Beacon Wind Project Environmental Impact Statement Scoping Report

October 2023

U.S. Department of the Interior
Bureau of Ocean Energy Management
Office of Renewable Energy Programs

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List of Abbreviations and Acronyms

Beacon Wind	Beacon Wind LLC
BOEM	Bureau of Ocean Energy Management
CFR	Code of Federal Regulations
COP	Construction and Operations Plan
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EMF	Electromagnetic field
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
GHG	Greenhouse gas
GW	Gigawatts
HAPC	Habitat area of particular concern
HVAC	High voltage alternating current
HVDC	High voltage direct current
ID	Identification
ISO-NE	New England Independent System Operator
MMPA	Marine Mammal Protection Act
MW	Megawatts
NARW	North Atlantic right whale
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of intent
NPDES	National Pollutant Discharge Elimination System
NYISO	New York Independent System Operator
NYSERDA	New York State Energy Research and Development Authority
OSS	Offshore substation
PDE	Project design envelope
PDF	Portable document format
PPA	Power purchase agreement
SF_6	Sulphur hexafluoride
USC	United States Code
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
UXO	Unexploded ordnance
WTG	Wind turbine generator

1. Introduction

Council on Environmental Quality regulations for implementing the National Environmental Policy Act (NEPA) under Title 40 of the Code of Federal Regulations (CFR) Section 1501.9 require agencies such as the Bureau of Ocean Energy Management (BOEM) to perform certain actions as part of the scoping process, including the following.

- Determining the scope and the significant issues to be analyzed in depth in the environmental impact statement (EIS).
- Identifying and eliminating from detailed study the issues that are not significant.

This document, in combination with the Draft EIS, is intended to satisfy BOEM's obligations under 40 CFR Section 1501.9.

On February 18, 2022, Beacon Wind LLC (Beacon Wind), submitted a Construction and Operations Plan (COP) for the Beacon Wind Project to BOEM seeking approval to construct and operate two wind energy facilities (BW1 and BW2 or, collectively, the Project) offshore Massachusetts with two export cable routes making landfall in Queens, New York, or with one cable making landfall in Queens, New York and the other in Waterford, Connecticut. BW1 has a 25-year offtake agreement with the New York State Energy Research and Development Authority (NYSERDA) and is expected to deliver 1,230 Megawatts (MW) of power to the New York Independent System Operator (NYISO) electric grid at an identified point of interconnection in Queens, New York. Beacon Wind is actively seeking an offtake agreement for BW2. Beacon Wind anticipates that BW2 will deliver more than 1,200 MW of power and interconnect with either the NYISO electric grid in Queens, New York, or with the New England Independent System Operator (ISO-NE) electric grid in Waterford, Connecticut. Offshore components of the Project would include up to 155 total wind turbine generators (WTGs) (between 61 and 94 WTGs for each BW1 and BW2), 2 offshore substations (OSSs) (1 for each BW1 and BW2), foundations and associated scour protection for WTGs and OSSs, interarray cables, 2 submarine export cable routes (1 for each BW1 and BW2), cable protection, and 1 temporary meteorological and oceanographic (metocean) buoy. Onshore components of the Beacon Wind Project, which would be sited in Queens, New York for BW1 and either Queens, New York or Waterford, Connecticut for BW2, would include two submarine export cable landfall areas, two onshore substations, and two onshore export and interconnection cables. After revision of the initial COP and receipt of supplemental filings, BOEM determined Beacon Wind's COP to be sufficient in June 2023.

On June 30, 2023, BOEM issued a Notice of Intent (NOI) to prepare an EIS consistent with NEPA (42 United States Code [USC] 4321 et seq.) to assess the potential impacts of the Proposed Action and alternatives (88 Federal Register [FR] 42386). The NOI commenced a public scoping process for identifying issues and potential alternatives for consideration in the EIS. The formal scoping period was from June 30 through July 31, 2023. During the comment period, federal agencies, state and local governments, and the general public had the opportunity to help BOEM identify potentially significant resources and issues, impact-producing factors, reasonable alternatives (e.g., size, geographic, seasonal, or other restrictions on construction and siting of facilities and activities), and potential mitigation measures to analyze in the EIS, as well as provide additional information. BOEM also used the NEPA scoping process to initiate the Section 106 consultation process under the National Historic Preservation Act (NHPA) (54 USC 300101 et seq.), as permitted by 36 CFR Section 800.2(d)(3), which requires federal agencies to assess the effects of projects on historic properties. Additionally,

BOEM informed its Section 106 consultation by seeking public comment and input through the NOI regarding the identification of historic properties or potential effects on historic properties from activities associated with approval of the Beacon Wind COP. BOEM also invites federally recognized tribes to engage in government-to-government consultation throughout the NEPA process.

The NOI requested comments from the public in written form, delivered by mail, or through the Regulations.gov web portal. The public could also provide verbal or written comments at two in-person meetings or provide verbal comments at two virtual scoping meetings hosted by BOEM (Table 3-1).

2. Objective

The objective of this report is to identify substantive public scoping comments for consideration in the development of the EIS and categorize them based on the applicable resource areas or NEPA topics. Section 3, *Methodology*, describes the methodology used to identify and categorize comments. This categorization scheme allows subject matter experts responsible for preparing the EIS to review comments directly related to their areas of expertise and view the number of comments received by topic.

3. Methodology

3.1 Terminology

The following terminology is used throughout this scoping report.

- **Submission.** A submission is the entire content submitted by a single person or group at a single time. For example, a written or typed letter from an individual, an email with a portable document format (PDF) attachment, or a transcript of an verbal comment provided at a public scoping meeting are each considered to be a submission.
- **Comment.** A comment is a specific statement within a submission that expresses the individual's specific point of view, concern, question, or suggestion. One submission may contain multiple comments.

3.2 Comment Submittal

BOEM received comment submissions during the scoping process via the following mechanisms.

- Electronic submissions received via Regulations.gov on docket number BOEM-2023-0037.
- Electronic submissions received via email to a BOEM representative.
- Hard-copy submissions received by mail to BOEM.
- Verbal or written comments provided at public scoping meetings.

3.3 Public Scoping Meetings

Table 3-1, lists the public meetings hosted by BOEM during the scoping period and the estimated number of attendees.

Table 3-1 Public Scoping Meetings

Meeting Date	Meeting Type and Location	Time	Estimated Number of Attendees
July 13, 2023	Virtual: Zoom Webinar	11:00 a.m. Eastern Daylight Time	96
July 18, 2023	In person: University of Massachusetts, Dartmouth	6:00 p.m. Eastern Daylight Time	21
July 20, 2023	In person: The Adria Hotel, Queens, New York	6:00 p.m. Eastern Daylight Time	23
July 26, 2023	Virtual: Zoom Webinar	11:00 a.m. Eastern Daylight Time	93

Each public scoping meeting featured presentations by BOEM providing an overview of the wind energy leasing history offshore Massachusetts and the NEPA process, as well as a presentation by Beacon Wind with an overview of the Beacon Wind Project. During the virtual meetings, presentations were followed by a verbal public comment session, then a question-and-answer session. During the in-person meetings, the presentation was followed by an open house, where attendees could ask questions of BOEM subject matter experts and submit written comments or provide verbal comments to a court reporter. BOEM's virtual public meeting room for the Beacon Wind NOI (https://www.boem.gov/renewable-energy/state-activities/beacon-wind-noi-eis-web-virtual-meeting-room) contains digital copies of the printed materials on display at the in-person meetings and recordings of the virtual public meetings. Beacon Wind had an array of printed materials and poster displays at the in-person meetings, as well as staff available to answer questions from the public about the Project. Additionally, representatives of NYSERDA had a table display and fielded questions from the public at the Queens, New York meeting.

3.4 Comment Processing

3.4.1 Compilation of Submissions

BOEM's process for analyzing public comments involved using ICF's commercial web-based CommentWorks® software product. Submissions were received via Regulations.gov, mail, email, or delivered verbally or in writing at the public meetings (Table 4-1). All submissions were downloaded, processed, and imported into CommentWorks. CommentWorks served as the submission database and recorded information about each submission, including the submitter's name, submission date, submission method, and whether the submitter identified as a representative of an organization, or from a government entity or agency.

As submissions were entered into CommentWorks, they were assigned a temporary submission identification (ID), later replaced by a final submission ID that matches comments posted to Regulations.gov. The final submission IDs are listed in Appendix A, *List of Submissions and Individual Comments by Topic*.

Duplicate submissions from the same individual or duplicate submissions received via different delivery methods (e.g., submitted via Regulations.gov and emailed to a BOEM representative) were counted as a single submission.

Form letters are submissions that contain the same or similar text submitted by multiple individuals through an organized campaign. Each copy of a form letter was counted as a single submission.

3.4.2 Bracketing of Comments

All submissions were read in full to bracket and code individual comments, as defined in Section 3.1, *Terminology*. A hierarchical outline was developed to include key issues addressed by the commenters or identified in the NOI. This issue outline was used to code each individual comment within CommentWorks to a specific topic. Each comment coded received a unique comment ID number. For example, the first comment identified in submission BOEM-2023-0037-0002 was identified as comment BOEM-2023-0037-0002-0001. When a comment pertained equally to more than one topic, it was not coded to multiple topics but instead coded to the most applicable topic. The topics are listed in Table 4-2.

Appendix A, *List of Submissions and Individual Comments by Topic*, lists all of the submissions received, as well as all of the individual comments that were extracted from each submission, organized by topic. The individual comments provided in Appendix A include verbatim comment excerpts as written by the commenters. The purpose of presenting this material in its verbatim form is to preserve the exact words of the commenter as they relate to each issue. However, formatting may differ from the original submission as a result of the conversions needed to enter submissions into CommentWorks software in a consistent format for processing. Comment submissions can be viewed in their original format with any associated attachments by browsing comments posted at https://www.regulations.gov/document/BOEM-2023-0037-0001.

3.4.3 Classification of Comments

Substantive comments are those requiring further consideration due to the potential for actionable implications on the NEPA process or EIS. Comments considered substantive and bracketed for purposes of BOEM's public scoping effort include comments that identified:

- Significant issues to be analyzed in the EIS.
- Sources of information to include in the EIS.
- Data gaps and information needs.
- Potential effects that the proposed action could have on biological resources, physical resources, socioeconomic and cultural resources.
- Other reasonable alternatives to the proposed action that BOEM should consider, including additional or alternative avoidance, minimization, and mitigation measures.
- Identification of historic properties, potential effects to historic properties, and measures to avoid, minimize, or mitigate adverse effects on historic properties.

Comments expressing general support or opposition to BOEM's offshore wind program or the Beacon Wind Project but lacking specific or substantive supporting rationale were also bracketed, but not considered substantive. The same non-substantive coding was applied to comments addressing multiple topics in a generalized, non-actionable manner. General themes expressed in non-substantive comments are summarized in Section 5.31, *Non-Substantive: General Support or Opposition, or Multiple Topics Discussed Generally*. Although BOEM reviews all comments received, only those comments determined to be unique, and substantive are carried on for further consideration in developing the EIS. As such, BOEM does not tally comments received in support or opposition to a given project, nor consider the relative frequencies of such comments as an influencing factor in the decisionmaking process.

Text not related to the Proposed Action, alternatives, connected actions, reasonably foreseeable impacts, or cumulative actions, as well as background information not directly related to or providing essential context for a substantive comment, was considered to be not germane. Text determined not to be germane was not bracketed or coded, nor included in Appendix A.

Only a single copy of each form letter (referred to as the “form letter master”) and letters containing additional unique, substantive text (referred to as “form letter plus"), were bracketed and coded.

