Appendix E
Planned Activities Scenario

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Table of Contents

List of Tables

List of Figures

Abbreviations and Acronyms

ASMFC	Atlantic States Marine Fisheries Commission
BOEM	Bureau of Ocean Energy Management
CECP	Clean Energy and Climate Plan
CES	Comprehensive Energy Strategy
CFR	Code of Federal Regulations
COP	Construction and Operations Plan
DEEP	Department of Energy and Environmental Protection
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESP	electrical service platform
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
GC3	Governor's Council on Climate Change
GHG	greenhouse gas
GW	gigawatt
IPF	impact-producing factor
IRP	Integrated Resource Plan
LNG	liquified natural gas
MARAD	U.S. Department of Transportation Maritime Administration
MassCEC	Massachusetts Clean Energy Center
MCT	Marine Commerce Terminal
MLLW	mean lower low water
MMPA	Marine Mammal Protection Act
MW	megawatt
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NYSERDA	New York State Energy Research and Development Authority
OCS	Outer Continental Shelf
RI/MA Lease Areas	Rhode Island and Massachusetts Lease Areas
RITE	Roosevelt Island Tidal Energy
SAP	Site Assessment Plan
SWDA	Southern Wind Development Area
TBD	to be determined
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USCG	U.S. Coast Guard
WTG	wind turbine generator

E Planned Activities Scenario

E.1 Introduction

The impacts resultant from the planned activities scenario are the incremental impacts of the Proposed Action on the environment added to other reasonably foreseeable planned activities in the area (Code of Federal Regulations, Title 40, Section 1502.15 [40 CFR § 1502.15]).[1] This appendix discusses the other foreseeable (i.e., planned) activities that are likely to occur in close proximity to, and during the same timeframe, as the Proposed Action.. Specifically, the Proposed Action here is the construction and installation (construction), operations and maintenance (operations), and conceptual decommissioning (decommissioning) of the New England Wind Project (proposed Project), a wind energy project that would occupy all of the Bureau of Ocean Energy Management's (BOEM) Renewable Energy Lease Area OCS-A 0534 and potentially a portion of Lease Area OCS-A 0501, hereafter together referenced as the Southern Wind Development Area (SWDA). The SWDA is approximately 20 miles from the southwest corner of Martha's Vineyard and approximately 24 miles from Nantucket at its closest point.

Impacts could occur between the start of proposed Project construction in as early as 2024 and the completion of proposed Project decommissioning, which would occur within 2 years of the end of the lease (up to 33 years post-construction). The geographic analysis area is defined by the impact-producing factor (IPF) with the maximum geographic area of impact (e.g., 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 Project. The geographic analysis area for these mobile resources is the general range of the species. The purpose of these geographic analysis areas is to capture the impacts from planned activities on each resource potentially impacted by the proposed project. The geographic analysis area for each resource area is defined in the resource area sections of the Final 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.

[1] On July 16, 2020, the Council on Environmental Quality, which is responsible for federal agency implementation of the National Environmental Policy Act (NEPA), updated the regulations for implementing the procedural provisions of NEPA (Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, of the *Federal Register*, Volume 85, Issue 137, [July 16, 2020] pp. 43304–43376 [85 Fed. Reg. 137 pp. 43304–43376]). The Bureau of Ocean Energy Management (BOEM) prepared this Final Environmental Impact Statement (EIS) consistent with the purpose and goals of NEPA (U.S. Code, Title 42, Section 4321 et seq. [42 USC § 4321 et seq.]) and pursuant to the Council on Environmental Quality's implementing NEPA regulations at 40 CFR Parts 1500–1508. Additionally, this EIS was prepared consistent with the Department of the Interior NEPA regulations (43 CFR Part 46), longstanding federal judicial and regulatory interpretations, and policies including Secretarial Order No. 3399 requiring bureaus and offices to use "the same application or level of NEPA that would have been applied to a proposed action before the 2020 Rule went into effect."

E.2 Reasonably Foreseeable Future Activities and Projects

This section includes a list and description of other reasonably foreseeable activities that could combine to contribute to impacts (also referred to as cumulative impacts) within the defined geographic analysis area for each resource category. Projects or actions that are considered speculative per the definition provided in 43 CFR § 46.30[2] are noted in subsequent tables but excluded from the planned activities impact analysis in EIS Chapter 3, Affected Environment and Environmental Consequences.

This EIS discusses resource-specific impacts that could occur if impacts associated with the Proposed Action would contribute to or overlap spatially or temporally with impacts from other past, present, or planned activities taking place within the region of the proposed Project, regardless of which agency or person undertakes the actions.

Planned 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; and (9) onshore development activities.

E.3 Offshore Wind Energy Development Activities

BOEM analyzed the possible extent of future offshore wind energy development activities on the Atlantic Outer Continental Shelf (OCS) to determine reasonably foreseeable impacts measured by installed power capacity. As a result of this process, BOEM has assumed that approximately 30 gigawatts (GW) of Atlantic offshore wind development are reasonably foreseeable along the East Coast. Reasonably foreseeable development includes 28 active wind energy lease areas (27 commercial and 1 research) (Figure E-1) on the Atlantic OCS, which include named projects and assumed future development within the remainder of lease areas outside of named project boundaries, as described in this appendix. Table E-1 represents the status of projects as of April 5, 2023. Levels of assumed future development are based on published Construction and Operations Plans (COP) and/or EISs for these projects, as well as state commitments to renewable energy development, publicly available information about turbine technology, and the size of potential development areas. These assumptions form the basis for analyzing potential resource-specific impacts (EIS Chapter 3).

Table E-1 includes some offshore wind projects that have already been approved and are either operating or under construction, including the Vineyard Wind 1 project (Lease Area OCS-A 0501) and South Fork Wind Project (Lease Area OCS-A 0517). Because these projects are approved, they are considered "ongoing" projects in the discussion of cumulative impacts in the resource-specific sections of EIS Chapter 3. They are included in Table E-1 because their construction, operation, and decommissioning would overlap with the proposed Project, and would thus be part of the overall analysis of the proposed Project's cumulative impacts.

[2] 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 consider 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.

