United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
WASHINGTON, DC 20240-0001

JUN 15 2016

Mr. Matthew P. Maraglio
New York Department of State
Consistency Review Unit
Office of Planning & Development
One Commerce Plaza
99 Washington Avenue, Suite 1010
Albany, New York 12231

Dear Mr. Maraglio:

This document provides the State of New York with the Bureau of Ocean Energy Management's (BOEM) Consistency Determination (CD) for the Wind Energy Area offshore of New York under the Coastal Zone Management Act Section 307(c)(1) and 15 CFR Part 930 Subpart C. The information in this CD is provided pursuant to 15 CFR 930.36(a) and 930.39. The CD takes into consideration the reasonably foreseeable coastal effects of the proposed action and its consistency with the enforceable policies identified by New York's Coastal Zone Management Program. The proposed action includes:

- Lease issuance (including reasonably foreseeable consequences associated with shallow hazards, geological, geotechnical, archaeological resources, and biological surveys); and

- Site assessment activities (including reasonably foreseeable consequences associated with the installation and operation of a meteorological tower and/or meteorological buoys) as indicated in the *Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore New York Environmental Assessment* (EA).

BOEM's analysis of the effects of the proposed action on land and water uses and/or natural resources can be found in the enclosed EA. The New York Coastal Zone Management Program's applicable enforceable policies and reasonably foreseeable coastal effects are included in Table 6 (enclosed) for your review.

Based upon the above referenced information, data and analysis, BOEM finds the proposed action consistent to the maximum extent practicable with the enforceable policies of the New York Coastal Zone Management Program.

Pursuant to 15 CFR 930.41, the New York Coastal Zone Management Program has sixty (60) days from the receipt of this letter in which to concur with or object to this CD, or request an extension under 15 CFR 930.41(b). New York's concurrence will be presumed if its response is not received by BOEM within sixty (60) days of receipt of this determination.

The state's response should be sent to:

Bureau of Ocean Energy Management
Office of Renewable Energy Programs
45600 Woodland Road, VAM-OREP
Sterling, Virginia 20166

We appreciate having a cooperative working relationship with the State of New York as we move forward with our review of potential offshore renewable energy activities.

Sincerely,

James F. Bennett
Program Manager
Office of Renewable Energy Programs

Enclosures

Received
JUN 20 2016
NYSDOS
Planning & Development

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

Coastal Zone Management Act, Consistency Determination
(15 CFR 930.36(a))

Wind Energy Area Offshore the States of New York and New Jersey

The purpose of this Consistency Determination (CD) is to determine whether issuing a commercial wind energy lease and approving site assessment activities (including the installation, operation, and decommissioning of a meteorological tower and/or buoys) within the Wind Energy Area (WEA) offshore New York and New Jersey (*see* Figure 1) is consistent to the maximum extent practicable with the enforceable policies of the New York and New Jersey Coastal Management Programs (CMPs). This document is provided pursuant to the requirements of 15 CFR 930.39(a) of the Coastal Zone Management Act (CZMA) federal consistency regulations.

Section 307(c)(1) of the CZMA, as amended, requires that Federal agency activities affecting any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of federally-approved state management programs.

The States of New York and New Jersey share common coastal management issues and have similar enforceable policies as identified by their respective CMPs. Due to the proximity of the WEA to both states (*see* Figure 1), and their shared impacts on environmental and socioeconomic resources and uses, the Bureau of Ocean Energy Management (BOEM) has prepared a single CD for the WEA.

BOEM is proposing to issue a commercial wind energy lease within the WEA (as illustrated in Figure 1 and described below) and approve site assessment activities that would determine whether the lease is suitable for, and would support, commercial-scale wind energy production. The lease, by itself, would not authorize the lessee to construct or operate any wind energy project on the Outer Continental Shelf (OCS).

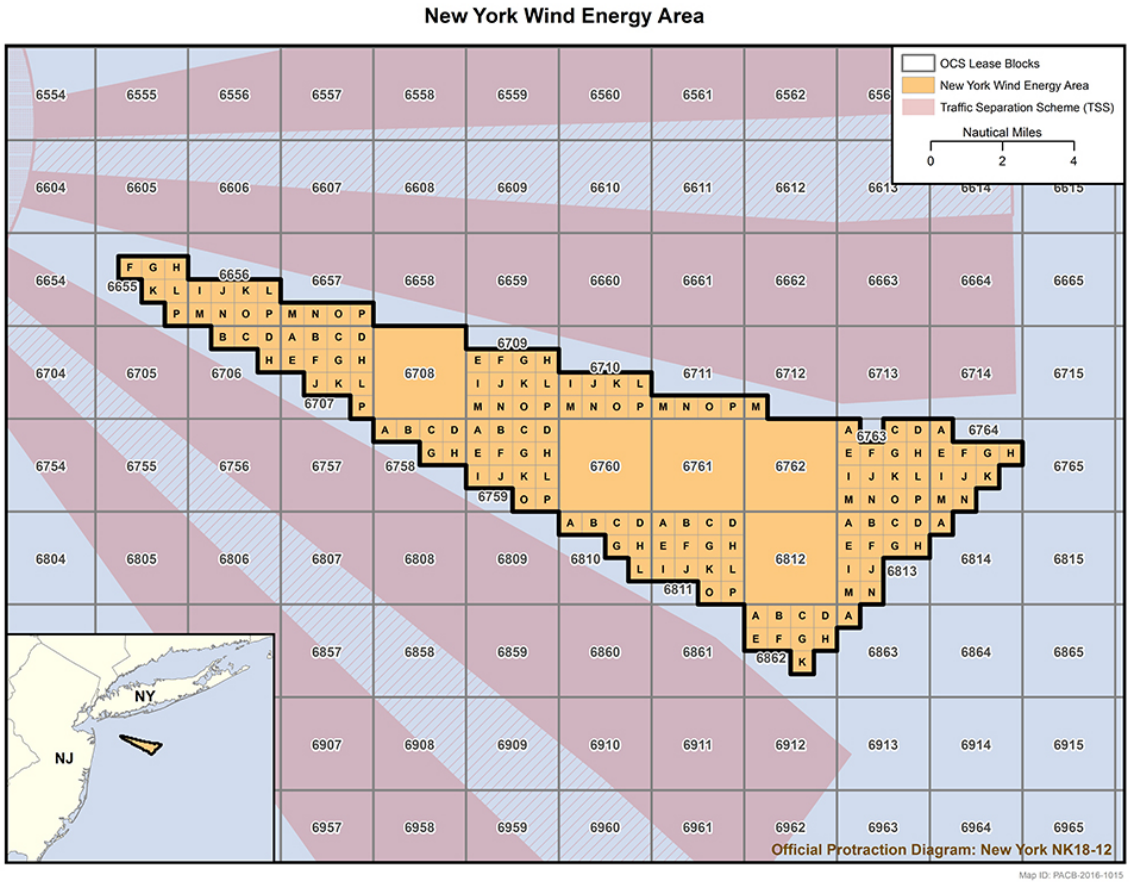

Figure 1: Wind Energy Area

In September 2011, BOEM received an unsolicited request for a commercial lease offshore New York from the New York Power Authority (NYPA). NYPA worked together with the Long Island Power Authority and Consolidated Edison to propose a 350-700 megawatts offshore wind power project south of Long Island, New York, approximately 13 miles (mi) (21 kilometers [km]) off Rockaway Peninsula.

On January 4, 2013, BOEM published a Request for Interest (RFI) in the *Federal Register* (Docket ID: BOEM-2012-0083; 78 FR 760-764) to assess whether there were other parties interested in developing commercial wind facilities in the same area proposed by NYPA. In addition to inquiring about competitive interest, BOEM also sought public comment on the NYPA proposal, its potential environmental consequences, and the use of the area in which the proposed project would be located. BOEM received indications of interest from Fishermen's Energy, LLC, and Energy Management, Inc. BOEM reviewed the nominations received in response to the RFI and determined that competitive interest in the area proposed by NYPA exists. Therefore, BOEM stopped processing NYPA's unsolicited lease application and initiated the competitive leasing process pursuant to 30 CFR 585.211.

On May 28, 2014, BOEM published in the *Federal Register* (Docket ID: BOEM-2013-0087; 79 FR 30645-30651) a Call for Information and Nominations offshore New York to seek additional

nominations from companies interested in obtaining commercial wind energy leases within the Call Area.

On March 16, 2016, BOEM released the Announcement of Area Identification (*see* http://www.boem.gov/NY-Area-ID-Announcement/). The WEA begins about 11 nautical miles (nm) (20 km) south of Long Beach, New York and extends approximately 26 nm (48 km) southeast along its longest portion. The WEA contains five whole OCS blocks and 148 sub-blocks (127 square miles [mi^2] [329 square kilometers (km^2)] or 81,130 acres (ac) [32,830 hectares (ha)]). The WEA is shown in Figure 1 and described in Table 1 below.

Table 1
Wind Energy Area

Wind Energy Area (WEA)	Official Protraction Diagram	Size (sq nautical miles (nm^2))	Distance to Shore (nm)	Minimum Water Depth (feet [ft])	Maximum Water Depth (ft)
New York	New York NK18-12	96	11	61	137

Activities that may occur over the site assessment period of the lease (i.e., up to five years) include site characterization survey activities and site assessment activities involving the construction, operation, maintenance, and decommissioning of a meteorological tower and/or buoys. Site characterization surveys would inform a lessee about the site specifics of the lease area in order to prepare for submission of a site assessment plan (SAP) and, potentially, a construction and operations plan (COP). The projected site characterization and site assessment activities within the WEA are discussed in detail in Section 2 and summarized in Table 2 (below).

Table 2
Projected Site Characterization & Assessment Activities in the WEA

Potential Leaseholds	Site Characterization Activities			Site Assessment Activities	
	High Resolution Geophysical (HRG) Surveys (Total Trips)	Sub-bottom Sampling (Total Trips)	Avian and Fish Surveys	Installation of Met Towers (max)	Installation of Met Buoys (max)
1	167	247	116-128	1	2

1. BACKGROUND

BOEM is authorized to issue leases on the OCS for the purposes of wind energy development pursuant to Section 388 of the Energy Policy Act of 2005 (EPAct). On April 22, 2009, BOEM promulgated regulations implementing this authority at 30 CFR Part 585. The regulations establish a program to grant leases, easements, and rights-of-way for orderly, safe, and environmentally responsible renewable energy development activities, such as the siting and construction of offshore wind facilities on the OCS, as well as other forms of renewable energy

such as marine hydrokinetic (i.e., wave and current). The Minerals Management Service (MMS) prepared a programmatic Environmental Impact Statement (EIS) to evaluate the impact of establishing of a comprehensive, nationwide MMS Alternative Energy Program on the OCS (*Programmatic Environmental Impact Statement for Alternative Energy Development and Production and Alternate Use of Facilities on the Outer Continental Shelf, Final Programmatic Environmental Impact Statement*, October, 2007) (Programmatic EIS.) The final rule and the Programmatic EIS can be reviewed for reference on the BOEM website at: http://www.boem.gov/Renewable-Energy-Program/Regulatory-Information/Index.aspx and http://www.boem.gov/Renewable-Energy-Program/Regulatory-Information/Guide-To-EIS.aspx. In addition, BOEM published the *Atlantic Geological and Geophysical Activities Programmatic Final Environmental Impact Statement* (G&G Final PEIS). The G&G PEIS can be viewed at: http://www.boem.gov/Atlantic-G-G-PEIS/.

