredge or fill during SBMT construction that would require a permit from USACE and have

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
	negligible to **minor** adverse and **moderate beneficial** impacts.	offshore wind activities) would be **negligible** to **minor**[1] adverse and **moderate beneficial**.	minimal impact on the aquatic ecosystem. In context of reasonably foreseeable environmental trends, the incremental impacts associated with Alternatives B, C, D, E, F, G, and H when each is combined with the impacts of ongoing and planned activities would be the same as for the Proposed Action— **negligible** to **minor**[1] adverse and **moderate beneficial.** Overall, the Preferred Alternative would be similar to the Proposed Action in terms of impacts on demographics, employment, and economics including new hiring and economic activity. Accordingly, impacts of the Preferred Alternative alone would remain of the same level as for the Proposed Action (negligible along with minor beneficial).
3.12 Environmental Justice	Continuation of existing environmental trends and activities under the No Action Alternative would result in **moderate** impacts on environmental justice populations. The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **moderate** impacts because environmental justice populations would have to adjust somewhat to account for disruptions due to notable and measurable adverse impacts.	Impacts of the Proposed Action on environmental justice populations would range from minor to moderate adverse to minor beneficial. Impacts of onshore construction related to the IPFs of air emissions, land disturbance, noise, and traffic would range from minor to moderate, with moderate impacts resulting from impact pile driving and vibratory pile driving for construction of onshore substations, the O&M facility, cable bridge, bulkheads, and cofferdams. Impacts of onshore construction activities would be distributed across areas with and without environmental justice populations and would not disproportionately affect environmental justice populations. There may also be moderate impacts associated with port utilization. Potential minor	Because Alternatives B, C, D, E, and F involve modifications only to offshore components, and because Alternative G is already covered under the Proposed Action as part of the PDE approach, impacts on environmental justice populations from those alternatives would be the same as under the Proposed Action and are expected to be **minor** to **moderate**. Under Alternative H, an alternative method of dredge and fill activity would occur in waters around the SBMT, which would not materially change the analysis of any IPF compared to the Proposed Action. Therefore, impacts on environmental justice populations from Alternative H would be the same as under the Proposed Action and are expected to be **minor** to **moderate**. In context of reasonably foreseeable environmental trends, the cumulative impact of Alternatives B, C, D, E, F, G, and H in combination with ongoing and planned activities would be the same as that of the Proposed Action: **moderate**. Overall, the Preferred Alternative would be similar to

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
		beneficial impacts would result from port utilization and the enhanced employment opportunities. Overall, BOEM expects that impacts of the Proposed Action on environmental justice populations would be **minor** to **moderate**, and **minor beneficial**[1]. The Proposed Action would not result in disproportionately "high and adverse" impacts on environmental justice populations. The cumulative impacts of the Proposed Action in combination with other ongoing and planned activities are anticipated to be **moderate** adverse due to the cumulative effects of ongoing and planned activities on air quality, ambient sound levels, land disturbance, traffic, and gentrification pressure across the geographic analysis area and substantial presence of environmental justice populations in the New York City area and near ports that would be used for the Projects.	the Proposed Action regarding impacts on environmental justice populations. As a result, the impacts of the Preferred Alternative alone would remain the same as those of the Proposed Action: **minor** to **moderate** overall, with **minor beneficial** impacts, and would not be disproportionately high and adverse.
3.13 Finfish, Invertebrates, and Essential Fish Habitat	Continuation of existing environmental trends and activities under the No Action Alternative would result in **negligible** to **moderate** adverse impacts on finfish, invertebrates, and EFH. The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **minor** to **moderate**[1] cumulative	The Proposed Action would result in **negligible** to **moderate** adverse impacts on finfish, invertebrates, and EFH. Long-term impacts on EFH from construction and installation of the Proposed Action could be moderate (e.g., presence of EMF and structures). Temporary disturbance and displacement, habitat conversion, behavioral changes, and injury of sedentary fauna are expected during the	Construction, O&M, and decommissioning of Alternatives C, D, E, F, G, and H would result in **negligible** to **moderate** adverse impacts as described under the Proposed Action. However, impacts under Alternatives C, D, F, G, and H would be slightly minimized compared to the Proposed Action, without changing the overall conclusions. Alternative C directly proposes to reduce impacts on finfish and invertebrates by reducing impacts on Cholera Bank, an important habitat area to many species and a spawning ground for longfin squid. Alternative E would create a 1-nm setback between

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
	adverse impacts on finfish, invertebrates, and EFH. The overall (all IPFs considered together) impacts on finfish, invertebrates, and EFH would be **moderate**[2]. It is anticipated that the greatest impact on finfish and invertebrates would be caused by ongoing regulated fishing activity and climate change.	construction phase of the Proposed Action and would be **negligible** to **moderate**[1]. In context of other reasonably foreseeable environmental trends, cumulative impacts resulting from individual IPFs from ongoing and planned activities, including the Proposed Action, would range from **minor** to **moderate**[1] adverse. The overall impact of the Proposed Action would be **moderate** adverse.	EW 1 and EW 2, likely increasing vessel traffic through the Project area and its associated impacts on finfish, invertebrates, and EFH including vessel noise, accidental releases of fuels/fluids/hazardous materials and trash and debris, and permitted discharges, and the risk of entanglement in lost fishing gear within the Project area. Fishing activities, including trawling, could occur within the setback area, potentially disturbing bottom habitat (e.g., scour, resuspension of sediments) for benthic finfish, invertebrates, and EFH species. Impacts from expected increases in vessel traffic and fishing activities through the setback area are not expected to be measurably different than those described for the Proposed Action. Alternatives C-1, C-2, and D were included as part of the PDE and maximum-case scenarios evaluated for the Proposed Action and therefore impacts on finfish, invertebrates, and EFH were evaluated under the Proposed Action. Alternative G would avoid impacts on finfish and invertebrates in a small portion of the EW 2 export cable route. Alternative H would utilize dredging methods that would minimize dredging impacts near the SBMT EW 1 landfall site. Implementation of the Preferred Alternative would result in the reduction or avoidance of some impacts on finfish, invertebrates, and EFH; however, the impact determinations made under the Proposed Action would not be changed. Mitigation recommended for inclusion in the Preferred Alternative is analyzed in Section 3.13.11.