4. Distribution of Submissions and Comments

4.1 Submissions

BOEM received 523 submissions from the public, government agencies and elected officials, and other interested organizations. Table 4-1 shows the number of submissions received via each delivery method. Comments received via multiple delivery methods were only counted once.

Table 4-1 Number of Submissions by Delivery Method

Delivery Method	Number of Submissions Received
Regulations.gov	134
Email to BOEM representative	2
Verbal comment transcribed by court reporter at virtual or in-person public meeting	36
Written comment submitted at in-person public meeting	3
Mail	348
Total[1]	**523**

[1] Includes 347 identical or substantially similar copies of a form letter.

BOEM received 523 total submissions from the following entities.

- 3 submissions from federal agencies: The National Marine Fisheries Service (NMFS), National Park Service, and U.S. Environmental Protection Agency (EPA).
- 4 submissions from state agencies: The Connecticut State Historic Preservation Office, Massachusetts Office of Coastal Zone Management, New Bedford Port Authority, and New York State.[1]
- 4 submissions from state or local elected officials: Dylan Fernandes, member of the Massachusetts House of Representatives; Zohran Mamdani, member of the New York State Assembly 36 District; Jeffrey Roy, House Chair for Joint Committee Telecommunications Utilities and Energy in the Massachusetts Legislature; and Donovan Richards Jr., President of Queens Borough.
- 1 submission from a local government: Town of Nantucket.

[1] The New York State Departments of Environmental Conservation and New York State Department of State, in consultation with the Office of Parks, Recreation, and Historic Preservation; Office of General Services; and Department of Public Service.

- 50 submissions from non-governmental or quasi-governmental organizations, or individuals identifying as affiliated with such organizations.
- 459 submissions from individuals.
- 2 submissions from anonymous individuals.

BOEM received multiple submissions associated with two form letter campaigns expressing support for the Beacon Wind Project. This included approximately 347 identical or substantially similar copies of the form letter master (BOEM-2023-0037-0153) and 11 identical or substantially similar copies of form letter master (BOEM-2023-0037-0055).

4.2 Comments

BOEM identified a total of 1,258 unique comments, of which 751 were deemed substantive. Table 4-2 shows the distribution of comments coded to each topic. The most commonly addressed topics included alternatives, mitigation and monitoring, marine mammals, NEPA and the public involvement process, and demographics, employment and economics.

Table 4-2 Distribution of Comments by Resource or NEPA Topic

Topic	Number of Comments
Non-Substantive: General Support or Opposition, or Multiple Topics Discussed Generally	507
Alternatives	81
Mitigation and Monitoring	60
Marine Mammals	54
Process and Scope for NEPA, Permits and Consultations, and Public Involvement	52
Demographics, Employment, and Economics	50
Air Quality & Climate Change	49
Commercial Fisheries and For-Hire Recreational Fishing	48
Finfish, Invertebrates, and Essential Fish Habitat	40
Connected Actions, Planned Activities Scenario, and Cumulative Impacts	40
Benthic Resources	36
Proposed Action/Project Design Envelope	27
Water Quality	27
Birds	23
General Wildlife	21
Cultural, Historical, and Archaeological Resources	21
Purpose and Need	20
Bats	14
Environmental Justice	14
Navigation and Vessel Traffic	14
Materials and Waste Management	12
Scenic and Visual Resources	9
Electromagnetic Fields (EMF)	7
Noise	7

Topic	Number of Comments
Other Uses (Marine Minerals, Military Use, Aviation, Scientific Research and Surveys)	6
Land Use and Coastal Infrastructure	5
Sea Turtles	5
Recreation and Tourism	3
Coastal Habitat and Fauna	2
Public Health and Safety	2
Wetlands and Waters of the U.S.	2
Total	**1,258**

5. Comment Summaries by Topic

The following sections summarize the key points of comments coded to each topic. Comments are summarized, as appropriate, based on concerns that were raised by several commenters and interpreted for clarity and conciseness. BOEM's interpretation and summarization of scoping comments does not constitute agreement or disagreement with the content of the scoping comments. The purpose of this report is to present the issues, questions, and concerns raised in the scoping comments for consideration during the NEPA process. Additionally, because each comment was coded to only one category, but may express concerns related to multiple categories, the comment summaries below attempt to capture comments coded to each category as well as related comments that may have been coded to different categories.

Appendix A, *List of Submissions and Individual Comments by Topic*, presents the full text of each coded comment ordered by topic. The comment excerpts that only expressed general support or opposition are not included in Appendix A in their verbatim form. Instead, those comments are summarized here in Section 5.31, *Non-Substantive: General Support or Opposition, or Multiple Topics Discussed Generally*.

5.1 Process and Scope for NEPA, Permits and Consultations, and Public Involvement

Commenters expressed appreciation for BOEM's requests for public input and for the opportunity to engage in discussions during in-person public meetings.

Commenters offered various criticisms of and suggestions to enhance the NEPA and public engagement process:

- Select public meeting venues that are located within potentially affected communities and easily accessible by public transportation. One commenter requested holding a future meeting in Rhode Island because Rhode Island commercial fishing vessels are active in the lease area.
- Hold public meetings during times that accommodate greater numbers of people.
- Use clear terminology and plain language in BOEM documents and informational materials and offer technical assistance as needed to enhance public understanding. One commenter requested minimal use of abbreviations, use of page numbers and hyperlinks to easily locate cited content, and compliance with accessibility requirements.

- Make BOEM documents and informational materials available in languages spoken within potentially affected communities and provide translation and interpretive services.
- Tailor outreach to low-income and minority communities with information about potential environmental justice impacts.
- Enhance transparency of the NEPA process by making all technical reports for the Beacon Wind Project available to the public.
- Systematically classify impacts based on magnitude, direction, timing, and duration. One commenter indicated that impact classifications should be based on quantitative criteria.
- Ensure the analysis in the EIS reflects the best available science and information and sufficiently characterizes baseline conditions by requiring new biological and ecological surveys where data is over 5 years old. Additionally, ensure that the Final EIS is updated with current knowledge, science, technology, and practices that may emerge during development of the document.
- Establish appropriately sized geographic analysis areas (including affected coastal and inland areas) and evaluate potential impacts during all stages of construction, operation, and decommissioning.
- Expedite review and approval of renewable energy projects.
- Considering the sequential or overlapping timing of BOEM public comment periods and complexity of the offshore wind projects, public comment periods should be at least 60 days to allow the public to adequately review and comment. One commenter requested that the public have the opportunity to make comments after reviewing the consultation documents such as the Essential Fish Habitat (EFH) Assessment and Biological Assessments/Opinions and requested that they be made publicly available on the BOEM website.
- Conduct additional outreach to fishing communities with the potential to be adversely affected by the Project.
- Conduct robust consultation with federally recognized, state- recognized tribes, and non-federally recognized tribes that encompasses the full extent of Project activities and considers historical presence of tribes in the region.
- Ensure that the EIS complies with the applicable and federal laws including NEPA and required consultations under the Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), and the Magnuson-Stevens Fishery Conservation and Management Act.
- Coordinate regularly with affected states, local communities, federal agencies, and tribes throughout all stages of the NEPA process, providing updates and requesting input on draft documents, changes to the project design envelope (PDE), and the status of BW2. Commenters indicated that consultation for BW2 may be delayed until the preliminary designs and schedule are confirmed.
- Incorporate into the EIS all National Oceanic and Atmospheric Administration (NOAA) requirements for adoption of the EIS.
- Maintain impartiality in press releases and communications and ensure analyses are conducted with objectivity and independence from the Administration's directives to meet renewable energy goals.
- BOEMs decision to issue the Beacon Wind lease should not bias the agency's decision of whether to approve the COP.

- Develop a regional Programmatic EISs with tiered analyses for individual projects or contiguous lease areas to facilitate a robust analysis of cumulative impacts and coordination of mitigation measures.
- Ensure projects are developed in an environmentally responsible manner and that economic benefits are maximized and equitably distributed.

Commenters also identified a range of impact producing factors and issues to consider in establishing the scope of the NEPA analysis and associated consultations.

5.2 Purpose and Need

Many comments related to the purpose and need for the Beacon Wind Project cited a need to reduce reliance on fossil fuels and reduce greenhouse gas (GHG) emissions contributing to climate change through deployment of renewable energy. Some commenters noted how the Beacon Wind Project could contribute to federal and state renewable energy goals, including:

- The Biden Administration's goal of 30 gigawatts of offshore wind by 2030.
- The New York State's Climate Leadership and Community Protection Act targeting 9,000 MW of offshore wind energy installed by 2035 and reducing 100 percent of the electricity sector's GHG emissions by 2040.
- Connecticut's goal of 2,000 MW of offshore wind by 2030.

Other comments received regarding the purpose and need include:

- Commenters indicated that the purpose and need is defined too narrowly and improperly tied to renewable energy goals and existing agreements and goals of the developer rather than GHG reduction targets. Instead, a commenter suggested that the purpose and need should be "to reduce the GHG emissions per terawatt-hour relative to the weighted mix of energy types from which power is currently made, using a 10-year lookback." Another commenter noted that the purpose and need should be defined broadly enough to allow for consideration of other reasonable alternatives.
- Commenters remarked that defining the purpose and need based on federal and state renewable energy goals and the agreements made by the developer does not relieve BOEM of its obligations to evaluate and minimize adverse impacts and conserve lands, waters, and biodiversity.
- One commenter requested that the EIS include the purpose and need of the National Marine Fisheries Service (NMFS) action and that BOEM change the purpose and need statement to incorporate revisions previously requested by NMFS.

5.3 Proposed Action/Project Design Envelope

Commenters requested additional details or clarifications about the Proposed Action, including:

- Available seabed preparation and cable-laying techniques that could minimize impacts on benthic habitat and water quality.
- Maximum depth that cables for the Beacon Wind voltage could be buried without overheating and assurance that minimum burial depth would be sufficient to minimize conflicts with fishing operations and surveys and effects of heat and electromagnetic field (EMF) emissions.

- Identification of specific existing out-of-service cables that would be crossed by cables for the Beacon Wind Project and would need to have segments removed.
- Detailed accounting of type, area, and location of rock armoring and scour protection to be used along the export cable within state and federal waters.
- Percentage of electrical loss through the export cables.
- Proposed horizontal directional drilling installation methods, including the potential for inadvertent returns and impacts associated with cofferdam installation(s).
- Explanation of suction-bucket jacket foundations and conditions most suitable for this foundation type.
- Whether the assertion made in the COP that underwater horizontal drilling noise would be less than 102 decibels at 1 meter from the drill was the result of empirical measurement or derived from a model of sound transmission.
- Reliability of electric facilities and compatibility with existing utility infrastructure including those documented in NYSERDA's Offshore Wind Cable Corridor Constraints Assessment.
- Additional rationale explaining why the use of closed-cycle OSS cooling systems would not be feasible.
- Anticipated time of year construction activities for each project would occur, to the extent known, in order to assess overlap with protected species and sensitive life stages.
- Emergency preparedness for severe storm events.
- Potential for icing of turbine blades and potential hazards to fishermen.
- Potential public health and safety concerns related to EMF emissions from export cables.
- Decommissioning of cable and scour protection areas and procedures for handling disturbance of reef habitat and resuspension of sediments.
- Further explaining the potential for cable linkage between BW1 and BW2 if both projects connect to the New York Independence System Operator.

One commenter requested coordination with NMFS to determine which parts of the PDE would need to be narrowed to carry out a reasonable analysis that would support BOEM's requests for ESA and EFH consultation. The commenter explained that the Proposed Action, as defined for these consultations, should reflect a realistic scenario that incorporates any revisions to the PDE that have been made as well as any technical or logistical constraints on Project design and layout that have been identified (e.g., glauconite soils).