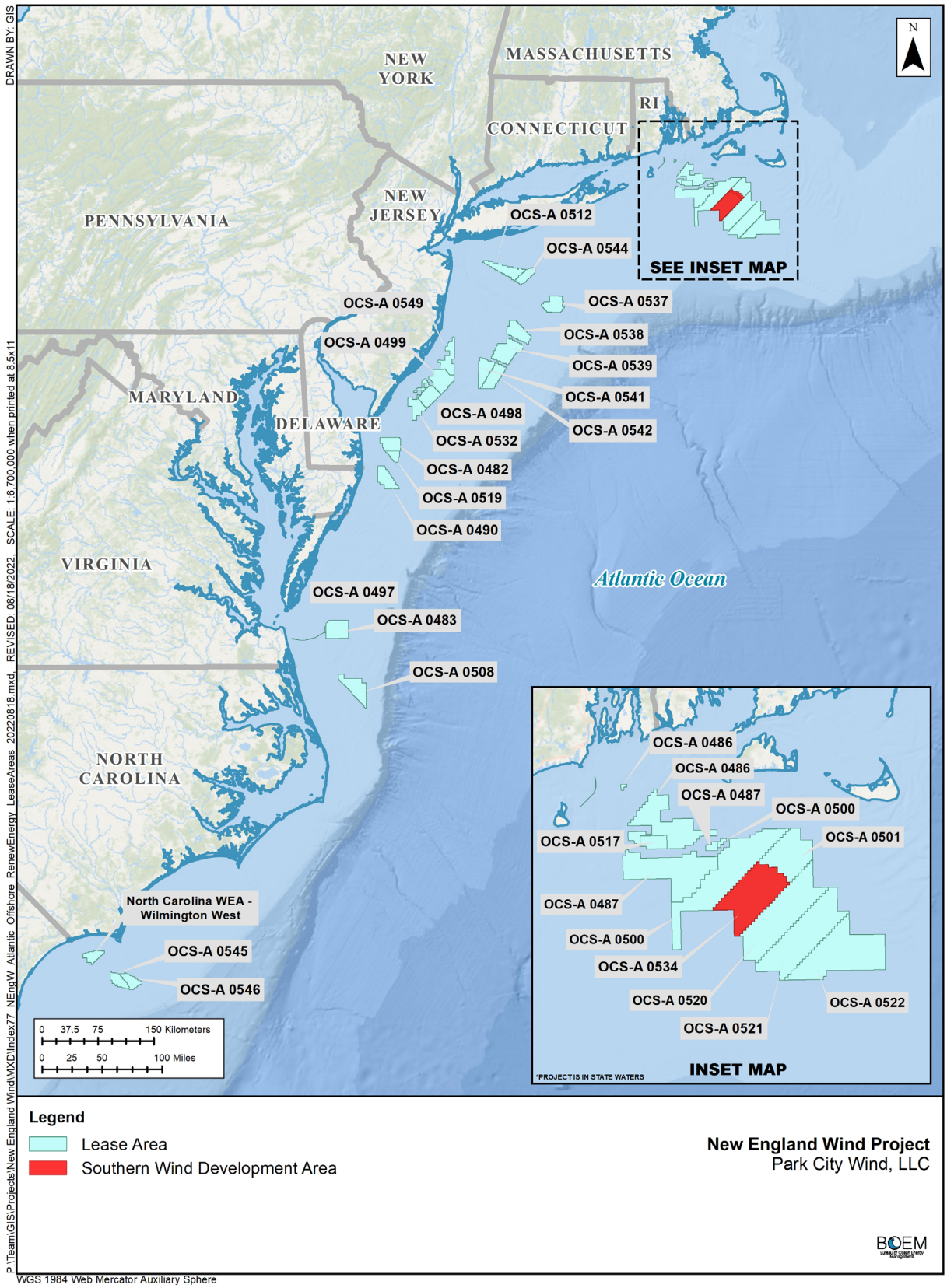

Figure E-1: Wind Lease Areas Considered in Planned Activities Offshore Wind Scenario

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Table E-1: Offshore Wind Leasing Activities on the Atlantic Outer Continental Shelf: Projects and Assumptions (as of July 12, 2023)

			Maximum Number of WTGs											
Region	**Lease**	**Name**	**Overall**	**Air Quality**	**Wetlands and Waters of the US**	**Benthic**	**Cultural Resources, Navigation and Vessel Traffic, Recreation and Tourism, Other Resources**	**Finfish, Invertebrates, and EFH**	**Commercial Fisheries and For-hire Recreational Fishing**	**Water Quality**	**Birds, Bats, Marine Mammals, Sea Turtles**	**Daytime Scenery and Visual, Cultural Resources (visual)**	**Nighttime Scenery and Visual, Cultural Resources (visual)**	**Demographics, Employment, and Economics; Environmental Justice; Land Use and Coastal Infrastructure; Coastal Habitats and Fauna; Terrestrial Habitats and Fauna; Other Uses (Aviation, Radars)**
NE	NA	NE Aqua Ventus I (state waters)	2	-	-	-	-	2	2	-	2	-		-
NE	NA	Block Island (state waters)	5	-	-	-	-	5	5	-	5	-		-
		Total State Waters	**7**	**-**	**-**	**-**	**-**	**7**	**7**	**-**	**7**	**-**		**-**
MA/RI	501	Vineyard Wind 1	62	62	62	62	62	62	62	62	62	62	62	62
MA/RI	517	South Fork Wind	12	-	12	-	12	12	12	12	12	12	12	12
MA/RI	486	Sunrise Wind	94	81	94	-	94	94	94	94	94	94	94	94
MA/RI	487	Revolution Wind	100	12	100	40	100	100	100	100	100	100	100	100
MA/RI	534	New England Wind Phase 1	62	62	62	62	62	62	62	62	62	41	62	62
MA/RI	534	New England Wind Phase 2	88	88	88	88	88	88	88	88	88	89	88	88
MA/RI	521	South Coast Wind	147	147	147	49	147	147	147	147	147	135	76	147
MA/RI	520	Beacon Wind Phase 1 and 2	164	164	164	164	164	164	164	164	164	164	110	164
MA/RI	500	Bay State Wind	94	94	94	165	94	94	94	94	94	94	89	94
MA/RI	522	Vineyard Northeast Wind	160	-	160	-	160	160	160	-	160	131	47	160
MA/RI	500, 487	Remainder of projects	116	-	116	51	116	116	116	-	116	50	-	116
		Total MA/RI Leases	**1,099**	**710**	**1,099**	**681**	**1,099**	**1,099**	**1,099**	**823**	**1,099**	**972**	**740**	**1,099**
		MA/RI Leases without NE Wind	***949***	***560***	***949***	***531***	***949***	***949***	***949***	***673***	***949***	***842***	***590***	***949***
NY/NJ	498	Ocean Wind	98	-	-	-	-	98	98	-	98	-		-
NY/NJ	512	Empire Wind 1	57	-	-	-	-	57	57	-	57	-		-
NY/NJ	512	Empire Wind 2	90	-	-	-	-	90	90	-	90	-		-
NY/NJ	499	Atlantic Shores South	200	-	-	-	-	200	200	-	200	-		-
NY/NJ	532	Ocean Wind 2	109	-	-	-	-	109	109	-	109	-		-
NY/NJ	549	Atlantic Shores North	157	-	-	-	-	157	157	-	157	-		-
NY/NJ	537	OW Ocean Winds East OCS	80	-	-	-	-	80	80	-	80	-		-
NY/NJ	538	Attentive Energy	100	-	-	-	-	100	100	-	100	-		-
NY/NJ	539	Bight Wind Holdings	145	-	-	-	-	145	145	-	145	-		-
NY/NJ	541	Atlantic Shores Offshore Wind Bight	93	-	-	-	-	93	93	-	93	-		-
NY/NJ	542	Invenergy Wind Offshore	97	-	-	-	-	97	97	-	97	-		-
NY/NJ	544	Vineyard Mid-Atlantic	102	-	-	-	-	102	102	-	102	-		-
		Total NY/NJ Leases	**1,328**	**-**	**-**	**-**	**-**	**1,328**	**1,328**	**-**	**1,328**	**-**		**-**
DE/MD	519	Skipjack	16	-	-	-	-	16	16	-	16	-		-
DE/MD	490	US Wind	121	-	-	-	-	121	121	-	121	-		-
DE/MD	482, 519	GSOE I and remainder	94	-	-	-	-	94	94	-	94	-		-
		Total DE/MD Leases	**231**	**-**	**-**	**-**	**-**	**231**	**231**	**-**	**231**	**-**		**-**
														-
VA/NC	497	CVOW Demonstration	2	-	-	-	-	2	2	-	2	-		-
VA/NC	483	CVOW	202	-	-	-	-	202	202	-	202	-		-
VA/NC	508	Kitty Hawk Wind North	69	-	-	-	-	69	69	-	69	-		-
VA/NC	545	Total Energies	64	-	-	-	-	64		-	64	-		-
VA/NC	546	Duke Energy	64	-	-	-	-	64		-	64	-		-
VA/NC	508	Kitty Hawk South	121	-	-	-	-	121	121	-	121	-		-
		Total VA/NC Leases	**522**	**-**	**-**	**-**	**-**	**522**	**394**	**-**	**522**	**-**		**-**
		Atlantic OCS Total	**3,187**	**710**	**1,099**	**681**	**1,099**	**3,187**	**3,059**	**823**	**3,187**	**972**	**740**	**1,099**
		Atlantic OCS Total Without NE Wind	***3,037***	***560***	***949***	***531***	***949***	***3,037***	***2,909***	***673***	***3,037***	***842***	***590***	***949***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; DE = Delaware; HAP = hazardous air pollutants; MA = Massachusetts; MD = Maryland; NA = Not Applicable; NC = North Carolina; NE = New England; NJ = New Jersey; NOx = nitrogen oxide; NY = New York; PM_{10} = particulate matter smaller than 10 microns; $PM_{2.5}$ = particulate matter smaller than 2.5 microns; RI = Rhode Island; SO_2 = sulfur dioxide; VA = Virginia; VOC = volatile organic compounds

