

APPENDIX E

Planned Activities Scenario and Reasonably Foreseeable Future Activities and Projects

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Planned Activities Scenario

The impacts resulting from the planned activities scenario are the incremental effects of the Proposed Action on the environment added to other reasonably foreseeable planned actions in the area (40 Code of Federal Regulations [CFR] 1502.15). This appendix discusses resource-specific planned activities that could occur if Project impacts occur in the same location and time frame as impacts from other reasonably foreseeable planned actions. The *Project* here is the construction, operations and maintenance (O&M), and decommissioning of a wind energy project located within the Bureau of Ocean Energy Management's (BOEM's) Renewable Energy Lease Area OCS-A 0486, approximately 15 nautical miles (18 statute miles) southeast of Point Judith, Rhode Island and approximately 13 nautical miles (15 statute miles) east of Block Island, Rhode Island.

BOEM anticipates that impacts could occur between the start of Project construction in 2023 and the completion of Project decommissioning, which would occur within 2 years of the end of the lease (up to 35 years postconstruction). The geographic analysis area (GAA) is defined by the impact-producing factor (IPF) with the maximum geographic area of impact, for example sound during pile driving. For the mobile resources, bats, birds, finfish and invertebrates, marine mammals, and sea turtles, the species potentially impacted are those that occur within the area of impact of the Proposed Action. The GAA for these mobile resources is the general range of the species. The purpose of these analysis areas is to capture the impacts from planned activities to each of those resources potentially impacted by the Proposed Action. The GAA for each resource area is defined in the resource area sections of the environmental impact statement (EIS).

In this appendix, distances in miles are in statute miles (miles used in the traditional sense) or nautical miles (miles used specifically for marine navigation). This appendix uses statute miles more commonly and refers to them simply as *miles*, whereas nautical miles are referred to by name or abbreviation *nm*.

Reasonably Foreseeable Future Activities and Projects

This section includes a list and description of other reasonably foreseeable activities that could contribute to cumulative impacts within the defined GAA for each resource category. Projects or actions that are considered speculative per the definition provided in 43 CFR 46.30¹ are noted in subsequent tables but excluded from the planned activities impact analysis in Chapter 3.

Planned (cumulative) activities described in this section consist of 10 types of actions: 1) other offshore wind energy development activities; 2) undersea transmission lines, gas pipelines, and other submarine cables (e.g., telecommunications); 3) tidal energy projects; 4) marine minerals use and ocean-dredged material disposal; 5) military use; 6) marine transportation; 7) fisheries use and management; 8) global climate change; 9) oil and gas activities; and 10) onshore development activities.

¹ 43 CFR 46.30 – Reasonably foreseeable future actions include those federal and non-federal activities not yet undertaken, but sufficiently likely to occur, that a responsible official of ordinary prudence would take such activities into account in reaching a decision. The federal and non-federal activities that BOEM must take into account in the analysis of cumulative impacts include, but are not limited to, activities for which there are existing decisions, funding, or proposals identified by BOEM. Reasonably foreseeable future actions do not include those actions that are highly speculative or indefinite.

BOEM analyzed the possible extent of future other offshore wind energy development activities on the Atlantic Outer Continental Shelf (OCS) to determine reasonably foreseeable cumulative effects measured by installed power capacity. Table E-1 represents the status of projects as of March 17, 2023. The methodology for developing the scenario is largely the same as for the Vineyard Wind project (BOEM 2021a) and is outlined in the footnotes in Table E3-1.

Monitoring and Mitigation

Future offshore wind projects could require monitoring or mitigation as part of BOEM approvals under the National Environmental Policy Act (NEPA) and OCSLA. Although specific measures are too speculative to include at this time, BOEM anticipates that measures could include actions such as passive acoustic monitoring, trawl surveys, acoustic telemetry, and gillnet or ventless trap surveys.

Table E-1. Offshore Wind Activities on the U.S. Atlantic Coast (dates shown as of March 17, 2023)

Lease Number	States	Lessee/Developer Name	Project Name	Construction Date	Operations Date	Facility Description	BOEM Permitting Stage*	Power Purchase Agreement/ Offshore Renewable Energy Certificate Status
Active Projects (state)								
N/A (state project)	Maine	New England Aqua Ventus, LLC	NE Aquaventus	2024	2024	11 MW (1 WTG)	N/A	PPA with ME
N/A (state project)	Rhode Island	Deepwater Wind, LLC (now Orsted)	Block Island Wind Farm	2015	2016	30 MW (5 WTGs)	N/A	PPA with RI
Active Projects (federal)								
OCS-A 0483	Virginia	Virginia Electric and Power Company (dba Dominion Virginia Power)	Coastal Virginia Offshore Wind	2023	2023	2,500 to 3,000 MW (205 WTGs); one met buoy	SAP approved; New SAP submitted and approved; COP submitted	No PPAs signed to date
OCS-A 0486	Rhode Island and Connecticut	Revolution Wind, LLC	Revolution Wind (Proposed Action)	2024	2024	Up to 880 MW (100 WTGs; two OSSs)	COP submitted; SAP approved	2 PPAs with CT and one PPA with RI
OCS-A 0487	New York	Sunrise Wind LLC	Sunrise Wind	2024	2024	Up to 934 MW (94WTGs)	COP submitted	OREC awarded by NYSERDA (PPA with NY)
OCS-A 0490 (portion)	Maryland	U.S. Wind Inc.	U.S. Wind	2024	2024	Up to 2,000 MW (121 WTGs)	COP submitted; SAP approved	OREC awarded by State of Maryland
OCS-A 0497	Virginia	Virginia Department of Mines, Minerals and Energy (Coastal Virginia Offshore Wind	2021	2021	12 MW (two WTGs-6 MW each); one wave/current buoy	Operating	N/A (research)
OCS-A 0498 (portion)	New Jersey	Ocean Wind, LLC	Ocean Wind 1	2024	2025	1,100 MW (98 WTGs)	COP submitted SAP approved	OREC awarded by NJ
OCS-A 0499	New Jersey	Atlantic Shores Offshore Wind, LLC	Atlantic Shores	2025	2025	Up to 1,510 MW (105 to 136 WTGs)	SAP approved; COP submitted	OREC signed with NJ for 1,510 MW.
OCS-A 0500 (portion)	Massachusetts	Bay State Wind LLC	Bay State Wind	2026	2027	800 MW; two FLIDAR buoys; one met buoy	COP in progress SAP approved	No PPA signed to date
OCS-A 0501 (north)	Massachusetts	Vineyard Wind LLC	Vineyard Wind 1	2023	2023	800 MW (62 WTGs); two met buoys	ROD issued	PPA with MA
OCS-A 0534 and portion of OCS-A 0501	Massachusetts	New England Wind, LLC	Park City Wind (Phase 1) Commonwealth Wind (Phase 2)	2024	2026	Up to a combined 2,284 MW (130 WTGs or ESP positions) for both phases	COP in progress	PPA with CT (Phase 1) No PPA signed to date (Phase 2)
OCS-A 0508	North Carolina, Virginia	Kitty Hawk Wind, LLC	Kitty Hawk North Wind	2027	2027	Up to 1,242 MW (69 WTGs; up to two buoys; and up to two platforms	COP submitted; SAP approved	No PPA signed to date

Lease Number	States	Lessee/Developer Name	Project Name	Construction Date	Operations Date	Facility Description	BOEM Permitting Stage*	Power Purchase Agreement/ Offshore Renewable Energy Certificate Status
OCS-A 0508 (remainder)	Virginia/North Carolina	Kitty Hawk Wind, LLC	Kitty Hawk Wind, South	2027	2028	Up to 2,178 MW (121 WTGs)	SAP approved; COP in progress	No PPAs signed to date
OCS-A 0512)	New York	Empire Offshore Wind LLC	Empire Wind 1, Empire Wind 2	2024	2027	Up to 2,176 MW (147 WTGs); two met buoys; one wave/met buoy; one subsea current meter mooring	COP submitted; SAP approved	PPA with NY
OCS-A 0517	New York	South Fork Wind, LLC	South Fork Wind Farm	2023	2023	130 MW (up to 12 WTGs); one met buoy	ROD issued COP approved	PPA with NY
OCS-A 0519 (portion)	Delaware, Maryland	Skipjack Offshore Energy, LLC	Skipjack	2024	2024	192 MW (up to 16 WTGs); one met buoy	COP in progress	OREC awarded by State of Maryland (connection to PJM grid in DE)
OCS-A 0521	Massachusetts	Mayflower Wind Energy, LLC	South Coast Wind	2024	2024	Up to 1,600–2,400 MW (147 WTGs); one met buoy	SAP approved; COP submitted	PPA with MA (up to 804 MW) Applying for other PPAs
OCS-A 0520	Massachusetts	Beacon Wind, LLC	Beacon Wind (Phase 1) Beacon Wind (Phase 2)	2024–2027	2026–2029	Up to 2,330 MW (188 WTGs)	SAP submitted; COP in progress	No PPA signed to date
Future Projects (federal)								
OCS-A 0482	Delaware	GSOE I LLC (Orsted and PSEG)	Garden State Offshore Energy	By 2030, spread over 2023–2030			SAP approved	PPA with DE and NJ
OCS-A 0487 (remainder)	Rhode Island	Sunrise Wind, LLC	TBD	By 2030, spread over 2025–2030			SAP approved	No PPAs signed to date
OCS-A 0500 (remainder)	Massachusetts	Bay State Wind LLC	TBD	By 2030, spread over 2025–2030			SAP approved	No PPAs signed to date
OCS-A 0519 (remainder)	Maryland/Delaware	Skipjack Offshore Energy, LLC	To be determined (TBD)	By 2030, spread over 2023–2030			SAP approved	No PPAs signed to date
OCS-A 0522	Massachusetts	Vineyard Wind LLC	Liberty Wind	By 2030, spread over 2025–2030			SAP submitted	No PPAs signed to date
OCS-A 0532 (portion)	New Jersey	(Orsted North America)	Ocean Wind 2	By 2030, spread over 2026–2030			SAP approved	OREC awarded by NJ for 1,148 MW