Commenters requested confirmation of BW2 siting, design, and schedule details when available. One commenter remarked that due to the uncertain timing of the BW2 project, due to the absence of an offtake agreement, construction delays could result in the need for supplemental NEPA analysis that accounts for changed conditions and new data. Another commenter asked whether monitoring and lessons learned from installation of BW1 could be adaptively applied to BW2.

Commenters identified various permits and authorizations that may be required for the Beacon Wind Project:

- Review by the New York Public Service Commission under Article VII of the Public Service Law, "Siting of Major Utility Transmission Facilities."
- New York State Office of General Services easement for installation of cables on State-owned lands underwater.
- U.S. Army Corps of Engineers authorizations.

5.4 Alternatives

Commenters suggested specific siting and design alternatives to the Proposed Action or requested, more generally, consideration of alternatives to avoid or minimize impacts on various sensitive resources or marine uses. See Section 5.3, *Proposed Action/Project Design Envelope*, and Section 5.6, *Mitigation and Monitoring*, for additional comments related to Project siting, design, and implementation and avoidance and minimization measures, respectfully.

Specific siting and design alternatives raised in comments include:

- Removal of WTG and OSS positions within 20 kilometers of the 30-meter isobath around the region identified as Nantucket Shoals to avoid North Atlantic Right Whale (NARW) essential winter-feeding habitat and habitat of importance for a variety of other species due to potential impacts from noise, habitat alternation, and changes in prey availability.
- Establishment of a visual clearance zone at least 5,000 meters surrounding a driven pile and an acoustic exclusion zone of at least 2,000 meters surrounding a driven pile to minimize effects on NARW and other protected species with a monitoring and reporting program to ensure enforcement.
- Elimination of WTG positions closest to Nantucket to reduce visual impacts.
- Alternative routes for the submarine export cable(s) approaching the Queens, New York landfall location suggested to avoid sensitive resources in Long Island Sound and concentrate construction activities in heavily developed areas:
    - Approaching Long Island from the south, make initial landfall west of the Bannister Bay entrance channel and traverse northward underground, crossing Head of Bay, then entering Flushing Bay and passing through Riber's Channel on the south side of Riker's Island to meet the East River.
    - Route the final western segment of the export cable through Riker's Channel to avoid North and South Brother islands in the East River and associated water bird sanctuaries and feeding areas.
    - Land-based route through Long Island that avoids or minimizes impacts on Long Island Sound by routing export cables over land rather than through the entire length of the Sound.

General considerations for alternatives identified in comments include:

- Evaluate WTG, OSS, and cable routing options that would avoid or minimize impacts on sensitive habitats such as submerged aquatic vegetation, wading bird nesting and foraging habitat, estuaries and embayments, sand ridges and troughs, cold water corals, hard bottom, NARW seasonal management areas and dynamic management areas, Habitat Areas of Particular Concern (HAPCs), and complex topography, particularly any of these habitats that exist within Block Island and Long Island Sound.
- Evaluate WTG, OSS, and cable routing options that would avoid or minimize impacts on areas utilized for fishing and navigation such as siting Project components outside of fishing tow areas anchorage areas, and areas with high commercial or recreational vessel traffic.
- Evaluate different methods of cable installation that would avoid resuspension of anoxic sediments in low oxygen areas.
- Consider deeper burial of export and interarray cables to minimize the potential for fishing gear or anchoring systems.
- Avoid sensitive habitats within Long Island Sound as identified in the Long Island Sound Blue Plan.

- Evaluate potential to use a shared export cable corridor for Beacon Wind and future projects entering Long Island Sound.
- Analyze alternative WTG spacings and incorporation of vessel transit corridors into the 1×1 nautical mile grid for Massachusetts and Rhode Island offshore wind leases to improve access and safety for fishing operations.
- Consider changes in timing of construction activities and foundation types to limit pile driving and other disturbances during seasonally sensitive times for NARWs and other protected species.
- Consider use of closed-cycle OSS cooling systems to avoid entrainment and impingement of larva or consider alternative locations for the proposed once-through, non-contact cooling systems to minimize effects to protected species.
- Consider use of Sulphur hexafluoride (SF_6) free switchgears for offshore OSSs, onshore substation facilities, and WTGs to minimize the potential for GHG emissions.
- Consider alternative renewable energy sources such as small-scale nuclear and solar or onshore wind energy. One commenter indicated that there are limited options to bring other sources of renewable energy to New York City.

Comments on development of alternatives and the approach to alternatives analysis requested:

- The public, including fishery groups, should be included in the earliest stages of alternatives development.
- That power purchase agreement (PPA) should not unreasonably restrict or limit the reasonable range of alternatives.
- Detailed explanation of any alternatives considered but not carried forward for detailed analysis.
- BOEM independently evaluates whether gravity-based WTG foundations are feasible as asserted in the COP.
- Elimination of “future climate change” from the description of baseline conditions so impacts from climate change are not conflated with warming effects of Project development.
- Comprehensive evaluation of the impacts of the No Action Alternative, particularly for air quality, GHG emissions, economics, and artificial reef creation.
- Independent analysis of the No Action Alternative alone and in combination with ongoing and planned activities.
- Identification of intended areas of use and comparison of impacts from the WTG and OSS foundation types included in the PDE, considering noise, disturbance, and hydrodynamic effects.
- Detailed information and mapping of glauconite soils within the lease area to evaluate potential engineering constraints such as pile driving refusal for WTG and OSS foundation types or areas unsuitable for development, such that these factors can be adequately considered in alternatives development. One commenter requested that geologic data be made available to the public earlier in the process.
- Explanation of how the proposed export cable routes were developed and any interested parties that were consulted.
- Detailed data on geological, benthic, and biological data in the locations of proposed Project components and surrounding areas to assess impacts of the alternatives and inform avoidance and minimization strategies.
- Information about any micro-siting efforts for WTG, OSS, or interarray and export cables.

- A monetary cost comparison for implementing different alternatives.
- Clear communication of different PDE constraints associated with different alternatives.
- Consideration of a broad range of cable routing and landfall locations for BW2 given the absence of a power purchase agreement.
- Identification of mitigation measures and which measures would apply under each alternative.

5.5 Connected Actions, Planned Activities Scenario, and Cumulative Impacts

Commenters voiced the importance of a consistent and comprehensive cumulative impact analysis that includes other ongoing and reasonably foreseeable future offshore wind and non-offshore wind projects, as the Beacon Wind Project is likely to result in cumulative impacts on the same resources as nearby projects in the region.

Specifically, commenters requested that the EIS assess cumulative impacts of:

- Pre-existing subsea cables combined with installation of new offshore export cables, scour protection, and associated construction vessel activity from all projects in the region on various resources including benthic habitat and organisms, water quality, air quality, commercial fishing activities, and estuaries.
- Heat emitted by interarray high voltage alternating current (HVAC) cables and offshore export cables.
- OSS cooling systems for multiple projects on impingement and entrainment of fish larvae, shellfish larvae, and primary productivity of zooplankton and phytoplankton.
- Hydrodynamic and wind wake effect of wind farms on ocean currents, vertical mixing, turbidity, and primary production.
- Underwater noise impacts on marine mammals and other species.
- Increased vessel traffic, overlapping vessel routes, and sequencing of port uses during construction activities.
- Commercial fishing access and displacement, including the socioeconomic impacts and cost limitations on fishing communities that cannot relocate fishing activity, and fishing regulations that limit where and when fishing activities can occur.
- Alterations of benthic habitat and predator/prey interactions, increased pressure and space-use conflicts with recreational users, displacement due to wind farm construction and operations, and gear loss due to shipping traffic strikes on the commercial fishing industry.
- Historic properties, sites, and districts listed or eligible for listing in the National Register of Historic Places, noting that Beacon Wind would be visible in the background of other offshore wind projects from national historic landmarks.
- Fishing surveys noting that disruptions in survey activities would result in uncertainty in stock assessment, more conservative fisheries management measures, and impacts on fishery participants and communities.
- Environmental and economic effects on indigenous, coastal, and disadvantaged communities.
- Noise, infrastructure, and vessel traffic on species listed under the ESA and MMPA, including an analysis of the potential reduction in the effective migration space.

Additional topics regarding cumulative analysis include:

- A commenter recommended that BOEM take a holistic and flexible approach to utilizing the best available research, data, and information that could be applied to the combined development of all projects.
- A commenter indicated that limiting cumulative impact analysis to those that have a "reasonably close causal relationship to the Proposed Action and the alternatives" is too restrictive and not in line with NEPA regulations.
- Commenters emphasized the importance of having a separate No Action Alternative that only includes offshore wind projects that already have completed environmental reviews and have been permitted. A commenter cautioned that a no action alternative approach that includes proposed, but not yet approved, offshore wind projects would dilute the actual impacts of the Beacon Wind Project.
- A commenter expressed concern with the variability in the cumulative impacts by resource across offshore wind projects, including the no action alternative, even though these cumulative impact analyses generally include the same list of anticipated offshore wind projects. Similarly, a commenter noted inconsistencies in the size of the geographic analysis area used for resources across offshore wind projects. Commenters recommended consistency to improve the cumulative impact analysis.
- A commenter highlighted that BOEM's approach for initiating an NOI has been inconsistent across projects as some have a PPA in place while others do not. The commenter concluded that this inconsistency makes completing a cumulative analysis impossible as there is no appropriate time in the federal process to do so.
- Commenters recommended that BOEM conduct a programmatic EIS to evaluate the cumulative impacts of all reasonably foreseeable offshore wind development and survey efforts prior to additional activity.
- A commenter recommended that the EIS include a detailed response plan to address unintended and unforeseen effects on the marine environment and marine wildlife, including thresholds for possible decommissioning if the Project has unexpected effects.

Topics raised about potential connected actions include:

- A commenter argued that upgrades and improvements by port facilities that are proposed to be utilized by Beacon Wind should be included in the EIS as connected actions because the Beacon Wind Project cannot move forward without undertaking these upgrades. Other commenters suggested that the cumulative effects and growth-inducing effects resulting from multiple port facility improvements should be analyzed.
- A commenter recommended that the possibility for the onshore export cable corridor to accept additional power be included.

5.6 Mitigation and Monitoring

Comments suggested overall strategies for mitigation and monitoring as well as proposed mitigation and monitoring measures.

Topics raised in this category included the following:

- Commenters expressed praise for the developer's funding of real-time monitoring of whales and making the data publicly available.