Region	Lease	Name	Maximum Number of Foundations										
			Overall	Air Quality	Wetlands and Waters of the US	Benthic	Cultural Resources, Navigation and Vessel Traffic, Other Resources	Finfish, Invertebrates, and EFH	Commercial Fisheries and For-hire Recreational Fishing	Water Quality	Birds, Bats, Marine Mammals, Sea Turtles	Scenery and Visual, Cultural Resources (visual), Other Uses (Aviation, Radars)	Demographics, Employment, and Economics; Environmental Justice; Land Use and Coastal Infrastructure; Coastal Habitats and Fauna; Terrestrial Habitats and Fauna
NE	NA	NE Aqua Ventus I (state waters)	2	-	-	-	-	2	2	-	2	-	-
NE	NA	Block Island (state waters)	5	-	-	-	-	5	5	-	5	-	-
		Total State Waters	7	-	-	-	-	7	7	-	7	-	-
MA/RI	501	Vineyard Wind 1	63	63	63	63	63	63	63	63	63	63	63
MA/RI	517	South Fork Wind	13	-	13	-	13	13	13	13	13	13	13
MA/RI	486	Sunrise Wind	95	81	95	-	95	95	95	95	95	95	95
MA/RI	487	Revolution Wind	102	12	102	40	102	102	102	102	102	102	102
MA/RI	534	New England Wind Phase 1	64	64	64	64	64	64	64	64	64	41	64
MA/RI	534	New England Wind Phase 2	91	91	91	91	91	91	91	91	91	89	91
MA/RI	521	South Coast Wind	149	149	149	49	149	149	149	149	149	149	149
MA/RI	520	Beacon Wind Phase 1 and 2	166	166	166	166	166	166	166	166	166	166	166
MA/RI	500	Bay State Wind	96	96	96	165	96	96	96	96	96	96	96
MA/RI	522	Vineyard Northeast Wind	160	-	160	-	160	160	160	-	160	160	160
MA/RI	500, 487	Remainder of projects	119	-	119	51	119	119	119	-	119	119	119
		Total MA/RI Leases	**1,118**	**722**	**1,118**	**689**	**1,118**	**1,118**	**1,118**	**839**	**1,118**	**1,093**	**1,118**
		MA/RI Leases without NE Wind	***963***	***567***	***963***	***534***	***963***	***963***	***963***	***684***	***963***	***963***	***963***
NY/NJ	498	Ocean Wind	101	-	-	-	-	101	101	-	101	-	-
NY/NJ	512	Empire Wind 1	58	-	-	-	-	58	58	-	58	-	-
NY/NJ	512	Empire Wind 2	91	-	-	-	-	91	91	-	91	-	-
NY/NJ	499	Atlantic Shores South	210	-	-	-	-	210	210	-	210	-	-
NY/NJ	532	Ocean Wind 2	111	-	-	-	-	111	111	-	111	-	-
NY/NJ	549	Atlantic Shores North	165	-	-	-	-	165	165	-	165	-	-
NY/NJ	537	OW Ocean Winds East OCS	82	-	-	-	-	82	82	-	82	-	-
NY/NJ	538	Attentive Energy	102	-	-	-	-	102	102	-	102	-	-
NY/NJ	539	Bight Wind Holdings	148	-	-	-	-	148	148	-	148	-	-
NY/NJ	541	Atlantic Shores Offshore Wind Bight	95	-	-	-	-	95	95	-	95	-	-
NY/NJ	542	Invenergy Wind Offshore	99	-	-	-	-	99	99	-	99	-	-
NY/NJ	544	Vineyard Mid-Atlantic	104	-	-	-	-	104	104	-	104	-	-
		Total NY/NJ Leases	**1,366**	**-**	**-**	**-**	**-**	**1,366**	**1,366**	**-**	**1,366**	**-**	**-**
DE/MD	519	Skipjack	17	-	-	-	-	17	17	-	17	-	-
DE/MD	490	US Wind	125	-	-	-	-	125	125	-	125	-	-
DE/MD	482, 519	GSOE I and remainder	96	-	-	-	-	96	96	-	96	-	-
		Total DE/MD Leases	**238**	**-**	**-**	**-**	**-**	**238**	**238**	**-**	**238**	**-**	**-**
													-
VA/NC	497	CVOW Demonstration	2	-	-	-	-	2	2	-	2	-	-
VA/NC	483	CVOW	205	-	-	-	-	205	205	-	205	-	-
VA/NC	508	Kitty Hawk Wind North	70	-	-	-	-	70	70	-	70	-	-
VA/NC	545	Total Energies	65	-	-	-	-	65		-	65	-	-
VA/NC	546	Duke Energy	65	-	-	-	-	65		-	65	-	-
VA/NC	508	Kitty Hawk South	123	-	-	-	-	123	123	-	123	-	-
		Total VA/NC Leases	**530**	**-**	**-**	**-**	**-**	**530**	**400**	**-**	**530**	**-**	**-**
		Atlantic OCS Total	**3,259**	**722**	**1,118**	**689**	**1,118**	**3,259**	**3,129**	**839**	**3,259**	**3,259**	**3,259**
		Atlantic OCS Total Without NE Wind	***3,104***	***567***	***963***	***534***	***963***	***3,104***	***2,974***	***684***	***3,104***	***3,129***	***3,104***

Region	Lease	Name	OECC Length (mi)	Inter-Array + Inter-Link Cable Length (mi)	Total Footprint of Foundations (Acres)									
					Overall	Wetlands and Waters of the US	Benthic	Cultural Resources	Navigation and Vessel Traffic, Recreation and Tourism, Other Resources	Finfish, Invertebrates, and EFH	Commercial Fisheries and For-hire Recreational Fishing	Water Quality	Birds, Bats, Marine Mammals, Sea Turtles	Demographics, Employment, and Economics; Environmental Justice;
NE	NA	NE Aqua Ventus I (state waters)			NA						-			
NE	NA	Block Island (state waters)			1.0						-			
		Total State Waters			**1.0**						**-**			
MA/RI	501	Vineyard Wind 1	49	177	1.3	1.3	1.3	-	1.3	1.3	1	1.3	1.3	1.3
MA/RI	517	South Fork Wind	139	21	14.8	14.8	-	-	14.8	14.8	15	14.8	14.8	14.8
MA/RI	486	Sunrise Wind	106	186	5.5	5.5	-	-	5.5	5.5	6	5.5	5.5	5.5
MA/RI	487	Revolution Wind	50	164	5.1	5.1	2.0	-	5.1	5.1	5	5.1	5.1	5.1
MA/RI	534	New England Wind Phase 1	126	152	1.7	1.7	1.7	1.7	1.7	1.7	2	1.7	1.7	1.7
MA/RI	534	New England Wind Phase 2	221	239	2.7	2.7	2.7	2.7	2.7	2.7	3	2.7	2.7	2.7
MA/RI	521	South Coast Wind	744	497	7.5	7.5	2.5	-	7.5	7.5	7	7.5	7.5	7.5
MA/RI	520	Beacon Wind Phase 1 and 2	120	417	8.3	8.3	8.3	-	8.3	8.3	8	8.3	8.3	8.3
MA/RI	500	Bay State Wind	120	239	4.8	4.8	8.3	-	4.8	4.8	5	4.8	4.8	4.8
MA/RI	522	Vineyard Northeast Wind	120	407	8.0	8.0	-	-	8.0	8.0	8	-	8.0	8.0
MA/RI	500, 487	Remainder of projects	-	295	6.0	6.0	6.0	-	6.0	6.0	6	-	6.0	6.0
		Total MA/RI Leases	**1,794.3**	**2,795.0**	**65.6**	**65.6**	**32.7**	**4.4**	**65.6**	**65.6**	**66**	**51.7**	**65.6**	**65.6**
		MA/RI Leases without NE Wind	***1,448***	***2,404***	***61.2***	***61.2***	***28.3***	***-***	***61.2***	***61.2***	***61***	***47.3***	***61.2***	***61.2***
NY/NJ	498	Ocean Wind	71	190	3.0					3.0	3		3.0	
NY/NJ	512	Empire Wind 1	46	133	34.1					34.1	34		34.1	
NY/NJ	512	Empire Wind 2	30	166	53.5					53.5	54		53.5	
NY/NJ	499	Atlantic Shores South	99	292	36.5					36.5	37		36.5	
NY/NJ	532	Ocean Wind 2			5.6					5.6	6		5.6	
NY/NJ	549	Atlantic Shores North			28.7					28.7	29		28.7	
NY/NJ	537	OW Ocean Winds East OCS			4.1					4.1	4		4.1	
NY/NJ	538	Attentive Energy			5.1					5.1	5		5.1	
NY/NJ	539	Bight Wind Holdings			7.4					7.4	7		7.4	
NY/NJ	541	Atlantic Shores Offshore Wind Bight			4.8					4.8	5		4.8	
NY/NJ	542	Invenergy Wind Offshore			5.0					5.0	5		5.0	
NY/NJ	544	Vineyard Mid-Atlantic			5.2					5.2	5		5.2	
		Total NY/NJ Leases			**193.0**	**-**	**-**		**-**	**193.0**	**193**	**-**	**193.0**	**-**
DE/MD	519	Skipjack			0.9					0.9	1		0.9	
DE/MD	490	US Wind	146	152	3.7					3.7	4		3.7	
DE/MD	482, 519	GSOE I and remainder			4.8					4.8	5		4.8	
		Total DE/MD Leases			**9.3**	**-**	**-**		**-**	**9.3**	**9**	**-**	**9.3**	**-**
VA/NC	497	CVOW Demonstration			0.1					0.1	0		0.1	
VA/NC	483	CVOW	49	301	40.5					40.5	41		40.5	
VA/NC	508	Kitty Hawk Wind North	112	149	20.8					20.8	21		20.8	
VA/NC	545	Total Energies			3.3					3.3			3.3	
VA/NC	546	Duke Energy			3.3					3.3			3.3	
VA/NC	508	Kitty Hawk South	200	149	6.2					6.2	6		6.2	
		Total VA/NC Leases			**74.1**	**-**	**-**		**-**	**74.1**	**68**	**-**	**74.1**	**-**
		Atlantic OCS Total			**343.0**	**65.6**	**32.7**	**4**	**65.6**	**342.0**	**335**	**51.7**	**342.0**	**65.6**
		Atlantic OCS Total Without NE Wind			***339***	***61***	***28***	***-***	***61***	***338***	***331***	***47***	***338***	***61***