On June 2, 2016, BOEM released the *Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore New York Environmental Assessment* (EA), which is available online at: http://www.boem.gov/New-York/. The EA analyzes the reasonably foreseeable consequences associated with two distinct BOEM actions in the WEA:

(1) Lease issuance (including reasonably foreseeable consequences associated with shallow hazards, geological, geotechnical, archaeological resources, and biological surveys); and

(2) SAP approval (including reasonably foreseeable consequences associated with the installation and operation of a meteorological tower and/or meteorological buoys).

BOEM does not issue permits for shallow hazards, geological, geotechnical, archaeological resource, or biological surveys. However, since BOEM regulations require that a lessee include the results of these surveys in its application for SAP and COP approval, the EA treats the environmental consequences of these surveys as reasonably foreseeable consequences of issuing a lease.

2. PROPOSED ACTION DESCRIPTION

Offshore Site Characterization Surveys

BOEM regulations require that a lessee provide the results of a number of surveys with both a SAP and a COP, including: a shallow hazards survey, a geological survey, biological surveys, a geotechnical survey, and an archaeological resource survey (30 CFR 585.626(a)(1) to (a)(5), respectively). BOEM refers to these surveys as "site characterization" activities. Site characterization activities (e.g., locating shallow hazards, cultural resources, and hard-bottom areas; evaluating installation feasibility; assisting in the selection of appropriate foundation system designs; and determining the variability of subsurface sediments) would necessitate using high-resolution geophysical (HRG) surveys and geotechnical exploration. The purpose of the HRG survey would be to acquire geophysical shallow hazards data and information pertaining to the presence or absence of archaeological resources and to conduct bathymetric charting. The purpose of geotechnical exploration would be to assess the suitability of shallow foundation soils for supporting a structure or transmission cable under any operational and environmental conditions that might be encountered (including extreme events), and to document soil characteristics necessary for the design and installation of all structures and

cables. The results of geotechnical exploration allow for a thorough investigation of the stratigraphic and geo-engineering properties of the sediment that may affect the foundations or anchoring systems of a meteorological tower or buoy, which would be necessary for BOEM to consider in a SAP, or later a COP, for a given lease.

Site characterization activities would also necessitate vessel and/or aerial surveys to characterize three primary biological resource categories: (1) benthic habitats; (2) avian resources; and (3) marine fauna. BOEM does not anticipate the lessee needing to conduct separate surveys to characterize the benthic habitats which could be affected by their potential future leasehold activities because the geological and geotechnical surveys would provide enough detailed information for BOEM to adequately assess potential impacts on benthic habitats in the area. For the lessee to describe the state of the avian and marine fauna resources, resource surveys would generally involve simple visual observation, either from a vessel or aircraft. For avian and marine fauna surveys, multi-year assessment periods may be necessary to capture natural seasonal and inter-annual variability of marine fauna within the WEA and immediate surroundings if current data available is not sufficient to determine spatial and temporal distribution of species. It is generally envisioned that the fish, marine mammal, sea turtle, and bird aerial and shipboard surveys could be conducted simultaneously.

It is assumed that the site of a meteorological tower and/or buoys would be surveyed first, to meet the similar data requirements for a lessee's SAP (30 CFR 585.610 and 585.611), and the site of a meteorological tower or buoy would not be resurveyed when the remainder of the leasehold is surveyed to meet the data requirements for a lessee's COP (30 CFR 585.626(a)). However, a lessee could conduct all of their surveys at the same time (to support both a SAP and a COP).

Meteorological Tower and Buoys

A typical meteorological tower consists of a mast mounted on a foundation, anchored to the seafloor. The mast may be either a monopole or a lattice (similar to a radio tower). The mast and data collection devices would likely be mounted on a fixed or pile-supported platform (monopile, jackets, or gravity bases) or floating platform (spar, semi-submersible, or tension-leg). Total installation time for one meteorological tower would be eight days to ten weeks, depending on the type of structure installed and the weather and ocean conditions.

Different types of foundations include tripod, monopile, or steel jacket. Characteristics of these foundation types are summarized in Table 3 below. The final foundation selection would be included in a detailed SAP submitted to BOEM for its review and approval, along with the results of SAP-related site characterization surveys.

Table 3
Meteorological Tower Foundations

	Number of Foundation Piles	Diameter of Foundation Piles (ft)	Area of Bottom Covered[1] (square feet [ft^2])	Depth Driven below Seafloor (ft)	Height above Mean Sea Level (ft)
Tripod	3	10	1,500	25 to 100	295 to 393
Monopile	1	10	200	25 to 100	295 to 393
Steel Jacket	3 to 4	3	2,000	25 to 100	295 to 393

[1]Foundations may be surrounded by a scour system placed at the base of the structure that would cover up to 2 acres (0.81 hectares) of ocean bottom

While a meteorological tower has been the traditional device for characterizing wind conditions, several companies have expressed their interest in installing one or two meteorological buoys instead. Meteorological buoys can be used as an alternative to or in combination with a meteorological tower for collecting wind, wave, and current data in the offshore environment. The EA assumes that, should a lessee choose to employ buoys instead of meteorological towers, it would install a maximum of two buoys. These meteorological buoys would be anchored at fixed locations and would regularly collect observations from many different atmospheric and oceanographic sensors. There are three primary types of buoys BOEM anticipates could be used for meteorological resource data collection on the lease: discus-shaped hull buoys; boat-shaped hull buoys; and spar-type buoys. Discus-shaped and boat-shaped buoys are typically towed or carried aboard a vessel to the installation location. A discus-type buoy would use a combination of chain, nylon, and buoyant polypropylene materials, while a boat-shaped buoy would be moored using an all-chain mooring. Once at the installation site, the buoy would be either lowered to the surface from the deck of the transport vessel and the mooring anchor dropped. Transport and installation vessel anchoring would typically require one day for these types of buoys. The total area of bottom disturbance for boat-shaped and discus shaped buoys would be approximately 6 ft^2 (.55 square meters [m^2]) for the actual footprint and 370,260 ft^2 (34,398 m^2) for the anchor sweep. A spar-type buoy would require two distinct phases for installation, with typically a total of 2 to 3 days for installation. The total area of bottom disturbance associated with a spar-type buoy and installation vessel anchors would be roughly 784 ft^2 (73 m^2). See Section 3.2.2.2 of the EA for more information on meteorological buoys and their anchor systems.

To obtain meteorological data, scientific measurement devices consisting of anemometers, vanes, barometers, and temperature transmitters would be mounted either directly on a tower, buoy, or on instrument support arms. A meteorological tower or buoy also could accommodate environmental monitoring equipment, such as avian monitoring equipment (e.g., radar units or thermal imaging cameras), acoustic monitoring for marine mammals, data-logging computers, power supplies, visibility sensors, water measurements (e.g., temperature or salinity), communications equipment, material hoist, and storage containers.

To measure the speed and direction of ocean currents, Acoustic Doppler Current Profilers (ADCPs) would likely be installed on or near a meteorological tower or buoy. An ADCP is a remote-sensing technology which transmits sound waves at a constant frequency and measures the ricochet of the sound wave off fine particles or zooplanktons suspended in the water column. The ADCPs may be mounted independently on the seafloor, to the legs of the platform, or attached to a buoy. A typical ADCP is about 1 to 2 ft tall (approximately 0.3 to 0.6 meters) and 1 to 2 ft wide (approximately 0.3 to 0.6 meters).

A SAP describes the activities (e.g., installation of meteorological towers and/or buoys) a lessee plans to perform for the assessment of the wind resources and ocean conditions at its commercial lease (30 CFR 585.605). No site assessment activities may take place on a lease until BOEM has approved a lessee's SAP (30 CFR 585.600(a)). Once approved, the site assessment term for a commercial lease is five years from the date of SAP approval (30 CFR 585.235(a)(2)). It is assumed that the lessee would install a data-collection device (e.g., meteorological tower, buoy, or both) on its lease area to assess the wind resources and ocean conditions of the leasehold. This information would allow the lessee to determine whether the lease is suitable for wind energy development, where on the lease it would propose development, and what form of development to propose in a COP.

A lessee must submit a COP at least six months before the end of the site assessment term if the lessee intends to continue to the lease's operations term (30 CFR 585.601(c)). If the COP describes continued use of existing facilities, such as a meteorological tower or buoy approved in the SAP, a lessee may keep such facilities in place on their lease during BOEM's review of the COP (30 CFR 585.618(a)), which may take up to two years. If, after the technical and environmental review of a submitted COP, BOEM determines that such facilities may not remain in place throughout the operations term, a lessee must initiate the decommissioning process (30 CFR 585.618(c)). BOEM anticipates that a meteorological tower could be present for up to five years before the agency decides whether to allow the tower to remain in place for the lease's operations term, or whether the tower must be decommissioned immediately.

Coastal Activity

A lessee will likely determine specific ports used for site assessment and survey activities based primarily on proximity to the lease blocks, capacity to handle the proposed activities, and/or established business relationships between port facilities and the lessee. Existing ports or industrial areas in New York and New Jersey are adequate to support proposed action activities. BOEM therefore does not anticipate expansion of port facilities to meet lessee needs, and considers only existing facilities which can currently accommodate proposed site characterization and site assessment activities.

Installation of a meteorological tower and/or two buoys would require port facilities with the following requirements:

- Deep-water vessel access (greater than 15 ft [4.6 m]) to accommodate large vessels;
- Landing and unloading facilities in close proximity to fabrication yards for staging, assembly, and temporary materials storage; and
- Located within a reasonable travel distance to the WEA, which BOEM assumes to be 40

miles from the WEA boundary to the port.