- Commenters suggested mitigation measures to reduce the impact to night skies including using the Aircraft Detection Lighting System, shielding, downward-pointing security lighting, adding motion sensors to security lighting, turning off lights when not needed during construction and operations, using the minimum lumen output needed on lights, and using warm color-temperature light when possible.
- Commenters encouraged BOEM use best practices for all monitoring, reporting, and communications with stakeholders. Commenters also asked that BOEM discuss how monitoring results would be made available to regulatory agencies and the public.
- A commenter requested that the EIS identify which mitigation measures are included as part of the proposed Project and, thus, evaluated in the analysis, which measures are proposed as required, and which measures are optional and could be implemented by the developer to potentially reduce impacts.
- A commenter suggested that BOEM develop Project-specific as well as regional survey monitoring and mitigation measures in consultation with NOAA and NMFS that are consistent with the measures developed for other recent projects as well as the 2022 Federal Survey Mitigation Implementation Strategy developed by NMFS and BOEM.
- A commenter suggested that BOEM expand their monitoring and mitigation measures discussion regarding measures to employ to reduce potential impacts on whales, including the NARW, from noise and vessel strikes. Comments suggested potential mitigation measures on these topics including requiring timing restrictions for construction and detonation of unexploded ordnances, requiring slow vessel speed zones, requiring implementation of state-of-the-art noise attenuation measures and passive acoustic monitoring, limiting types of survey gear, and requiring robust monitoring of whales and noise. Commenters asked that BOEM work closely with NOAA and NMFS to develop mitigation and monitoring plans that include appropriate measures to avoid impacts on whales and their habitat.
- A commenter suggested mitigation measures to reduce potential impacts on specific fish and marine species and their habitats including establishing buffer zones for avoidance around spawning grounds, habitats of particular concern, seasonal management areas, and dynamic management areas; requiring slow vessel speed zones during peak migratory seasons; pausing construction during spawning seasons and during high presence of certain species; using non-invasive underwater equipment to create a minimal disturbance zone around crucial habitats; using noise dampening techniques during construction activities; and the use of adaptive management to guide mitigation as survey and monitoring results become available.
- Commenters noted that BOEM needs to provide remedy and mitigation options if impacts on commercial fishing are larger than anticipated. Commenters suggested various mitigation measures to offset potential impacts on the commercial fishing industry including financial compensation, to survey and collect data regarding the impacts on commercial fishing from the Project throughout the life of the Project and on a cumulative basis, inclusion of transit lanes of four nautical miles, development of a Comprehensive Mariner Communications and Notifications Plan, and communication with the fishing industry regarding gear adaptations. Commenters also requested that BOEM continue to engage directly with the commercial fishing community regarding compensation and mitigation.
- A commenter recommended that BOEM develop and describe best practices and measures to mitigate air quality pollutants from emissions sources on the wind turbine generators and the vessel engines. The commenter also provided suggestions of potential mitigation measures for this including the use of ultra-low sulfur fuels, use of lowering emitting and

high efficiency engine designs, use of Tier 4 certified engines, use of fuel cells and marine batteries, and the use of electric cranes and support equipment.

- Commenters asked that BOEM mitigation or minimize impacts on water quality from operations of converter stations at a project and cumulative level including impingement, entrainment, and discharge of heated and chlorinated effluent as well as from using a closed-cycle cooling system if the technology becomes available during operations.
- A commenter noted that if switchgears that use SF_6 are used, BOEM consider mitigation measures for monitoring and leak detection to limit leaks to less than one percent.
- A commenter suggested mitigation measures for buried cable installation within areas of known high seabed mobility including a robust siting analysis, mariner notifications of shallow-buried and exposed cables, cable protection measures, monitoring and maintenance of target burial depth, and adaptive management if repeated cable exposures occur.
- A commenter suggested BOEM assess the feasibility of using the turbines and offshore wind infrastructure to house instruments of monitoring, scientific testing, and water safety including cameras, environmental sensors, telemetry receivers, weather stations, and cellular reception devices.

5.7 Air Quality and Climate Change

Air quality comments included evaluating emissions from the proposed Project relative to permitting and regulatory requirements. Topics raised in this category included the following:

- Multiple commenters noted that EIS needs to thoroughly analyze emissions associated with construction, Operations & Maintenance (O&M), and decommissioning, including the real emissions impacts from back-up power usage. Several of the same commenters also noted that the emissions associated with material sourcing and production are not being accounted for within BOEM's offshore wind EISs. It was recommended that full life-cycle emissions attributed to the Project be identified and added to any associated emissions calculations.
- Multiple commenters suggested various additional air quality analyses including those that run air quality dispersion models, and track emissions impacts on potential environmental justice areas and disadvantaged communities. Commenters requested that these analyses be easy to interpret and adequately explained for the public in the EIS. One commenter specifically recommended conducting air quality dispersion modeling with receptors located at the state seaward boundaries.
- A commenter noted that the EIS needs to sufficiently describe how the Proposed Action would comply with General Conformity requirements under the Clean Air Act (CAA) for the New York-Northern New Jersey-Long Island, NY-NJ-CT Nonattainment area.
- Multiple commenters specifically expressed concerns about SF_6 and the need to disclose all quantities involved during each Project stage. This includes both general usage in all Project infrastructure and fugitive emissions or leakage. One commenter highlighted the need to account for unreported SF_6 leakage.
- Multiple commenters stated the Project's potential to reduce GHG emissions and associated contributions to climate change when compared to fossil-fuel based energy sources and requested that the EIS quantify these reductions.

- Commenters noted how the Project would align with federal and state initiatives to address climate change, including the State of New York's 2019 Climate Leadership and Community Protection Act.
- Commenters stated that the effects of climate change, such as sea level rise and higher ocean temperatures, greatly outweigh environmental costs of the Project.
- Multiple commenters noted that the EIS needs to accurately weigh the negative economic, environmental, and climate change impacts associated with No Action Alternative. In addition, the EIS should report the beneficial climate impacts using the social cost of carbon as an analysis metric. Lastly, commenters requested that the analysis contain a robust analysis of emission avoidance and the estimated fossil fuel displacement.
- Commenters expressed concerns that the Project could indirectly alter atmospheric conditions and aquatic habitats which, in turn, would disturb natural oceanic carbon sequestration processes. A recommendation was to explore the Proposed Action's effect on phytoplankton and other components associated with blue carbon (i.e., carbon dioxide that is absorbed from the atmosphere and stored in the ocean).

5.8 Water Quality

Topics raised in this category, specifically related to pollution, included the following.

- A commenter expressed concern that the blades of the wind turbines may be unable to withstand hurricanes or Nor'easters and fall into and pollute the oceans.
- Commenters expressed concern regarding leaks of pollution, plastics, and toxic compounds would be released into the ocean because of the proposed Project, and requested that avoidance and mitigation measures be considered.
- A commenter requested that dredged spoils from inshore, nearshore, or harbor maintenance and disposal of onshore materials including waste be assessed and managed as part of the development process.
- A commenter requested that the EIS disclose all chemicals that will be used and discharged during the construction and operation of the proposed Project, including the volume, frequency, concentration, and mass of each.
- A commenter stated that the EIS should account for any changes or updates to the National Pollutant Discharge Elimination System (NPDES) related information provided in the COP and the consequences those changes may have on the environmental impacts of the proposed Project.
- A commenter requested that BOEM require the applicant to take core samples from the cable route and lease areas and test them for toxic compounds.
- Commenters expressed concern regarding the potential for contamination from various sources including turbine blades, stanchions, dredged spoils, disposal of onshore materials, and bilge water.

Topics raised on this category, specifically related to sediment and deposition, included the following.

- A commenter requested that bottom sediments be evaluated for sediment contamination in any place the proposed Project would potentially disturb.
- A commenter requested that the EIS discuss the impacts of suspended soils and deposition related to the proposed Project's operations, along with measures to implement or reduce the impacts.

- A commenter stated that the EIS should consider the implications and health consequences of resuspending toxic compounds because of construction and installation.
- Commenters requested that BOEM perform, consider, and evaluate various types of data and tests, including monitoring data from installed cables, modeling of the extent, concentration, and quantity of suspended solids, sediments, and expected contaminant concentrations, and an evaluation of sediment management related to the inter array and export cables.

Topics raised on this category, specifically related to additions to the EIS, included the following.

- Many commenters requested additions to the EIS, including water quality baseline levels; language identifying the Environmental Protection Agency (EPA) and U.S. Coast Guard (USCG) as federal authorities regulating bilge water discharges; an explanation as to how stormwater exposed to industrial activities will be managed; an evaluation to sea surface temperature impacts; an evaluation of changes in dissolved oxygen and nutrients resulting from construction.
- Commenters requested that BOEM consider currents, bathymetry, microclimates, metocean data, and the New York State Water Quality Standards and Guidance Values in its evaluation of the proposed Project.

Topics raised on this category, specifically related to cooling and discharged water, included the following.

- A commenter requested that the EIS quantify the amount of heat the proposed Project would give off and transfer into water bodies.
- Commenters expressed concern regarding potential impacts of heat transfer on marine life and requested that impacts be fully evaluated.
- One commenter requested that the EIS evaluate the impacts of ocean discharge from the proposed Project on the marine environment, including estimates of the quantities and composition of pollutants to be discharged, their potential to bioaccumulate and be transported, and whether the proposed Project can operate while consistently complying with applicable marine water quality criteria.
- A commenter requested that the EIS explain how vessel operations would prevent pollutant discharge from routine releases and potential release of nonnative organisms through the discharge of ballast water, as well as how the proposed Project would be consistent with state vessel discharge requirements.

Topics raised on this category, specifically related to the effects of degraded water quality on the marine environment, included the following.

- A commenter expressed concern that monopiles could promote invasive species that would decrease water oxygenation levels, causing dish die-offs and harmful algal blooms, resulting in a financial burden.
- A commenter requested that BOEM require the applicant to consider the impact of deoxygenation on fisheries to ensure the proposed Project is in line with conservation of biodiversity and marine life.
- A commenter stated that the EIS should consider the cumulative impact of other aspects of the Project that may degrade water quality and address impacts on the marine environment and human health.
- A commenter expressed concern regarding the effects the foundations and operation of WTGs would have on oceanographic and atmospheric conditions.

5.9 General Wildlife

General wildlife comments identified a variety of potential impact mechanisms to wildlife species from Project construction and operation and requested thorough analysis of impacts on wildlife species.

Topics raised in this category included the following.

- Commenters expressed concern with potential impacts on wildlife and habitat (including artificial reef habitat) from pile driving, general construction activities, cooling water intake system operation (e.g., entrainment and impingement), vessel strikes, noise, potential entanglement, surveys or monitoring, the presence of wind turbines (aggregations of fish around turbine bases), activities that may displace species, disruption and conversion of habitat types that may affect the use of the area by predators and prey, sediment dispersion or pollutant discharge, Project lighting, and EMFs or heat from interarray and export cables.
- Commenters expressed particular concern with the proposed Project's potential impact on species listed under the ESA and MMPA in addition to designated critical habitat within the action area and encouraged BOEM to use the NOAA-developed ESA Information Needs document in developing the assessment. The commenter noted that while the lease area does not occur in designated critical habitat, vessel transit routes may occur within it. The commenter also provided a list of marine species found in the lease area and that further information on those species may be found in the ESA Information Needs document.
- A commenter expressed concern that Project implementation would alter commercial and recreational fishing and existing vessel activity in ways that could adversely affect listed species both within and outside of the lease area such as entanglement in marine debris ensnared on the structural foundations.
- A commenter noted that a broad grouping approach (e.g., all marine mammals) for species impact analysis is not appropriate because of taxa variability in many life history areas, and that is more accurate to describe degrees of impacts on individual species or groups of species.
- A commenter stated that the analysis of direct, indirect, and cumulative impacts of the Project on each species must utilize the most recent models and telemetry data.
- A commenter stated that Project implementation would violate Executive Order 14008's mandate that the federal government support renewable energy projects that "conserve our land, waters, and biodiversity" as well as the Human Right to Health. The commenter requested that the EIS assess overall biodiversity and the relationship between biodiversity loss and human health.
- A commenter requested that the EIS evaluate potential loss of habitat, particularly on those species that exhibit high site fidelity, and offer evidence that other specific, mapped suitable habitats would relieve pressure on the species.
- A commenter expressed concern that offshore wind projects would adversely affect ocean life at a faster pace than climate change and questioned whether there is sufficient genetic variation in the population(s) to allow for adaptation the very rapid changes resulting from the cumulative impacts of multiple wind projects on the outer continental shelf.
- Commenters expressed concern about potential impacts on Nantucket Shoals wildlife because it is near a bathymetric feature that supports tidal mixing fronts which attract small planktonic prey items where predators, including commercially and recreationally important fish species, marine mammals, sea turtles and birds are known to feed, in addition to providing foraging habitat for the endangered NARW.