Region	Lease	Name	Seabed Disturbance (Foundation + Scour Protection) (Acres)									
			Overall	Wetlands and Waters of the US	Benthic	Cultural Resources	Navigation and Vessel Traffic, Recreation and Tourism, Other Resources	Finfish, Invertebrates, and EFH	Commercial Fisheries and For-hire Recreational Fishing	Water Quality	Birds, Bats, Marine Mammals, Sea Turtles	Demographics, Employment, and Economics; Environmental Justice;
NE	NA	NE Aqua Ventus I (state waters)	NA						-			
NE	NA	Block Island (state waters)	6						-			
		Total State Waters	**6**						**-**			
MA/RI	501	Vineyard Wind 1	32.7	32.7	32.7	-	32.7	32.7	33	32.7	32.7	32.7
MA/RI	517	South Fork Wind	11.0	11.0	-	-	11.0	11.0	11	11.0	11.0	11.0
MA/RI	486	Sunrise Wind	97.6	97.6		-	97.6	97.6	98	97.6	97.6	97.6
MA/RI	487	Revolution Wind	74.0	74.0	29.6	-	74.0	74.0	74	74.0	74.0	74.0
MA/RI	534	New England Wind Phase 1	74.0	74.0	74.0	74.0	74.0	74.0	74	74.0	74.0	74.0
MA/RI	534	New England Wind Phase 2	204.0	204.0	204.0	204.0	204.0	204.0	204	204.0	204.0	204.0
MA/RI	521	South Coast Wind	1,697.0	1,697.0	565.7	-	1,697.0	1,697.0	1,697	1,697.0	1,697.0	1,697.0
MA/RI	520	Beacon Wind Phase 1 and 2	798.0	798.0	798.0	-	798.0	798.0	798	798.0	798.0	798.0
MA/RI	500	Bay State Wind	113.0	113.0	113.0	-	113.0	113.0	113	113.0	113.0	113.0
MA/RI	522	Vineyard Northeast Wind	3.8	3.8	-	-	3.8	3.8	4	-	3.8	3.8
MA/RI	500, 487	Remainder of projects	137.0	137.0	137.0	-	137.0	137.0	137	-	137.0	137.0
		Total MA/RI Leases	**3,242.1**	**3,242.1**	**1,954.0**	**278.0**	**3,242.1**	**3,242.1**	**3,242**	**3,101.3**	**3,242.1**	**3,242.1**
		MA/RI Leases without NE Wind	***2,964.1***	***2,964.1***	***1,676.0***	**-**	***2,964.1***	***2,964.1***	***2,964***	***2,823.3***	***2,964.1***	***2,964.1***
NY/NJ	498	Ocean Wind	84.0					84.0	84		84.0	
NY/NJ	512	Empire Wind 1	52.4					52.4	52		52.4	
NY/NJ	512	Empire Wind 2	82.8					82.8	83		82.8	
NY/NJ	499	Atlantic Shores South	289.0					289.0	289		289.0	
NY/NJ	532	Ocean Wind 2	130.0					130.0	130		130.0	
NY/NJ	549	Atlantic Shores North	190.00					190.0	190		190.0	
NY/NJ	537	OW Ocean Winds East OCS	103.0					103.0	103		103.0	
NY/NJ	538	Attentive Energy	129.0					129.0	129		129.0	
NY/NJ	539	Bight Wind Holdings	186.0					186.0	186		186.0	
NY/NJ	541	Atlantic Shores Offshore Wind Bight	120.0					120.0	120		120.0	
NY/NJ	542	Invenergy Wind Offshore	125.0					125.0	125		125.0	
NY/NJ	544	Vineyard Mid-Atlantic	131.0					131.0	131		131.0	
		Total NY/NJ Leases	**1,622**	**-**	**-**		**-**	**1,622**	**1,622**	**-**	**1,622**	**-**
DE/MD	519	Skipjack	21.0					21.0	21		21.0	
DE/MD	490	US Wind	158.0					158.0	158		158.0	
DE/MD	482, 519	GSOE I and remainder	121.0					121.0	121		121.0	
		Total DE/MD Leases	**300.0**	**-**	**-**		**-**	**300.0**	**300**	**-**	**300.0**	**-**
VA/NC	497	CVOW Demonstration	2.0					2.0	2		2.0	
VA/NC	483	CVOW	196.0					196.0	196		196.0	
VA/NC	508	Kitty Hawk Wind North	66.0					66.0	66		66.0	
VA/NC	545	Total Energies	82.0					82.0			82.0	
VA/NC	546	Duke Energy	82.0					82.0			82.0	
VA/NC	508	Kitty Hawk South	100.0					100.0	100		100.0	
		Total VA/NC Leases	**528.0**	**-**	**-**		**-**	**528.0**	**364**	**-**	**528.0**	**-**
		Atlantic OCS Total	**5,698**	**3,242**	**1,954**		**3,242**	**5,692**	**5,528**	**3,101**	**5,692**	**3,242**
		Atlantic OCS Total Without NE Wind	***5,420***	***2,964***	***1,676***		***2,964***	***5,414***	***5,250***	***2,823***	***5,414***	***2,964***