Lease Number	States	Lessee/Developer Name	Project Name	Construction Date	Operations Date	Facility Description	BOEM Permitting Stage*	Power Purchase Agreement/ Offshore Renewable Energy Certificate Status
OCS-A 0537	New York/New Jersey	Bluepoint Wind, LLC	Central Bight	By 2030, spread over 2026–2030			Lease issuance	No PPAs signed to date
OCS-A 0538	New York/New Jersey	Attentive Energy LLC	Hudson South B				Lease issuance	No PPAs signed to date
OCS-A 0539	New York/New Jersey	Community Offshore Wind, LLC	Hudson South C				Lease issuance	No PPAs signed to date
OCS-A 0541	New York/New Jersey	Atlantic Shores Offshore Wind Bight, LLC	Hudson South E				Lease issuance	No PPAs signed to date
OCS-A 0542	New York/New Jersey	Invenergy Wind Offshore LLC	Hudson South F				Lease issuance	No PPAs signed to date
OCS-A 0544	New York/New Jersey	Vineyard Mid-Atlantic LLC	Hudson North				Lease issuance	No PPAs signed to date
OCS-A 0545	North Carolina/South Carolina	TotalEnergies Renewables	TotalEnergies Renewables Wind				Lease issuance	No PPAs signed to date
OCS-A 0546	North Carolina/South Carolina	Duke Energy Renewables	Duke Energy Renewables Wind				Lease issuance	No PPAs signed to date
OCS-A 0549	New York/New Jersey	Atlantic Shores Offshore Wind, LLC	Atlantic Shores North				Lease issuance	No PPAs signed to date

Notes: – = no data; COP = construction and operations plan; CT = Connecticut; DE = Delaware; MA = Massachusetts; MD = Maryland; ME = Maine; MW = megawatts; NA = not applicable; NJ = New Jersey; NY = New York; NYSERDA = New York State Energy Research and Development Authority; OREC = offshore renewable energy certificate; PPA = power purchase agreement; RI = Rhode Island; ROD = record of decision; SAP = site assessment plan; TBD = to be determined; WTGs = wind turbine generators.

* Under BOEM Permitting Stage, COP status is assumed to be in process, under review, or not yet commenced based on publicly available information.

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Offshore Wind Energy Development Activities

Site Characterization Studies

A lessee is required to provide the results of site characterization activities with its site assessment plan (SAP) or COP. For the purposes of the planned activities effects analysis, BOEM makes the following assumptions for survey and sampling activities (BOEM 2016):

- Site characterization would occur on all existing leases.
- Site characterization would likely take place in the first 3 years following execution of a lease, since a lessee would likely want to generate data for its COP at the earliest possible opportunity.
- Lessees would likely survey most or all of the proposed lease area during the 5-year site assessment term to collect required geophysical information for siting of a meteorological tower and/or two buoys and commercial facilities (wind turbines). The surveys may be completed in phases, with the meteorological tower and/or buoy areas likely to be surveyed first.
- Lessee would not use air guns, which are typically used for deep penetration two-dimensional or three-dimensional exploratory seismic surveys to determine the location, extent, and properties of oil and gas resources.

Table E-2 summarizes the typical site characterization surveys, the types of equipment and/or method used, and which resources the survey information would inform (BOEM 2013, 2016).

Table E-2. Typical Site Characterization Survey Information

Survey Type	Survey Equipment and/or Method	Resource Surveyed or Information Used to Inform
High-resolution geophysical surveys	Side-scan sonar, sub-bottom profiler, magnetometer, multi-beam echosounder	Shallow hazards, archaeological, Bathymetric charting, benthic habitat
Geotechnical/ sub-bottom sampling	Vibracores, deep borings, cone penetration tests	Geological
Biological	Grab sampling, benthic sled, underwater imagery/ sediment profile imaging	Benthic habitat
	Aerial digital imaging; visual observation from boat or airplane	Bird
	Ultrasonic detectors installed on survey vessels used for other surveys	Bat
	Visual observation from boat or airplane	Marine fauna (marine mammals and sea turtles)
	Direct sampling of fish and invertebrates	Fish

Source: BOEM (2016).

Site Assessment Activities

After SAP approval, a lessee can evaluate the meteorological conditions, such as wind resources, with the approved installation of meteorological towers and/or buoys. Site assessment activities have been approved or are in the process of being approved for multiple lease areas consisting of one to three meteorological buoys per SAP (see Table E-1). Site assessment would likely take place starting within 1 to 2 years of lease execution, because preparation of a SAP (and subsequent BOEM review) takes time. This planned activities analysis considers these site assessment activities.

Construction and Operation of Offshore Wind Facilities

Table E-1 lists all offshore wind leasing activities that BOEM considers reasonably foreseeable by lease areas and projects, their permitting stage/assessment, and anticipated timeline.

Commercial Fisheries Cumulative Fishery Effects Analysis

Table E-3 summarizes 1) the incremental number of construction locations that are projected to be active in each region during each year between 2021 and 2030; 2) the number of operational turbines in each region at the beginning of each year between 2021 and 2030; and 3) the total number of active construction locations and operational turbines across the Atlantic OCS by year.

Table E-3. Offshore Wind Project Construction Schedule (dates shown as of March 27, 2023)

Project/Region	Number of Foundations										
	Before 2021	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030 and Beyond
Aquaventis (state waters)	-	-	-	-	2	-	-	-	-	-	-
Block Island (state waters)	5	-	-	-	-	-	-	-	-	-	-
Massachusetts/Rhode Island Region											
Vineyard Wind 1 part of OCS-A 0501	-	-	-	63	-	-	-	-	-	-	-
South Fork, OCS-A 0517	-	-	-	13	-	-	-	-	-	-	-
Sunrise, OCS-A 0487	-	-	-	-	95	-	-	-	-	-	-
New England Wind, OCS-A 0534 and portion of OCS-A 0501 (Phase 1 [i.e., Park City Wind])	-	-	-	-	64	-	-	-	-	-	-
New England Wind, OCS-A 0534 and portion of OCS-A 0501 (Phase 2 [i.e., Commonwealth Wind])	-	-	-	-	-	66	-	-	-	-	-
South Coast Wind, OCS-A 0521	-	-	-	-	149	-	-	-	-	-	-
Beacon Wind, part of OCS-A 0520 (Phase 1)	-	-	-	-	95		-	-	-	-	
Beacon Wind, part of OCS-A 0520 (Phase 2)	-	-	-	-	-	-	95			-	
Bay State Wind, part of OCS-A 0500	-	-	-	-	-	75					
Vineyard Northeast Wind (OCS-A 0522)	-	-	-	-	-						
OCS-A 0500 remainder	-	-	-	-	-						
OCS-A 0487 remainder	-	-	-	-	-						
Estimated annual Massachusetts/Rhode Island construction	0	0	0	76	403	441	0	95	0	0	0
Estimated O&M total	0	0	0	0	76	479	920	1,015	1,015	1,015	1,015