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
3.14 Land Use and Coastal Infrastructure	Continuation of existing environmental trends and activities under the No Action Alternative would result in **minor** adverse impacts on land use and coastal infrastructure and **minor beneficial** impacts on regional ports. The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **minor** adverse impacts and **minor** to **major beneficial**[1] impacts.	The Proposed Action would result in **minor** adverse with **minor beneficial** impacts on land use and coastal infrastructure. If EW 2 Onshore Substation C is selected, **moderate** adverse impacts on existing land use at the site are expected. Beneficial impacts would result from port utilization and proposed bulkhead repairs at SBMT. Adverse impacts would primarily result from land disturbance during onshore installation of the cable route and substation, accidental spills, and construction noise and traffic. The Proposed Action would result in **minor** adverse and **major beneficial** impacts from the combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities).	Because Alternatives B, C, D, E, and F involve modifications only to offshore components, and because Alternative G is already covered under the Proposed Action as part of the PDE approach, impacts on land use and coastal infrastructure from those alternatives would be the same as those of the Proposed Action. Under Alternative H, an alternative method of dredge and fill activity would occur in waters around the SBMT, which would not materially change the analysis of any IPF for land use and coastal infrastructure compared to the Proposed Action. In context of reasonably foreseeable environmental trends, the contribution of Alternative B, C, D, E, F, G, or H to the impacts of individual IPFs from ongoing and planned activities would be the same as that of the Proposed Action. Overall, the Preferred Alternative would result in similar levels of impacts on land use and coastal infrastructure as Alternative A. The Preferred Alternative is expected to result in **minor** adverse impacts related to the IPFs for accidental releases, lighting, land disturbance, and presence of structures unless EW 2 Onshore Substation C is selected, which would result in **moderate** adverse impacts on existing land use at the site and **minor beneficial** impacts related to port utilization.
3.15 Marine Mammals	Not approving the COP would have no additional incremental effect on marine mammals (i.e., no effect). Continuation of existing environmental trends and activities under the No Action Alternative would result in **negligible** to **moderate** impacts on mysticetes (other than NARW), odontocetes, and pinnipeds and **negligible** to **major** impacts on NARW.	BOEM anticipates that the impacts resulting from the Proposed Action, including the baseline, would range from **negligible** to **moderate** adverse impacts on mysticetes (other than NARW), odontocetes, and pinnipeds and **negligible** to **major** adverse impacts[1] on NARW.[4] and could include **minor beneficial** impacts for odontocetes and pinnipeds. Adverse impacts are	Construction, O&M, and decommissioning of Alternatives B, C, D, E, F, and G would have the same overall **negligible** to **moderate** adverse impacts on odontocetes and pinnipeds, **negligible** to **moderate** adverse impacts on mysticetes (other than NARW), **negligible** to **major** adverse impacts on NARW, **minor beneficial** impacts on odontocetes and pinnipeds, and the same **minor** incremental impacts for NARW, odontocetes, and pinnipeds and **minor** to **moderate** incremental impacts for mysticetes (other than NARW) as described under the Proposed Action. Alternative B

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
	The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **negligible** to **moderate** impacts[1] on mysticetes (other than NARW), odontocetes, and pinnipeds and **negligible** to **major** impacts on NARW.[4] It could include **minor beneficial** impacts for odontocetes and pinnipeds. Impacts are primarily due to underwater noise, vessel activity (vessel collisions), and the presence of structures.	expected to result mainly from underwater noise and the presence of structures. Beneficial impacts are expected to result from the presence of structures. The incremental impact of the Proposed Action when compared to the No Action Alternative would be **minor**[3] for NARW, odontocetes, and pinnipeds and **minor** to **moderate**[2, 3] for mysticetes (other than NARW). In context of other reasonably foreseeable environmental trends in the area, combined impacts from all IPFs associated with all ongoing and planned activities, including the Proposed Action, would result in **negligible** to **moderate** impacts[1] on mysticetes (other than NARW), odontocetes, and pinnipeds, and **negligible** to **major** impacts[1] on NARW[4] and could include minor beneficial impacts for odontocetes and pinnipeds.	would result in fewer impacts on Cholera Bank, an important fishing area, due to the removal of up to six WTG positions from the northwestern end of EW 1. Alternative E, which creates a 1-nm setback between EW 1 and EW 2 by the removal of up to seven WTG positions, would improve access for fishing; however, the resultant increase in vessel traffic through the Project area could increase the occurrence of vessel noise, vessel strikes, accidental releases of fuels/fluids/hazardous materials and trash and debris, permitted discharges, and the risk of fishing gear entanglement and loss within the Project area. Alternative F would result in fewer impacts in the Lease Area due to the removal of nine WTGs for the southeastern portion of EW 1. Alternatives C and D were included as part of the PDE and maximum-case scenarios evaluated for the Proposed Action and therefore do not represent any change from the Proposed Action. Alternative G would involve changes to only the onshore portion of the EW 2 export cable route, and therefore the impact of Alternative G on marine mammals would be the same as that of the Proposed Action. Overall, impacts of the Preferred Alternative would be similar to impacts of the Proposed Action and would result in **negligible** to **moderate** adverse impacts[1] on odontocetes and pinnipeds, **negligible** to **moderate** adverse impacts[1] on mysticetes (other than NARW), **negligible** to **major** adverse impacts[1] on NARW,[4] and **minor beneficial** impacts on odontocetes and pinnipeds. The incremental impact of the Preferred Alternative when compared to the No Action Alternative would be **minor**[3] for NARW, odontocetes, and pinnipeds and **minor** to **moderate**[2, 3] for mysticetes (other than NARW). Mitigation recommended for inclusion in the Preferred Alternative is analyzed in Section 3.15.11.
3.16	Under the No Action Alternative,	The Proposed Action would result in	Construction, O&M, and decommissioning of

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
Navigation and Vessel Traffic	the impact of ongoing activities would result in **moderate** impacts on navigation and vessel traffic. The impacts of planned activities other than offshore wind would be **minor** because while impacts would be measurable, they would not disrupt navigation and vessel traffic. The overall impacts associated with ongoing and planned activities other than offshore wind and future offshore wind activities in the geographic analysis area would result in **moderate** impacts because the overall effect would be notable, but vessels would be able to adjust to account for disruptions.	**minor** to **moderate** impacts on navigation and vessel traffic. Impacts include changes in navigation routes due to the presence of structures and cable emplacement, delays in ports, degraded communication and radar signals, and increased difficulty of offshore SAR or surveillance missions within the Wind Farm Development Area. Some commercial fishing, recreational, and other vessels would choose to avoid the Wind Farm Development Area, leading to potential congestion of vessels along the Wind Farm Development Area borders. The increase in potential for marine accidents, which may result in injury, loss of life, and property damage, could produce disruptions for ocean users in the geographic analysis area. The overall cumulative impacts on navigation and vessel traffic from ongoing and planned activities, including the Proposed Action, would range from **minor** to **moderate**[2].	Alternatives B, C, D, E, F, G, and H would have the same **minor** to **moderate**[2] adverse impacts on navigation and vessel traffic as described under the Proposed Action. Although Alternative B would have reduced impacts due to the reduction in WTG positions at the narrow end of EW 1, the magnitude of impacts would not be materially different from that of the Proposed Action. Alternatives E and F, which remove perimeter positions of the turbine array, would result in an incremental decrease in powered or drift allision risk in those specific areas for commercial vessels passing within the respective TSS lanes. However, the open space created by the setback between EW 1 and EW 2 under Alternative E could potentially lead to space-use conflicts and cause denser rather than dispersed traffic within this area. Alternatives G and H would not affect navigation and vessel traffic. Alternatives C-1 and C-2 would narrow the PDE proposed in Empire's COP to reduce use conflicts for vessels either transiting the Ambrose Navigation Channel (Alternative C-1) or anchoring in the Gravesend Anchorage Area (Alternative C-2). However, because both route options are analyzed within the PDE for the Proposed Action, impacts of Alternative C-1 and C-2 would be similar to those of the Proposed Action. Narrowing the PDE for EW 2 export cable routes near the sand borrow area under Alternative D does not represent any change from the Proposed Action for navigation and vessel traffic. Overall, the impacts of the Preferred Alternative would be similar to impacts of the Proposed Action and would result in **minor** to **moderate**[2] adverse impacts. Mitigation recommended for inclusion in the Preferred Alternative is analyzed in Section 3.16.12.
3.17 Other Uses	Continuation of existing environmental trends and activities under the No Action	The Proposed Action would result in **negligible** impacts for cables and pipelines; **minor** impacts for	Alternatives B, E, and F would alter the turbine array layout but each alternative would allow for installation of up to 147 WTGs as defined in