Region	Lease	Name	OEC Seabed Disturbance (Acres)									
			Overall	**Wetlands and Waters of the US**	**Benthic**	**Cultural Resources**	**Navigation and Vessel Traffic, Recreation and Tourism, Other Resources**	**Finfish, Invertebrates, and EFH**	**Commercial Fisheries and For-hire Recreational Fishing**	**Water Quality**	**Birds, Bats, Marine Mammals, Sea Turtles**	**Demographics, Employment, and Economics; Environmental Justice;**
NE	NA	NE Aqua Ventus I (state waters)	NA						-			
NE	NA	Block Island (state waters)	11.6						-			
		Total State Waters	**11.6**						**-**			
MA/RI	501	Vineyard Wind 1	69	69.0	69.0	69.0	69.0	69.0	69	69.0	69.0	69.0
MA/RI	517	South Fork Wind	555	555.0	-	-	555.0	555.0	555	555.0	555.0	555.0
MA/RI	486	Sunrise Wind	1,185	1,185.0	-	-	1,185.0	1,185.0	1,185	1,185.0	1,185.0	1,185.0
MA/RI	487	Revolution Wind	1,324	1,324.0	529.6	-	1,324.0	1,324.0	1,324	1,324.0	1,324.0	1,324.0
MA/RI	534	New England Wind Phase 1	252	252.0	252.0	252.0	252.0	252.0	252	252.0	252.0	252.0
MA/RI	534	New England Wind Phase 2	358	358.0	358.0	358.0	358.0	358.0	358	358.0	358.0	358.0
MA/RI	521	South Coast Wind	2,480	2,480.0	826.7	-	2,480.0	2,480.0	2,480	2,480.0	2,480.0	2,480.0
MA/RI	520	Beacon Wind Phase 1 and 2	318	318.2	318.2	-	318.2	318.2	318	318.2	318.2	318.2
MA/RI	500	Bay State Wind	110	110.0	110.0	-	110.0	110.0	110	110.0	110.0	110.0
MA/RI	522	Vineyard Northeast Wind	2,136	2,136.0	-	-	2,136.0	2,136.0	2,136	-	2,136.0	2,136.0
MA/RI	500, 487	Remainder of projects	170	170.0	170.0	-	170.0	170.0	170	-	170.0	170.0
		Total MA/RI Leases	**8,957**	**8,957.2**	**2,633.5**	**679.0**	**8,957.2**	**8,957.2**	**8,957**	**6,651.2**	**8,957.2**	**8,957.2**
		MA/RI Leases without NE Wind	***8,347.2***	***8,347.2***	***2,023.5***	***69.0***	***8,347.2***	***8,347.2***	***8,347***	***6,041.2***	***8,347.2***	***8,347.2***
NY/NJ	498	Ocean Wind	1,935.0					1,935.0	1,935		1,935.0	
NY/NJ	512	Empire Wind 1	368.0					368.0	368		368.0	
NY/NJ	512	Empire Wind 2	360.0					360.0	360		360.0	
NY/NJ	499	Atlantic Shores South	294.0					294.0	294		294.0	
NY/NJ	532	Ocean Wind 2	170.0					170.0	170		170.0	
NY/NJ	549	Atlantic Shores North	3,393.0					3,393.0	3,393		3,393.0	
NY/NJ	537	OW Ocean Winds East OCS	170.0					170.0	170		170.0	
NY/NJ	538	Attentive Energy	170.0					170.0	170		170.0	
NY/NJ	539	Bight Wind Holdings	170.0					170.0	170		170.0	
NY/NJ	541	Atlantic Shores Offshore Wind Bight	170.0					170.0	170		170.0	
NY/NJ	542	Invenergy Wind Offshore	170.0					170.0	170		170.0	
NY/NJ	544	Vineyard Mid-Atlantic	170.0					170.0	170		170.0	
		Total NY/NJ Leases	**7,540**	**-**	**-**		**-**	**7,540**	**7,540**	**-**	**7,540**	**-**
DE/MD	519	Skipjack	32.0					32.0	32		32.0	
DE/MD	490	US Wind	114.0					114.0	114		114.0	
DE/MD	482, 519	GSOE I and remainder	157.6					157.6	158		157.6	
		Total DE/MD Leases	**304**	**-**	**-**		**-**	**303.6**	**304**	**-**	**303.6**	**-**
VA/NC	497	CVOW Demonstration	11.0					11.0	11		11.0	
VA/NC	483	CVOW	2,635.0					2,635.0	2,635		2,635.0	
VA/NC	508	Kitty Hawk Wind North	407.0					407.0	407		407.0	
VA/NC	545	Total Energies	158.0					158.0			158.0	
VA/NC	546	Duke Energy	158.0					158.0			158.0	
VA/NC	508	Kitty Hawk South	1,284.0					1,284.0	1,284		1,284.0	
		Total VA/NC Leases	**4,653**	**-**	**-**		**-**	**4,653.0**	**4,337**	**-**	**4,653.0**	**-**
		Atlantic OCS Total	**21,465**	**8,957**	**2,633**	**679**	**8,957**	**21,454**	**21,138**	**6,651**	**21,454**	**8,957**
		Atlantic OCS Total Without NE Wind	***20,855***	***8,347***	***2,023***	***69***	***8,347***	***20,844***	***20,528***	***6,041***	***20,844***	***8,347***

			OEC Hard Protection (Acres)									
Region	**Lease**	**Name**	**Overall**	**Wetlands and Waters of the US**	**Benthic**	**Cultural Resources**	**Navigation and Vessel Traffic, Recreation and Tourism, Other Resources**	**Finfish, Invertebrates, and EFH**	**Commercial Fisheries and For-hire Recreational Fishing**	**Water Quality**	**Birds, Bats, Marine Mammals, Sea Turtles**	**Demographics, Employment, and Economics; Environmental Justice;**
NE	NA	NE Aqua Ventus I (state waters)	NA						-			
NE	NA	Block Island (state waters)	NA						-			
		Total State Waters	**NA**						**-**			
MA/RI	501	Vineyard Wind 1	35	35.0	35.0	35.0	35.0	35.0	35	35.0	35.0	35.0
MA/RI	517	South Fork Wind	10	10.0	-	-	10.0	10.0	10	10.0	10.0	10.0
MA/RI	486	Sunrise Wind	25.2	25.2	-	-	25.2	25.2	25	25.2	25.2	25.2
MA/RI	487	Revolution Wind	48	48.0	19.2	-	48.0	48.0	48	48.0	48.0	48.0
MA/RI	534	New England Wind Phase 1	2	2.0	2.0	2.0	2.0	2.0	2	2.0	2.0	2.0
MA/RI	534	New England Wind Phase 2	5	5.0	5.0	5.0	5.0	5.0	5	5.0	5.0	5.0
MA/RI	521	South Coast Wind	247	247.0	82.3	-	247.0	247.0	247	247.0	247.0	247.0
MA/RI	520	Beacon Wind Phase 1 and 2	48.0	48.0	48.0	-	48.0	48.0	48	48.0	48.0	48.0
MA/RI	500	Bay State Wind	17.0	17.0	17.0	-	17.0	17.0	17	17.0	17.0	17.0
MA/RI	522	Vineyard Northeast Wind	130.0	130.0	-	-	130.0	130.0	130	-	130.0	130.0
MA/RI	500, 487	Remainder of projects	24.0	24.0	24.0	-	24.0	24.0	24	-	24.0	24.0
		Total MA/RI Leases	**591**	**591.2**	**232.5**	**42.0**	**591.2**	**591.2**	**591**	**437.2**	**591.2**	**591.2**
		MA/RI Leases without NE Wind	***584.2***	***584.2***	***225.5***	***35.0***	***584.2***	***584.2***	***584***	***430.2***	***584.2***	***584.2***
NY/NJ	498	Ocean Wind	94.0					94.0	94		94.0	
NY/NJ	512	Empire Wind 1	33.0					33.0	33		33.0	
NY/NJ	512	Empire Wind 2	32.0					32.0	32		32.0	
NY/NJ	499	Atlantic Shores South	294.0					294.0	294		294.0	
NY/NJ	532	Ocean Wind 2	24					24.0	24		24.0	
NY/NJ	549	Atlantic Shores North	393.0					393.0	393		393.0	
NY/NJ	537	OW Ocean Winds East OCS	24.0					24.0	24		24.0	
NY/NJ	538	Attentive Energy	24.0					24.0	24		24.0	
NY/NJ	539	Bight Wind Holdings	24.0					24.0	24		24.0	
NY/NJ	541	Atlantic Shores Offshore Wind Bight	24.0					24.0	24		24.0	
NY/NJ	542	Invenergy Wind Offshore	24.0					24.0	24		24.0	
NY/NJ	544	Vineyard Mid-Atlantic	24.0					24.0	24		24.0	
		Total NY/NJ Leases	**1,014**	**-**	**-**		**-**	**1,014**	**1,014**	**-**	**1,014**	**-**
DE/MD	519	Skipjack	5.0					5.0	5		5.0	
DE/MD	490	US Wind	17.0					17.0	17		17.0	
DE/MD	482, 519	GSOE I and remainder	4.8					4.8	5		4.8	
		Total DE/MD Leases	**27**	**-**	**-**		**-**	**26.8**	**27**	**-**	**26.8**	**-**
VA/NC	497	CVOW Demonstration	3.0					3.0	3		3.0	
VA/NC	483	CVOW	149.0					149.0	149		149.0	
VA/NC	508	Kitty Hawk Wind North	32.0					32.0	32		32.0	
VA/NC	545	Total Energies	24.0					24.0			24.0	
VA/NC	546	Duke Energy	24.0					24.0			24.0	
VA/NC	508	Kitty Hawk South	49.0					49.0	49		49.0	
		Total VA/NC Leases	**281**	**-**	**-**		**-**	**281.0**	**233**	**-**	**281.0**	**-**
		Atlantic OCS Total	**#VALUE!**	**591**	**233**	**42**	**591**	**1,913**	**1,865**	**437**	**1,913**	**591**
		Atlantic OCS Total Without NE Wind	***#VALUE!***	***584***	***226***	***35***	***584***	***1,906***	***1,858***	***430***	***1,906***	***584***