Project/Region	Number of Foundations										
	Before 2021	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030 and Beyond
New York/New Jersey Region											
Ocean Wind 1, OCS-A 0498	-	-	-	-	101		-	-	-	-	-
Atlantic Shores South, OCS-A 0499	-	-	-	-	-	-	-	-	-	-	-
Ocean Wind 2, part of OCS-A 0532	-	-	-	-	-	-	111				
Empire Wind 1, part of OCS-A 0512	-	-	-	57			-	-	-	-	
Empire Wind 2, part of OCS-A 0512	-	-	-	-	90			-	-	-	
OW Ocean Winds East LLC, OCS-A 0537	-	-	-	-	-	-	82				
Attentive Energy LLC, OCS-A 0538	-	-	-	-	-	-	102				
Bight Wind Holdings, LLC, OCS-A 0539	-	-	-	-	-	-	148				
Atlantic Shores Offshore Wind Bight, OCS-A 0541	-	-	-	-	-	-	95				
Invenergy Wind Offshore LLC, OCS-A 0542	-	-	-	-	-	-	99				
Vineyard Mid-Atlantic LLC, OCS-A 0544	-	-	-	-	-	-	104				
Atlantic Shores North, OCS-A 0549	-	-	-	-	-	-	165	-	-	-	-
Estimated annual New York/New Jersey construction	0	0	0	57	191	141	906	0	0	0	0
Estimated O&M total	0	0	0	0	57	248	389	1,295	1,295	1,295	1,295
Delaware/Maryland Region											
Skipjack, OCS-A 0519	-	-	-	-	17	-	-	-	-	-	-
US Wind, OCS-A 0490	-	-	-	-	125	-	-	-	-	-	-
GSOE I, OCS-A 0482	-	-	-	96							
OCS-A 0519 remainder	-	-	-								
Estimated annual Delaware/Maryland construction	0	0	0	96	142	0	0	0	0	0	0

Project/Region	Number of Foundations										
	Before 2021	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030 and Beyond
Estimated O&M total	0	0	0	0	96	238	238	238	238	238	238
Virginia/North Carolina Region											
CVOW, OCS-A 0497	2	-	-	-	-	-	-	-	-	-	-
CVOW-C, OCS-A 0483	-	-	-	208	-	-	-	-	-	-	-
Kitty Hawk, OCS-A 0508	-	-	-	-	-	-	-	70	-	-	-
Kitty Hawk Wind South, OCS-A 0508 remainder	-	-	-	-	-	-	-	123		-	-
TotalEnergies Renewables Wind, LLC OCS-A 0545	-	-	-	-	-	-	-	-	-	65	
Duke Energy Renewables Wind, LLC OCS-A 0546	-	-	-	-	-	-	-	-	-	65	
Estimated annual Virginia/North Carolina construction:	2	0	0	208	0	0	0	193	0	130	0
Estimated O&M total	2	2	2	2	210	210	210	210	403	533	533
Total											
Estimated annual total construction	7	0	0	815	722	565	1,050	0	0	0	0
Estimated O&M total	7	7	7	7	822	1,544	2,109	3,159	3,159	3,159	3,159

Note: CVOW = Coastal Virginia Offshore Wind.

Incorporation by Reference of Cumulative Impacts Study

BOEM has completed a study of IPFs on the North Atlantic OCS to consider in an offshore wind development cumulative impacts scenario (BOEM 2019), which is incorporated by reference. The study identifies cause-and-effect relationships between renewable energy projects and resources and classifies those relationships into a manageable number of IPFs through which renewable energy projects could affect resources. It also identifies the types of actions and activities to be considered in a cumulative impacts scenario. The study identifies actions and activities that may affect the same physical, biological, economic, or cultural resources as renewable energy projects and states that such actions and activities may have the same IPFs as offshore wind projects.

The BOEM (2019) study identifies the relationships between IPFs associated with specific past, present, and reasonably foreseeable actions and activities in the North Atlantic OCS, which were incorporated into this EIS analysis. If an IPF was not associated with the RWF Project, it was not included in the impacts analysis of planned activities.

As discussed in the BOEM (2019) study, reasonably foreseeable activities other than offshore wind projects may also affect the same resources as the Project or other offshore wind projects, possibly via the same IPFs or via IPFs through which offshore wind projects do not contribute. This appendix lists reasonably foreseeable non-offshore wind activities that may contribute to the cumulative impacts of the proposed Project.

Undersea Transmission Lines, Gas Pipelines, and Other Submarine Cables

The following existing undersea transmission lines, gas pipelines, and other submarine cables are located near the Project:

- New Shoreham (Block Island), Rhode Island, is served by a submarine power cable from the Block Island Wind Farm to New Shoreham (Block Island).
- A submarine power cable connects Block Island to the mainland electrical grid at Narragansett, Rhode Island.
- Service to Martha's Vineyard is provided by four electric cables from Falmouth, located in three corridors through Vineyard Sound. Two cables are located in the same corridor between Elm Road in Falmouth and West Chop: one is located between Shore Street in Falmouth and Eastville (East Chop), and one connects between Mill Road in Falmouth and West Chop.
- Two cables service Nantucket through Nantucket Sound, from Dennis Port and Hyannis Port to landfall at Jetties Beach.
- Additional submarine cables, including fiber-optic cables and trans-Atlantic cables that originate near Charlestown, Rhode Island; New York City; Long Island, near Trenton, New Jersey; and Wall, New Jersey, are located offshore New England and mid-Atlantic states, but outside the proposed Lease Area.

- Two natural gas pipelines are located offshore Boston, Massachusetts, in Massachusetts Bay and lead to liquefied natural gas (LNG) export facilities: the Neptune pipeline and the Northeast Gateway LNG pipeline.

The offshore wind projects listed in Table E-1 that have a COP under review are presumed to include at least one identified cable route. Cable routes have not yet been announced for the remainder of the proposed wind energy projects in Table E-1.

Tidal Energy Projects

The following tidal energy projects have been proposed or studied on the U.S East Coast and are in operation or considered reasonably foreseeable:

- The Bourne Tidal Test Site, located in the Cape Cod Canal near Bourne, Massachusetts, is a testing platform for tidal turbines that was installed in late 2017 by the Marine Renewable Energy Collaborative. The Bourne Tidal Test Site offers a test platform for tidal turbines (MRECo 2017, 2018).
- Cobscook Bay Tidal Project, located in Maine, is a Federal Energy Regulatory Commission-(FERC) licensed tidal project that began operations in 2012. The project owner, Ocean Power Energy Company, has informed FERC that it will not apply for relicensing, and removal and site restoration activities are anticipated to be conducted prior to its current license expiration date in January 2022 (FERC 2012a).
- Western Passage Tidal Energy Project, a proposed tidal energy site in the Western Passage, received a preliminary permit from FERC in 2016. The preliminary permit allows developers to study a project but does not authorize construction.
- The Roosevelt Island Tidal Energy (RITE) Project located in the East Channel of the East River, a tidal strait connecting the Long Island Sound with the Atlantic Ocean in the New York Harbor. In 2005, Verdant Power petitioned FERC for permission to the first U.S. commercial license for tidal power. In 2012, FERC issued a 10-year license to install up to 1 MW of power (30 turbines/10 TriFrames) at the RITE project (FERC 2012b; Verdant Power 2018).

Dredging and Port Improvement Projects

The following dredging projects have been proposed or studied between New York, New York, and Boston, Massachusetts, and are either in operation or are considered reasonably foreseeable:

- The U.S. Army Corps of Engineers (USACE) New England District partnership with Rhode Island Coastal Resources Management Council (RI CRMC) proposes a project that would dredge approximately 23,700 cubic yards of sandy material from the Point Judith Harbor Federal Navigation Project to widen the existing 15-foot-deep mean lower low water (MLLW) West Bulkhead channel by 50 feet and extend the same channel approximately 1,200 feet into the North Basin area (USACE 2018a).
- The Plymouth Harbor Federal Navigation Project in Plymouth, Massachusetts, includes maintenance dredging of approximately 385,000 cubic yards of sand and silt from approximately

75 acres of the authorized project area in order to restore the project to authorized and maintained dimensions (USACE 2018b).