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
	Alternative would result in **negligible** impacts for marine mineral extraction, military and national security uses, aviation and air traffic, cables and pipelines, and radar systems and **moderate** impacts on scientific research and surveys. The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **negligible** impacts for aviation and air traffic; **minor** impacts for marine mineral extraction and cables and pipelines; **moderate** impacts for radar systems due to WTG interference; **minor** impacts for military and national security uses except for USCG SAR operations, which would have **moderate** impacts; and **major** impacts for scientific research and surveys.	aviation and air traffic and most military and national security uses; **moderate** impacts for USCG SAR operations, radar systems, and marine mineral extraction; and **major** impacts for NOAA's scientific research and surveys. The installation of WTGs in the Project area would result in increased navigational complexity and increased allision risk for vessel traffic and low-flying aircraft and would result in line-of-sight interference for radar systems. Additionally, the presence of structures would exclude certain areas within the Project area occupied by Project components (e.g., WTG foundations, cable routes) from potential vessel and aerial sampling and affect survey gear performance, efficiency, and availability for NOAA surveys supporting commercial fisheries and protected-species research programs. The Proposed Action combined with all planned activities (including other offshore wind activities) would result in **negligible** impacts for cables and pipelines; **minor** impacts for aviation and air traffic, and most military and national security uses; **moderate** impacts for marine mineral extraction, radar systems and USCG SAR operations; and **major** impacts for NOAA's scientific research and surveys.	Empire's PDE. Alternative C would only approve one cable export route that is currently described within the PDE. Under Alternative D, BOEM would only approve submarine export cable route options for EW 2 that avoid the sand borrow areas offshore Long Island near Jones Inlet. Alternatives G and H would result in modifications to onshore components that are unlikely to have impacts on the resources evaluated under other uses. Although Alternatives B, C, D, E, F, G, and H modify components of the PDE or restrict what aspects of the PDE are approved, the modifications would not materially change the analysis of any IPF for any resource analyzed under other uses when compared to the Proposed Action; therefore, the overall impact level would be the same as under the Proposed Action: **negligible** for cables and pipelines; **minor** for aviation and air traffic and most military and national security uses; **moderate** for marine mineral extraction, radar systems, and USCG SAR operations; and **major** for NOAA's scientific research and surveys. In context of reasonably foreseeable environmental trends, the contribution of Alternatives B, C, D, E, F, G, and H to the impacts of individual IPFs from ongoing and planned activities would be the same as that of the Proposed Action: **negligible** for cables and pipelines; **minor** for aviation and air traffic and most military and national security uses; **moderate** for marine mineral extraction, radar systems, and USCG SAR operations; and **major** for NOAA's scientific research and surveys. Considering all the IPFs together, BOEM anticipates that the cumulative impacts of Alternative B, C, D, E, F, G, or H in combination with the impacts from ongoing and planned activities would result in impacts that are **negligible** for cables and pipelines; **minor** for aviation and air traffic and most military and national security uses; **moderate** for marine

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
			mineral extraction, radar systems, and USCG SAR operations; and **major** for NOAA's scientific research and surveys. Overall, the impacts of the Preferred Alternative are expected to be similar to those of the Proposed Action with **negligible** impacts for cables and pipelines; **minor** impacts for aviation and air traffic; **moderate** impacts for marine minerals extraction; **minor** impacts for most military and national security uses; **moderate** impacts for radar systems and USCG SAR operations; and **major** impacts for scientific research and surveys. Mitigation recommended for inclusion in the Preferred Alternative is analyzed in Section 3.17.11.
3.18 Recreation and Tourism	Continuation of existing environmental trends and activities under the No Action Alternative would result in **minor** impacts on recreation and tourism. The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **minor** adverse and **minor beneficial** impacts on recreation and tourism.	The Proposed Action would result in **minor** adverse and **minor beneficial** impacts on recreation and tourism. Impacts would result from short-term impacts during construction: noise, traffic, anchored vessels; and the long-term presence of cable hardcover and structures in the Wind Farm Development Area during operations, with resulting impacts on recreational vessel navigation. Beneficial impacts would result from the reef effect and sightseeing attraction of offshore wind energy structures. The Proposed Action would contribute an undetectable to noticeable increment to the **minor** adverse and **minor beneficial** impacts on recreation and tourism from the combination of the Proposed Action and other ongoing and planned activities (including offshore wind activities).	Alternatives B, E, and F would remove specific WTG positions but would not alter the maximum number of WTGs that could be installed within the PDE; the overall impact level would remain the same as that of the Proposed Action: **minor** adverse (related to IPFs for anchoring, land disturbance, lighting, cable emplacement, noise, and traffic) and **minor** adverse to **minor beneficial**[2] (related to the presence of structures). Because Alternative G is already covered under the Proposed Action as part of the PDE approach and narrowing the submarine and the onshore cable route options under Alternative C, D, or G would not change the analysis of any IPF, the impacts on recreation and tourism from these alternatives would be the same as under the Proposed Action: **minor** adverse (related to IPFs for anchoring, land disturbance, lighting, cable emplacement, noise, and traffic) and **minor** adverse to **minor beneficial** (related to the presence of structures). In context of reasonably foreseeable environmental trends, the cumulative impact of Alternatives B, C, D, E, F, G, and H in combination with ongoing and planned activities would be the same as that of the Proposed Action: **minor** adverse (related to IPFs for