BOEM has identified the following ports as potential staging ports for the WEA:

- Staten Island, NY
- Erie Basin, NY
- Brooklyn, NY
- Bayonne, NJ
- Newark, NJ
- Elizabeth, NJ
- Perth Amboy, NJ

Surveying and operations and maintenance activities could be supported by smaller ports because these types of activities can use smaller vessels and don't need access to fabrication and storage yards for large infrastructure that would be required for installation of a meteorological tower and/or buoys. Vessels used for these activities are anticipated to be approximately 65 to 100 ft (20 to 30 meters) in length. These smaller ports would serve as staging areas and crew/cargo launch sites for the survey, and operations and maintenance vessels. While a variety of ports could be used for the survey, operations and maintenance activities, including some of the staging ports listed above, BOEM has identified the following ports as likely to support these activities associated with the WEA:

- Staten Island, NY;
- Kismet Harbor, NY;
- Ocean Beach Harbor, NY;
- Perth Amboy, NJ;
- Shark River, NJ; and
- Manasquan, NJ.

Vessel Traffic

Approximately 574 to 1010 total vessel round trips are anticipated to occur as a result of the proposed action over a five-year period (*see* Table 4). Approximately 530 to 542 of these vessel trips (round trips) would be associated with all site characterization surveys as a result of the proposed action over five years, from 2017 to 2022. The total vessel traffic estimated as a result of the installation, decommissioning, and routine maintenance of the meteorological towers and/or meteorological buoys that could be reasonably anticipated in connection with the proposed action would range from 44 to 468 round trips over a five-year period.

Table 4
Total Vessel Round Trips

HRG Surveys	Cable surveys	Geotechnical Sampling Surveys	Avian Surveys	Fish Surveys	Met Buoys	Met Tower	Total
157	10	247	24-36	92	44-128	100-340	574-1010

The total vessel traffic estimated as a result of the HRG surveys and geotechnical exploration work that could be reasonably anticipated in connection with the proposed action would be approximately 167 round trips over five years, and spread over existing and available port facilities in New York and New Jersey. In addition, BOEM presumes 116 to 128 extra independent surveys conducted to characterize avian and fish resources under the proposed action.

Should the lessee decide to install a meteorological tower on its leasehold, a total of 40 round trips are estimated for construction (*see* Table 5). These vessel trips may be spread over multiple construction seasons as a result of weather and sea state conditions, the time to assess suitable site(s), the time to acquire the necessary permits, and the availability of vessels, workers, and tower components. Because the decommissioning process would basically be the reverse of construction, vessel usage during decommissioning would be similar to vessel usage during construction, so another 40 round trips are estimated for decommissioning of the tower. Meteorological buoys would typically take 1 to 2 days to install by one vessel, and 1 to 2 days to decommission by one vessel. Maintenance trips to each meteorological tower may occur weekly to quarterly, and monthly to quarterly for each buoy. However, to provide for a conservative scenario, total maintenance vessel trip calculations are based on weekly trips for towers and monthly trips for buoys over the entire 5-year period (*see* Table 5).

Table 5
Vessel Traffic for Meteorological Buoys and Tower Construction, Maintenance, and Decommissioning

Site Assessment Activity	Round Trips	Formula
Meteorological Buoys		
Meteorological Buoy Installation	2-4	1-2 round trips x 2 buoys
Meteorological Buoy Maintenance – Quarterly/Monthly	40-120	4 quarters x 2 buoys x 5 years 12 months x 2 buoys x 5 years
Meteorological Buoy Decommissioning	2-4	1-2 round trips x 2 buoys
Total Buoy Trips Over 5-year period	**44-128**	
Meteorological Tower		
Meteorological Tower Construction	40	40 round trips x 1 tower
Meteorological Tower Maintenance – Quarterly/Weekly	20-260	4 quarters x 1 tower x 5 years 52 weeks x 1 towers x 5 years
Meteorological Tower Decommissioning	40	40 round trips x 1 tower
Total Tower Trips Over 5-year Period	**100-340**	
Total Trips for a Tower and Two Buoys	**144-468**	

3. STATE ENFORCEABLE POLICIES

As part of this CD, BOEM has evaluated and documented in the enclosed table (*see* Table 6), policies identified by New York and New Jersey as enforceable, applicable offshore and coastal resources or uses, and CZMA "reasonably foreseeable coastal effects" that might be expected for activities conducted under the proposed action. While reviewing and making these determinations on the policies the states have identified as enforceable in this CD, BOEM has considered the common enforceable policies identified by each of the two states as enforceable in their CMP, as listed in Table 6.

4. CONSISTENCY DETERMINATION

BOEM has evaluated all applicable enforceable policies of New York and New Jersey, and the potential activities resulting from the proposed action. This CD has examined whether the proposed action described in Section 1 is consistent to the maximum extent practicable with the policies and provisions identified as enforceable by the CMPs of New York and New Jersey (*see* Table 6). Based on the preceding information and analyses, and the incorporated-by-reference Programmatic EIS, G&G Final PEIS, and EA, BOEM has determined the proposed action will be consistent to the maximum extent practicable with the policies that New York and New Jersey have identified as enforceable.

Table 6: Applicable Enforceable Policies for the Coastal Management Programs of New York and New Jersey		
CATEGORY	**ENFORCEABLE POLICIES: APPLICABLE COASTAL ZONE MANAGEMENT RULES**	**REASONABLY FORESEEABLE COASTAL EFFECTS (CZMA COASTAL EFFECTS)**
Coastal Habitats and Wetlands	Policy 44 (NY) 7:7E-3.6 Submerged vegetation habitat (NJ) 7:7E-3.16 Dunes (NJ) 7:7E-3.18 Coastal high hazard areas (NJ) 7:7E-3.22 Beaches (NJ) 7:7E-3.27 Wetlands (NJ)	No dunes, beaches, submerged vegetation habitat, or wetlands will be altered as a result of the proposed action. No direct impacts on wetlands or other coastal habitats would occur from routine activities in the Wind Energy Area (WEA) due to the distance of the WEA from shore. No cables would be installed to shore to support the meteorological tower or buoys. Additionally, existing ports or industrial areas in New York and New Jersey are expected to be used in support of the proposed activities. No expansion of existing facilities is expected to occur as a result of the proposed action. Indirect impacts from routine activities may occur from wake erosion and associated added sediment caused by increased traffic in support of the proposed action. Given the volume and nature of existing vessel traffic in the area, a negligible increase of wake-induced erosion may occur. Existing channels could accommodate the vessels anticipated to be used, and no additional dredging would be required to accommodate different vessel size(s). For more information on ports and navigation, see the Ports, Navigation, and Waterfront section below. Should an incidental diesel fuel spill occur as a result of the proposed action, the impacts on coastal habitats, including dunes, beaches, and wetlands, are expected to be negligible. See Section 4.4.2.4 of the *Environmental Assessment for Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore New York* (EA) for additional information on potential impacts to coastal habitats.
Ports, Navigation, and Waterfront	Policy 2 (NY) Policy 3 (NY)	Ports that could serve as potential staging areas include: Staten Island, NY; Erie Basin, NY; Brooklyn, NY; Bayonne, NJ; Newark, NJ; Elizabeth, NJ; and Perth Amboy, NJ. While a variety of ports could be used for the survey, operations, and maintenance activities, including some of the staging ports listed above, the Bureau of Ocean Energy Management (BOEM) has identified the following ports as likely to support these

	Policy 4 (NY) Policy 5 (NY) Policy 24 (NY) Policy 25 (NY) Policy 35 (NY) 7:7E-3.7 Navigation channels (NJ) 7:7E-3.11 Ports (NJ) 7:7E-3.41 Special hazard areas (NJ) 7:7E-7.5 Transportation use rule (NJ) 7:7E-7.7 Industry use rule (NJ) 7:7E-7.9 Port use rule (NJ) 7:7E-7.10 Commercial facility use rule (NJ) 7:7E-8.14 Traffic (NJ)	activities associated with the WEA: Staten Island, NY; Kismet Harbor, NY; Ocean Beach Harbor, NY; Perth Amboy, NJ; Shark River, NJ; and Manasquan, NJ. Wake erosion and sedimentation effects would be limited to approach channels and the coastal areas near ports and bays used to conduct activities. Given the existing amount and nature of vessel traffic, there would be a negligible, if any, increase to wake-induced erosion of associated channels based on the relatively small size and number of vessels associated with the proposed action. Moreover, all approach channels to these ports are armored, and speed limits would be enforced, which also helps to prevent most erosion. Several existing fabrication sites, staging areas, and ports in New York and New Jersey could support site characterization surveys and the construction, operation, and decommissioning of the meteorological tower and buoys. No expansion of these existing onshore areas is anticipated. Existing channels could accommodate the vessels anticipated to be used, and no additional dredging would be required to accommodate different vessel size(s). In addition, no cables would be installed to shore to support the meteorological tower or buoys. The meteorological tower platform would likely be constructed onshore at an existing fabrication yard near one of the ports. The meteorological tower could also be fabricated at various facilities, or at inland facilities in sections, and then shipped by truck or rail to the port staging area. Project related vessels traveling to or from the ports for survey activities, installation, maintenance, and decommissioning of the meteorological tower and buoys could experience spills within a channel or bay that could potentially reach shoreline areas. The impacts on coastal habitats would depend on the type of material spilled, the size and location of the spill, the meteorological conditions at the time, and the speed with which cleanup plans and equipment could be employed. These impacts are expected to be minimal because vessels are expected to comply with the United States Coast Guard regulations at 33 CFR Part 151, relating to the prevention and control of oil spills. Based on the distance from shore where proposed action activities would occur, and the rapid evaporation and dissipation of diesel fuel, a spill occurring in the WEA would likely not contact shore. Collisions between vessels and allisions between vessels and the meteorological tower and buoys are unlikely. However, if a vessel collision or allision was to occur, and in the unlikely event that a spill would result, the most likely pollutant to be discharged into the environment would be diesel fuel. Diesel dissipates very rapidly in the