- A commenter suggested that consideration be given to the information provided by NMFS for previous offshore wind NEPA documents including the issued Biological Opinions and MMPA authorizations and to incorporate that information and analysis into this EIS as appropriate.
- A commenter expressed concern about the effects of the Project on the lower trophic levels, which provide a food source for higher trophic levels in addition to effects on spawning.
- Commenters suggested that the affected environment is dynamic, and that species' presence varies over time and season. For this reason, the commenter requested that the affected environment section include information about physical and biological oceanography; seasonal changes; hydrodynamic regimes and their influence; an assessment of species status, habitat requirements, seasonal abundance and distribution, seasonal habitat use, migration routes and characterization of benthic and pelagic communities; and species survey results, and that details should be provided related to all habitat types within the affected area with a particular focus on complex habitats such as submerged aquatic vegetation, hard bottom habitats, and HAPC.
- Commenters stated that the environmental consequences section must consider all impact producing factors/potential Project impacts on species, including survey and monitoring activities that would occur following COP approval, and must evaluate impacts from aviation lighting and anthropogenic noise from stationary (e.g., turbines) and transient sources and evaluate impacts on heron and wading bird nesting and foraging habitat and identify work avoidance periods.
- A commenter stated that best management practices should be implemented to reduce risks from extreme environmental conditions (i.e., rough seas, complex currents, and cold waters) and impacts on vulnerable habitats (including seagrass and other macroalgae) and at-risk species.

5.10 Birds

Bird comments included concerns regarding collision risk, data-gathering methods, and monitoring.

Topics raised in this category included the following.

- Commenters requested that the Draft EIS consider the full range of potential impacts on all bird species known to forage, rest in, or migrate through or near the Project area, including those species protected under the Migratory Bird Treaty Act and the ESA, as well as species of birds covered under obligations for conservation of birds under the Fish and Wildlife Conservation Act as amended in 1988.
- Commenters noted concerns about collision risk to seabirds and suggested quantification of sea duck abundance using the most recent Atlantic Coast Sea Duck Surveys and suggest identification of heron and wading bird nesting and foraging habitat and notes that New York City Audubon conducts surveys of island habitats.
- A commenter suggested that the EIS describe future collaboration with other offshore wind developers on avian monitoring and identified the Atlantic Marine Bird Cooperative's "Recommendations on BOEM Avian Survey Guidelines" as a source for preparing a long-term avian monitoring plan.
- Commenters suggested that the EIS identify specific mitigation strategies that account for acceptable levels of mortality or displacement of susceptible species (not just ESA-listed species) and describe appropriate mitigation including employing avoidance and minimizing

methods such as bird-deterrent devices, a piping plover protection plan for landside construction activities, WTG Aircraft Detection Lighting Systems, bird mortality monitoring, and coordination with the U.S. Fish and Wildlife Service (USFWS) to support migration monitoring via Motus wildlife tracking tags and installation of telemetry receiving stations.

- A commenter suggested coordinating with state and federal agencies on avian mitigation opportunities, including identification of opportunities to support conservation and habitat restoration or enhancement for protected avian species.
- A commenter suggested that surveys for rare, threatened, and endangered species be conducted along all alternative export cable routes. In addition to ESA-listed species, one commenter suggested also analyzing impacts on avian species listed by the International Union for Conservation of Nature or by Massachusetts as endangered, threatened, or state-species of concern.
- Commenters expressed concern with an export cable that passes within 1 mile of the largest federally endangered roseate tern colony in the northwest Atlantic (Great Gull Island in Long Island Sound), and potential effects on its prey fish's sandy substrate. One commenter suggested that potential disturbance of this substrate through cable laying established a need for pre- and post-construction roseate tern telemetry monitoring, post-construction chick provisioning, and nest productivity monitoring.
- Commenters expressed concern about effects on birds from increased frequency of fog/mist/cloud condition caused by WTG operations and by Project implementation effects on diving bird foraging and bird migration flight altitude.
- A commenter suggested that bird avoidance of WTGs results in habitat loss and loss of efficient migratory routes and suggests estimating the cumulative area and magnitude of habitat loss, in addition to estimating the additional miles of species-specific migratory route and the associated energetic costs and reductions in survival.
- Commenters expressed concern regarding the number of offshore wind projects to be implemented and suggested including analysis of the synergistic effects of the several adjacent offshore wind leases expected to be brought into active status in the reasonably foreseeable future.
- Commenters suggested studies of multiple factors affecting birds, including how infrasound compromises avian storm avoidance systems in birds; migration departure timing and conditions and survival cost of timing disruption; survival cost of storm avoidance disruption; diving bird hearing impacts; and avian response(s) to lights.
- A commenter suggested spatial mapping of where the lease area overlaps major portions of the Atlantic Flyway, including migration altitudes and altitude variation to show avian temporo-spatial use of the lease area for better impact prediction.
- A commenter is concerned that the modelled probability index as described in the appendices to the COP did not discuss detection probabilities for the various bird species and that the relative density indices are therefore questionable.
- A commenter noted that the offshore and onshore study areas for the Beacon Wind Project support key avian migration stop-over and wintering habitat, and that affected avian species include onshore- migrant passerine, shorebird, sea duck, offshore marine, and colonial waterbird species which may be designated for protected status under various state, federal, and international protocols.
- Several commenters suggested the need for an avian monitoring plan. A commenter suggested the EIS contain a focused avian monitoring and mitigation plan based on the Avian Impact Assessment in Appendix P of the COP because of lack of specific migratory

pathway and flight altitude data and consequent uncertainties of impact assessment. Other commenters suggested incorporating best monitoring and management practices into a regional adaptive management plan based on ongoing monitoring studies with mitigation measures based on monitoring results, and commenters suggested a plan that includes impacts from other offshore wind developments expected across the Atlantic Outer Continental Shelf. An additional commenter suggested developing an avian monitoring plan that includes a commitment to integrate collision detection technology as it becomes commercially available and feasible to install offshore in addition to the installation of a Motus sensor array to detect birds and bats in the Project area and support nano-tagging of bird and bats to better understand directional movements and flux around the lease area.

- Commenters noted the number of bird species present in offshore and coastal habitats within the affected environment and requested that the EIS consider their wide variety of life histories, geographic origins, behaviors, foraging styles, and ecological niches.
- A commenter noted that avian turbine collisions in the marine environment are difficult to detect and that several factors influence bird presence within a given area including the distribution of food resources (marine foragers), migration routes and weather effects (passerines and shorebirds). Relying on the current system of estimating the collision potential for each species or guild evaluated by bird density and abundance data is inappropriate because the collision risk models are sensitive to input parameters such as estimated abundance or density of species and flight heights which often do not have high precision and accuracy.
- A commenter stated detecting the population level effects of collisions is difficult because bird species at risk of collision are often not linked to source populations, and that inferences about collision risks might be drawn from European studies.
- A commenter suggested the using the Ocean Wind Final EIS approach for avian mitigation and monitoring that: (1) incorporates adaptive management (2) consultations with state and federal resource agencies (3) uses regional assessments for collision risk (4) regularly updates and refines estimation of collision rate parameters and (5) addresses the synergistic effects of multiple offshore wind projects.
- Commenters suggested that pre-construction acoustic surveys and monthly aerial-based surveys alone are not adequate for determining species-specific or guild-specific impacts without a long-term commitment to monitoring. Several commenters recommended remote and automated avian monitoring systems that rely on a radar, acoustic detection, and thermal videography and/or still photography.
- A commenter suggested addressing potential impacts on diving marine birds from subsurface acoustic disturbances and from sound pressure waves during construction and related operations and impacts on avian navigation from low frequency sound (infrasound).
- A commenter suggested addressing the indirect effects on marine birds from post-construction redistribution of forage fish populations resulting from habitat loss and habitat replacement with vertical structures that act as artificial reefs and addressing secondary consequences for avian habitat use and energetics from the synergistic effects of ecosystem-scale alterations.
- A commenter stated that a North American and European literature review of bird reactions to wind farms indicates that displacement in offshore habitats is more prevalent than attraction and suggests that determination of effects will require a careful monitoring design.

5.11 Bats

Topics raised in this category included the following.

- A commenter stated that the cumulative impact analysis should use a geographic analysis area that extends 100 miles inland and offshore because many bat species are capable of flights in excess of 100 miles.
- A commenter stated that the analysis in the COP is insufficient to draw conclusions about risks to bat species given the paucity of data in the region, lack of inclusion of relevant recent telemetry data, and uncertainties around bat behavior at offshore wind facilities.
- A commenter suggested the need for evaluation of northern long-eared bat activity year-round within the vicinity of the Proposed Action.
- A commenter stated that the COP does not include the federally endangered Indiana bat and suggested that BOEM consult with the USFWS regarding inclusion of Indiana bat in the analysis of affected biological resources.
- A commenter states that the Draft EIS does not incorporate the latest scientific findings regarding bat mortality associated with wind farms and does not address the public health consequences of decreasing bat populations such as the spread of mosquito-borne illnesses and subsequent rise in insecticide use.
- Commenters stated the need to evaluate the impacts on bats from air pressure changes, operational noise, power plant ultrasound-generating equipment, condensate from power plants, and light pollution.
- A commenter stated that because of the known attraction of bats to structures, including WTGs, basing post-construction impact analyses on pre-construction data or other data collected in the absence of WTGs is inappropriate and that low levels of bat calls in acoustic surveys do not indicate that bats are not present.
- A commenter suggested that bat experts should be consulted to determine what information can be obtained regarding total fatalities from bat carcasses detected on vessels and Project structures because there is no current reliable method to determine bat fatality rates in the offshore environment.
- Commenters stated that validated and commercially available bat collision detection technologies for use offshore be required because pre-construction acoustic activity may not accurately predict post-construction bat fatalities.
- Commenters suggested that once monitoring technologies are available to measure impacts, bat post-construction monitoring should be conducted in coordination with the agencies. Should significant bat fatalities occur, adaptive management and mitigation measures should be employed, and the post-construction bat monitoring data should be available to agencies and the public.
- A commenter suggested that acoustic monitors be deployed on WTGs post-construction in coordination with the North American Bat Monitoring Program to detect bat activity in the rotor swept zone and that researchers should be consulted regarding the number of deployed acoustic detectors and years of post-construction data needed to best inform impact analyses.
- A commenter suggested that BOEM incorporate the Motus Wildlife Tracking System Data (https://motus.org) into the bat analysis for the Project lifespan, install Motus towers in the lease area in addition to supporting the upgrading of coastal Motus towers, and nanotag bats for inclusion in the Motus network.

5.12 Benthic Resources

Comments regarding benthic resources included concerns over changes to habitat, lost benthic resources, and adequacy of benthic survey data. Benthic habitat refers to habitat on the sea floor, including natural structures and vegetation.

Topics raised in this category included the following.

- Commenters expressed concern over the impacts the offshore components of the Project may have on benthic resources and asked BOEM to fully describe the anticipated geographic extent and recovery time for seafloor habitats that would be disturbed from construction of the Project including the export and interarray cables. Commenters also asked that BOEM identify existing benthic, shellfish, and coral conditions in the affected environment.
- Commenters provided suggestions to mitigate potential impacts on benthic resources including methods of transporting sediment; developing a boulder relocation reporting plan; avoiding submerged aquatic vegetation, sensitive ecological areas, and habitat areas of particular concern; installing scour protection around the base of offshore structures; co-locating cables and minimizing cable spacing; developing an anchoring plan during construction; requiring the use of horizontal directional drilling for burying cables at landing sites; and monitoring of benthic habitats throughout the lifecycle and all phases of the Project.
- A commenter asked that the EIS disclose information on the current benthic habitat conditions as well as all known shipwrecks, artificial reefs, and derelict gear to support the COP's assertion that construction of the Project will not create measurable opportunities for the introduction of invasive species or the contamination of sediments.
- Commenters asked that BOEM analyze the impacts on benthic resources from impingement, entrainment, and heated and chlorinated discharge near converter stations and the proposed open-loop cooling system; from underwater noise and vibration caused by the Project's construction and operations; and hydrodynamic effects from Project construction and operations.
- Commenters provided evidence of long-term impacts on benthic resources from cable installation in other areas of the world including off the French coast and in the Gulf of Mexico.