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
			anchoring, land disturbance, lighting, cable emplacement, noise, and traffic) and **minor** adverse to **minor beneficial**[2] (related to the presence of structures). Overall, the impacts on recreation and tourism from the Preferred Alternative would be similar to those described under the Proposed Action with **minor** adverse impacts related to IPFs for anchoring, land disturbance, lighting, cable emplacement, noise, and traffic and **minor** adverse to **minor beneficial**[2] impacts related to the presence of structures.
3.19 Sea Turtles	Continuation of existing environmental trends and activities under the No Action Alternative would result in **negligible** to **minor** impacts[1] on sea turtles. The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **minor** impacts with some **minor beneficial** impacts on sea turtles. The foundations from WTG and OSS may provide foraging opportunities through prey aggregation, which may result in minor beneficial impacts.	The Proposed Action would result in **negligible** to **minor** adverse impacts[1] and could include potentially **minor beneficial** impacts. Beneficial impacts are expected to result from the presence of structures creating an artificial reef effect. Cumulative impacts associated with all ongoing and planned activities, including the Proposed Action, would result in **negligible** to **minor** adverse impacts[1] and **minor beneficial** impacts on sea turtles. The main drivers of adverse impacts are pile-driving noise and associated potential for auditory injury, the presence of structures, and vessel traffic posing a risk of collision.	Construction, O&M, and decommissioning of Alternatives B, C, D, E, F, and G would have the same overall **negligible** to **minor** adverse impacts and **minor beneficial** impacts on sea turtles as described under the Proposed Action. Alternative B would reduce impacts on Cholera Bank, an important habitat area to many species, due to the removal of up to six WTG positions from the northwestern end of EW 1. Alternative E, which creates a 1-nm setback between EW 1 and EW 2 by the removal of up to seven WTG positions, would improve access for fishing; however, the resultant increase in vessel traffic through the Project area could increase the occurrence of vessel noise, vessel strikes, accidental releases of fuels/fluids/hazardous materials and trash and debris, permitted discharges, and the risk of fishing gear entanglement and loss within the Project area. Alternative F would result in fewer impacts in the Lease Area due to the removal of nine WTGs for the southeastern portion of EW 1. Alternatives C-1, C-2, and D were included as part of the PDE and maximum-case scenarios evaluated for the Proposed Action and therefore do not represent any change from the Proposed Action. Alternative G would involve changes to only the onshore portion of the EW 2 export cable route; therefore, the impact of Alternative G on sea turtles would be the

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
			same as that of the Proposed Action. Overall, impacts of the Preferred Alternative would be similar to impacts of the Proposed Action and would result in **negligible** to **minor** adverse impacts[1] and **minor beneficial** impacts on sea turtles. Mitigation recommended for inclusion in the Preferred Alternative is analyzed in Section 3.19.11.
3.20 Scenic and Visual Resources	Continuation of existing environmental trends and activities under the No Action Alternative would result in **minor** to **moderate** impacts on scenic and visual resources. The No Action Alternative combined with all other planned activities (including other offshore wind activities) would result in **major** impacts on visual and scenic resources on the open ocean and **minor** to **major**[2] impacts on seascape and landscape due to addition of new structures, nighttime lighting, onshore construction, and increased vessel traffic.	Impacts of the Proposed Action on scenic and visual resources would range from **negligible** to **major**. The main drivers for this impact rating are the major adverse impacts associated with the presence of structures, lighting, and vessel traffic. The Proposed Action would contribute an incremental impact to the **major** adverse impact on scenic and visual resources from the combination of the Proposed Action and other ongoing and planned activities (including other offshore wind activities).	All action alternatives and the Preferred Alternative would have similar noticeability, contrasts, scale, and prominence effects on seascape character, open ocean character, landscape character, and viewer experience to the effects of the Proposed Action. Mitigation recommended for inclusion in the Preferred Alternative is analyzed in Section 3.20.12.
3.21 Water Quality	Continuation of existing environmental trends and activities under the No Action Alternative would result in **moderate** impacts on water quality. The No Action Alternative combined with all other planned activities (including other offshore wind activities) would result in **moderate** impacts on water quality, primarily driven by the unlikely event of a large-volume,	The Proposed Action would result in **negligible** to **moderate**[1] impacts on water quality primarily due to sediment resuspension and accidental releases. The impacts are likely to be temporary or small in proportion to the geographic analysis area and the resource would recover completely after decommissioning. The moderate rating is primarily driven by the unlikely event of a large-volume, catastrophic release.	Alternatives B, E, and F would have the same number of WTGs as the Proposed Action, which would result in the same impacts on water quality; the overall level would not change: **negligible** to **moderate**[1]. Alternative C, D, or G would not materially change the analysis compared to the Proposed Action because the cable route options that would be constructed under these alternatives are already covered under the Proposed Action as part of the PDE approach. Therefore, the overall impact level on water quality would not change: **negligible** to **moderate**[1]. Under Alternative H, an alternative method of dredge and fill activity would

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
	catastrophic release.	The contribution of the Proposed Action to the impacts from ongoing and planned activities (including offshore wind activities) would result in **moderate** impacts on water quality in the geographic analysis area, primarily driven by the unlikely event of large-volume, catastrophic release. While it is an impact that should be considered, it is unlikely to occur based on BOEM's accidental release modeling.	occur in waters around the SBMT, which would not materially change the analysis of any IPF compared to the Proposed Action because BOEM anticipates the difference in impacts compared to the Proposed Action would not be materially different, as the area that would be affected in the geographic analysis area is small and would not have a meaningful impact overall on water quality in the geographic analysis area. Therefore, the overall impact level on water quality would not change: **negligible** to **moderate**. In context of reasonably foreseeable environmental trends, the overall impacts associated with Alternatives B, C, D, E, F, G, and H when each is combined with the impacts from ongoing and planned activities would be the same as for the Proposed Action: **negligible** to **moderate**[1]. Considering all the IPFs together, BOEM anticipates that the contribution of Alternatives B, C, D, E, F, G, and H to the impacts from ongoing and planned activities would result in **moderate** impacts on water quality in the geographic analysis area. Overall, the Preferred Alternative would be similar to the Proposed Action in terms of impacts on water quality. Accordingly, impacts of the Preferred Alternative alone would remain the same as those of the Proposed Action: **negligible** to **moderate**[1].
3.22 Wetlands	Continuation of existing environmental trends and activities under the No Action Alternative would result in **minor** impacts on wetlands. The No Action Alternative combined with all planned activities (including other offshore wind activities) would result in **minor** impacts, primarily through land disturbance.	The Proposed Action may affect wetlands through short-term or permanent disturbance from activities within or adjacent to these resources. Considering the avoidance, minimization, and mitigation measures required under federal and state statutes (e.g., CWA Section 404), construction of the Proposed Action would likely have **negligible** to **minor**[1] impacts on wetlands.	The **negligible** to **minor**[1] impacts on wetlands under the Proposed Action would be the same under Alternatives B, E, and F because these alternatives would differ only with respect to offshore components, and offshore components of the proposed Projects have no potential impacts on wetlands and are outside of the wetlands geographic analysis area. Alternative C or D would not change the analysis compared to the Proposed Action because the cable route options that would be constructed under these alternatives are already covered under the Proposed Action as part of the

Resource	No Action Alternative	Alternative A Proposed Action	Differences Among Action Alternatives
		The Proposed Action would not contribute a noticeable increment to the **minor** impact on wetlands from the combination of the Proposed Action and other ongoing and planned activities (including other offshore wind activities).	PDE approach and the specific cable route options that would be constructed under Alternative C or D have no potential impacts on wetlands. Therefore, the impact level on wetlands would not change: **negligible** to **minor**[1]. Alternative G would not change the analysis compared to the Proposed Action because while impacts on wetlands would be minimized, permanent wetland impacts are still not anticipated and short-term wetland impacts are still likely to occur at inland crossings. Therefore, the impact level on wetlands would not change: **negligible** to **minor**. Under Alternative H, an alternative method of dredge and fill activity would occur around the SBMT, which would not materially change the analysis of any IPF compared to the Proposed Action because there are no wetlands identified at the SBMT, and any potential indirect effects on wetlands in the vicinity would be temporary. Therefore, the overall impact level on wetlands would not change: **negligible** to **minor**[1]. Overall, the Preferred Alternative would be similar to the Proposed Action in terms of impacts on wetlands. Accordingly, impacts of the Preferred Alternative alone would remain the same as those of the Proposed Action: **negligible** to **minor**. Mitigation recommended for the Connected Action at SBMT is analyzed in Section 3.22.13.