Region	Lease	Name	Anchoring Disturbance (Acres)									
			Overall	Wetlands and Waters of the US	Benthic	Cultural Resources	Navigation and Vessel Traffic, Recreation and Tourism, Other Resources	Finfish, Invertebrates, and EFH	Commercial Fisheries and For-hire Recreational Fishing	Water Quality	Birds, Bats, Marine Mammals, Sea Turtles	Demographics, Employment, and Economics; Environmental Justice;
NE	NA	NE Aqua Ventus I (state waters)	NA						-			
NE	NA	Block Island (state waters)	0.5						-			
		Total State Waters	**0.5**						**-**			
MA/RI	501	Vineyard Wind 1	122	122.0	122.0	-	122.0	122.0	122	122.0	122.0	122.0
MA/RI	517	South Fork Wind	821	821.0	-	-	821.0	821.0	821	821.0	821.0	821.0
MA/RI	486	Sunrise Wind	260.3	260.3	NA	-	260.3	260.3	260	260.3	260.3	260.3
MA/RI	487	Revolution Wind	21	21.0	NA	-	21.0	21.0	21	21.0	21.0	21.0
MA/RI	534	New England Wind Phase 1	143	143.0	143.0	143.0	143.0	143.0	143	143.0	143.0	143.0
MA/RI	534	New England Wind Phase 2	199	199.0	199.0	199.0	199.0	199.0	199	199.0	199.0	199.0
MA/RI	521	South Coast Wind	442	442.0	147.3	-	442.0	442.0	442	442.0	442.0	442.0
MA/RI	520	Beacon Wind Phase 1 and 2	18	18.0	18.0	-	18.0	18.0	18	18.0	18.0	18.0
MA/RI	500	Bay State Wind	442	442.0	442.0	-	442.0	442.0	442	442.0	442.0	442.0
MA/RI	522	Vineyard Northeast Wind	896	896.0	-	-	896.0	896.0	896	-	896.0	896.0
MA/RI	500, 487	Remainder of projects	498	497.6	497.6	-	497.6	497.6	498	-	497.6	497.6
		Total MA/RI Leases	**3,862**	**3,861.9**	**1,568.9**	**342.0**	**3,861.9**	**3,861.9**	**3,862**	**2,468.3**	**3,861.9**	**3,861.9**
		MA/RI Leases without NE Wind	***3,519.9***	***3,519.9***	***1,226.9***	***-***	***3,519.9***	***3,519.9***	***3,520***	***2,126.3***	***3,519.9***	***3,519.9***
NY/NJ	498	Ocean Wind	19.0					19.0	19		19.0	
NY/NJ	512	Empire Wind 1	9.0					9.0	9		9.0	
NY/NJ	512	Empire Wind 2	9.0					9.0	9		9.0	
NY/NJ	499	Atlantic Shores South	714.0					714.0	714		714.0	
NY/NJ	532	Ocean Wind 2	292.8					292.8	293		292.8	
NY/NJ	549	Atlantic Shores North	416.0					416.0	416		416.0	
NY/NJ	537	OW Ocean Winds East OCS	292.8					292.8	293		292.8	
NY/NJ	538	Attentive Energy	292.8					292.8	293		292.8	
NY/NJ	539	Bight Wind Holdings	292.8					292.8	293		292.8	
NY/NJ	541	Atlantic Shores Offshore Wind Bight	292.8					292.8	293		292.8	
NY/NJ	542	Invenergy Wind Offshore	292.8					292.8	293		292.8	
NY/NJ	544	Vineyard Mid-Atlantic	292.8					292.8	293		292.8	
		Total NY/NJ Leases	**3,217**	**-**	**-**		**-**	**3,217**	**3,217**	**-**	**3,217**	**-**
DE/MD	519	Skipjack	58.6					58.6	59		58.6	
DE/MD	490	US Wind	212.2					212.2	212		212.2	
DE/MD	482, 519	GSOE I and remainder	335.8					335.8	336		335.8	
		Total DE/MD Leases	**607**	**-**	**-**		**-**	**606.6**	**607**	**-**	**606.6**	**-**
VA/NC	497	CVOW Demonstration	0.6					0.6	1		0.6	
VA/NC	483	CVOW	49.0					49.0	49		49.0	
VA/NC	508	Kitty Hawk Wind North	2.0					2.0	2		2.0	
VA/NC	545	Total Energies	4.7					4.7			4.7	
VA/NC	546	Duke Energy	4.7					4.7			4.7	
VA/NC	508	Kitty Hawk South	9.0					9.0	9		9.0	
		Total VA/NC Leases	**70**	**-**	**-**		**-**	**70.0**	**61**	**-**	**70.0**	**-**
		Atlantic OCS Total	**7,756**	**3,862**	**1,569**	**342**	**3,862**	**7,755**	**7,746**	**2,468**	**7,755**	**3,862**
		Atlantic OCS Total Without NE Wind	***7,414***	***3,520***	***1,227***	***-***	***3,520***	***7,413***	***7,404***	***2,126***	***7,413***	***3,520***