- The Port of New Bedford was awarded a \$15.4 million U.S. Department of Transportation Better Utilizing Investments to Leverage Development grant to improve the port's infrastructure and to help with the removal of contaminated materials. The funding will be used to extend the port's bulkhead, creating room for 60 additional commercial vessels, and additional sites for offshore wind staging (Phillips 2018).
- The Port of New Bedford is currently developing the Foss Marine Terminal, which will provide an additional full-service base of operations and terminal logistics facility to support offshore wind projects off Massachusetts and the northeastern seaboard (New Bedford Port Authority 2022). The New Bedford Foss Marine Terminal will provide storage and laydown yards for equipment and materials, berth facilities for tug and barge operations, and will host crew transfer vessel and service operation vessel support services. The redevelopment will also create new office space for project teams and a marine coordination center for technicians involved in offshore wind projects. Construction of the terminal facility is anticipated to be completed in the spring 2023.
- Proposed New Haven Harbor Improvements would include deepening the main ship channel, maneuvering area, and turning basin to -40 feet MLLW and widening the main channel and turning basin to allow larger vessels to efficiently access the Port of New Haven's terminals. The proposed improvements would remove approximately 4.28 million cubic yards of predominately glacially deposited silts from the federal channel (USACE 2018c).
- The Nature Conservancy seeks a permit to place an artificial reef array in Narragansett Bay at 130 Shore Road in Narragansett Bay in East Providence, Rhode Island. The proposed work involves the construction of a 0.14-acre artificial reef using 91 pre-fabricated reef modules. The artificial reef array would consist of 58 Pallet Balls (4.0 × 2.9 feet) and 33 Bay Balls (3 × 2 feet). The reef modules would be transported to the project site by barge and lowered to the seafloor by crane (USACE 2019).
- The RI CRMC has awarded funding for five habitat restoration projects in the 19th year of its Rhode Island Coastal and Estuarine Habitat Restoration Trust Fund (RI CRMC 2022). These projects comprise a dam removal assessment, streambank stabilization on the Woonasquatucket River, salt marsh restoration, habitat restoration and invasive species management, and fish passage improvement on the Saugatucket River (RI CRMC 2018a).
- The Town of Dennis seeks a permit for the selective dredging of multiple navigation and mooring basins within multiple waterways in the towns of Dennis and Yarmouth. Suitable dredged material will be used as nourishment on multiple town-owned beaches in Dennis whereas material that is not deemed suitable for beach nourishment will be disposed of at the Cape Cod Bay Disposal Site and at the South Dennis Landfill. The town is requesting to dredge approximately 434,310 cubic yards from portions of these waterways over 10 years encompassing an area of approximately 96.03 acres (USACE 2018d).

The following port improvement projects have been proposed in Connecticut, Rhode Island, Massachusetts, and/or New Jersey, and are either in operation or are considered reasonably foreseeable:

- The Connecticut Port Authority (CPA) announced a \$93 million public-private partnership to upgrade the Connecticut State Pier in New London to support the offshore wind industry (Sheridan 2019). According to the Connecticut Maritime Strategy 2018 (CPA 2018a), New London is the only major port between New York and Maine that does not have vertical obstruction and offshore barriers, two factors that are critical for offshore wind turbine assembly. The document includes strategic objectives to manage and redevelop the Connecticut State Pier partially to support the offshore wind industry, which could create a dramatic increase in demand for the Connecticut State Pier and regional job growth. The development partnership, announced in May 2019, includes a 3-year plan to upgrade infrastructure to meet heavy-lift requirements of Orsted and Eversource offshore wind components (Cooper 2019). Redevelopment of the Connecticut State Pier is considered a reasonably foreseeable activity.
- In Rhode Island, Revolution Wind, LLC has committed to investing approximately \$40 million in improvements at the Port of Providence, the Port of Davisville at Quonset Point, and possibly other Rhode Island ports for the Revolution Wind Project (Kuffner 2018). This investment will position Rhode Island ports to participate in construction and operation of future offshore wind projects in the region (Rhode Island Governor’s Office 2018). The Port of Davisville has added a 150-megaton mobile harbor crane, which will enable the port to handle wind turbines and heavy equipment, and enables the Port of Davisville to participate in regional offshore wind projects (Port of Davisville 2017). Further improvements at Rhode Island ports to support the offshore wind industry are considered reasonably foreseeable.
- The Massachusetts Clean Energy Center (MassCEC) has identified 18 waterfront sites in Massachusetts that may be available and suitable for use by the offshore wind industry. Potential activities at these sites include manufacturing of offshore wind transmission cables, manufacture and assembly of turbine components, substation manufacturing and assembly, O&M bases, and storage of turbine components (MassCEC 2017a, 2017b, 2017c).
- The MassCEC manages the New Bedford Marine Commerce Terminal in New Bedford, Massachusetts. The 29-acre facility was completed in 2015 and is the first in North America designed specifically to support the construction, assembly, and deployment of offshore wind projects (MassCEC 2018). The New Bedford Port Authority Strategic Plan 2018–2023 contains goals related to expanding the New Bedford Marine Commerce Terminal to improve and expand services to the offshore wind industry, including development of North Terminal with the capacity to handle two separate offshore wind installation projects in the future (Port of New Bedford 2018). Vineyard Wind signed an 18-month lease with the Marine Commerce Terminal in October 2018 (Port of New Bedford 2020) and has supported the New Bedford Port Authority with grants to develop publicly owned facilities to support shore-based operations for offshore wind facilities (Vineyard Wind 2019).

Marine Minerals Use and Ocean Dredged Material Disposal

The closest active lease in BOEM's Marine Minerals Program for sand borrow areas for beach replenishment is located offshore New Jersey near Harvey Cedars, Surf City, Long Beach Township, Ship Bottom, and Beach Haven (Lease Number OCS-A-0505) (BOEM 2018).

In addition, reconnaissance and/or design-level OCS studies along the East Coast from Rhode Island to Florida have identified potential future sand resources. Sand resources identified nearest the Project include locations offshore Rhode Island (between Block Island and Charlestown), Long Island (Rockaway Beach, Long Beach, and Fire Island, New York), and Sandy Hook, New Jersey.

The EPA Region 1 is responsible for designating and managing ocean disposal sites for materials offshore in the region of the Project. The USACE issues permits for ocean disposal sites; all ocean sites are for the disposal of dredged material permitted or authorized under the Marine Protection, Research, and Sanctuaries Act (16 United States Code [USC] 1431 et seq. and 33 USC 1401 et seq.). There are nine active projects along the Massachusetts, Rhode Island, Connecticut, and New York coasts, with the closest dredge disposal project, the Rhode Island Sound Disposal Site, located northeast of Block Island (USACE 2018e).

Military Use

Military activities can include various vessel training exercises, submarine and antisubmarine training, and U.S. Air Force exercises. The U.S. Navy, the U.S. Coast Guard (USCG), and other military entities have numerous facilities in the region. Major onshore regional facilities include Joint Base Cape Cod, Naval Station Newport, Newport Naval Undersea Warfare Center, Naval Submarine Base New London, and USCG Academy (BOEM 2013; Epsilon Associates, Inc 2018; RI CRMC 2010). The U.S. Atlantic Fleet also conducts training and testing exercises in the Narraganset Bay Operating Area, and the Newport Naval Undersea Warfare Center routinely performs testing in the area (BOEM 2013).

Marine Transportation

Marine transportation in the region is diverse and sourced from many ports and private harbors from New York to Massachusetts. Commercial vessel traffic in the region includes research, tug/barge, liquid tankers (such as those used for liquid petroleum), cargo, military and search-and-rescue vessels, and commercial fishing vessels. Recreational vessel traffic includes cruise ships, sailboats, and charter boats. A number of federal agencies, state agencies, educational institutions, and environmental non-governmental organizations participate in ongoing research offshore including oceanographic, biological, geophysical, and archaeological surveys.

One new regional maritime highway project that has received funding from the U.S. Department of Transportation (USDOT) Maritime Administration (MARAD) is a new barge service (Davisville/Brooklyn/ Newark Container-on-Barge Service). This service is proposed to run twice each week in state waters between Newark, New Jersey; Brooklyn, New York; and the Port of Davisville in Rhode Island (USDOT MARAD 2021), which is located on Quonset Point, one of the potential O&M locations. The project received grant funding from MARAD in August 2018 (fiscal year 2017) to purchase material for handling equipment for the biweekly barge service (USDOT MARAD 2022).

National Marine Fisheries Service Activities

Research and enhancement permits may be issued for marine mammals protected by the Marine Mammal Protection Act (MMPA) and for threatened and endangered species under the ESA. The National Marine Fisheries Service (NMFS) is anticipated to continue issuing research permits under section 10(a)(1)(A) of the ESA to allow take of certain ESA-listed species for scientific research. Scientific research permits issued by NMFS currently authorize studies on ESA-listed species in the Atlantic Ocean, some of which occur in portions of the Lease Area. Current fisheries management and ecosystem monitoring surveys conducted by or in coordination with the Northeast Fisheries Science Center (NEFSC) could overlap with offshore wind lease areas in the New England region and south into the Mid-Atlantic region. Surveys include 1) the NEFSC Bottom Trawl Survey, a more than 50-year multispecies stock assessment tool using a bottom trawl; 2) the NEFSC Sea Scallop/Integrated Habitat Survey, a sea scallop stock assessment and habitat characterization tool, using a bottom dredge and camera tow; 3) the NEFSC Surfclam/Ocean Quahog Survey, a stock assessment tool for both species using a bottom dredge; and 4) the NEFSC Ecosystem Monitoring Program, a more than 40-year shelf ecosystem monitoring program using plankton tows and conductivity, temperature, and depth units. These surveys are anticipated to continue within the region, regardless of offshore wind development.