AAQS = ambient air quality standards; EFH = essential fish habitat; GHG = greenhouse gas; HAP = hazardous air pollutant; IPF = impact-producing factor; NAAQS = National Ambient Air Quality Standards; NOAA = National Oceanic and Atmospheric Administration; NRHP = National Register of Historic Places; SAR = search and rescue; VOC = volatile organic compound

1 The impact level range is the range of impacts resulting from individual IPFs that have different impact levels.
2 The impact level range represents a range in overall impact level.
3 The impact level for the action alternative(s) excludes the No Action baseline and represent the incremental impact of the action alternative.
4 Impacts including the environmental baseline were assessed as negligible to major for the No Action Alternative and action alternatives for NARW because ongoing activities such as entanglement and vessel strikes continue to compromise the viability of the species due to their low population numbers and downward population trends.

3.3. Environmentally Preferable Alternatives

BOEM is required by CEQ regulations to identify in the ROD the *environmentally preferable alternative(s)* (40 C.F.R. § 1505.2). Upon consideration and weighing of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources, 43 C.F.R. § 46.30, the DOI's responsible official, who is approving this ROD, has determined that the environmentally preferable alternatives are the No Action Alternative and a combination of the following alternatives: Alternative B (Remove Up to Six WTG Positions from the Northwest End of EW 1), Alternative C-1 (Gravesend Anchorage Area), Alternative D (EW 2 Submarine Export Cable Route Options to Minimize Impacts to the Sand Borrow Area), Alternative G (Cable Bridge Crossing of Barnums Channel Adjacent to Long Island Railroad Bridge) and Alternative H (Dredging for Empire Wind 1 [EW 1] Export Cable Landfall).

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

Alternative B would exclude up to six WTGs (and the interarray cable connecting those WTGs) from the northwest end of EW 1 to reduce potential impacts at the edge of Cholera Bank and on scenic resources and navigation safety. Cholera Bank is an area of variable depth that contains patches of rocky bottom habitat, in a broader region of primarily soft-bottom habitat and is a popular location for recreational fishing. Hard substrate is an important benthic feature due to its provision of attachment points for sessile invertebrates and shelter or habitat for various structure-associated fishes. Sessile invertebrates that attach to hard substrate, such as deep-sea corals, sponges, and other sensitive species, are often slow-growing species and thus their recovery from anchoring or other disturbance will take longer as compared to invertebrates found in soft sediments. At local scales, structurally complex hard-bottom substrates are often associated with higher levels of biodiversity than surrounding less-complex sediments and contribute to increased habitat heterogeneity and biodiversity on larger scales. Alternative B would reduce temporary and permanent impacts to benthic habitat at the edge of Cholera Bank and would increase the setback of the closest WTG from coastal viewpoints, although differences in the vertical and horizontal extent of the field of view would not be greatly noticeable to the casual viewer. Alternative B would also increase the setback between the narrow end of vessel traffic lanes and the WTG array and reduce powered or drift allision risks for large (deep-draft) commercial vessels compared to Alternatives A and F.

Alternatives C-1, D, G, and H would narrow the Project Design Envelope (PDE) proposed in Empire's COP to select export cable route options or construction methods that reduce environmental impacts or use conflicts compared to the Proposed Action (which includes analysis of the full range of PDE parameters).

Under Alternative C-1, Empire Wind would bury the submarine export cable to a depth of 15 feet below the charted water depth of USCG Anchorage #25 which would reduce the potential for interactions between the submarine export cable and vessels anchored in Gravesend Bay. The cable would avoid the federally authorized Ambrose Navigation Channel and would avoid disruption to vessels transiting within the navigation channel during construction and when maintenance activities are required for O&M. Alternative C-1 also avoids potential risks to the cable in the event of accidental anchor drag or emergency anchoring by vessels if cable depth is not maintained. The FEIS found that Alternatives C-1 and C-2 were similar for the other environmental and socioeconomic resources analyzed.

Alternative D would narrow Empire's PDE to only allow selection of an export cable route for EW 2 that avoids the sand borrow area by at least 500 meters as the export cables approach the EW 2 cable landfalls. Avoidance of the sand borrow area would reduce impacts on marine mineral extraction. Because these borrow areas are closest to shore and therefore have the least cost to USACE and cost-sharing partners, they are frequently used for coastal resiliency and beach nourishment projects. By avoiding crossing sand borrow areas, USACE is better able to undertake resilience projects in a cost-effective manner and meet the demand for clean sand for these projects.

Under Alternative G, the Barnums Channel export cable crossing would consist of an elevated cable bridge across Barnums Channel adjacent to the Long Island Rail Road railway bridge. Crossing Barnums Channel with a cable bridge adjacent to the Long Island Rail Road railway bridge would minimize impacts to tidal wetlands and within the tidal channel itself compared to other EW 2 route options for the Barnums Channel crossing or alternate construction methods (see Final EIS Appendix O, *Alternatives Analysis for Corps Permit Application*). The cable bridge crossing would require installation of support footings within the channel; however, this would occur along a corridor already containing both the railroad bridge and another utility bridge on the eastern side of the railroad crossing. Because the northern and southern sides of the crossing comprise an existing parking lot and a tank farm, respectively, impacts on wetlands and natural habitats on either side of the crossing would be avoided.

Construction of the EW 1 export cable landfall would use a clamshell dredge with environmental bucket, and sediments would be placed directly into scows and settled for a minimum of 24 hours. Following the settling period, the scows would be decanted in accordance with applicable permits and regulatory requirements. Dredged material would be removed for either beneficial reuse, if suitable, or proper disposal at a licensed facility. Alternative H would reduce the discharge of dredged material during construction of the EW 1 submarine export cable landfall compared to other dredging options considered in the Empire Wind PDE (i.e., open cut trenching/jetting, suction hopper dredging, hydraulic dredging).

The environmentally preferred alternative (consisting of Alternatives B, C-1, D, G, and H) would positively impact the development of offshore wind energy facilities, increasing the scale of the beneficial impacts of renewable offshore wind energy generation and potentially reducing the long-term impact on resources impacted by climate change. Offshore wind energy production has been

identified as a key factor for Atlantic states to reach their greenhouse gas emission goals. It is a presently irreplaceable component in state, Federal, and international strategies to reduce and reverse global climate change over the coming decades.