		water column, then evaporates and biodegrades within a few days, resulting in negligible, if detectable, impacts on the area of the spill. For the proposed action, approximately 574-1,010 vessel trips from site characterization and assessment activities are projected to occur over a 5-year period if the entire WEA was leased and the maximum number of site characterization surveys were conducted in the lease area (*see* Table 4 for vessel traffic calculations). For more information on ports, see Section 3.2.3 of the EA. For more information on vessel traffic and navigation see Sections 3.2.4 and 4.4.2.10 of the EA.
Energy Facilities	Policy 12 (NY) Policy 14 (NY) Policy 17 (NY) Policy 27 (NY) Policy 29 (NY) 7:7E-7.4 Energy facility use rule (NJ)	This analysis is limited to the effects of lease issuance, conducting site characterization activities (i.e., surveys of the lease area), and approval of site assessment activities (i.e., construction and operation of a meteorological tower and/or two buoys) within the WEA. This analysis does not consider construction and operation of any commercial wind power facilities, which would be evaluated later in the process during the review of a construction and operations plan (COP). BOEM takes this approach based on several factors. First, BOEM does not consider the issuance of a lease to constitute an irreversible and irretrievable commitment of agency resources toward the authorization of a commercial wind power facility. Section 1.1.1 of the EA describes BOEM's phased planning and authorization process for offshore wind development. Under this process, the issuance of a lease only grants the lessee the exclusive right to use the leasehold to (1) gather resource and site characterization information, (2) develop its plans, and (3) subsequently seek BOEM approval of its plans for the development of the leasehold. The purpose of conducting the surveys and installing meteorological measurement devices is to assess the wind resources in the lease area and to characterize the environmental and socioeconomic resources and conditions. A lessee must collect this information to determine whether the site is suitable for commercial development and, if so, submit a COP with its project-specific design parameters, for BOEM's review. Should a lessee submit a COP, BOEM would consider its merits; perform the necessary consultations with the appropriate state, federal, local, and tribal entities; solicit input from the public and the Task Force; and perform an independent, comprehensive, site- and project specific National Environmental Protection Act (NEPA) analysis. This separate

		site- and project-specific NEPA analysis may take the form of an environmental impact statement (EIS) and would provide additional opportunities for public involvement pursuant to NEPA and the CEQ regulations at 40 CFR Parts 1500–1508. BOEM would use this information to evaluate the potential environmental and socioeconomic consequences associated with the lessee-proposed project, when considering whether to approve, approve with modification, or disapprove a lessee's COP pursuant to 30 CFR 585.628. After lease issuance, but prior to COP approval, BOEM retains the authority to prevent the environmental impacts of a commercial wind power facility from occurring. Secondly, BOEM does not consider development of a commercial wind power facility within the WEA, and its attendant environmental impacts, to be reasonably foreseeable at this time. Based on the experiences of the offshore wind industry in northern Europe, the project design and the resulting environmental impacts are often geographically and design specific, and it would, therefore, be premature to analyze environmental impacts related to the potential approval of any future COP at this time. There are a number of design parameters that would be identified in a project proposal, including foundation type, project layout, installation methods, and associated onshore facilities. However, the development of these parameters would be determined by information collected during site characterization and assessment activities conducted by the lessee after lease issuance. Each design parameter, or combination of parameters, would have varying environmental effects. Therefore, additional analyses under NEPA would be required before any future decision is made regarding construction of wind energy facilities on the OCS. Additionally, while BOEM has issued 11 commercial wind energy leases offshore, only one lessee has submitted a COP to date. Construction of a commercial wind power facility on the Outer Continental Shelf (OCS) has yet to commence. Given the nascent nature of the offshore wind industry and market uncertainties, it is speculative at this time whether projects will actually be proposed within these areas.
Protected Species	Policy 7 (NY) Policy 8 (NY) 7:7E-3.38 Endangered or	<u>Marine Mammals</u> More information on potential impacts to marine mammals can be found in Section 4.4.2.5 of the EA. There are 31 species of marine mammals that occur in the New York Bight. These 31 species include the following:

	threatened wildlife or plant species habitats (NJ) 7:7E-3.39 Critical wildlife habitats (NJ)	• six mysticetes (baleen whales; five federally endangered); • 21 odontocetes (toothed whales, including: dolphins, a porpoise, beaked whales, dwarf and pygmy sperm whales, and federally endangered sperm whales); and • four pinnipeds (seals). The Endangered Species Act (ESA)-listed marine mammal species that occur in the New York Bight include six large whale species (fin, sei, humpback, North Atlantic right, blue, and sperm whales) (*see* Table 4-6 of the EA). Sperm, blue, and sei whales that are sighted in the New York Bight are generally found farther offshore and/or near the shelf edge. Thus, these species are not expected to occur in the action area. Three listed species, all endangered, are likely to occur in the action area: fin, humpback, and North Atlantic right whales. However, National Marine Fisheries Service (NMFS) is currently proposing to establish 14 distinct population segments (DPS) for humpback whales, two of which will be listed as endangered and two will be listed and threatened. The West Indies DPS covers all humpbacks along the Atlantic, and this DPS will be de-listed (80 FR 22303). Sightings per unit effort (SPUE) results for the three species combined indicate that while these species are not particularly common (*see* Figure 4-11 of the EA), they could occur in the action area at any time during the year (*see* Table 4-6 of the EA). Marine mammals listed as federally endangered or threatened under the ESA (i.e., listed) and marine mammals protected under the Marine Mammal Protection Act (i.e., non-listed) are discussed together because the potential impact mechanisms are the same for all marine mammals. **Site Characterization** Impacts on marine mammals from site characterization were analyzed in the *Atlantic Geological and Geophysical Activities Final Programmatic Environmental Impact Statement* (G&G Final PEIS) and are incorporated herein by reference and summarized below. Although the geographic boundary in the G&G Final PEIS was outside of the WEA (it included BOEM's Mid-Atlantic and South Atlantic planning areas: Delaware to Florida), many of the same species occur in the New York Bight area, and the conclusions

		on impact levels are applicable. The following conclusions for site characterization that were made in the G&G Final PEIS for BOEM's Mid-Atlantic and South Atlantic planning areas are expected to be the same in the WEA: • Impacts from High Resolution Geophysical (HRG) survey sound sources are expected to be minor because acoustic signals from electromechanical survey equipment are within the hearing range for marine mammals, and may cause Level B harassment. However, standard operating conditions (SOCs) implemented to minimize acoustic impacts would include monitoring by a protected species observer (PSO) of a 1,640 ft (500 m) exclusion zone for North Atlantic right whales and a 656 ft (200 m) exclusion zone for all other marine mammals, clearance of the exclusion zone 60 minutes prior to equipment start-up, "ramp up" of equipment, and immediate shut down if a non-delphinoid cetacean (large whale) is sighted at or within the exclusion zone (*see* Appendix B of the EA). If a delphinoid cetacean (dolphin or porpoise) or pinniped (seal) is sighted at or within the exclusion zone, the survey equipment must be powered down to the lowest power output feasible until the exclusion zone is clear; • Impacts from vessel and equipment noise, including geotechnical sampling (e.g., coring) are expected to be negligible to minor. BOEM based this finding on our conclusion that vessel and equipment source levels can be high enough to exceed threshold criteria for behavioral disturbance and undetected marine mammals may occur in the ensonified area during sampling activities. The following SOCs would minimize acoustic impacts: monitoring of the 656 ft (200 m) exclusion zone by a PSO, clearance of the 656 ft (200 m) exclusion zone 60 minutes prior to activity, and immediate shut down if a non-delphinoid cetacean is sighted at or within the exclusion zone. Subsequent restart of geotechnical survey equipment may only follow clearance of exclusion zone for at least 60 minutes for all marine mammals (*see* Appendix B of the EA); and • Impacts from project-related vessel traffic are expected to be negligible because SOCs require that all vessel operators and crew maintain a vigilant watch for marine mammals, separation of 1,640 ft (500 m) from a sighted North Atlantic right whale, and 328 ft (100 m) from all other non-delphinoid cetaceans (*see* Appendix B of the EA). Additional vessel strike avoidance measures for North

		Atlantic right whales apply from November 1 to July 31. SOCs also require that all vessels underway do not divert to approach a delphinoid cetacean or pinniped. **Site Assessment** Impacts on marine mammals from site assessment activities are divided into two categories: underwater noise impacts and non-acoustic impacts. Impacts are assessed by relative potential of overlap, both spatially and temporally, between marine mammal species and impact-producing factor. **Underwater Noise Impacts** Marine mammals use sound for vital biological functions, including socialization, foraging, responding to predators, and orientation. It has been documented that some anthropogenic noise can negatively impact the biological activities of marine mammals in some instances. The response of marine mammals to sound depends on a range of factors, including (1) the sound presser level; frequency, duration, and novelty of the sound; (2) the physical and behavioral state of the animal at the time of perception; and (3) the ambient acoustic features of the environment. Noise can cause behavioral disturbance, including changes in feeding, vocalization, and dive patterns, or avoidance of the ensonified area (i.e., the area filled with sound). Auditory masking, defined as the obscuring of sounds of interest by interfering sounds, generally at the same or similar frequency, may also cause important behavioral changes to marine mammals exposed to sound. In addition to behavioral disturbance, underwater noise can result in two levels of potential injury to marine mammal hearing: (1) Temporary Threshold Shift (TTS), a non-permanent decrease in hearing sensitivity, and (2) Permanent Threshold Shift (PTS), a physical injury that results in a permanent decrease in hearing sensitivity. Detailed discussions on underwater sound and its importance to marine mammals and their hearing capabilities can be found in the G&G Final PEIS and the *Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore Massachusetts Revised Environmental Assessment*. NMFS interim threshold criteria, based on received levels of sound for marine mammals during acoustic activities, are defined as follows:

		• 120 decibels (dB) re 1 μPa root mean square (RMS) for the potential onset of behavioral disturbance or harassment (Level B) from a *continuous* source of sound (e.g., vessel noise, geotechnical drilling, or vibratory pile driving); • 160 dB re 1 μPa RMS for the potential onset of behavioral disturbance (Level B) from a *non-continuous* source (e.g., impact pile driving, HRG surveys); and • Potential injury (Level A) from received levels of 180 dB re 1 μPa RMS for cetaceans, and 190 dB re 1 μPa RMS for pinnipeds. Although distinct exposure thresholds can be determined for injury, behavioral reactions follow a wider spectrum of variable responses, some which may be negligible, while others can have more severe consequences. The traditional threshold level to predict behavioral reactions are 160 dB RMS for impulsive noise and 120 dB (RMS) for continuous noise where only animals exposed to levels above the threshold have the potential to be disturbed. An increasing number of studies indicate that the effect of underwater sound on marine mammal behavior is quite variable between species, individuals, life history stage, and behavioral state. Additionally, some species (e.g., beaked whales and porpoises, or migrating baleen whales) or animals in certain behavioral states may be more sensitive to disturbance, while other species may be more tolerant to environmental noise. **Pile Driving** Among all acoustic activities during site assessment, pile driving has the potential to produce the highest noise levels. Sound levels from pile driving are highly variable depending on site location, type of pile, type and size of hammer, water depth, and bottom type. There are two methods of pile driving that may be used in the WEA, vibratory pile driving and impact pile driving, and each has different potential impacts. BOEM anticipates that pile driving would occur for 3 to 8 hours per day for up to 3 consecutive days, and that pile diameters would be approximately 3 ft (1 m) to 10 ft (3 m) depending on the structural design of the meteorological tower. Under BOEM's SOCs (*see* Appendix B, Section B.4 of the EA), which require that pile driving be conducted from May 1 to October 31, a monitoring zone of 3,280 feet (ft) (1,000 meters [m]), and implementation of "soft start", no marine mammals are expected to experience Level A noise (>180 dB re 1 μPa). However, measurements from