Region	Lease	Name	Inter-array + Inter-link Cable Footprint/Seabed Disruption (Acres)									
			Overall	**Wetlands and Waters of the US**	**Benthic**	**Cultural Resources**	**Navigation and Vessel Traffic, Recreation and Tourism, Other Resources**	**Finfish, Invertebrates, and EFH**	**Commercial Fisheries and For-hire Recreational Fishing**	**Water Quality**	**Birds, Bats, Marine Mammals, Sea Turtles**	**Demographics, Employment, and Economics; Environmental Justice;**
NE	NA	NE Aqua Ventus I (state waters)	NA						-			
NE	NA	Block Island (state waters)	4						-			
		Total State Waters	**4**						**-**			
MA/RI	501	Vineyard Wind 1	129.0	129.0	129.0	-	129.0	129.0	129	129.0	129.0	129.0
MA/RI	517	South Fork Wind	340.0	340.0	-	-	340.0	340.0	340	340.0	340.0	340.0
MA/RI	486	Sunrise Wind	2,150.0	2,150.0	-	-	2,150.0	2,150.0	2,150	2,150.0	2,150.0	2,150.0
MA/RI	487	Revolution Wind	2,471.0	2,471.0	988.4	-	2,471.0	2,471.0	2,471	2,471.0	2,471.0	2,471.0
MA/RI	534	New England Wind Phase 1	222.0	222.0	222.0	222.0	222.0	222.0	222	222.0	222.0	222.0
MA/RI	534	New England Wind Phase 2	321.0	321.0	321.0	321.0	321.0	321.0	321	321.0	321.0	321.0
MA/RI	521	South Coast Wind	1,408.0	1,408.0	469.3	-	1,408.0	1,408.0	1,408	1,408.0	1,408.0	1,408.0
MA/RI	520	Beacon Wind Phase 1 and 2	1,925.6	1,925.6	1,925.6	-	1,925.6	1,925.6	1,926	1,925.6	1,925.6	1,925.6
MA/RI	500	Bay State Wind	226.0	226.0	226.0	-	226.0	226.0	226	226.0	226.0	226.0
MA/RI	522	Vineyard Northeast Wind	1,176.0	1,176.0	-	-	1,176.0	1,176.0	1,176	-	1,176.0	1,176.0
MA/RI	500, 487	Remainder of projects	1,206.0	1,206.0	1,206.0	-	1,206.0	1,206.0	1,206	-	1,206.0	1,206.0
		Total MA/RI Leases	**11,575**	**11,574.6**	**5,487.3**	**543.0**	**11,574.6**	**11,574.6**	**11,575**	**9,192.6**	**11,574.6**	**11,574.6**
		MA/RI Leases without NE Wind	***11,031.6***	***11,031.6***	***4,944.3***	**-**	***11,031.6***	***11,031.6***	***11,032***	***8,649.6***	***11,031.6***	***11,031.6***
NY/NJ	498	Ocean Wind	1,850.0					1,850.0	1,850		1,850.0	
NY/NJ	512	Empire Wind 1	534.0					534.0	534		534.0	
NY/NJ	512	Empire Wind 2	633.0					633.0	633		633.0	
NY/NJ	499	Atlantic Shores South	282.0					282.0	282		282.0	
NY/NJ	532	Ocean Wind 2	887.0					887.0	887		887.0	
NY/NJ	549	Atlantic Shores North	2,162.0					2,162.0	2,162		2,162.0	
NY/NJ	537	OW Ocean Winds East OCS	655.0					655.0	655		655.0	
NY/NJ	538	Attentive Energy	815.0					815.0	815		815.0	
NY/NJ	539	Bight Wind Holdings	1,182.0					1,182.0	1,182		1,182.0	
NY/NJ	541	Atlantic Shores Offshore Wind Bight	759.0					759.0	759		759.0	
NY/NJ	542	Invenergy Wind Offshore	791.0					791.0	791		791.0	
NY/NJ	544	Vineyard Mid-Atlantic	831.0					831.0	831		831.0	
		Total NY/NJ Leases	**11,381**	**-**	**-**		**-**	**11,381**	**11,381**	**-**	**11,381**	**-**
DE/MD	519	Skipjack	136.0					136.0	136		136.0	
DE/MD	490	US Wind	998.0					998.0	998		998.0	
DE/MD	482, 519	GSOE I and remainder	766.8					766.8	767		766.8	
		Total DE/MD Leases	**1,901**	**-**	**-**		**-**	**1,900.8**	**1,901**	**-**	**1,900.8**	**-**
VA/NC	497	CVOW Demonstration	5.0					5.0	5		5.0	
VA/NC	483	CVOW	2,394.0					2,394.0	2,394		2,394.0	
VA/NC	508	Kitty Hawk Wind North	5,931.0					5,931.0	5,931		5,931.0	
VA/NC	545	Total Energies	4,631.0					4,631.0			4,631.0	
VA/NC	546	Duke Energy	4,631.0					4,631.0			4,631.0	
VA/NC	508	Kitty Hawk South	7,957.0					7,957.0	7,957		7,957.0	
		Total VA/NC Leases	**25,549**	**-**	**-**		**-**	**25,549.0**	**16,287**	**-**	**25,549.0**	**-**
		Atlantic OCS Total	**50,409**	**11,575**	**5,487**	**543**	**11,575**	**50,405**	**41,143**	**9,193**	**50,405**	**11,575**
		Atlantic OCS Total Without NE Wind	***49,866***	***11,032***	***4,944***	**-**	***11,032***	***49,862***	***40,600***	***8,650***	***49,862***	***11,032***

Region	Lease	Name	Inter-array + Inter-Link Cable Hard Protection (Acres)								
			Overall	Wetlands and Waters of the US	Benthic	Cultural Resources	Navigation and Vessel Traffic, Recreation and Tourism, Other Resources	Finfish, Invertebrates, and EFH; Commercial Fisheries and For-hire Recreational Fishing	Water Quality	Birds, Bats, Marine Mammals, Sea Turtles	Demographics, Employment, and Economics; Environmental Justice;
NE	NA	NE Aqua Ventus I (state waters)	NA								
NE	NA	Block Island (state waters)	NA								
		Total State Waters	**NA**								
MA/RI	501	Vineyard Wind 1	22,491.0	22,491.0	22,491.0	-	22,491.0	22,491.0	22,491.0	22,491.0	22,491.0
MA/RI	517	South Fork Wind	10.2	10.2	-	-	10.2	10.2	10.2	10.2	10.2
MA/RI	486	Sunrise Wind	129.0	129.0	-	-	129.0	129.0	129.0	129.0	129.0
MA/RI	487	Revolution Wind	41.8	41.8	16.7	-	41.8	41.8	41.8	41.8	41.8
MA/RI	534	New England Wind Phase 1	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
MA/RI	534	New England Wind Phase 2	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
MA/RI	521	South Coast Wind	122.0	122.0	40.7	-	122.0	122.0	122.0	122.0	122.0
MA/RI	520	Beacon Wind Phase 1 and 2	164.0	164.0	164.0	-	164.0	164.0	164.0	164.0	164.0
MA/RI	500	Bay State Wind	137.0	137.0	137.0	-	137.0	137.0	137.0	137.0	137.0
MA/RI	522	Vineyard Northeast Wind	21.0	21.0	-	-	21.0	21.0	-	21.0	21.0
MA/RI	500, 487	Remainder of projects	-	-	-	-	-	-	-	-	-
		Total MA/RI Leases	**23,140**	**23,140.0**	**22,873.4**	**24.0**	**23,140.0**	**23,140.0**	**23,119.0**	**23,140.0**	**23,140.0**
		MA/RI Leases without NE Wind	***23,116***	***23,116.0***	***22,849.4***	**-**	***23,116.0***	***23,116.0***	***23,095.0***	***23,116.0***	***23,116.0***
NY/NJ	498	Ocean Wind	77					77.0		77.0	
NY/NJ	512	Empire Wind 1	26.0					26.0		26.0	
NY/NJ	512	Empire Wind 2	32.0					32.0		32.0	
NY/NJ	499	Atlantic Shores South	301.0					301.0		301.0	
NY/NJ	532	Ocean Wind 2	-					-		-	
NY/NJ	549	Atlantic Shores North	301.0					301.0		301.0	
NY/NJ	537	OW Ocean Winds East OCS	-					-		-	
NY/NJ	538	Attentive Energy	-					-		-	
NY/NJ	539	Bight Wind Holdings	-					-		-	
NY/NJ	541	Atlantic Shores Offshore Wind Bight	-					-		-	
NY/NJ	542	Invenergy Wind Offshore	-					-		-	
NY/NJ	544	Vineyard Mid-Atlantic	-					-		-	
		Total NY/NJ Leases	**737**	**-**	**-**		**-**	**737**	**-**	**737**	**-**
DE/MD	519	Skipjack	-					-		-	
DE/MD	490	US Wind	-					-		-	
DE/MD	482, 519	GSOE I and remainder	-					-		-	
		Total DE/MD Leases	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**
VA/NC	497	CVOW Demonstration	-					-		-	
VA/NC	483	CVOW	-					-		-	
VA/NC	508	Kitty Hawk Wind North	-					-		-	
VA/NC	545	Total Energies	-					-		-	
VA/NC	546	Duke Energy	-					-		-	
VA/NC	508	Kitty Hawk South	-					-		-	
		Total VA/NC Leases	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**
		Atlantic OCS Total	**#VALUE!**								
		Atlantic OCS Total Without NE Wind	***#VALUE!***								