The regulatory process administered by NMFS, which includes stock assessments for all marine mammals and 5-year reviews for all ESA-listed species, assists in informing decisions on take authorizations and the assessment of project-specific and cumulative impacts that consider past, present, and reasonably foreseeable future actions in biological opinions. Stock assessments completed regularly under MMPA include estimates of potential biological removal that stocks of marine mammals can sustainably absorb. MMPA take authorizations require that a proposed action have no more than a negligible impact on species or stocks, and that a proposed action impose the least practicable adverse impact on the species. MMPA authorizations are reinforced by monitoring and reporting requirements so that NMFS is kept informed of deviations from what has been approved. Biological opinions for federal and non-federal actions are similarly grounded in status reviews and conditioned to avoid jeopardy and to allow continued progress toward recovery. These processes help to ensure that, through compliance with these regulatory requirements, a proposed action would not have a measurable impact on the conservation, recovery, and management of the resource.

Directed Take Permits for Scientific Research and Enhancement

NMFS issues permits for research on protected species for scientific purposes. These scientific research permits include the authorization of directed take for activities such as capturing animals and taking measurements and biological samples to study their health, tagging animals to study their distribution and migration, photographing and counting animals to get population estimates, taking animals in poor health to an animal hospital, and filming animals. NMFS also issues permits for enhancement purposes; these permits are issued to enhance the survival or recovery of a species or stock in the wild by taking actions that increase an individual's or population's ability to recover in the wild. In waters near the Lease Area, scientific research and enhancement permits have been issued previously for satellite, acoustic, and multi-sensor tagging studies on large and small cetaceans, research on reproduction, mortality, health, and conservation issues for North Atlantic right whales, and research on population dynamics of harbor and gray seals. Reasonably foreseeable future impacts from scientific research and enhancement permits

include physical and behavioral stressors (e.g., restraint and capture, marking, implantable and suction tagging, biological sampling).

Fisheries Use and Management

NMFS implements regulations to manage commercial and recreational fisheries in federal waters, including those within which the Project would be located; the State of New York, state of Rhode Island, and Commonwealth of Massachusetts regulate commercial fisheries in state waters (within 3 nautical miles of the coastline). There are several aquaculture sites in Narragansett Bay; however, the Lease Area and the RWEC centerline does not intersect any of these sites (Suffolk County 2018). The closest aquaculture site to the RWEC centerline is located on the western shoreline of Conanicut Island, approximately 1,427 feet (435 m) from the RWEC route centerline (VHB 2023).

The project overlaps two of NMFS' eight regional councils to manage federal fisheries: Mid-Atlantic Fishery Management Council (MAFMC), which includes New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia and North Carolina; and New England Fishery Management Council (NEFMC), which includes Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut (NEFMC 2016). The councils manage species with many fishery management plans that are frequently updated, revised, and amended and coordinate with each other to jointly manage species across jurisdictional boundaries (MAFMC 2019). Many of the fisheries managed by the councils are fished for in state waters or outside of the Mid-Atlantic region, so the council works with the Atlantic States Marine Fisheries Commission (ASMFC). ASMFC is composed of the 15 Atlantic coast states and coordinates the management of marine and anadromous resources found in the states' marine waters. In addition, the lobster and Jonah crab fisheries are cooperatively managed by the states and NMFS under the framework of the ASMFC (2019).

The fishery management plans of the councils and ASMFC were established, in part, to manage fisheries to avoid overfishing. They accomplish this through an array of management measures, including annual catch quotas, minimum size limits, and closed areas. These various measures can further reduce (or increase) the size of landings of commercial fisheries in the Northeast and the Mid-Atlantic regions.

NOAA Fisheries also manages highly migratory species (HMS), such as tuna and sharks, that can travel long distances and cross domestic boundaries.

Global Climate Change

Section 7.6.1.4 of the *Programmatic Environmental Impact Statement for Alternative Energy Development and Production and Alternate Use of Facilities on the Outer Continental Shelf* (Minerals Management Service [MMS] 2007) describes global climate change with respect to assessing renewable energy development. Climate change is predicted to affect Northeast fishery species differently (Hare et al. 2016), and the NMFS biological opinion discusses in detail the potential impacts of global climate change on protected species that occur within the proposed action area (NMFS 2013).

The Intergovernmental Panel on Climate Change (IPCC) released a special report in October 2018 that compared risks associated with an increase of global warming of 1.5 degrees Celsius (°C) and an increase of 2°C. The report found that climate-related risks depend on the rate, peak, and duration of global

warming, and that an increase of 2°C was associated with greater risks associated with climatic changes such as extreme weather and drought; global sea level rise; impacts to terrestrial ecosystems; impacts to marine biodiversity, fisheries, and ecosystems and their functions and services to humans; and impacts to health, livelihoods, food security, water supply, and economic growth (IPCC 2018).

States and regions look to offshore wind as a key component in their strategic plans to meet emissions goals in part because offshore wind can provide a low-carbon/no-carbon electricity supply source for current and increasing needs of electrified heating and transportation. Offshore wind projects produce less net greenhouse gas (GHG) emissions over the life of the projects when compared to other energy sources currently in use. Table E-4 summarizes regional plans and policies that are in place to address climate change, and Table E-5 summarizes resiliency plans.

Table E-4. Climate Change Plans and Policies

Plans and Policies	Summary/Goal
Connecticut	
2008 Global Warming Solutions Act	Sets forth statutory requirements to reduce GHG emissions 10% below 1990 levels by 2020 and 80% below 2001 levels by 2050 (State of Connecticut 2008).
Control of Carbon Dioxides Emissions/CO ₂ Budget Trading Program (2008)	Sets forth statutory requirements to establish a carbon dioxide (CO ₂) allowance tracking system wherein CO ₂ allowance allocations are established under the Connecticut CO ₂ Budget Trading Program Base Budget. Budget sources are identified, cataloged, monitored and reported, transferred, and tracked under a certification program in an effort to cap and reduce power sector CO ₂ emissions.
Regional Greenhouse Gas Initiative (RGGI) (2009)	The nation's first mandatory, market-based cap-and-trade program to reduce emissions of CO ₂ . Under the program, which began in 2009, participating RGGI states (Rhode Island, Connecticut, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New York, Vermont, and New Jersey; New Jersey withdrew in 2011) established a regional cap on CO ₂ emissions from fossil fuel-fired electric generating facilities, and required these power plants to possess a tradable CO ₂ allowance for each ton of CO ₂ they emit. Under RGGI, CO ₂ allowances are distributed through quarterly allowance auctions.
An Act Concerning Electric and Fuel Cell Electric Vehicles (Public Act 16-135) (2016)	Sets forth several provisions related to electric vehicles (EVs), including requirements related to data collection, EV charging stations, and electric rate structures.
Building A Low Carbon Future for Connecticut: Achieving a 45% GHG reduction by 2030 (2018)	Proposed set of strategies to achieve 45% GHG reduction below 2001 levels target by 2030. These strategies ensure Connecticut is on a downward trajectory to the 80% reduction target by 2050 required by the Global Warming Solutions Act (State of Connecticut 2018a).
2018 Act Concerning Climate Change Planning and Resiliency (Public Act 18-82)	Act passed by the Connecticut General Assembly that adopted GC3's recommendation of 45% GHG mid-term reduction target below 2001 levels by 2030 and integrates GHG reduction more explicitly into the DEEP Comprehensive Energy Strategy (CES) and Integrated Resource Plan (IRP) (State of Connecticut 2018b).
Comprehensive Energy Strategy (CES) (2018)	Connecticut Department of Energy and Environmental Protection (DEEP) update to Connecticut's CES to advance the State's goal of creating a cheaper, cleaner, more reliable energy future for Connecticut's residents and businesses. The CES analyzes energy use and key trends of the region (State of Connecticut 2018c)
Executive Order No. 3, (2019)	Re-establishes and expands the membership and responsibilities of the Governor's Council on Climate change (GC3), originally established in 2015. Orders GC3 to report to the Governor regarding the state's progress on the implementation of the strategies identified in <i>Building a Low Carbon Future for Connecticut: Achieving a 45% GHG reduction by 2030</i> (State of Connecticut 2019)