		Illingworth and Rodkin, Inc. (2013) indicate that source levels above Level B harassment (120 dB RMS) could occur from 6,824 to 31,053 ft (2,080 to 9,465 m) from the source at a 33 ft (10 m) water depth, and from 10,745 to 37,730 ft (3,275 to 11,500 m) at a 66 to 98 ft (20 to 30 m) water depth. Therefore, because marine mammals may occur in or near the WEA during times of the year when pile driving may take place, behavioral impacts may occur. The requirements under BOEM's SOCs are expected to reduce the potential impacts to marine mammals from vibratory pile driving activities. Nonetheless, the potential for behavioral impacts remains. Overall, impacts from vibratory pile driving activities are expected to be minor to moderate for both non-ESA-listed marine mammals and for ESA-listed fin, humpback, and North Atlantic right whales that could occur in the WEA. The three ESA-listed threatened and endangered mysticete species that are most likely to occur in the WEA are fin, humpback, and North Atlantic right whales. The only other non-listed mysticete that may occur in the New York Bight area, and thus the action area, is the minke whale. Pile-driving activities are expected to be minor for minke whales because SPUE data suggest that these whales do not typically occur within 25 nautical miles (nm) (40 kilometers [km]) of the WEA. BOEM's SOCs (*see* Appendix B, Section B.4 of the EA), which require a lessee to limit pile driving between May 1 and October 31, a monitoring zone of 3,281 ft (1,000 m), and the implementation of "soft start", are expected to minimize Level A noise (>180 dB re 1 μPa) exposures to ESA-listed marine mammals. However, it is possible that some endangered whales may experience Level A or Level B harassment. For example, recent acoustic data indicate the possible presence of North Atlantic right whales in the New York Bight at any time during the year (Whitt et al., 2013). Large whales engaged in migration are known to be more sensitive to relatively low levels of noise (lower than Level B harassment threshold levels), and this sensitivity may cause them to avoid the area. Considering the short duration of impact pile driving activities (anticipated to be approximately 3 to 8 hours per day for up to 3 consecutive days), impacts from impact pile driving on fin, humpback, and North Atlantic right whales are expected to be minor to moderate.

		Considering the short duration of impact pile driving activities (anticipated to be approximately 3 to 8 hours per day for up to 3 consecutive days), impacts from impact pile-driving activities are expected to be minor for harbor, harp, hooded, and gray seals, and negligible for ringed seals. **Vessel Strike** Potential impacts to marine mammals include strikes from vessels used during the construction, operation, and decommissioning phases of the tower and/or buoy installation. BOEM anticipates that between approximately 44 to 468 round trips of various vessel types may occur during site assessment activities (*see* Table 5). While the number of vessel trips anticipated is relatively low compared to the existing level of vessel traffic in the area, it is possible that underwater noise (e.g., pile driving) may cause behavioral changes for some whale species that could increase the chances for a collision between a marine mammal and a vessel. This is especially important for endangered whales (North Atlantic right, fin, and humpback whales) due to vessel strikes being a major cause of mortality, which indicate that the behavioral response of some whale species to noise may secondarily increase the risk of vessel strike to large whales (e.g., changes in ascent behavior and rapid acceleration away from the source). Recent studies have also indicated that some whale species are more sensitive to sound during migration than during feeding and may show avoidance responses at greater distances if the noise can be heard by the animal. These studies suggest that North Atlantic right whales, known to migrate through the New York Bight could be susceptible to such behavioral reactions from project-related noise. However, considering the existing levels of vessel traffic noise generated in the general area of the WEA (between the two traffic separation schemes surrounding the WEA), it is unlikely that noise related to the construction, operation, or decommissioning phases of a meteorological tower or buoy would be detected at levels or durations that might result in an increase in risk of vessel strike to North Atlantic right whales. BOEM's SOCs were designed to minimize potential vessel strikes to marine mammals (*see* Appendix B, Section B.1.1 of the EA). NMFS concluded that during site assessment activities, the potential for construction- and maintenance-related vessel strike to marine mammals is extremely low. Potential impacts to marine mammals from vessel strikes

		during site assessment activities are, therefore, expected to be negligible because of the low probability of such an event. Nonetheless, if vessel strikes did occur they could result in minor to moderate impacts to ESA-listed marine mammal species. Impacts from trash and debris are expected to be negligible. Potential impacts on marine mammals from fuel spills are expected to range from negligible (if the fuel does not contact individual marine mammals) to minor (if individual marine mammals encounter the slick). Overall, impacts to marine mammals are expected to be moderate due to potential acoustic impacts during site assessment activities that involve pile driving; however, potential impacts covering site characterization and other site assessment activities would range from negligible to minor**,** depending on the activity being conducted. Vessel strike and noise are two of the most important factors that may affect marine mammals. Implementing the vessel strike avoidance measures in the SOCs (*see* Appendix B, Section B.1.1 of the EA) would minimize the potential for vessel strikes. BOEM's SOCs related to site characterization surveys (*see* Appendix B, Section B.3 of the EA) and site assessment (*see* Appendix B, Section B.4 of the EA) would minimize the potential for noise impacts to marine mammals. <u>Sea Turtles</u> More information on potential impacts to sea turtles can be found in Section 4.4.2.6 of the EA. Four species of sea turtles occur in the New York Bight: loggerhead, green, Kemp's ridley, and leatherback. All four species are listed as threatened or endangered under the ESA. Of the four species, loggerhead turtles are sighted more frequently than any other sea turtle species in the vicinity of the WEA (*see* Appendix E of the EA). Impact-producing factors associated with the proposed action that could have potential impacts on Kemp's ridley, loggerhead, leatherback, and green sea turtles include vessel traffic, vessel noise, HRG active acoustic sources, equipment noise, seafloor disturbance, pile driving noise, dynamic positioning thruster use during vessel positioning, release of

		trash and debris, and accidental fuel spill. BOEM has developed SOCs for sea turtles that are designed to prevent or reduce any possible impacts during both site characterization and site assessment activities. These SOCs are described in detail in Appendix B of the EA. Potential impacts to sea turtles would range from negligible to moderate depending on the activity being conducted during site characterization and site assessment. Vessel strike and noise are two of the most important factors that may affect sea turtles. However, implementing the vessel strike avoidance measures in the SOCs (*see* Appendix B, Section B.1.1 of the EA) would minimize the potential for vessel strikes and adverse impacts on sea turtles. There are large data gaps regarding behavioral and physiological responses of sea turtles to sound, and recommendations for future studies include the potential physiological (critical ratios, TTS, and PTS) and behavioral effects of exposure to sound sources. Although implementation of the SOCs is expected to minimize the potential of hearing injury impacts and disruption the behavior of sea turtles, pile driving from May 1 to October 31 (*see* Appendix B, Section B.4 of the EA) coincides with the time of year that sea turtles are known to occur in the WEA. However, pile driving of one meteorological tower would take a relatively short time (approximately 3 to 8 hours per day for up to 3 days), which would limit the turtles' exposure to the sound to periodic disruptions over a 1-day to 3-day period. Sea turtles that avoid the area are expected to successfully forage in nearby habitats with similar prey availability. There are no critical or otherwise important foraging habitats known to occur in the area of the WEA. <u>Protected Fish Species</u> For information on protected fish species, see the Fisheries Management section below.

Fisheries Management	Policy 9 (NY) Policy 10 (NY) 7:7E-3.2 Shellfish habitat (NJ) 7:7E-3.3 Surf clam areas (NJ) 7:7E-3.4 Prime fishing areas (NJ) 7:7E-3.5 Finfish migratory pathways (NJ) 7:7E-8.2 Marine fish and fisheries (NJ)	<u>Commercial and Recreational Fisheries</u> In 2012, BOEM contracted with NMFS to characterize the commercial fishing industry in the New York Call Area (the WEA is identical to the New York Call Area). NMFS developed a statistical model to predict the spatial footprint of a fishing trip by merging vessel trip reports with data collected by at-sea fisheries observers. NMFS then linked these locations to seafood dealer reports to create revenue-intensity maps as a visual representation of the fishing harvest. According to the NMFS fishing revenue study *Socio-Economic Impact on Outer Continental Shelf Wind Energy Development on Fishing in the U.S. Atlantic. Draft* (Kirkpatrick et al. 2015), commercial fishermen sourced an average of $3.59 million annually from the New York Call Area from 2007 to 2012. Based on analysis of NMFS data, input derived from outreach efforts with the fishing industry, and public comments, BOEM determined that the fisheries that use the area the most, based on a percentage of total revenue, are the Atlantic sea scallop, and the squid, mackerel, and butterfish (SMB) fisheries. Other species of commercial importance with distributions that overlap the WEA include monkfish, Atlantic herring, black sea bass, summer flounder, and scup. The average annual scallop revenue represents more than 90 percent of the total fishing revenue sourced from the New York Call Area (*see* Figure 4-1 in the EA). During the six-year study period, the scallop revenue from the New York Call Area ranged from $494,326 to $6 million. The average annual scallop revenue from the New York Call Area was $3.26 million, which represents 0.8 percent of the total Atlantic sea scallop revenue from the Atlantic seaboard. Much of the total scallop revenue is from regulated access areas farther offshore, such as on Georges Bank, Hudson Canyon, and the Delmarva access areas. The New York Call Area's annual SMB fishery revenue ranged from $71,673 to $319,686. These values equate to 0.2 and 0.7 percent of the total squid value landed from the Atlantic in those low and high years, respectively (Kirkpatrick et al., 2015). The squid fishery operates in and around the New York Call Area primarily between June and September. The fishery is highly variable regarding where the squid will occur and where they will be caught. Although the entire New York Call Area is used as a squid fishery, the primary