5.13 Coastal Habitat and Fauna

Topics raised in this category included the following.

- Commenters requested that BOEM evaluate impacts on terrestrial vegetation, specifically those within parklands and conservation areas, measures to prevent the spread of invasive species, and the impacts of siting new infrastructure along the shoreline.
- A commenter requested that BOEM consider impacts on coastal erosion hazard areas, as well as significant coastal fish and wildlife habitats in the Draft EIS.

5.14 Finfish, Invertebrates, and Essential Fish Habitat

Topics raised in this category included the following:

- Commenters recommended using up-to-date EFH and HAPC designations for impact analysis. Commenters noted that HAPC has been designated:

  - by the New England Council for juvenile Atlantic cod inshore areas along the coastline and a 20-mile buffer overlapping the Beacon Wind lease area and other Southern New England lease areas pending NMFS approval and also recently recommended an HAPC for cod spawning habitat and complex habitats.
  - by the Mid-Atlantic Council for summer flounder all native species of macroalgae, seagrasses, freshwater and tidal macrophytes, and loose aggregations and the importance of native species restoration. Commenters noted that the proposed cable route overlaps HAPC for summer flounder and complex habitats and other sensitive estuarine environments.
- Commenters recommended the use the EFH mapper for spatial data for species managed by the New England, Mid-Atlantic, and South Atlantic Councils and for Highly Migratory Species at https://www.habitat.noaa.gov/protection/efh/efhmapper/; the EFH Information Needs document; the NMFS Recommendations for Mapping Fish Habitat (March 2021); the EFH Information Needs for Offshore Wind Energy Projects in the Atlantic.
- Commenters noted that EFH consultation should begin early in the EIS development process because adverse impacts on EFH may result from actions occurring within or outside of areas designated as EFH and that EFH assessments and consultations conducted in the later stages of other projects (Vineyard Wind and South Fork) have failed to adequately assess the impacts of geological and geophysical surveys to the acoustic environment. Commenters requested that BOEM consult with the Mid-Atlantic Fishery Management Council, New England Fishery Management Council, and NMFS.
- A commenter identified mandatory elements for the Project's EFH assessment as required by 50 CFR 600.920(e)(3)), as well as expanded consultation requirements described in 50 CFR 600.920(f) on account of the potential for substantial adverse effects to EFH. The commenter also indicated that the assessment should follow the EFH Assessment Template for Offshore Wind Energy Projects.
- A commenter noted recent identification of five separate, interrelated spawning Atlantic cod sub-populations in the northwest Atlantic, with the southernmost sub-population overlapping the lease area, and that the extent of proposed development of multiple projects in southern New England produces a population-level scale vulnerability.
- A commenter expressed concern for impacts on winter flounder, longfin squid with demersal eggs and during inshore migration (April to August), and disruption of social spawning behavior resulting in susceptibility of demersal eggs to abrasion and burial.
- Commenters requested analysis impacts from EMFs on finfish and invertebrates, including an evaluation of the differences in effects between HVAC and HVDC cables. One commenter asked BOEM to assess whether sharks would be attracted to export or interarray cables due to their sensitivity to EMF.
- A commenter noted that NMFS comments regarding EFH conservation recommendations and mitigation measures for the Revolution Wind Project are also relevant to Beacon Wind.
- Commenters expressed concern about cumulative effects of regional offshore wind development on prey resources and stated that these may be characterized as adverse effects under EFH regulations.
- Commenters requested the EIS analyze Project-specific and cumulative effects on the physical and biological habitat features for benthic resources, fish, and invertebrate species, including benthic, demersal, bentho-pelagic, pelagic, emergent fauna, and epifaunal species and the biological consequences of those effects. The commenters recommended that the analysis include hydrodynamics and oceanographic and atmospheric conditions; current stock status for different species; migration routes; seasonal abundance and distribution;

EFH including that designated under the Magnuson-Stevens Fisheries Conservation Act; spawning, recruitment, and nursery areas; forage species and food web interactions; impacts on all life stages (adults, juveniles, larvae, eggs) and focus on species and life stages that may be more vulnerable to impacts. They requested that mitigation measures be proposed and analyzed for impacts that are not feasible to avoid or minimize.

- A commenter stated the EIS must include alternatives to avoid EFH, HAPC and deep-sea coral areas because of their importance in supporting sustainable fisheries.
- A commenter stated that intake pipe opening mesh size or spacing of the trash racks of the open-cycle cooling system should be re-evaluated because Beacon Wind's mesh size is significantly larger than the Sunrise Wind Project.
- Commenters requested the following topics be analyzed, documented, or included in the EIS:
    - All New York State Significant Coastal Fish and Wildlife Habitats that may be affected by Project implementation (e.g., Great Gull Island, Hempstead Harbor, Little Neck Bay, North and South Brother Islands).
    - The presence and potential impacts on Atlantic sea scallops and ocean quahogs and other commercial finfish and invertebrate species.
    - Impacts resulting from aquatic species impingement and entrainment and discharge of heated effluent from OSSs. Commenters suggested BOEM fully analyze and quantify the daily seawater withdrawn from the lease area and the impacts of the offshore substations discharge of the heated cooling water including entrainment and impingement mortality and losses as well as the impact on finfish resources including critical habitat.
    - Identification and modeling of invasive species that may affect the quality and biodiversity of EFH.
    - Discussion of impacts on habitat alteration including conversion of smaller-grained hard habitats (e.g., pebbles and cobbles) that support early finfish life history stages to smaller grained soft- sediment habitats and impacts from attraction of larger predator species to artificial substrates. Also consider increased opportunity for pathogen virulence evolution due to higher spatial density of fish surrounding artificial substrates.
    - Discussion of the habitat value and function of natural versus man-made reef structures.
    - Impacts on invertebrates from impairment of locomotion, mechanosensory reception, ability to clean feeding siphons.

5.15 Marine Mammals

Marine mammal comments included comments on potential impacts on species or their habitat, and notes species listed under the ESA and MMPA.

Topics raised in this category include the following.

- Many commenters expressed concern regarding the status of NARW and that the proposed Project would adversely affect NARW, as well as other marine mammals and their habitat that may be found in the lease area. Impacts on marine mammals must be avoided and minimized to the full extent practicable.

- A commenter suggested that validated scientific baseline information should be collected over a 3 to 5-year period prior to construction. Additionally, commenters expressed the need for long-term studies of changes to population, foraging, calving, and prey species abundance due to offshore wind.
- Commenters expressed concern with noise impacts on marine mammals, particularly NARW, and potential injury of NARW that should be adequately addressed in the EIS. Specifically, mortality events caused from sonar and seismic surveys and injury that may be caused from installation of foundations.
- Commenters expressed concerns regarding unexploded ordnance (UXO) encounters and Formerly Used Defense Sites in the Project area and management strategies that would be implemented to avoid harm during Project construction.
- Commenters requested that the EIS include information on the seasonal abundance and distribution of marine mammals and other marine animals and recognize that NARW is present year-round in the Project area. The commenters recommended that the EIS include anticipated habitat uses (e.g., foraging, migrating), threats, habitats, and prey that may be directly or indirectly affected by the proposed Project.
- Commenters asked that the analysis for marine mammals (including assessments for ESA and MMPA) use the best available scientific information to support any conclusions, including the latest marine mammal stock reports. The commenters recommended that BOEM not use the Duke University habitat-density models as the sole information source from which to estimate marine mammal occurrence, density, and impact.
- A commenter stated that the potential overlap of Project construction and in-water activities should be fully evaluated in the EIS, as well as measures to avoid and minimize impacts on sensitive life stages of marine species, including marine mammals. The commenter requested that the evaluation of environmental consequences in the EIS consider how the time of year of construction activities overlap with the presence of important resources.
- A commenter suggested the persistent tidal mixing frontal zone adjacent to Nantucket Shoals be addressed, because the Project area overlaps this area. The commenter noted that these areas are where water masses driven by tidal forces converge and are often important feeding locations and are areas where predators, including marine mammals aggregate seeking prey, and that BOEM must analyze how water current changes, ocean strata mixing, and temperature changes resulting from the Project will affect the area.
- Commenters expressed concern with the lack of knowledge around the hydrodynamic and associated ecosystem changes related to offshore wind development. A commenter also noted that NOAA fisheries has acknowledged that large-scale buildout of offshore wind energy in the Northeast region of the United States may cause local oceanographic changes that may affect the distribution of NARW.
- A commenter expressed concern in prey density in the lease area, and how turbulent wakes formed by ocean currents, and strata mixing from Project activities will impact prey species in the lease area.
- A commenter was concerned with vessel strikes and stated that vessel strikes pose an unacceptable risk in this region, and BOEM must acknowledge that any vessel operating in that region has the potential to strike a NARW. The commenter felt that BOEM has significantly downplayed the risk of vessel strikes to endangered whales in previous offshore wind permitting documents and encouraged BOEM to provide a more robust quantitative analysis.
- Commenters expressed concern with impacts on whale foraging areas and that NARW have shifted their aggregation and feeding areas in recent years due to climate change. The

commenters noted that the region south of Nantucket and Martha's Vineyard is now considered a year-round core habitat for foraging NARW, and commenters requested this be factored into BOEM's analysis.

- A commenter suggested that the analysis account for the Seasonal Management Areas and Dynamic Management Areas that have been established for NARW, because these areas illustrate important NARW areas where wind development should be avoided.
- A commenter suggested that BOEM monitor for oceanographic changes caused by large-scale build-out of offshore wind energy that may affect the marine mammal prey base.
- A commenter expressed concern that harbor porpoises should be addressed in the EIS and require special attention regarding offshore wind development as they are very sensitive to noise impacts. The commenter suggested starting withs studies conducted in Europe that have demonstrated harbor porpoises are easily disturbed by the low-frequency noise produced by pile-driving operations during offshore wind development.

5.16 Sea Turtles

Sea turtle comments pertained to biological, structural, or habitat impacts on the species.

Topics raised in this category included the following.

- Commenters requested that BOEM include seasonal distribution, abundance, and migration routes in the EIS for sea turtles.
- One commenter asked that BOEM evaluate the behavioral and physiological impacts associated with vessel traffic, noise, lighting, and EMFs on sea turtles.
- One commenter suggested BOEM incorporate the models developed by the U.S. Naval Undersea Warfare Center, released in July 2023, into the impact analysis.
- A commenter expressed concern that there is federal funding available to organizations that respond to marine mammal strandings, but that funding is not available for sea turtle strandings. This requires funding and support for sea turtle strandings from private sources and volunteers. The commenter suggests the offshore wind industry and federal government collaborate to support ongoing data collection and stranding rescue programs for sea turtles.
- One commenter expressed concern that artificial reefs created by the Project could increase the presence of barnacles that could attach themselves to sea turtles and increase the energetic cost of swimming.

5.17 Wetlands and Waters of the United States

Topics raised in this category included the following.

- A commenter requested that BOEM identifies and evaluates impacts on freshwater and tidal wetlands and regulated adjacent areas that might be impacted by the Project.

5.18 Commercial Fisheries and For-Hire Recreational Fishing

Fisheries comments discussed economic and social impacts on commercial fisheries, commercial fishing operations, and for-hire recreational fishing operators.