4. Mitigation, Monitoring, and Reporting

Appendix H of the Final EIS identifies measures to avoid, minimize, and mitigate adverse environmental impacts that could result from the proposed activities as well as the anticipated enforcing agency.[10] BOEM is adopting all the measures identified in Table H-1 of Appendix H of the Final EIS, except for those that are identified in those tables as outside of BOEM's authority to enforce and except for two measures in Table H-1, one related to sound field verification of foundation installation and another related to foundation installation received sound level limit. The sound field verification of foundation installation measure would be partially adopted as it is described in the Biological Opinion. Adoption of the measure to establish a received sound level limit would be infeasible because this requirement would effectively require sound field verification at all or nearly all foundations installed, as site conditions such as water depths and seabed composition are expected to vary between foundation locations. This would be costly and logistically challenging, and with no significant demonstrated benefit.

BOEM fully or partially adopted 34 of the 37 Essential Fish Habitat Conservation Recommendations (CR) which are identified in Table H-3 of Appendix H of the Final EIS. CRs # 23 – 32 are within USACE jurisdiction. BOEM has decided not to adopt CR #1 because only a limited number of turbine locations are feasible for pile driving due to geotechnical constraints (glauconite soils). BOEM will not require the Lessee to microsite WTGs or OSSs as discussed in CRs #2, 3, and 15 due to technical and economic infeasibility, so BOEM will not require the Lessee to develop a WTG or OSS micrositing plan. BOEM is not adopting CR# 19 requiring a longfin squid time of year restriction. However, BOEM intends to require a restriction on all pile driving between January 1 and April 30. This measure, while primarily focused on the highly endangered North Atlantic right whale, will also confer benefits to spawning longfin squid in the Project area for the month of April. The implementation of a time-of-year restriction for pile driving and sediment-generating activities in the lease area or federal portions of export cable corridors in waters 50 m in depth or less would significantly impact the overall construction schedule. BOEM is partially adopting CR#21. However, regarding the last sentence of the CR, NMFS did not provide criteria to identify a level of impact and to assess if the mitigations are sufficient. BOEM intends to require the Lessee to follow the sound field verification criteria as presented in the Empire Wind Proposed Rule for Incidental Take Authorization and the Empire Wind Biological Opinion.

The mitigation, monitoring, and reporting measures that BOEM intends to include as conditions of approval are identified in this ROD in Appendix A. Consultation under Section 106 of the National Historic Preservation Act was concluded after publication of the Final EIS, and stipulations included in the executed Memorandum of Agreement 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.

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

5. Final Agency Decisions

5.1. The Department of the Interior Decision

After carefully considering the Final EIS alternatives, including comments on the Draft EIS, DOI has decided to approve, with modifications, the COP for Empire Wind adopting the Preferred Alternative (Combination of Alternative C-1, Alternative D, Alternative F, Alternative G, and Alternative H). By selecting the Preferred Alternative (hereinafter the "selected alternative"), DOI will allow for the construction, operation, maintenance, and eventual decommissioning of an approximately 816-megawatt (MW) EW 1 Project and 1,260-MW EW 2 Project on the OCS offshore New York within Lease Area OCS-A 0512, with export cables making landfall at South Brooklyn Marine Terminal in Kings County, New York for EW 1 and on Long Beach in Nassau County, New York for EW 2. The selected alternative would route the EW 1 export cable through an anchorage area at Gravesend Bay rather than through the Ambrose Navigation Channel; provide for a minimum 500-meter buffer between the EW 2 submarine export cable and a sand borrow area offshore Long Beach; optimize the EW 1 and EW 2 WTG layouts to maximize annual energy production and minimize wake loss while addressing geotechnical considerations; utilize an above-water cable bridge to construct the EW 2 onshore export cable crossing at Barnums Channel; and use a method of dredge or fill activities for construction of the EW 1 export cable landfall that would reduce the discharge of dredged material.[11]

Since publication of the Draft EIS, Empire Wind and BOEM have further assessed the presence of glauconite soils in the Lease Area and the potential constraints that glauconite soils present for installation of WTG foundations due to resistance to pile driving. Geotechnical site investigations and laboratory studies have shown that the geotechnical properties of glauconite make it an extremely difficult material to build upon, specifically for the installation of fixed-bottom foundations that support offshore wind turbine towers. Glauconite is crushable due to its low particle strength and turns into a clay-like substance under stress. Therefore, the pressure from driving a monopile into the seabed crushes the glauconite sands, which form a clay-like barrier that is not penetrable. As a result, typical hammering methods will not allow the pile to be installed to the needed penetration depth. Due to the minerals' brittle nature, pile driving in locations that contain concentrations of glauconite is difficult. The crushability of glauconite may result in very high driving resistance for monopile installation or early pile driving refusal as well as the reduction of pile capacity with depth, which all pose a significant risk to project development (BOEM 2023).

Between Draft EIS and Final EIS, Empire Wind performed additional site investigations and studies to quantify the extent of glauconite deposits across the Lease Area as well as their potential impact on pile drivability. The pile drivability analyses determined that 22 of the 71 positions analyzed in EW 1 pose a high risk of pile refusal, leaving 49 suitable positions for WTG installation. Seven positions in the setback zone between EW 1 and EW 2 were also analyzed, and five of these were determined as suitable for foundation installation. Based on

[11] BOEM's authority to approve the installation of facilities is limited to the OCS. Therefore, the installation of the export cable and any other facility components outside the OCS will be authorized by the relevant Federal, state, and local entities.

these findings, Empire Wind proposed to add these additional locations to the EW 1 layout to support installation of the required 54 WTGs for EW 1. In addition, Empire Wind found that of the 96 positions analyzed in EW 2, 80 positions are drivable, and two positions are likely drivable with a reduced margin. Two further positions were shown to have premature refusal but are expected to be defined drivable with further engineering optimization.

The 49 suitable positions identified in EW 1, the five suitable positions identified in the setback zone between EW 1 and EW 2, and the 84 identified positions in EW 2 form the basis of Empire's proposed layout of 138 WTGs as reflected in EIS Alternative F. Empire's Certified Verification Agent appointed for Empire Wind (DNV) independently reviewed the pile drivability analysis and concurred with the approach to the analysis and findings. BOEM and the National Renewable Energy Laboratory also independently reviewed Empire's analysis related to the presence of glauconite and pile drivability in the Lease Area and based on the number of WTG positions determined to have higher risk of pile refusal (22 WTG positions in EW 1 and 16 WTG positions in EW 2), determined that EIS Alternatives B and E would no longer meet the purpose and need because selection of Alternative B (removing up to 6 WTG positions from EW 1) or Alternative E (removing 7 WTG positions to create a setback between EW 1 and EW 2) would not allow Empire Wind to develop a project with the estimated capacity necessary to meet current commitments to NYSERDA and to economically develop a project that could realistically compete in a future NYSERDA solicitation. Therefore, BOEM has not selected Alternative B or Alternative E in this ROD.