Plans and Policies	Summary/Goal
Integrated Resources Plan (2020)	DEEP is required to prepare an Integrated Resource Plan (IRP) every 2 years, which is comprised of an assessment of the future electric needs and a plan to meet those future needs. Executive Order 3 directed DEEP to analyze pathways and recommend strategies to achieve a 100 percent zero carbon electric supply by 2040 in this IRP (State of Connecticut 2020).
Taking Action on Climate Change and Building a More Resilient Connecticut for All (2021)	Phase 1 report in response to Executive Order 3’s request for progress on mitigation strategies and preparation of an Adaptation and Resilience Plan. Provides information on GC3 members and Working Group members, GC3 background and process, the Equity and Environmental Justice Working Group, the impacts of climate change in Connecticut, and recommendations for near-term action (State of Connecticut 2021)
Massachusetts	
Global Warming Solutions Act (GWSA) of 2008	Framework to reduce GHG emissions by requiring 25% reduction in emissions from all sectors below 1990 baseline emission level in 2020, at least 80% reduction in 2050. Full implementation of these policies is projected to result in total net reduction of 25.0 million metric tons of CO ₂ equivalent, or 26.4% below 1990 baseline level (Commonwealth of Massachusetts 2018a).
Massachusetts Clean Energy and Climate Plan (CECP) for 2020; 2015 CECP Update	Policies that aim to reduce GHG emissions in the commonwealth across all sectors; full implementation of policies would result in reducing emissions by at least 25% below 1900 level in 2020 (Commonwealth of Massachusetts 2015).
Executive Order 569, Establishing an Integrated Climate Strategy for the Commonwealth and “Act to Promote Energy Diversity” (2016)	Calls for large procurements of offshore wind and hydroelectric resources (Commonwealth of Massachusetts 2016).
Environmental Bond Bill and An Act to Advance Clean Energy (2018)	Sets new targets for offshore wind, solar, and storage technologies; expands Renewable Portfolio Standard requirements for 2020–2029; establishes a Clean Peak Standard; and permits fuel switching in energy efficiency programs (Commonwealth of Massachusetts 2018a).
Massachusetts State Hazard Mitigation and Climate Adaption Plan 2018	Updated 2013 plan to comprehensively integrate climate change impacts and adaptation strategies with hazard mitigation planning while complying with federal requirements for state hazard mitigation plans and maintaining eligibility for federal disaster recovery and hazard mitigation funding under the Stafford Act. The plan will next be submitted to the Federal Emergency Management Agency (FEMA) for approval. In 2020, a new 2030 emissions limit and CECP for 2030 will be published (Commonwealth of Massachusetts 2018a, 2018b).
Massachusetts 2050 Decarbonization Roadmap	A planning process by the Massachusetts Executive Office of Energy and Environmental Affairs to identify cost-effective and equitable strategies to ensure Massachusetts reduces GHG emissions by at least 85% by 2050 and achieves net-zero emissions (Commonwealth of Massachusetts 2020a)

Plans and Policies	Summary/Goal
Massachusetts Clean Energy and Climate Plan (CECP) for 2030	The Clean Energy and Climate Plan for 2030 (2030 CECP) provides details on the actions the Commonwealth will undertake through the next decade to ensure the 2030 emissions limit is met. The 2030 CECP is prepared in coordination with the development of the 2050 Decarbonization Roadmap such that the strategies, policies, and actions outlined in the 2030 CECP can help the Commonwealth achieve net zero GHG emissions by 2050. The Interim 2030 CECP was built upon the 2020 CECP and the 2015 CECP Update (Commonwealth of Massachusetts 2020b).
2030 GHG Emissions Limit	The 2030 emissions limit of 45% below the 1990 GHG emissions level was set on December 30, 2020, in accordance with Executive Order 569 to help the Commonwealth meet the 2050 emissions limit (Commonwealth of Massachusetts 2020c)
Net Zero by 2050 Emissions Limit	A 2050 statewide emissions limit of net zero GHG emissions was established by the Commonwealth. This is defined as a level of statewide GHG emissions that is equal in quantity to the amount of CO ₂ or its equivalent that is removed from the atmosphere and stored annually by, or attributable to, the Commonwealth; provided, however, that in no event shall the level of emissions be greater than a level that is 85 percent below the 1990 level (Commonwealth of Massachusetts 2020d).
New York	
Reforming the Energy Vision (New York State 2014)	State’s energy policy to build integrated energy network; Clean energy goal to reduce GHGs by 40% by 2030 and by 80% by 2050.
Order Adopting a Clean Energy Standard (State of New York Public Service Commission 2016)	Requirement that 50% of New York’s electricity come from renewable energy sources by 2030.
New York State Energy Plan 2015; 2017 Biennial Report to 2015 Plan (New York State Energy Research Development Authority [NYSERDA] 2015, 2017a)	Requires 40% reduction in GHGs from 1990 levels; 50% electricity will come from renewable energy resources; and 600 trillion British thermal units (Btu) increase in statewide energy efficiency.
Governor Cuomo State of State Address 2017, 2018, 2021	<p>2017: Set offshore wind energy development goal of 2,400 MW by 2030 (Governor’s Office 2017a).</p> <p>2018: Procurement of at least 800 MW of offshore wind power between two solicitations in 2018 and 2019; new energy efficiency target for investor-owned utilities to more than double utility energy efficiency progress by 2025; energy storage initiative to achieve 1,500 MW of storage by 2025 and up to 3,000 MW by 2030 (Governor’s Office 2018a, 2018b).</p> <p>2021: The governor's 2021 agenda—Reimagine Rebuild Renew—establishes a goal of building out its renewable energy program. The agenda notes the development of two new offshore wind farms more than 20</p>

Plans and Policies	Summary/Goal
	miles off the shore of Long Island, the creation of dedicated offshore port facilities, and additional transmission capacity development.
New York State Offshore Wind Master Plan (2017) (NYSERDA 2017b)	Grants NYSERDA ability to award 25-year long-term contracts for projects ranging from approximately 200 MW to approximately 800 MW, with an ability to award larger quantities if sufficiently attractive proposals are received. Each proposer is also required to submit at least one proposal of approximately 400 MW. Bids are due in February 2019, awards are expected in spring 2019; and contracts are expected to be executed thereafter.
2020 Offshore Wind Solicitation	<p>As noted above, NYSERDA has provisionally awarded two offshore wind projects, totaling 2,490 MW. Empire Wind 2 (1,260 MW) and Beacon Wind (1,230 MW) of Equinor Wind US LLC will generate enough clean energy to power 1.3 million homes and will be major economic drivers, supporting the following:</p> <p>More than 5,200 direct jobs</p> <p>Combined economic activity of \$8.9 billion in labor, supplies, development, and manufacturing statewide</p> <p>\$47 million in workforce development and just access funding</p>
The Climate Leadership and Community Protection Act (CLCPA), enacted on July 18, 2019, signed into law in July 2019 and effective January 1, 2020	CLCPA establishes economy-wide targets to reduce GHG emissions by 40% of 1990 levels by 2030 and 85% of 1990 levels by 2050.
Rhode Island	
Air Pollution Control Regulation No. 37- Rhode Island's Low-Emission Vehicle Program (2001)	The purpose of this regulation is to specify the requirements for Rhode Island's Low-Emission Vehicle Program to reduce motor vehicle GHG emissions.
Air Pollution Control Regulation No. 46, 'CO2 Budget Trading Program' (2008)	The purpose of this regulation is to establish the Rhode Island component of the CO ₂ Budget Trading Program, which is designed to reduce anthropogenic emissions of CO ₂ from the CO ₂ budget sources in an economically efficient manner. Budget sources are identified, cataloged, monitored and reported, transferred, and tracked under a certification program in an effort to cap and reduce power sector CO ₂ emissions.
RGGI (2009)	The RGGI is the nation's first mandatory, market-based cap-and-trade program to reduce emissions of CO ₂ . Under the program, which began in 2009, Rhode Island receives CO ₂ allowance proceeds, which are invested in a variety of consumer benefit programs, including energy efficiency, renewable energy, direct energy bill assistance and other GHG reduction programs.

Plans and Policies	Summary/Goal
Resilient Rhode Island Act (2014)	Established the Executive Climate Change Coordinating Council (EC4) and set specific GHG reduction targets; incorporates consideration of climate change impacts into the powers and duties of all state agencies (State of Rhode Island 2014).
Energy 2035 Rhode Island State Energy Plan (2015)	Long-term comprehensive strategy for energy services across all sectors using a secure, cost-effective, and sustainable energy system; plan to increase sector fuel diversity, produce net economic benefits, and reduce GHG emissions by 45% by the year 2035 (State of Rhode Island 2015b).
Governor’s Climate Priorities (2018) Executive Order 15-17, 17-06	Increasing in-state renewable energy tenfold by 2020 (to 1,000 MWs) through new development and regional procurement (State of Rhode Island 2015a, 2017, 2018a).
Rhode Island Greenhouse Gas Emissions Reductions Plan (2016)	Targets for GHG reductions: 10% below 1990 levels by 2020; 45% below 1990 levels by 2035; 80% below 1990 levels by 2040 (State of Rhode Island 2016).
Resilient Rhody (2018)	Planning document outlining climate resiliency actions; focuses on leveraging emissions reduction targets and adaptation (State of Rhode Island 2018b).
Executive Order 20-01, Advancing a 100% Renewable Energy Future for Rhode Island by 2030	Calls the Rhode Island Office of Energy Resources (OER) to conduct economic and energy market analyses to develop an actionable plan to reach 100% renewable electricity by 2030. The OER must provide this specific and implementable action plan by December 31, 2020 (State of Rhode Island 2020a).
The Road to 100% Renewable Electricity by 2030 in Rhode Island	Provides economic analysis of the key factors that will guide Rhode Island in the coming years as the state accelerates its adoption of carbon-free renewable resources. The OER developed specific policy, programmatic, planning, and equity-based actions that will support achieving the 100% renewable electricity goal (Rhode Island OER 2020).
2021 Act on Climate	This legislation updates Rhode Island’s climate-emission reduction goals laid out in the 2014 Resilient RI Act and address areas such as environmental injustices, public health inequities, and a fair employment transition as fossil-fuel jobs are replaced by green energy jobs. The state will develop a plan to incrementally reduce climate emissions to net-zero by 2050 and is to be updated every 5 years (State of Rhode Island 2020b).