Topics raised in this category included the following:

- A commenter noted that the developer has consulted with regional stakeholders and local fishing industry partners to collect and input data. The proposed 1 by 1 nautical mile layout proposed by the developer would allow for navigation within the lease area.
- Commenters requested the EIS fully characterize the extent and value of commercial, for-hire, and charter fishing within the Project area including a breakdown of the economic exposure of the proposed Project by state, port, gear type, and fishery. Additionally, commenters requested that the EIS evaluate commercial, for-hire recreational, and private recreational fishing separately but in the same or adjacent sections to illustrate potential impacts on all fishery sectors and describe how all impacts may vary by target species, gear type, fishing location, and type of fishing (commercial or recreational).
- A commenter requested the EIS acknowledge that the benefits of any artificial reefs will have varying effects by target species and by fishing sector.
- Commenters requested that BOEM coordinate early and often with NMFS and state agency fisheries staff on the most appropriate data for analysis of potential impacts on fisheries, as well as cooperatively working with the state, fishing communities, and commercial, charter, and recreational interests.
- Commenters voiced safety concerns about commercial and recreational fishing vessels maneuvering, drifting, or anchoring near WTGs and OSSs and requested the EIS evaluate these safety considerations across different fisheries. Varying weather conditions and fishing gear should be considered when evaluating impacts on fisheries within the lease area. A commenter requested that BOEM utilize similar evaluations as past EISs in regard to impacts due to WTG spacing.
- A commenter noted that fishermen cannot easily relocate to different areas to avoid a wind farm without socioeconomic impacts.
- A commenter noted the COP discussion of pre-construction preparation which may involve relocating boulders and unexploded ordinances. The commenter requested the EIS evaluate the potential issues and impacts associated with shifting the location of known obstructions or unexploded ordinances which may cause safety impacts on vessels, including gear/vessel damage and personal injury. The EIS should include measures to avoid and minimize such impacts beyond communicating planned operations as suggested in the COP's reference to the "Fisheries Mitigation Plan."
- Commenters requested that BOEM accurately characterize the value of commercial fisheries landings within the Project area and not solely rely on financial metrics. Additional factors to consider include the number of impacted fishery participants, the use of a low-value species as bait for a high-value species, or a seasonally important fishery.
- Commenters expressed concern about the impact of WTG noise in combination with other stressors on commercial fisheries and requested discussion of this impact within the EIS.
- A commenter urged BOEM to not overly rely on ex-vessel value when assessing and weighing impacts across fisheries in the EIS because this data can mask other important information.
- Commenters expressed concern related to the impacts of offshore wind-related surveys on commercially harvested fish and listed species. Commenters requested BOEM consider the impacts on all harvested species within and surrounding the lease area.
- Commenters requested that the EIS include an analysis of all biological, cultural, and socioeconomic issues related to fisheries and marine resources in the affected environment section. The commenters recommended that specific topics include historic and recent landings, revenue, and effort; fishery participants; changes in transit patterns; and impacts

on coastal communities. Commenters recommended that the geographic scope for this analysis be expanded to include vessels that port from outside of the Project area.

- A commenter stated that the EIS should include the best scientific information to characterize fishing operations and evaluate impacts and include at least 10 years of data history in addition to recent data to accurately reflect both recent operations and annual fluctuations in fishing operations due to changing environmental conditions, market price, and management measures.
- Commenters requested that the EIS thoroughly evaluate both the biological and socioeconomic impacts of the Project on fishery resources, operations, and associated communities, and include alternatives that avoid and minimize impacts on such habitat. A range of export cable burial depths to avoid interactions with commercial shipping and fishing vessels was requested by commenters. Specifically, commenters noted concerns about cables installed through the Long Island Sound as well as the danger of gear entanglement.
- Commenters discussed the need for the EIS to outline mitigation measures to protect fisheries, utilizing BOEM's Draft Fisheries Mitigation Guidance (BOEM-2022-0033) as a baseline. This includes an assessment to account for loss in income and protecting fisheries that lack landing or revenue data including the development of a mitigation fund to support regional monitoring of key commercial fish stocks. Additional commenters requested the development of a monitoring plan that would be described in the EIS to account for potential losses.
- Commenters requested that BOEM work with NOAA Fisheries to ensure appropriate fishing and habitat data is used in the development of alternatives and in the evaluation of potential impacts.
- Commenters requested that the EIS assess the potential impacts on key species' distribution, abundance, and feeding in the Project area and its vicinity, including estimating the extent of fishable seafloor loss within cable corridors due to secondary cable protection and seafloor disturbance. Commenters requested that the EIS consider the decommissioning of cables and management of abandoned or unmonitored cables on commercial fisheries. One commenter requested quantification of the export cable route footprint and assess the effects of armoring on the ability to trawl in the area of the cable and cable corridor.
- Commenters requested BOEM outline a research plan for fisheries and benthic studies, emphasizing coordination with other developers to analyze Project-specific and regional fisheries effects, and detail measures to facilitate fishermen's access to the lease area during Project operations.

5.19 Cultural, Historical, and Archaeological Resources

Comments related to cultural, historical, and archaeological resources were mostly reminders to BOEM to coordinate and consult with the appropriate parties, as well as abide by the relevant laws and policies. Comments also stressed that there may be unidentified cultural resources within the Project area.

- Multiple commenters noted the need for BOEM to ensure they are doing their due diligence to identify historical, archaeological, and cultural sites including previously unidentified sites.
- Commenters stated that there may be significant unidentified sites and suggested that BOEM conduct professional surveys prior to selecting a preferred alternative.

- One commentor noted that visual impacts from the Project that could affect the setting of historic properties would be irrelevant if the historic properties become damaged or inaccessible to the public due to climate change.
- Commentors consistently note that BOEM should coordinate with tribes, historic groups, indigenous groups, and state and private parties in order to fully evaluate impacts on resources and sites. They also note a need for compliance with the NHPA, including the Section 110(f) process to assess adverse impacts on historic properties.
- Commentors provided historical background on areas and sites within the Project vicinity to note their importance.

5.20 Demographics, Employment, and Economics

Topics raised in this category included the following:

- A commenter stated that Equinor has expertise in wind installation and is a reliable partner by committing to recruit and train local New York workers for offshore wind jobs.
- Multiple commenters stated the economic benefits of the Project such as the developer distributing $52 million in social investments across New York to support workforce development, innovation, and the local community, and that this is part of a larger $2.5 billion commitment in economic development for the state.
- Commenters stated that this Project will establish New York City as a hub for the offshore wind industry, creating union jobs and clean energy innovation.
- A commenter discussed that the Project is vital to improving the local supply chain and manufacturing capabilities, including the domestic production of steel. The commenter also discussed the number of supplier contracts relating to offshore wind and associated economic activity.
- Multiple commenters emphasized the number of full-time jobs created by the Project, contributing to the Administration's Justice 40 initiatives, including jobs that are direct, indirect, and induced, and requested that the EIS build on this information and include further specificity for each category.
- A commenter specifically stated that the Project would generate thousands in jobs and millions of dollars in economic impact in New York and provided the estimated number of direct jobs in Queens and Brooklyn for BW1 and BW2 for construction and operations.
- A commenter requested that BOEM include any language access needs for local communities that may be present to access job benefits, and that BOEM consider this and other qualities that should be take into account to ensure jobs are accessible to a diverse workforce.
- A commenter stated that all economic reports, including PPA's, should be readily available to the public.
- A commenter requested that positive and negative economic impacts of the manufacturing and supply chain facility, workforce development programs, and opportunities for marine workforce be part of the EIS analysis.
- A commenter requested that BOEM fully corroborate statements by developers regarding Project economics since the public cannot, as BOEM considers this information confidential.
- Commenters mentioned that the Project's success is not only critical to meet New York's renewable energy goals, but to support local job creation and benefit the state economy, and that Beacon Wind is actively partnering with New York industry leaders, suppliers,

businesses, developing port infrastructure and hiring New York based employees, also adding that Equinor has already connected local New York businesses to the offshore wind supply chain and launched a fund to support workforce development and training for historically marginalized communities.

- Commenters requested that the EIS consider the economic costs and benefits of the proposed Project, as well as all alternatives, similar to BOEM's cost benefit analyses for oil and gas activities taking into consideration the economic implications of climate change. Specifics for BOEM to consider include the following.
    - Quantifiable and qualitative measures of costs and benefits that are difficult to quantify, but essential to consider (potential economic, environmental, public health and safety, distributive impacts, equity).
    - Quantitative analysis of the costs of the Project to the fishing industry and impacted communities (analyze reduced fishing revenue, catch rates, changes to species, spawning success, fishing culture, fisherman health and well-being).
    - The amount of federal, state, or local taxpayer subsidies devoted to the Project, projections of the full cost to ratepayers (including the contract price in addition to any predictions of Project contingencies or overages), and portion of Project costs that will accrue to foreign markets.
    - Comparison of relative costs and environmental impacts of alternative technologies.
- Commenters expressed support for Project Labor Agreements, Local Hire provisions, and Community Workforce Agreements and the economic benefits that such agreements would have on the local communities.
- Commenters requested the following topics be analyzed, documented, or included in the EIS.
    - Impacts on housing and property values, population, economy, and employment.
    - Apprenticeship utilization, including the type of apprenticeship ensuring that they are union programs or Department of Labor certified, and the ration of apprentice to journeyman jobs.
    - Negotiations between the developer and trade unions.
    - Allocation of funds by the developer for environmental and economic initiatives for the communities most affected, as well as commitments to port infrastructure for those dedicated to marshaling and operation and maintenance activities.
    - "Multiplier effects" that make fisheries more valuable throughout the supply chain – this includes an expected "cascading effect" in diversified fishing businesses where economic stability in one season is required to support their activities in other fisheries throughout the year.
    - Workforce development needs, plans and collaborations associated with the Project.
    - Specify job categories (for construction, operations, and maintenance) and job numbers per category resulting from each domestically manufactured component, as well as how these numbers are accounted for in the total number of direct, indirect, and induced jobs, gross state product, and personal income anticipated from the Project.
    - Education and certifications necessary to access each job category, the training, average wages, hours, career advancement, physical demands, and safety information, as well as any commitments the company has made to ensure workers have the free and fair choice to join a union, such as through a union neutrality agreement.

  - Jobs that require specialized experience that would prohibit workers in the U.S. from accessing those jobs, and the specific experience and training that is required.
  - Specify whether workers will need to go overseas to receive training, and the duration of that training.
  - Impacts of rising costs of materials and labor for offshore wind projects.
- Commenters stated the economic benefits Beacon Wind would have on the New York region, such as job training at the South Brooklyn Marine Terminal as well as being the hub for future offshore wind development, health, economic and education resources for grassroots groups such as United Puerto Rican's Organization of Sunset Park, use of project labor agreements that assist in creating union jobs, and clean energy for communities that would be harmed by fossil fuel pollution.
- A commenter stated Equinor's commitment to supporting workforce development through Equinor's partnership with the New York City Economic Development Corporation and the Sunset Park Task Force by awarding grants in workforce development and training for historically marginalized communities.
- A commenter stated that the Beacon Wind Project is critical for the Northeast to reach renewable energy goals and to support local job creation. The commenter also stated that investing in local ports and supply chains to encourage economic development and employment contributions is central to Connecticut's industry goals.
- A commenter mentioned that Equinor is part of the National Offshore Wind Institute and will implement workforce development initiatives that are relevant to career pathways, which will accelerate the development of the offshore wind industry and will provide workforce skill development training and initiatives.

5.21 Environmental Justice

Topics raised in this category included the following.