EIS Alternatives C-1, D, G, and H narrow the PDE proposed in Empire's COP to select export cable route options or construction methods that reduce environmental impacts or use conflicts compared to the Proposed Action (which includes analysis of the full range of PDE parameters). Alternatives C-1, D, G, and H are identified as part of the environmentally preferable alternative and the rationale for their inclusion is described in Section 3.3 above. Alternatives C-1, D, G, and H are consistent with Empire's applications to the New York District, Corps of Engineers for a Department of Army permit pursuant to Section 10 of the River and Harbors Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 U.S.C. 1344) (NAN-2022-00901-EMI and NAN-2022-00902-EMI) and with Empire's Article VII applications to the New York State Public Service Commission (Case 21-T-0366 and Case 22-T-0346) and support joint decision-making with USACE and New York State.

Under Alternative C-2, Empire's submarine export cable would traverse the Ambrose Navigation Channel west of Gravesend Bay and would result in temporary disruption to vessels transiting within the navigation channel during construction and when maintenance activities are required for O&M. Installing the cable in the navigation channel would also introduce a potential risk to the cable in the event of accidental anchor drag or emergency anchoring by vessels if cable depth is not maintained.

Under the No Action Alternative, DOI would not approve the Empire Wind Projects. In addition, no other permits or authorizations for this proposed Projects would be issued. Adverse environmental impacts across resources would generally be less under the No Action Alternative as no construction, operation, or decommissioning activities would occur on the OCS. As a

result, impacts on physical, biological, social, or cultural resources from the selected alternative would be avoided. However, the No Action Alternative would still be expected to result in moderate, long-term, adverse impacts on regional air quality because other energy generation facilities would be needed to meet future power demands. These facilities might be fueled with natural gas, oil, or coal, which would emit more pollutants than wind turbines and would have more adverse impacts on air quality and contribute greenhouse gases that cause climate change. The No Action Alternative was not selected in this ROD because it would not allow for the development of DOI-managed resources and would not meet the purpose and need.

In summary, DOI considered which of the action alternatives would result in fewer environmental impacts and use conflicts, while meeting the purpose and need for the action. The Final EIS found that a combination of Alternative C-1, Alternative D, Alternative F, Alternative G, and Alternative H would result in fewer impacts than other action alternatives considered, while still meeting the purpose and need. No other combination of alternatives would meet the purpose and need for the action. Accordingly, DOI has selected this alternative in this ROD.

DOI weighed all concerns in making decisions regarding these Projects and has determined that all practicable means within its authority have been adopted to avoid or minimize environmental and socioeconomic harm associated with the selected alternative and the approval of the COP. Appendix A of this ROD identifies the mitigation, monitoring, and reporting requirements that will be adopted as terms and conditions of COP approval. The mitigation and monitoring measures identified in Appendix A are representative of those included in Appendix H of the Final EIS. BOEM conducted a thorough National Historic Preservation Act Section 106 review of the Project with federally recognized Tribes, the New York State Historic Preservation Office, the New Jersey State Historic Preservation Office, the Advisory Council on Historic Preservation, and consulting parties concurrent with the NEPA process and, through the Section 106 review, identified historic properties and assessed potential effects to historic properties, and identified measures to resolve adverse effects. Draft measures to resolve adverse effects were described and analyzed in the Draft EIS. After the Final EIS was made available to the public, BOEM addressed consulting party comments on the Memorandum of Agreement (MOA) and distributed the MOA for signature by the consulting parties. The Section 106 review concludes with the execution and implementation of the MOA, which was signed by the BOEM, the New York State Historic Preservation Office, the New Jersey State Historic Preservation Officer, the Advisory Council on Historic Preservation, the Lessee, and the New Jersey Historic Trust (the mitigation fund administrator) on November 20, 2023. 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, Wisconsin/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); Mashpee Wampanoag Tribe, Mashantucket Pequot

Tribal Nation; and Mohegan Tribe of Connecticut. Of the federally recognized tribes only the Stockbridge-Munsee Community, Wisconsin/Band of Mohican Indians; The Delaware Nation; Delaware Tribe of Indians; The Shinnecock Indian Nation; Wampanoag Tribe of Gay Head (Aquinnah); Mashantucket Pequot Tribal Nation; and Mashpee Wampanoag Tribe participated in government-to-government consultation meetings. BOEM held four government-to-government meetings with federally recognized Tribes in July 2021, and on August 3, 2021, April 28, 2023, and September 7, 2023.

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

Commercial Fisheries and For-Hire Recreational Fishing: Major adverse impacts are anticipated to occur due to the presence of structures (e.g., through gear loss, navigational hazards, space use conflicts, potential impacts on fisheries surveys, new cable emplacement and pile-driving noise) (see Final EIS section 3.9). Such adverse impacts will be mitigated through a requirement for Dominion Energy to establish and implement a direct compensation program to provide monetary compensation to commercial and for-hire recreational fishermen impacted by the Projects and through a requirement for Empire Wind to maintain a fisheries gear loss claims procedure throughout the life of the Projects. BOEM is including terms and conditions 6.1 and 6.3 (see ROD Appendix A) to address this issue.

Cultural Resources: Mitigation was developed with consulting parties through the Section 106 consultation process to resolve adverse effects on historic properties pursuant to 36 C.F.R. 800.6 and are executed in the MOA. Mitigation is also described in section 3.10.13 of the Final EIS. Mitigation that would reduce major impacts on onshore and offshore cultural resources are Empire Wind's compliance with stipulations outlined in the MOA, such as compliance with horizontal protective buffers for all identified marine archaeological resources and six ASLFs, implementation of actions that are consistent with the Post Review Discovery Plan for marine archaeology (enforcement of this measure would be under the jurisdiction of the New York SHPO if in state waters, and BOEM/BSEE if on the OCS), implementation and compliance with temporary fencing to avoid historic properties in the terrestrial area of potential effect, and implementation of and compliance with archaeology monitoring to avoid resources.

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

Other Uses, Scientific Research and Surveys: NMFS Northeast Fisheries Science Center scientific surveys (hereinafter "NMFS surveys"). NMFS and BOEM have developed the NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region (Hare et al. 2022) to address the adverse impacts. BOEM and NMFS are of the view that the solution is a collaborative effort between both agencies and the offshore wind industry to establish project specific monitoring programs that follow specific guidelines, thereby allowing the information to be combined regionally into a programmatic approach (see Final EIS section 3.17). There are 14 NMFS scientific surveys that overlap with wind energy development in the northeast region. Seven of these surveys overlap with the Project. BOEM is including term and condition 6.3 (see ROD Appendix A) to address this issue. Consistent with NMFS and BOEM Survey Mitigation strategy actions 1.3.1, 1.3.2, 2.1.1, and 2.1.2 in the NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region, the Lessee must submit to BOEM a survey mitigation agreement between NMFS and the Lessee. The survey mitigation agreement must describe how the Lessee will mitigate the Project's impacts on the seven 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: Populations affected by the offshore and onshore actions include tourists visiting and residents living in coastal communities, including low income and minority neighborhoods; recreational users of the seascape, including those using ocean beaches and tidal areas; recreational users of the open ocean, including those involved in yachting, fishing, boating, and passage on ships; recreational users of the landscape, including those using landward beaches, golf courses, cycle routes, and footpaths; tourists, workers, visitors, or local people using transport routes; people working in the countryside, commerce, or dwellings; and people working in the marine environment, such as those on fishing vessels and crews of ships (see Final EIS section 3.20). In coordination with BOEM, the lessee must prepare and implement a scenic and visual resource monitoring plan (see Appendix A 7.2) 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 shall 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 the operation of ADLS in the monitoring plan. The Lessee shall 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. Details for monitoring and reporting procedures must be included in the plan.