Table E-5. Resiliency Plans and Policies in the Lease Area

Plans and Policies	Summary
Connecticut	

Plans and Policies	Summary
Act Authorizing Municipal Climate Change and Coastal Resiliency Reserve Funds (CCRRF) (Public Act 19-77)	Act approved July 1, 2019. Upon the recommendation of the chief elected official and budget-making authority, and approval of the legislative body of a municipality, the reserve fund may be used and appropriated to pay for municipal property losses, capital projects and studies related to mitigating hazards and vulnerabilities of climate change including, but not limited to, land acquisition (Connecticut General Assembly 2019).
Resilient Connecticut	Connecticut Institute for Resilience & Climate Adaptation (CIRCA) was awarded an \$8 million from the National Disaster Relief Competition (NDRC) to develop the <i>Resilient Connecticut</i> project. Coordination of CIRCA, state agencies, and regional councils of governments and municipalities initiated the development of a Planning Framework to establish resilient communities through smart planning that incorporates economic development framed around transit-oriented development, conservation strategies, and critical infrastructure improvements (Resilient Connecticut (CIRCA 2021).
An Act Concerning Climate Change Adaptation (Public Act 21-115)	Act approved July 6, 2021. This proposal addresses the rising seas, frequent flooding, heat waves, and drought expected between now and 2050. It prioritizes the protection of frontline vulnerable communities and provides Connecticut’s communities more options to move from adaptation and resilience planning to implementing their project pipeline, including the use of nature-based and green infrastructure solutions (Connecticut General Assembly 2021).
Massachusetts	
Municipal Vulnerability Preparedness grant program (MVP) (2017)	Provides support for cities and towns to plan for resiliency and implement key climate change adaptation actions for resiliency. The City of New Bedford has received MVP designation as of November 1, 2018 (Commonwealth of Massachusetts 2019a).
Coastal Grant and Resilience Program	Provides financial and technical support for local efforts to increase awareness and understanding of climate impacts, identify and map vulnerabilities, conduct adaptation planning, redesign vulnerable public facilities and infrastructure, and implement non-structural approaches that enhance natural resources and provide storm damage protection (Commonwealth of Massachusetts 2019b).
General Appropriations Bill, FY2022 (Section 2000-0101)	Designation of funds for the Executive Office of Energy and Environmental Affairs to coordinate and implement strategies for climate change adaptation and preparedness, including, but not limited to, resiliency plans for the commonwealth in a report to be delivered by February 3, 2022 (Commonwealth of Massachusetts Legislature 2021).
Nantucket’s Coastal Resilience Plan	The plan is currently under development, and while no actions have been identified to date, potential shoreline management activities could include sediment management, construction of seawalls and similar structures, and other activities (Town and County of Nantucket 2018a, 2018b).

Plans and Policies	Summary
New York	
Part 490 of Community Risk and Resiliency Act (CRRRA) of 2014	Establishes statewide science-based sea-level rise projections for coastal regions of the state. As of 2019, DEC is in the process of developing a State Flood Risk Management Guidance document for state agencies (New York State Department of Environmental Conservation [NYSDEC] n.d. [2019]).
NY Rising Community Reconstruction (2018)	\$20.4 million in projects on Long Island to help flood-prone communities plan and prepare for extreme weather events as they continue projects to recover from Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. Three projects were announced for Suffolk County and five for Nassau County (Governor’s Office 2018b).
Water Infrastructure Improvement Act (WIIA), Water Quality Improvement Project (WQIP) Program, and Intermunicipal Grant (IMG)	\$600 million available to communities statewide for programs to fund projects to upgrade infrastructure and make communities more resilient to flooding and other impacts of climate-driven severe storms and weather events (Governor’s Office 2021).
Rhode Island	
Shoreline Change Special Area Management Plan (Beach SAMP)	The RI CRMC developed and adopted the Beach SAMP to improve the state’s resilience and manage the shoreline (RI CRMC 2018b).
Regional	
New England Governor’s and Eastern Canadian Premiers (NEG/ECP) Regional Climate Change Initiative	The NEG/ECP Regional Climate Change Initiative includes seven New England states (Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont). This initiative encourages advancement of regional discussions and collaborative efforts to reduce greenhouse gas emissions by identifying strategies, policies, and measures through which the region could achieve its 2030 reduction marker and 2050 target (NEG/ECP 2022).

Oil and Gas Activities

The Project would be located in the North Atlantic Planning Area of the OCS Oil and Gas Leasing Program (National OCS Program). On September 8, 2020, the White House issued a presidential memorandum for the Secretary of the Interior on the withdrawal of certain areas of the U.S. OCS from leasing disposition for 10 years, including the areas currently designated by BOEM as the South Atlantic and Straits of Florida Planning Areas (The White House 2020a). The South Atlantic Planning Area includes the OCS off South Carolina, Georgia, and northern Florida. On September 25, 2020, the White House issued a similar memorandum for the Mid-Atlantic Planning Area that lies south of the northern administrative boundary of North Carolina (The White House 2020b). This withdrawal prevents consideration of these areas for any leasing for purposes of exploration, development, or production during the 10-year period beginning July 1, 2022, and ending June 30, 2032. However, at this time, there has been no decision by the Secretary of the Interior regarding future oil and gas leasing in the North Atlantic or remainder of the Mid-Atlantic Planning Areas. Existing leases in the withdrawn areas are not affected.

BOEM issues geological and geophysical (G&G) permits to obtain data for hydrocarbon exploration and production; locate and monitor marine mineral resources; aid in locating sites for alternative energy structures and pipelines; identify possible human-made, seafloor, or geological hazards; and locate potential archeological and benthic resources. G&G surveys are typically classified into the following categories by equipment and survey type:

- Deep-penetration seismic air gun surveys (2-D, 3-D, 4-D, ocean-bottom nodal, and azimuth multi-vessel surveys)
- Air gun HRG surveys that are used to investigate the shallow subsurface for geohazards (also known as shallow hazard surveys) and that are used during initial site evaluation, drilling rig emplacement, and platform or pipeline design and emplacement
- Electromagnetic surveys, deep stratigraphic and shallow test drilling, and various remote-sensing methods
- Non-air gun HRG surveys (similar to those used to support OCS wind energy leasing and site assessment activities) to detect and monitor geohazards, archaeological resources, and benthic communities
- Geological and geotechnical seafloor sampling (similar to those used to support OCS wind energy leasing and site assessment activities) to assess the suitability of seafloor sediments for supporting structures (e.g., platforms, pipelines, and cables)

Detailed information on each of the specific G&G survey types and descriptions can be found in Appendix F of *Gulf of Mexico OCS Proposed Geological and Geophysical Activities: Western, Central, and Eastern Planning Areas; Final Programmatic Environmental Impact Statement* (BOEM 2017).

There are currently no G&G permits under BOEM review for areas offshore of the northeast Atlantic states; however, areas under consideration for G&G surveys are located in federal waters offshore from Delaware to Florida (BOEM 2021b).

Eight LNG ports are located on the East Coast of the United States. Table E-6 lists existing, approved, and proposed LNG ports on the East Coast of the United States that provide (or may in the future provide) services such as natural gas export, natural gas supply to the interstate pipeline system or local distribution companies, or storage of LNG for periods of peak demand, or production of LNG for fuel and industrial use (FERC 2021).