		area fished by the squid fleet is in waters less than 16 fathoms (30 m) closer to Cholera Banks Waters off New York and New Jersey are home to substantial recreational fishing activities. The WEA is adjacent to, and overlaps with, some reported recreational fishing ground. The major recreational fishing areas along the south coast of Long Island are roughly 10 to 25 nm (19 to 46 km) from the WEA. NMFS described the recreational fishery as lightly overlapping the New York Call Area (Kirkpatrick et al., 2015). Site characterization and site assessment activities would result in underwater noise from survey activity and the installation of piles to support the meteorological tower. The direct impact of these noise sources on fish is analyzed in Section 4.4.2.7 of the EA. The analysis in that section concludes that impacts of low frequency sound on fish and fish populations, including SOCs such as the "soft-start" provision for pile driving, is anticipated to be negligible. BOEM does not anticipate adverse impacts from noise associated with installation of piles on fish populations that are targeted by commercial and recreational fishing groups. However, noise generated from low frequency sound, like pile driving and some survey equipment, may result in decreased catch rates of fish while the noise producing activity is occurring. Decreased catch rates may be most acute in hook and line fisheries, since behavioral changes may reduce the availability of the fish to be captured in the fishery. The increase in vessel traffic associated with installation, maintenance, and decommissioning of a meteorological tower and/or buoys could potentially deter commercial and recreational fishermen from using the area around the tower or buoys while work-related vessels are in the area. To avoid collisions and gear entanglement with vessels, commercial and recreational fishermen may temporarily move to other locations. The tower and buoys could provide previously unavailable habitat for species that prefer structured and hardbottom habitats, creating a temporary increase in these types of fish in the area of the tower or buoy while the structure is in place. This could have a temporary beneficial effect to commercial and recreational fisheries, depending on the species of interest and the fishing gear used. Commercial fisheries in areas adjacent to the WEA are more productive than the commercial fisheries in the WEA (Kirkpatrick et al., 2015), so the temporary increased vessel traffic associated with site assessment is expected to be minor. Similarly, most coastal recreational fishing for New York and New Jersey takes

		place away from the WEA, and impacts of increased vessel traffic are anticipated to be negligible. Mollusks, such as scallops, would likely be adversely affected in the immediate area of the tower foundations and/or buoy moorings, and suffer from suspended sediment during the construction process. Exclusion zones are typically established around large and/or slow work-related vessels (referred to as "source vessels"; e.g., barges and tow vessels) to maintain safe passage of the source vessel, and by keeping it clear of other vessel traffic. Temporary adverse impacts expected to result from vessel traffic and/or vessel exclusion zones could be avoided by recreational anglers because these user groups tend to use smaller boats that are more maneuverable; therefore, avoidance of survey vessels could be achieved as needed. Impacts would be limited geographically to the vessel exclusion zone and would be temporary at any given location since the exclusion area would move along with the movement of the vessel. Temporary exclusion zones would also be established around the meteorological tower during construction and decommissioning. During construction/ decommissioning, BOEM anticipates that the typical temporary vessel exclusion zone around a 377 ft- (115 m-) meteorological tower would be approximately 162 acres (ac) (66 hectares [ha]). Impacts on recreational fishing could be greater if the exclusion zone is established over a popular and/or critical sport fishing location, such as one that may coincide with the migration route of a target fishing species. Impacts on recreational boating and fishing from temporary vessel exclusion zones are expected to be negligible, and impacts on recreational boating and fishing from temporary exclusion zones are expected to be minor. Accidental oil spills from damaged gear or machinery (e.g., vessels, generators, or pile-driving hammers) associated with site assessment could directly affect commercial and recreational fisheries by contaminating fish and gear, and interfering during cleanup and recovery operations, or indirectly affect fisheries by temporarily degrading fishing habitat. Spills could result from severe weather damage to vessels or the tower/buoys, from vessel collisions/allisions, or during generator refueling. However, the impact of a spill on commercial and recreational fishing activity would largely depend on the size of the spill. The effects would be detrimental to commercial and recreational fisheries if they led to

		declines in target species. While such spills are hard to predict, based on the structures and vessels associated with the activities, the potential for oil spills, the size of these spills, and the impact to commercial recreational fisheries from non-routine events is expected to be negligible. Overall, impacts to commercial and recreational fisheries under the proposed action would be minor. Impacts would range from negligible to minor depending on the fishery and proposed action activity. Minor impacts are expected based on the low level of vessel traffic activity associated with site characterization and site assessment activities, the fact that one meteorological tower and/or two buoys would be installed over a relatively large geographic area, the level and duration of sound produced from routine activities and events, and the low likelihood of potential impacts from disturbances and pollution. See Section 4.4.4.5 of the EA for more information on potential impacts to commercial and recreational fisheries. <u>Finfish, Shellfish, and Essential Fish Habitat</u> Essential Fish Habitat (EFH) has been designated for 37 species in the WEA. No Habitat Areas of Potential Concern (HAPCs) have been designated in the WEA. EFH descriptions for several of the designated species in the WEA are provided in the G&G Final PEIS. EFH descriptions for species and lifestages that were not discussed in the G&G Final PEIS are summarized in Table 4-14 of the EA. Surf clam concentrations in the WEA appear to be moderate or secondary (<1 bushel) concentrations. The NEFSC 2011 clam dredge survey data showed low catch rates (0 and 1 to 50 clams per tow) of total surf clams and prerecruits in the WEA. The *PEIS for Alternative Energy Development and Production and Alternate Use of Facilities on the Outer Continental Shelf, Final Environmental Impact Statement* identified potential impacts to fish resources and EFH that could occur in OCS WEAs in the Atlantic region during site characterization, including: G&G surveys; vessel and equipment noise; and meteorological tower/buoy installation, operation, and decommissioning.

		The potential impacts of renewable energy site characterization on finfish resources and EFH have been analyzed in the G&G Final PEIS and were incorporated into the EA by reference. Although the geographic boundary in the G&G Final PEIS is outside of this WEA (it included BOEM's Mid-Atlantic and South Atlantic planning areas: Delaware to Florida), many species occur in both areas, and the conclusions on impact levels are applicable. The following conclusions for site characterization that were made in the G&G Final PEIS are expected to be the same in the WEA: • Impacts from acoustic sound sources from HRG surveys and geotechnical exploration are expected to be negligible. A boomer sub-bottom profiler is the only sound source expected to produce sounds within finfish and invertebrate hearing ranges; • Impacts from vessel and equipment noise are expected to be negligible**;** and • Impacts from seafloor disturbances are expected to be negligible**.** The G&G Final PEIS assessment of impacts on fish and EFH from acoustic sound sources, vessel and equipment noise, seafloor disturbance, and discharge of waste materials and accidental fuel releases was for G&G-related site characterization activities only. While the number of vessel trips and area of seafloor disturbance for activities covered in the EA differ from those in the G&G Final PEIS, the overall types of impacts to finfish, shellfish, and EFH —and the impact levels and conclusions—are anticipated to be the same. The SOCs required by BOEM (*see* Appendix B, Section B.4 of the EA) to reduce the potential for adverse impacts to marine mammals and sea turtles are expected to also benefit fish. With the "soft start" procedure for pile driving, it is anticipated that the majority of fish would flee the area during the tower installation period and return to the area and resume normal activity after construction. Fish that do not flee the area during pile driving could be exposed to noise levels that result in temporary hearing threshold shifts, injuries, or mortality. Thus, the noise associated with pile driving would cause avoidance or other adverse effects resulting in minor impacts to adult finfish. Demersal eggs and larvae may also be vulnerable to pile driving-generated vibrations, and could experience some adverse effects near pile installation resulting in minor impacts on finfish

		populations. Underwater noise impacts (from all sources) to finfish and shellfish populations, and EFH, are expected to be negligible to minor. Installation of piles or anchor systems associated with a tower and/or buoys may cause an increase in local suspended sediments. These impacts would be limited to the immediate area surrounding the piles or anchors, and of short duration. Depending on the currents, the suspended sediment is expected to disperse and settle on the surrounding seafloor, potentially coating or burying some benthic organisms. Effects on finfish and shellfish populations, and EFH, from suspended sediments would be negligible because these activities would be localized and of short duration. The installation of a meteorological tower foundation and/or buoy anchor systems and associated scour control systems may result in the direct mortality of benthic invertebrates, the loss of benthic habitat, and the displacement of water column (pelagic) habitat. Sessile marine invertebrates, including molluscan shellfish (including surf clams), would be lost (buried or crushed) in the footprint (200 square ft to two ac [19 square m to 0.8 ha]) of the tower foundations/moorings and scour control systems. Although sea scallops are mobile molluscan shellfish, it is a conservative assumption that they would not be able to avoid sudden deployment of an anchor or foundation/mooring system, and for these analyses are considered to be sessile. The amount of habitat temporarily displaced or lost in the area is small compared to the amount of habitat available in the surrounding area. Overall, impacts from site characterization and site assessment activities to finfish and shellfish populations, and EFH, in the WEA would be minor. However, impacts would range from negligible to minor depending on the activity. A meteorological tower foundation and/or buoy anchor systems installation and decommissioning would produce noise that could disturb normal fish behaviors. Fish are expected to avoid or flee from the noise source. Fish that do not flee the immediate action area during pile driving could be exposed to injurious or lethal noise levels that may result in adverse effects. The short duration (3 to 8 hours per day over 3 days) and the use of mitigation measures required by the SOCs (Appendix B of the EA) would minimize the possible exposure to injurious and lethal noise levels, resulting in minor effects to finfish and shellfish populations, and EFH. The increases in suspended sediments, loss of benthic

		habitat, and displacement or alteration of water column habitat due to meteorological tower installation, operation, and decommissioning, and/or installation and operation of buoy anchor systems are expected to be small compared to the available habitat in the surrounding areas, and would, therefore, result in negligible effects to finfish and shellfish populations, and EFH. The potential increase in vessel collisions and allisions that could result in accidental fuel spills due to a meteorological tower and/or buoys is expected to be minimal. The overall impact on finfish and shellfish populations and EFH from a fuel spill that could result from such an occurrence is expected to be minimal and temporary, and would; therefore, be considered minor. See Section 4.4.2.7 of the EA for more information on potential impacts to finfish, shellfish, and essential fish habitat.
Public Access	Policy 19 (NY) 7:7E-8.11 Public Access (NJ)	Short-term limitations on public access within the WEA may occur during certain activities under the proposed action. Exclusion zones are typically established around large and/or slow work-related vessels (referred to as "source vessels"; e.g., barges and tow vessels) to maintain safe passage of the source vessel and keep it clear of other vessel traffic. Recreational anglers can avoid temporary adverse impacts expected to result from vessel traffic and/or vessel exclusion zones because they tend to use smaller boats that are more maneuverable; therefore, avoidance of survey vessels could be achieved as needed. Impacts would be limited geographically to the vessel exclusion zone, and would be temporary at any given location since the exclusion area would move along with the movement of the vessel. Temporary exclusion zones would also be established around the meteorological tower during construction and decommissioning. During construction/ decommissioning, BOEM anticipates that the typical temporary vessel exclusion zone around a 377 ft- (115 m-) meteorological tower would be approximately 162 ac (66 ha). Impacts on recreational fishing could be greater if the exclusion zone is established over a popular and/or critical sport fishing location, such as one that may coincide with the migration route of a target fishing species. Although recreational fishing and boating access may be limited by temporary exclusion zones, impacts on recreational boating and fishing from temporary vessel exclusion zones are expected to be negligible. In addition, impacts on recreational boating and fishing from temporary construction or decommissioning exclusion zones are expected to be minor.