- Commenters expressed support for the proposed Project as part of the conversation of non-renewable energy facilities to clean energy facilities, resulting in beneficial health effects, the possibility for new jobs, and improved air quality for historically disadvantaged communities. Another commenter requested that BOEM ensures that communities and tribes receive the maximum possible benefits of the proposed Project.
- Commenters asked BOEM to account for both the improved health effects the proposed Project would bring, as well as the health burdens of the No Action Alternative, when assessing the proposed Project. Commenters also requested that BOEM ensure the full scope of benefits to environmental justice communities are assessed in the EIS.
- A commenter commended the work that the developer of the proposed Project has done in terms of awarding grants to and training historically marginalized communities.
- Commenters requested that BOEM utilizes screening tools including those developed by the EPA, Council on Environmental Quality, and Centers for Disease Control, to assist in evaluating effects on communities with environmental justice concerns and includes this data as part of its analysis in assessing the impacts of the proposed Project.
- A commenter stated that BOEM should consider the status of negotiations with labor unions and grassroots organizations based in environmental justice communities affected by offshore wind development when evaluating the proposed Project.

- A commenter stated that prior offshore wind development projects have had negative impacts on environmental justice populations and that BOEM should perform a cumulative analysis that includes these negative effects on populations.
- A commenter requested that the EIS address environmental justice effects specific to fishing communities with minority and low-income populations and coastal communities that include tribal nations who utilize the ocean.
- Commenters requested that BOEM consider several policies including Executive Order 12898, 13985, and 13175, as well as the New York State Climate Leadership and Community Protection Act, and their associated requirements when evaluating the proposed Project.

5.22 Land Use and Coastal Infrastructure

Land use and coastal infrastructure comments addressed potential land use conflicts.

Topics raised in this category included the following.

- A commenter noted that various stations and depots containing fuels and other maintenance equipment for wind farms are generally being built within residential areas. The commenter is concerned that the infrastructure takes up too much space, contributes to noise pollution, and may not be sufficiently prepared for hurricanes or other adverse weather.
- Two commenters noted that wind farm infrastructure/construction that negatively affects public access to parklands or other costal uses is incompatible with the State of New York's objectives on Alienation and Conversion of Municipal Parkland.
- The same commenters noted that infrastructure/construction could impact public services including other utility assets and community infrastructure.
- A commenter highlighted the potential need for a Federal Consistency Review which would initiate a review process that ensures the Project is consistent with program policies instituted by the State of Massachusetts.

5.23 Navigation and Vessel Traffic

Navigation and vessel traffic comments addressed potential effects on the ability to operate and navigate personal or commercial vessels and potential increases of vessel traffic.

Topics raised in this category included the following:

- A commenter requested that the EIS include a vessel traffic plan to minimize the effects of increased vessel traffic due to Project construction and operations.
- Commenters requested that the EIS analyze the establishment of transit lanes through the lease areas as an alternative and consider effects on fishing economics, product quality, markets, fisheries management, and living marine resources. The commenter noted the importance for analysis to consider the history of collaboration and negotiation that led to transit lane proposals.
- A commenter noted the COP's discussion of burying export cables and the importance of this design feature for the safety of vessels when anchoring. A commenter requested that the Long Island Sound Regulated Navigation Area be treated similarly to federal navigation channels and anchorage due to the concentrated vessel activity. As a result, the commenter requested that cables should be buried at least 15 feet deep in this area.

- A commenter requested that the EIS evaluate traffic considerations related to the construction phase of the Project on ports, O&M facilities, and the need for in-water safety zones.
- Several commenters expressed concern regarding the impacts on vessel navigation systems inside and adjacent to the lease area, including search and rescue response, and the potential for increased allisions and collisions.
- Commenters requested that BOEM continue to coordinate with local, state, and federal agencies to ensure the best available information is utilized when developing alternatives and evaluating potential impacts. One commenter specifically requests that BOEM review information in the USCG's Massachusetts and Rhode Island Port Access Route Study.

5.24 Other Uses (Marine Minerals, Military Use, Aviation, Scientific Research and Surveys)

Topics raised on this category included the following.

- One commenter requested that BOEM identify U.S. military training and exercise areas in the Draft EIS.
- Commenters expressed concern with the proposed Project's potential impact on scientific surveys in terms of reduced survey rates, ability to safely and effectively deploy survey gear, and forced modification of survey methods. Commenters were concerned that these negative impacts would in turn effect fishery communities, conservation efforts, available science, and the American public.
- One commenter expressed concern regarding impacts on fisheries dependent data collections and stated that BOEM should require an analysis that considers potential changes in data collections of species expected to be impacted by offshore wind development.
- A commenter expressed concern that impacts on surveys, specifically NOAA scientific surveys, were not adequately described in the COP for the proposed Project and that the proposed Project would result in permanent impacts on existing NOAA survey operations.
- A commenter asked that the EIS analyze mitigation measures for high frequency radar interference at project and cumulative scales because this technology is integral to the USCG and therefore is paramount to mariner safety.

5.25 Recreation and Tourism

Topics raised in this category included the following.

- A commenter expressed concern that offshore wind projects would negatively impact marine navigation, sailing, power boating, whale watching, and recreational fishing and felt that the BOEM has not adequately addressed the ramifications of such negative impacts.
- A commenter stated that the EIS should evaluate the impacts the Beacon Wind Project would have on boating, fishing, and temporary closures of beaches.
- A commenter asked that the Beacon Wind Project avoid impacts on existing and future sand borrow areas, as well as beach nourishment activities.
- A commenter requested that BOEM review datasets providing information on offshore artificial reef diving and wreck diving areas important to New York.

5.26 Scenic and Visual Resources

Scenic and visual resources comments generally included concerns regarding the visual impact from the project to historic properties and tourism onshore and requests for specifications on how impacts are analyzed in the EIS.

Topics raised in this category included the following.

- Commenters expressed concern with the reflection of the sun on wind turbine blades and how it may impact ocean animals, birds, and humans.
- Commenters asked for clarification on key observation point locations that will be used in the analysis. Commenters also asked that visual simulations consider a range of lighting, atmospheric, and seasonal conditions to reflect the full spectrum of visibility under various lighting conditions year-round, including the highest visibility conditions such as nighttime lighting.
- Commenters noted the need for BOEM to identify historic properties including National Historic Landmarks within the viewshed of the Project, to evaluate the effects from the Project on those properties; and to resolve any adverse effects through avoidance, minimization, and mitigation measures per Section 106 of the National Historic Preservation Act.
- One commentor noted a beneficial economic relationship between the ocean view and tourism in Nantucket, and how tourism may suffer due to visual impacts of the Project. Commenters noted that BOEM should consider and analyze the temporary and permanent visual and aesthetic impacts of the Project from onshore and offshore observation points.
- One commentor stated that the Visual Impact Assessment was inadequate in showing actual impacts of WTGs and other infrastructure of the Project on visual resources and urged BOEM to conduct additional visual assessments to comply with Section 106 requirements.
- The Town of Nantucket commented that they support the use of Aircraft Detection Lighting System, but that BOEM should not consider the use of this system as mitigation or minimization measure as it has become standard practice. Similarly, the commenter suggested that BOEM should not consider the current WTG spacing and non-reflective paint color as minimization measures but rather as baseline Project design features.

5.27 Noise

Noise comments included concerns regarding impacts from noise associated with construction and operations of the Project to marine life.

Topics raised in this category included the following.

- Commenters asked that BOEM provide the ambient noise levels for the proposed action.
- A commenter suggested that BOEM evaluate the potential application of sound penalties for onshore tonal noise impacts and assess the adequacy of proposed mitigation measures.
- A commenter suggested that BOEM request new guidelines on thresholds from noise for marine mammal behavioral disturbance from NMFS that are sufficiently protective and consistent with the best available science.
- Commenters expressed concern of harm from noise being a shared impact across a functionally diverse and taxonomically diverse range of invertebrates. One commenter

suggested controlled experiments and studies on species most likely to experience higher mortality as a result of anthropogenic sound.

- Commenters requested that the EIS consider impacts specifically related to breeding, behavior, and feeding on NARW from noise.
- One commenter expressed concerns related to Long Island Sound being more vulnerable to noise disturbance because of the enclosed nature of the bottom habitat.

5.28 Electromagnetic Fields

Topics raised in this category included the following.

- Commenters expressed concern over the potential impacts of Project-related EMFs on humans, benthic species, elasmobranchs, and long-range migratory and magnetic field-sensitive species including sea turtles, sharks, and other marine mammals. Commenters were concerned that offshore wind power cables would impact the ability of some species to orientate and navigate, undermining their ability to migrate, find food sources, and procreate.
- Commenters asked that BOEM do a more thorough consideration on the impact of EMFs, specifically considering a more global perspective of impacts, evaluating export cable burial depth and methods and mitigation measures to minimized predicted EMFs, and undertaking an EMF study to establish baseline magnetic and electric fields.

5.29 Materials and Waste Management

Materials and waste management comments addressed potential risks of hazardous materials.

Topics raised in this category included the following.

- Multiple commenters expressed concerns with the decommissioning stage of the Project due to difficulties and costs associated with transportation, blade recyclability, and disposal.
- Multiple commenters expressed concerns that the Project will increase demand for rare earth metals and minerals and therefore lead to increased mining of these materials globally which can negatively impact ecosystems, water quality, health and safety, and the greater human environment. Commenters asked that BOEM analyze the quantity and impacts of rare earth minerals used in each WTG, for the Project as a whole, and cumulatively with other offshore wind projects.
- Two commenters noted the need for preparation, mitigation, and impact analysis for inadvertent releases and spills of oil or other pollutants associated with the Project.
- Two commenters expressed the need for to disclose more details regarding the amount and types of materials being used and the country of origin for all materials, both raw and manufactured. In addition, one commenter noted that the EIS needs to describe the quality, standards, and certifications of the materials used to construct the Project.

5.30 Public Health and Safety

Comments relating to public health and safety requested the following.

- Analysis of potential mental health impacts due to visual changes of the seascape from installation of WTGs.

- Analysis of potential workplace safety and mental health hazards for workers involved with construction and operations of the Project.

5.31 Non-Substantive: General Support or Opposition, or Multiple Topics Discussed Generally

Many commenters expressed general support for the proposed Project. Some provided comments of support without providing justification. Others were supportive of the proposed Project for specific reasons, which included the following.

- The Project would represent an actionable step to address climate change by transitioning from use of fossil fuels to renewable energy and thereby reducing GHG emissions. Commenters stressed the importance of addressing climate change and reasoned that the potential environmental and visual impacts of the Project would be minor relative to effects of climate change such as sea level rise, rising ocean temperatures and acidification, extreme storms, severe heat events, and wildfires.
- The Project would contribute to national, state, and local offshore wind goals/commitments and energy needs of New York State and potentially New England states.
- The Project would create high-paying, union jobs supported by labor agreements, would benefit the local and State economies, and would contribute to the development of a domestic offshore wind supply chain.
- Equinor and subsidiary Beacon Wind have conducted outreach to interested parties, identified best practices to mitigate environmental and social impacts, and contributed to research initiatives.
- The Project would result in improvements to local air quality and support environmental justice from decommissioning of the fossil-fuel-powered Astoria energy plant and subsequent sale to Beacon Wind for renewable energy generation.
- BOEM's consideration of and commitment to environmental protection.

Many commenters requested that the Project be approved in full and as expeditiously as possible in light of the urgent need to address climate change.

Other commenters expressed opposition to the Project or urged that BOEM exercise caution and objectivity in its decision. Specific reasons cited by commenters expressing opposition to the Project included:

- The Project may cause adverse impacts on benthic communities, water quality, fish, and wildlife and loss of biodiversity from development of offshore wind.
- There are uncertainties and data gaps with available studies and scientific information and need for additional monitoring to fully evaluate the impacts of offshore wind development.
- The Project may have visual impacts on coastal communities where WTGs and associated lighting would be visible.
- There are high life-cycle costs and impacts associated with extraction of raw materials and disposal of offshore wind infrastructure.
- Distrust for the relationships and motives of the federal government and private companies in developing offshore wind.