Table E-6. Liquid Natural Gas Terminals Located in the Northeastern United States

Terminal Name	Type	Company	Jurisdiction	Distance from Project (approximate)	Status
Everett, MA	Import terminal	GDF SUEZ—DOMAC	FERC	90 miles north	Existing
Offshore Boston, MA	Import terminal	GDF SUEZ – Neptune LNG	U.S. Department of Transportation Maritime Administration (MARAD)/USCG	100 miles north	Existing
Offshore Boston, MA	Import terminal, authorized to re-export delivered LNG	Excelerate Energy—Northeast Gateway	MARAD/USCG	95 miles north	Existing
Cove Point, MD (Chesapeake Bay)	Import terminal	Dominion—Cove Point LNG	FERC	340 miles southwest	Existing
Cove Point, MD (Chesapeake Bay)	Export terminal	Dominion—Cove Point LNG	FERC	340 miles southwest	Existing
Elba Island, GA (Savannah River)	Import terminal	El Paso—Southern LNG	FERC	835 miles southwest	Existing
Elba Island, GA (Savannah River)	Export terminal	Southern LNG Company	FERC	835 miles southwest	Existing
Jacksonville, FL	Export terminal	Eagle LNG Partners	FERC	960 miles southwest	Approved

Source: FERC (2021)

Onshore Development Activities

Onshore development activities that may contribute to impacts from planned activities include visible infrastructure such as onshore wind turbines and cell towers, port development, and other energy projects such as transmission and pipeline projects. Coastal development projects permitted through regional planning commissions and towns may also contribute to impacts from planned activities. These may include residential, commercial, and industrial developments spurred by population growth in the region (Table E-7).

Table E-7. Existing, Approved, and Proposed Onshore Development Activities

Type	Description
Local planning documents	<ul style="list-style-type: none"> • Suffolk County Master Plan (Suffolk County 2015) • A City Master Plan: New Bedford 2020 (City of New Bedford 2010) • Town of North Kingstown Comprehensive Plan Update 2008 (Town of North Kingstown 2008) • Washington County Transfer of Development Rights (TDR) Study (Washington County Regional Planning Council 2012) • North Kingstown Comprehensive Plan Re-Write 2019 (Interface Studio 2019)
Onshore wind projects	<ul style="list-style-type: none"> • According to the U.S. Geological Survey (USGS), there are nine onshore wind projects located within the 41-mile viewshed of the project (USGS 2018).
Communications towers	<ul style="list-style-type: none"> • There are numerous communications towers located in Suffolk County, on offshore islands, and within the viewshed of the proposed Project components. Within the recreation/tourism geographic analysis area, there are 864 communications towers, 10 of which exceed the Federal Aviation Administration (FAA) height limit for marking/lighting requirements (FAA 2016). • The East Hampton Town Board is replacing its aging 800-megahertz frequency emergency communication system tower to a 700-megahertz system with updated equipment. This will require the replacement of a 150-foot communication tower with a 300-foot lattice tower and the raising of a 55-foot monopole to 85 feet. This upgrade also requires replacing antennas at towers near the East Hampton Airport in Wainscott, at the Amagansett firehouse, and at the East Hampton Town Hall complex (Chinese 2018).
Development projects	<ul style="list-style-type: none"> • As a part of New York State’s \$100 billion infrastructure project, \$5.6 billion will go to transform the Long Island Railroad (LIRR) to improve system connectivity. Within Suffolk County, the following stations will receive funds for upgrades: Brentwood, Deer Park, East Hampton, Northport, Ronkonkoma, Stony Brook, Port Jefferson, and Wyandanch. The East Hampton historic LIRR station will undergo upgrades and modernizations (Metropolitan Transit Authority 2017; Governor’s Office 2017a). Additional plans for transit-oriented design (TOD) and highway improvements are planned in Suffolk County in state and county planning documents. • The Division of Statewide Planning, Rhode Island Department of Transportation, and Rhode Island Public Transit Authority prepared the Rhode Island State Transportation Improvement Program (STIP) for the Federal Fiscal Year (FFY) 2022-2023 for the adoption by the State Planning Council (State of Rhode Island 2021). • Fire Island Inlet to Montauk Point (FIMP) Project is a \$1.2 billion project by the USACE, NYDEC, and Long Island, NY, municipalities to engage in inlet management; beach, dune and berm construction; breach response plans; raising and retrofitting 4,400 homes; road-raising; groin modifications; and coastal process features. Within Suffolk County, portions of the Towns of Babylon, Islip, Brookhaven, Southampton, and East Hampton; 12 incorporated villages along Long Island’s south shore (mainland); Fire Island National Seashore; and the Poospatuck and Shinnecock Indian Reservations will be involved in this project (USACE 2018f).

Type	Description
	<ul style="list-style-type: none"> • The USACE is working to remediate and cleanup a former defense site (former NIKE Battery PR-58 and Disaster Village Training Area) at Quonset Development Corporation in North Kingstown, RI. A feasibility study was performed from 2014 to 2016, and the final remedial investigation/feasibility study was published in 2016. Pre-design investigations, followed by remedial designs and engineering plans, and remedial action is proposed for 2021 (USACE 2018g). • The Massachusetts Department of Environmental Protection (MassDEP) Bureau of Air and Waste approved National Grid’s application for the construction and operation of a diesel generator and a battery electric storage system at an existing electric generating facility located at 32 Bunker Road in Nantucket, approximately 1 mile north of the coastline. The facilities are anticipated to be operational in 2019 (MassDEP 2017; Utility Dive 2018).
<p>Port studies/upgrades</p>	<p>The USACE completed the Lake Montauk Harbor Feasibility Study in 2020. The study determined that Lake Montauk Harbor has insufficient channel and depth to support commercial fishing fleet activities. The study evaluated a range of alternative navigation improvement plans; the recommended plan consisted of deepening the existing navigation channel to -17 feet MLLW depth, creating a deposition basin immediately east of the channel at a width of 100 feet, and placing dredged material on the shoreline west of the inlet for a distance of 3,000 feet and a width of approximately 44 feet.</p> <p>Ports in New York, Connecticut, Rhode Island, and Massachusetts may require upgrades to support the offshore wind industry developing in the northeastern United States. Upgrades may include onshore developments or underwater improvements (such as dredging).</p> <ul style="list-style-type: none"> • In December 2017, NYSERDA issued an offshore wind master plan that assessed 54 distinct waterfront sites along the New York Harbor and Hudson River and 11 distinct areas with multiple small sites along the Long Island coast. Twelve waterfront areas and five distinct areas were singled out for “potential to be used or developed into facilities capable of supporting OSW projects” (Table 26; NYSERDA 2017b). Nearly all identified sites would require some level of infrastructure upgrade (from minimal to significant) depending on OSW activities intended for the site. Particular sites of interest include Red Hook-Brooklyn, South Brooklyn Marine Terminal, and the Port of Coeymans (NYSERDA 2017b). For additional information regarding specific proposed improvements to these ports, see DockNYC (2018), Capital Region Economic Development Council (2018), American Association of Port Authorities (2016), Rulison (2018), and New York City Economic Development Corporation (2018). • The CPA is currently evaluating proposals from parties to develop, finance, and manage the Connecticut State Pier in New London under a long-term operating agreement (CPA 2018b). According to the Connecticut Maritime Strategy 2018 (CPA 2018a), New London is the only major port between New York and Maine that does not have vertical obstruction and offshore barriers, two factors that are critical for offshore wind turbine assembly. The document includes strategic objectives to manage and redevelop the Connecticut State Pier partially to support the offshore wind industry, which could create a dramatic increase in demand for the Connecticut State Pier and regional job growth. Redevelopment of the State Pier is considered a reasonably foreseeable activity, though specific redevelopment plans are not yet available. • In Rhode Island, DWW has committed to investing approximately \$40 million in improvements at the Port of Providence, the Port of Davisville at Quonset Point, and possibly other Rhode Island ports for the Revolution Wind Project (Kuffner 2018). The

Type	Description
	<p>Port of Davisville has added a 150-megaton mobile harbor crane, which will enable the port to handle wind turbines and heavy equipment, and enables the Port of Davisville to participate in regional offshore wind projects (Port of Davisville 2017). Further improvements at Rhode Island ports to support the offshore wind industry are considered reasonably foreseeable.</p> <ul style="list-style-type: none"> • The MassCEC has identified 18 waterfront sites in Massachusetts that may be available and suitable for use by the offshore wind industry. Potential activities at these sites include manufacturing of offshore wind transmission cables, manufacture and assembly of turbine components, substation manufacturing and assembly, O&M bases, and storage of turbine components (MassCEC 2017a, 2017b, 2017c). The Draft New Bedford Port Authority Strategic Plan 2018 – 2023 contains goals related to expanding the New Bedford Marine Commerce Terminal to improve and expand services to the offshore wind industry (MassCEC 2018; Port of New Bedford 2018), but no new improvements were identified. • New York State proposed port improvements include the governor's 2021 agenda—Reimagine Rebuild Renew—which includes upgrades to create five dedicated port facilities for offshore wind, including the following: <ul style="list-style-type: none"> • The nation's first offshore wind tower manufacturing facility, to be built at the Port of Albany • An offshore wind turbine staging facility and O&M hub to be established at the South Brooklyn Marine Terminal • Increasing the use of the Port of Coeymans for cutting-edge turbine foundation manufacturing • Buttressing ongoing O&M out of Port Jefferson and Port of Montauk Harbor in Long Island

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