		See Section 4.4.3.4 of the EA for more information on potential impacts to recreational fishing. Impacts to recreation and tourism resulting from routine and non-routine activities would be minor. Impacts would result primarily from vessel traffic restrictions in exclusion zones, potential for small scale spills, and from vessel traffic associated with installation of a meteorological tower and/or buoys. For more information on recreation and tourism, see the Recreation and Tourism section below.
Water Quality	Policy 30 (NY) Policy 33 (NY) Policy 34 (NY) Policy 36 (NY) Policy 37 (NY) 7:7E-8.4 Water Quality (NJ)	The routine activities associated with the proposed action, which would impact coastal and marine water quality, include mechanical disturbance of the seafloor and discharge of bilge water, ballast water, or sanitary/domestic wastewater, as well as non-routine events such as accidental spills of fuel and maintenance materials, such as lubricants and solid debris. Additional information on water quality and impacts to coastal and marine water quality can be found in Section 4.4.1.2 of the EA. Routine activities that have the potential to adversely affect water quality include discharges from survey vessels and vessels servicing the tower and/or buoys (i.e., bilge water, ballast water, sanitary waste, and debris). Bilge and ballast water discharges may contain small amounts of petroleum-based products and metals, and as such, are prohibited within 13 nm (24 km) of the shore. Any vessels conducting surveys or servicing a tower and/or buoys are likely to be equipped with holding tanks for sanitary waste and would not discharge untreated sanitary waste within state or federal waters. The regulations governing the relevant discharges are discussed in the EA, Section 3.2.1.5, *Operational Waste Associated with Site Characterization*. The instrumentation used for site characterization is self-contained, so there should be no discharges from instruments aboard the survey vessels that would impact water quality. Impacts to water quality would occur during construction and decommissioning, with water quality returning to its original state both during operation of the tower and/or buoys and after decommissioning. The seabed would be disturbed locally during construction of a meteorological tower and/or buoys as a byproduct of anchoring, pile driving, and placement of scour protection devices. The resulting mobilization of sediments would

		produce minor, transient impacts to water quality in the immediate vicinity of the disturbance in the form of increased turbidity. Releases/spills (oils, lubricants, trash, debris, fuel) due to non-routine events are likely to be small and result in minor, transient impacts on water quality over a localized area in the immediate vicinity of the release/spill. Overall, activities associated with proposed action would have a minor impact on water quality, with any changes being small in magnitude, highly localized, and transient. Any operational discharges from vessels during surveying or servicing of buoys and a tower would be small and have a minor adverse effect. Seabed disturbances during construction, deployment, and decommissioning of buoys or a tower would result in minor, localized impacts on water quality in the area immediately adjacent to the structure or disturbance.
Air Quality	Policy 41 (NY) Policy 42 (NY) Policy 43 (NY) 7:7E-8.10 Air Quality (NJ)	Air quality impacts that could result from site characterization activities under the proposed action were evaluated in the G&G Final PEIS and found to be negligible. Section 4.4.1.1 of the EA includes an area-specific evaluation of air quality impacts associated with G&G activities, along with an evaluation of air quality impacts associated with site assessment activities. Increased vessel traffic associated with site characterization surveys would add to current vessel traffic levels associated with the ports used by the vessel operators. The additional vessel activity associated with the proposed action is anticipated to be relatively small when compared with existing and future vessel traffic levels in the area. Impacts from pollutant emissions associated with these vessels would likely be localized within the WEA and in the vicinity of vessel activity. Appendix C of the EA provides further information on the anticipated numbers of project-related vessel trips and associated emission calculations. The onshore areas that are closest to the WEA are classified as nonattainment areas for O_3. Hudson, Queens, Kings, Nassau, and Richmond Counties are classified as maintenance areas for CO (*see* Table 4-1 of the EA). Nonattainment and maintenance areas are subject to the EPA General Conformity Rule (40 CFR 93, Subpart B). The rule establishes emissions thresholds, or *de minimis* levels, for use in evaluating a project's conformity with the applicable State Implementation Plan. If the net air pollutant emissions exceed

		these thresholds, a formal conformity determination may be required. If a submitted site assessment plan (SAP) indicates that project-related activities in the non-attainment and maintenance areas would emit more than the thresholds, then a General Conformity analysis would be performed. The *de minimis* levels for consideration in the project's conformity analysis are: • 100 tons/year (90.7 metric tons/year) of NO_x (O_3 precursor); • 50 tons/year (45.5 metric tons/year) VOCs (O_3 precursor); and • 100 tons/year (90.7 metric tons/year) CO. If the net increases in emissions due to a project are lower than the *de minimis* levels, the project is presumed to conform, and no further conformity evaluation is necessary. Based on the emissions sources and assumptions listed above, estimated annual emissions associated with the proposed action for NO_x, VOCs, and CO were below *de minimis* levels; therefore, no further conformity evaluation is needed. Emissions associated with buoy deployment would be less than those associated with tower installation because buoys would be towed or carried aboard a vessel and then anchored to the seafloor. No drilling equipment would be required to install meteorological buoys. Although unlikely, a spill could occur in the event of vessel collision while in route to and from the WEA, or during surveys. Spills occurring in these areas, including harbor and coastal areas, are not anticipated to have significant impacts on onshore air quality due to the small estimated size and short duration of the spill. A diesel spill in the WEA would not be expected to have impacts on onshore air quality because of the estimated size of the spill, prevailing atmospheric conditions over the WEA, and distance from shore. Although the emissions estimates from site characterization and site assessment activities are measurable, they would not be distinguishable from other air emissions onshore or offshore; therefore, emissions associated with the proposed action would be negligible. As shown in Table 4-1 of the EA, air pollutant concentrations due to emissions from the

		proposed action are not expected to lead to any violation of the National Ambient Air Quality Standards.
Recreation and Tourism	Policy 21 (NY) Policy 22 (NY) 7:7E-7.3 Resort/Recreational Use (NJ)	More information on recreation and tourism can be found in Section 4.4.3.4 of the EA. The coastal areas of New York and New Jersey are characterized by an abundance of coastal recreation and tourism opportunities. Coastal counties that may depend on their coastal setting for tourism and recreation include Monmouth and Kings Counties in New Jersey, and Nassau, Suffolk, and Queens Counties in New York. The following impact-producing factors from both site characterization and assessment have the potential to impact recreation and tourism opportunities: • Vessel traffic during site characterization and site assessment; • Vessel exclusion zones surrounding the meteorological tower and/or buoys during deployment (no exclusion zones once a tower and/or buoys are operational); • Trash and debris from vessels; • Viewshed-related impacts associated with site characterization and site assessment from additional vessels, and nighttime lighting on the vessels that could be seen both from shore and from recreational boaters; • Viewshed-related impacts from the meteorological tower, including nighttime lighting; and • Fuel spills. Information on potential exclusion zones can be found in the Public Access section above. The primary impact-producing factor for recreation and tourism associated with vessels used in support of the proposed action would be the potential for generation of trash and debris. Trash and debris, if accidentally released, could wash up on beaches and into harbors, bays, and coastal marshes, and other recreation and tourism destinations. Presence of trash/debris could adversely affect the aesthetic quality of the setting and alter the perception of affected areas, particularly for those areas valued for beach and near

		shore recreation (e.g., Gateway National Recreation Area, and Jones Beach State Park), or those considered pristine wilderness. However, because of restrictions that prohibit the release of trash and debris provided by existing regulations (MARPOL 73/78 Annex V) impacts to recreation and tourism resulting from trash and debris are expected to be negligible. Potential impacts to recreation and tourism settings resulting from the visual contrast of the meteorological tower and/or buoys and associated nighttime lighting would be minor, as described in Section 4.4.4.6 of the EA. As noted in the G&G Final PEIS, potential impacts to recreation and tourism from a fuel spill would depend on the location of a spill, meteorological conditions at the time of the spill, and the speed with which cleanup occurred. Should a spill occur, access to recreation and tourism destinations could be temporarily limited by cleanup and response vessel activity. However, a spill would likely be relatively small in size (88 gallons [333 liters]) so a large-scale spill response involving multiple cleanup vessels is not expected. Therefore, impacts on recreational resources from a small diesel fuel spill are expected to be minor. Impacts to recreation and tourism resulting from routine and non-routine activities would be minor. Impacts would result primarily from vessel traffic restrictions in exclusion zones, potential for small scale spills, and from vessel traffic associated with installation of a meteorological tower and/or buoys.
Historic, Cultural, and Subaqueous Areas Management	Policy 23 (NY) Policy 26 (NY) 7:7E-3.36 Historic and archaeological resources (NJ) 7:7E-3.6 Submerged vegetation habitat (NJ)	Historic properties are defined as any pre-contact or historic period districts, sites, buildings, structures, or objects included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). Historic properties that could experience impacts from site characterization (i.e., HRG surveys and geotechnical sampling) and/or site assessment activities (i.e., installation of a meteorological tower and/or buoys) include: • Offshore historic properties on or below the seafloor within portions of the WEA or cable routes to shore that could be affected by seafloor disturbing activities; and • Onshore historic properties within the viewshed of survey activities, construction activities, or a meteorological tower and/or buoys.