Additional engineering and technical terms and conditions that will be required with COP approval are included in Appendix A of this ROD.[12] BOEM's conditions of approval generally require Empire to comply with all applicable requirements in commercial lease OCS-A 0512 (Lease), statutes, regulations, consultations, and permits and authorizations issued by federal,

[12] 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 Empire Wind LLC.

state, and local agencies. BOEM is aware that Empire has not yet secured certain necessary rights and authorizations necessary to construct portions of EW2 within New York state. Accordingly, BOEM is imposing condition of approval 1.1.2 stating that Empire Offshore Wind LLC shall not install on the OCS any facilities (as defined in 30 C.F.R. § 585.113) that are solely part of EW2, nor conduct any activities for EW2 that would lead to discharges into navigable waters not already covered by a state Water Quality Certification prior to: (1) issuance of all necessary state and local approvals and conveyance of rights necessary for construction of the in-state portions of the EW2 export cable; (2) receipt of a Water Quality Certification pursuant to § 401 of the Clean Water Act and any needed concurrence from a state agency under the Coastal Zone Management Act for EW2. Further, Empire Offshore Wind LLC will be required to certify annually that it is in compliance with the terms and conditions of its approved COP (30 C.F.R. § 285.633(b)). Empire Offshore Wind LLC must also comply with all other applicable requirements of 30 C.F.R. Parts 285 and 585, including, but not limited to, the submission of a Facility Design Report and a Fabrication and Installation Report, before beginning construction activities.

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

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

_____ _____

Steven H. Feldgus
Deputy Assistant Secretary
Land and Minerals Management

Date

5.2. National Marine Fisheries Service Decision

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

On December 7, 2021, NMFS received an application from Empire pursuant to MMPA Section 101(a)(5)(A) for an authorization to take small numbers of marine mammals, by harassment, incidental to the construction of an offshore wind energy project on the Outer Continental Shelf off of New York in OCS-A 0512, for a period of five years. NMFS reviews applications and, if appropriate, issues incidental take authorizations pursuant to the MMPA. Incidental take authorizations may be issued as either: (1) regulations and associated LOAs under Section 101(a)(5)(A) of the MMPA or (2) Incidental Harassment Authorizations under Section 101(a)(5)(D) of the MMPA. In addition, 40 C.F.R. §§ 1500-1508 and NOAA policy and procedures require all proposals for major federal actions to be reviewed with respect to their effects on the human environment. Issuance of an incidental take authorization to Empire is a major federal action, triggering NMFS' independent NEPA compliance obligation. When serving as a cooperating agency, NMFS may satisfy its independent NEPA obligations by either preparing a separate NEPA analysis for its issuance of an incidental take authorization or, if appropriate, by adopting the NEPA analysis prepared by the lead agency. Once NMFS determines the application is adequate and complete, it has 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 is a direct outcome of Empire's request for authorization to take marine mammals incidental to specified activities associated with the Projects (e.g., pile driving, marine site assessment surveys)—is to evaluate Empire's request under requirements of the MMPA (16 U.S.C. § 1371(a)(5)(A)) and its implementing regulations (50 C.F.R. Part 216) administered by NMFS and to determine whether the findings necessary to support the issuance of the authorization can be made, based on the best available information. NMFS needs to render a decision regarding the request for authorization due to NMFS' responsibilities under the MMPA (16 U.S.C. § 1371(a)(5)(A)) and its implementing regulations. In addition to its opportunity to comment on the DEIS, the public was also involved in the MMPA decision-making process through its opportunity to comment on NMFS' proposed rulemaking which was published in the *Federal Register*, 88 Fed. Reg. 22696

(April 13, 2023). NMFS' final action will take into account those comments, as well as the corresponding formal consultation process under Section 7 of the ESA for issuance of the final ITR and LOA.

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

Pending completion of all statutory processes, NMFS may issue the final ITR and an LOA to Empire authorizing take of marine mammals incidental to construction activities associated with the proposed Project for five years. If so, NMFS' final decision to issue the requested ITR and 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 Biological Opinion that completes the formal Section 7 consultation process under the ESA. A Notice of Issuance of the LOA would be published in the *Federal Register* within 30 days of issuance of the LOA. The *Federal Register* notice will describe how NMFS concluded the requirements set forth in the MMPA and its implementing regulations were met and issuance of the final ITR and LOA was warranted.

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

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

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

The other alternative NMFS considered was its Proposed Action, the issuance of the LOA to Empire, which would authorize take of marine mammals incidental to five years of construction activities as noted above, subject to specified mitigation, monitoring, and reporting measures. As part of that alternative, and through the public and agency review process, NMFS will consider 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. 22696 (April 13, 2023), and may be modified in the final LOA in response to public comment, agency review, and ESA Section 7 consultation. The Proposed Action alternative evaluated by NMFS is consistent with the Preferred Alternative evaluated by

BOEM in the Final EIS and selected in this ROD as it will provide the incidental take authorization necessary to achieve the activities identified in that alternative.

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

As noted earlier, NMFS may issue an LOA to Empire in response to its request for incidental take regulations and an LOA, after completing all required statutory and regulatory processes. NMFS' Proposed Action to promulgate regulations and issue an LOA for BOEM's Preferred Alternative effectively meets NMFS' stated purpose and need for acting. NMFS has an obligation to promulgate regulations and issue a requested LOA if certain statutory and regulatory determinations are made under the MMPA after providing for proper public review and comment.

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

NMFS has a statutory and regulatory process to prescribe the permissible methods of take and other means of effecting the least practicable adverse impact on the species or stocks of marine mammals and their habitat, paying particular attention to rookeries, mating grounds, and other areas of similar significance. All incidental take authorizations must also include requirements pertaining to monitoring and reporting. Mitigation, monitoring, and reporting requirements related to marine mammals were preliminarily identified in the proposed ITR, 88 Fed. Reg. 22696 (April 13, 2023). These measures may be modified in the final ITR as NMFS considers any additional measures recommended in the public comments. If NMFS issues the final ITR and LOA to the applicant, it will include the necessary mitigation to effect the least practicable adverse impact on marine mammals, as well as monitoring and reporting requirements to be implemented by Empire.

_____ _____

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

6. References

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Appendix A. Anticipated Terms and Conditions of COP Approval

Appendix B. OCSLA Compliance Review of the Construction and Operations Plan for the Empire Wind Projects (EW 1 and EW 2)

Appendix B.1. ETRB Review Memorandum