	7:7E-3.12 Submerged infrastructure (NJ) 7:7E-4.14 Submerged pipelines (NJ) 7:7E-4.20 Submerged cables (NJ) 7:7E-4.21 Artificial reefs (NJ) 7:7E-4.22 Miscellaneous Water Area uses (NJ) 7:7E-8.12 Scenic Resources and Design (NJ)	For more information on cultural, historical, and archaeological resources in the effected environment, see Section 4.4.3.1 of the EA. <u>Offshore Historic Properties</u> Due to historic sea level rise, the WEA has a high potential for the presence of submerged archaeological sites dating from the Paleoindian through Early Archaic periods, but very low to no potential for the presence of submerged archaeological sites more recent than the end of the Early Archaic (*see* Table 4-18 of the EA). There are nine shipwrecks reported for the WEA, two of which have dates for sinking; the remaining seven do not have dates associated with them (*see* Table 4-21 of the EA). One of the nine is simply identified as an unknown vessel and has no further data to suggest construction, rig, or purpose. Additionally, the precision of the hull locations of the nine vessels is medium to low, and the hulls may be up to 3 mi (4.8 km) from the plotted positions. These vessels potentially meet several of the criteria for eligibility on the NRHP. The types of historic properties expected within the onshore affected environment include districts, sites, buildings, structures, or objects within the viewshed of site characterization and site assessment activities. There are 40 known NRHP-listed and potentially eligible properties within the analysis area that are considered in the EA (*see* Figure 4-19 of the EA). Site characterization activities include both HRG survey (e.g., shallow hazard, geological, and archaeological surveys) and geotechnical sampling techniques. Geophysical surveys do not come in contact with the seafloor and, therefore, have no ability to impact offshore historic properties, submerged infrastructure, pipelines, or cables. Geotechnical sampling activities, when conducted to inform the design and installation of renewable energy structures or cables, disturb the seafloor and, therefore, have the potential to impact historic properties located on or below the seafloor. Coring, sediment grab sampling, and other direct sampling techniques (e.g., cone penetrometer tests and deep borings), in addition to anchoring, anchor chain sweep from moored or anchored support vessels, use of jack-up barges, or other equipment used in conducting geotechnical sampling, all have the

		potential for damaging or destroying historic properties, submerged infrastructure, pipelines, or cables located on or under the seafloor. These potential impacts can be reduced to negligible through the completion of geophysical surveys in the WEA consistent with BOEM's *Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR Part 585*. Geophysical surveys, in part, serve to identify offshore historic properties. If geophysical surveys are completed by a lessee prior to conducting geotechnical/sediment sampling, historic properties (and other obstructions) can be identified and bottom disturbing activities can be located in areas where historic properties are not present. Therefore, BOEM would require a lessee to conduct geophysical surveys consistent with the *Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR Part 585* prior to conducting geotechnical sampling, and if a potential offshore historic property is identified, the lessee would be required to avoid it. The following elements, designed to avoid impacts to offshore historic properties from site characterization activities, would be included in a commercial lease issued for the WEA: • The lessee may only conduct geotechnical exploration activities, including geotechnical sampling or other direct sampling or investigation techniques, which are performed in support of plan (i.e., SAP and/or COP) submittal, in areas in which an archaeological analysis of the results of geophysical surveys has been completed for that area; • The analysis must be completed by a qualified marine archaeologist who both meets the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738–44739) and has experience analyzing marine geophysical data; • The qualified marine archaeologist's analysis of the geophysical data must include a determination of whether any potential archaeological resources are present in the area of geotechnical sampling, including consideration of both pre-contact and historic period archaeological resources; • If present in the area, the lessee's geotechnical sampling activities must avoid any potential archaeological resources by a minimum of 164 ft (50 m). The avoidance

		distance must be calculated by the qualified marine archaeologist from the maximum discernible extent of the archaeological resource;
		• The qualified marine archaeologist must certify in the lessee's archaeological reports, included with a SAP or COP, that geotechnical exploration activities did not affect potential historic properties identified as a result of the HRG surveys; and
		• In no case may the lessee's actions affect a potential archaeological resource without BOEM's prior approval.
		
		In addition, BOEM would require that the lessee observe the unanticipated finds requirements at 30 CFR 585.802. The following requirements would also be included in a commercial lease issued within the WEA:
		
		• If the lessee, while conducting site characterization activities in support of plan (i.e., SAP and/or COP) submittal, discovers a potential archaeological resource such as the presence of a shipwreck or pre-contact archaeological site within the project area, the lessee must:
		  o Immediate halt of seafloor-disturbing activities in the area of discovery;
		  o Notify the lessor within 24 hours of discovery;
		  o Notify the lessor in writing by report within 72 hours of its discovery;
		  o Keep the location of the discovery confidential and take no action that may adversely affect the archaeological resource until the lessor has made an evaluation and instructs the applicant on how to proceed; and
		  o Conduct any additional investigations as directed by the lessor to determine if the resource is eligible for listing in the NRHP (30 CFR 585.802(b)). The lessor will direct the lessee to conduct such investigations if: (1) the site has been affected by the lessee's project activities; or (2) impacts on the site or on the area of potential effect cannot be avoided. If investigations indicate that the resource is potentially eligible for listing in the NRHP, the lessor will tell the lessee how to protect the resource or how to mitigate adverse effects on the site. If the lessor incurs costs in protecting the resource, under Section 110(g) of the National Historic Preservation Act (NHPA), the lessor may charge the lessee

		reasonable costs for carrying out preservation responsibilities under the OCS Lands Act (30 CFR 585.802(c-d)). Because a lessee would be required to conduct geophysical surveys prior to conducting geotechnical sampling, and would be required to follow the lease stipulations regarding avoidance and unanticipated discovery protocols for submerged historic properties, impacts from site characterization on offshore historic properties, submerged infrastructure, pipelines, and cables are expected to be negligible. In some cases, geotechnical testing methods may also provide a useful strategy of confirming the presence or absence of features of archaeological interest and for gathering information that informs the archaeological interpretation of HRG data. If a lessee intends to impact a potential offshore historic property for the purpose of historic property identification or National Register testing and evaluation, the lessee would be required to provide written notification describing these activities to BOEM for approval under the elements of lease issuance outlined above. BOEM would review this information under Section 106 of the NHPA and the stipulations of the Programmatic Agreement, discussed below. Impacts to submerged historic properties from vibracores or other direct samples collected, by or under the supervision of a Qualified Marine Archaeologist, for the purposes—at least in part—of historic property identification or National Register eligibility testing and evaluation, are expected to be negligible. Although installation of a meteorological tower and/or buoys would affect the seafloor, the lessee's SAP must be approved by BOEM prior to installation. To assist BOEM in complying with the NHPA and other relevant laws (30 CFR 585.611(a) and 30 CFR 585.611(b)(6)), the SAP must contain a description of the historic properties that could be affected by the activities proposed in the plan. Under its Programmatic Agreement, BOEM will consult with the New York and New Jersey State Historic Preservation Officers and other appropriate parties prior to approval of a SAP to ensure potential effects on historic properties are avoided, minimized, or mitigated under Section 106 of the NHPA. The seafloor impacts associated with installation of a meteorological tower and/or buoys include: disturbance resulting from foundation installation; dropping and dragging anchors from construction vessels; and mooring chain sweeping.

		Impacts on archaeological resources in these activity areas could result in destruction of all or part of the historic properties, or loss of their archaeological context. Should the archaeological surveys reveal the possible presence of an archaeological site in an area that may be affected by activities proposed in a SAP, BOEM would likely require the lessee to avoid the potential site or to demonstrate through additional investigations that an archaeological resource either does not exist, or would not be adversely affected by the seafloor/bottom-disturbing activities. If avoidance of the historic property is not possible, BOEM would continue Section 106 consultation under the Programmatic Agreement to resolve adverse effects. Although site assessment activities have the potential to affect historic properties either on or below the seabed, existing regulatory measures, coupled with the information generated for a lessee's initial site characterization activities and presented in the lessee's SAP, make the potential for bottom-disturbing activities to damage historic properties low. Therefore, impacts on offshore historic properties from site assessment activities are expected to be negligible. In addition, installation of a meteorological tower and/or buoys would affect the seafloor and could impact submerged infrastructure, pipelines, cables, and artificial reefs. Should survey results reveal the presence of submerged infrastructure, pipelines, cables, or artificial reefs, BOEM would likely require the lessee to avoid impacting the existing submerged infrastructure. Therefore, impacts on submerged infrastructure, pipelines, cables, and artificial reefs from site assessment activities are expected to be negligible. <u>Onshore Historic Properties</u> Vessel traffic from site characterization activities could be visible from onshore historic properties and scenic resources. As noted in Section 4.4.3.2 of the EA, BOEM anticipates that there would be one to three vessels at any given time in the WEA and between the shore and the WEA associated with the proposed action. Survey vessels in the WEA would appear small in scale or would fall below the horizon, thereby reducing the likelihood that vessels are seen from onshore locations. Similarly, lighting associated with survey vessels operating under night conditions would appear small in scale and isolated, consistent with existing nautical lighting visible on the horizon. However, the increased ocean vessel traffic from these survey activities would be indistinguishable from existing ocean vessel traffic, and these impacts would be temporary and minimal. Based on the distance of survey activities from any onshore historic properties, the impacts to the

		characteristics of these properties that contributed to their eligibility for listing in the NRHP are expected to be negligible. Additionally the distance of survey activities from scenic resources would make any impacts to these resources negligible. Because of the distance of the WEA from shore, it is anticipated that meteorological buoys would not be visible from onshore areas and would have no impact on onshore historic properties or scenic resources. Under daytime conditions, if a lessee installed a meteorological tower at the closest point of the WEA that is available for structure placement to the shoreline (at the western tip of the 1 nm [1.9 km] buffer), approximately 13.5 nm (25 km) from the shoreline, the tower may be visible, although it would be difficult to detect by the casual observer when viewed from onshore historic properties or scenic resources. Assuming no daytime avoidance lighting on the meteorological tower (*see* discussion of avoidance lighting per FAA [2015] in Section 4.4.4.6 of the EA), if the tower was detected by an observer on the shore, it would appear small in scale relative to the broad horizon of the seascape, and visual contrast would be weak. During nighttime conditions, avoidance lighting on the tower could be visible from onshore historic properties and scenic resources; however, lighting would be discrete and isolated and appear consistent with existing nautical lighting on the horizon. Lighting would appear similar to lights visible from existing vessel traffic. Visibility of the meteorological tower, and related viewshed impacts, would attenuate with distance due to the influence of atmospheric haze and the reduction in scale of the tower relative to the surrounding seascape. No portion of the structure or lighting would be visible if the tower was placed beyond 23.5 nm (44 km), because the entire tower would fall below the horizon when viewed from the shore. Consequently, visual impacts to onshore historic properties and scenic resources resulting from the proposed action would be minor**.** <u>Conclusion</u> Overall, impacts to cultural, historical, archaeological, and scenic resources would be minor.

		Impacts to submerged historic properties, infrastructure, pipelines, cables, and artificial reefs from site characterization activities are expected to be negligible given the geophysical surveying requirements and lease conditions discussed above. Impacts to submerged historic properties, infrastructure, pipelines, cables, and artificial reefs, from installation of a meteorological tower and/or buoys are expected to be negligible as avoidance would likely be required by BOEM. If avoidance of potential historic properties is not feasible, BOEM will continue its Section 106 consultation to resolve adverse effects. Vessel traffic associated with survey activities would be indistinguishable from existing vessel traffic and short-term. Therefore, impacts to onshore historic properties and scenic resources from site characterization activities are expected to be negligible. A meteorological tower is not expected to be detected by the casual observer when viewed from onshore historic properties under daytime conditions. Nighttime lighting would be discrete and isolated and appear consistent with existing nautical lighting on the horizon and is not expected to adversely impact the character of onshore historic properties or scenic resources. Therefore, overall impacts on onshore historic properties and scenic resources from installation of a meteorological tower are expected to be minor. For more information on visual resources, see Section 4.4.3.6 of the EA. For more information on BOEM's compliance with the NHPA, see Section 5.3.4 of the EA.