			Total of Coolant fluids in WTGs (gallons)						Total Coolant fluids in ESP/OSP (gallons)					
Region	**Lease**	**Name**	**Overall**	**Air Quality**	**Cultural Resources**	**Finfish, Invertebrates, and EFH; Commercial Fisheries and For-hire Recreational Fishing**	**Water Quality**	**Birds, Bats, Marine Mammals, Sea Turtles**	**Overall**	**Air Quality**	**Cultural Resources**	**Finfish, Invertebrates, and EFH; Commercial Fisheries and For-hire Recreational Fishing**	**Water Quality**	**Birds, Bats, Marine Mammals, Sea Turtles**
NE	NA	NE Aqua Ventus I (state waters)	NA						NA					
NE	NA	Block Island (state waters)	NA						NA					
		Total State Waters	**NA**											
MA/RI	501	Vineyard Wind 1	42,300	42,300	-	42,300	42,300	42,300	46	46	-	46	46	46
MA/RI	517	South Fork Wind	41,208	41,208	-	41,208	41,208	41,208	27	-	-	27	27	27
MA/RI	486	Sunrise Wind	322,796	322,796	-	322,796	322,796	322,796	13,208	11,262	-	13,208	13,208	13,208
MA/RI	487	Revolution Wind	343,400	343,400	-	343,400	343,400	343,400	-	-	-	-	-	-
MA/RI	534	New England Wind Phase 1	314,464	314,464	314,464	314,464	314,464	314,464	4,228	4,228	4,228	4,228	4,228	4,228
MA/RI	534	New England Wind Phase 2	314,464	314,464	314,464	314,464	314,464	314,464	9,510	9,510	9,510	9,510	9,510	9,510
MA/RI	521	South Coast Wind	73,500	73,500	-	73,500	73,500	73,500	1,500	1,500	-	1,500	1,500	1,500
MA/RI	520	Beacon Wind Phase 1 and 2	163,936	163,936	-	163,936	50,302	163,936	26,416	8,105	-	26,416	8,105	26,416
MA/RI	500	Bay State Wind	322,796	322,796		322,796	29,090	322,796	50	4,687		50	4,687	50
MA/RI	522	Vineyard Northeast Wind	1268000	1,268,000		1,268,000	-	1,268,000	14,792	-		14,792	-	14,792
MA/RI	500, 487	Remainder of projects	369,410	369,410		369,410	36,060	369,410	12,049	5,811		12,049	5,811	12,049
		Total MA/RI Leases	**3,576,274**	**3,576,274**	**628,928**	**3,576,274**	**1,567,584**	**3,576,274**	**81,826**	**45,149**	**13,738**	**81,826**	**47,123**	**81,826**
		MA/RI Leases without NE Wind	***2,947,346***	***2,947,346***	**-**	***2,947,346***	***938,656***	***2,947,346***	***68,088***	***31,411***	**-**	***68,088***	***33,385***	***68,088***
NY/NJ	498	Ocean Wind	39,690	-	-	39,690	-	39,690	-	-	-	-	-	-
NY/NJ	512	Empire Wind 1	49,704	-	-	49,704	-	49,704	-	-	-	-	-	-
NY/NJ	512	Empire Wind 2	78,480	-	-	78,480	-	78,480	-	-	-	-	-	-
NY/NJ	499	Atlantic Shores South	820,000	-	-	820,000	-	820,000	10,300	-	-	10,300	-	10,300
NY/NJ	532	Ocean Wind 2	330,561	-	-	330,561	-	330,561	2,992	-	-	2,992	-	2,992
NY/NJ	549	Atlantic Shores North	643,700	-	-	643,700	-	643,700	9,150	-	-	9,150	-	9,150
NY/NJ	537	OW Ocean Winds East OCS	242,613	-	-	242,613	-	242,613	2,992	-	-	2,992	-	2,992
NY/NJ	538	Attentive Energy	303,267	-	-	303,267	-	303,267	2,992	-	-	2,992	-	2,992
NY/NJ	539	Bight Wind Holdings	439,736	-	-	439,736	-	439,736	4,488	-	-	4,488	-	4,488
NY/NJ	541	Atlantic Shores Offshore Wind Bight	282,038	-	-	282,038	-	282,038	2,992	-	-	2,992	-	2,992
NY/NJ	542	Invenergy Wind Offshore	294,169	-	-	294,169	-	294,169	2,992	-	-	2,992	-	2,992
NY/NJ	544	Vineyard Mid-Atlantic	309,332	-	-	309,332	-	309,332	2,992	-	-	2,992	-	2,992
		Total NY/NJ Leases	**3,833,290**	**-**	**-**	**3,833,290**	**-**	**3,833,290**	**41,890**	**-**	**-**	**41,890**	**-**	**41,890**
DE/MD	519	Skipjack	48,523	-	-	48,523	-	48,523	1,496	-	-	1,496	-	1,496
DE/MD	490	US Wind	366,953	-	-	366,953	-	366,953	5,985	-	-	5,985	-	5,985
DE/MD	482, 519	GSOE I and remainder	285,071	-	-	285,071	-	285,071	2,992	-	-	2,992	-	2,992
		Total DE/MD Leases	**700,547**	**-**	**-**	**700,547**	**-**	**700,547**	**10,473**	**-**	**-**	**10,473**	**-**	**10,473**
VA/NC	497	CVOW Demonstration	846						-					
VA/NC	483	CVOW	86,715	-	-	86,715	-	86,715	-	-	-	-	-	-
VA/NC	508	Kitty Hawk Wind North	29,165	-	-	29,165	-	29,165	46	-	-	46	-	46
VA/NC	545	Total Energies	27,267	-	-	27,267	-	27,267	23	-	-	23	-	23
VA/NC	546	Duke Energy	27,268	-	-	27,268	-	27,268	23	-	-	23	-	23
VA/NC	508	Kitty Hawk South	51,144	-	-	51,144	-	51,144	93	-	-	93	-	93
		Total VA/NC Leases	**222,405**	**-**	**-**	**221,559**	**-**	**221,559**	**185**	**-**	**-**	**185**	**-**	**185**
		Atlantic OCS Total	**#VALUE!**	**3,576,274**	**628,928**	**8,331,670**	**1,567,584**	**8,331,670**	**134,374**	**45,149**	**13,738**	**134,374**	**47,123**	**134,374**
		Atlantic OCS Total Without NE Wind	***#VALUE!***	***2,947,346***	**-**	***7,702,742***	***938,656***	***7,702,742***	***120,636***	***31,411***	**-**	***120,636***	***33,385***	***120,636***

			Total Volume of Oils and Lubricants in WTGs (gallons)						Total Oils and Lubricants in ESP/OSP (gallons)						
Region	**Lease**	**Name**	**Overall**	**Air Quality**	**Cultural Resources**	**Finfish, Invertebrates, and EFH; Commercial Fisheries and For-hire Recreational Fishing**	**Water Quality**	**Birds, Bats, Marine Mammals, Sea Turtles**	**Overall**	**Air Quality**	**Cultural Resources**	**Finfish, Invertebrates, and EFH**	**Commercial Fisheries and For-hire Recreational Fishing**	**Water Quality**	**Birds, Bats, Marine Mammals, Sea Turtles**
NE	NA	NE Aqua Ventus I (state waters)	NA						NA				-		
NE	NA	Block Island (state waters)	NA						NA				-		
		Total State Waters											**-**		
MA/RI	501	Vineyard Wind 1	383,000	383,000	-	383,000	383,000	383,000	123,559	123,559	-	123,559	123,559	123,559	123,559
MA/RI	517	South Fork Wind	69,732	-	-	69,732	69,732	69,732	80,045	-	-	80,045	80,045	80,045	80,045
MA/RI	486	Sunrise Wind	208,680	177,927	-	208,680	208,680	208,680	109,570	93,423	-	109,570	109,570	109,570	109,570
MA/RI	487	Revolution Wind	330,300	38,859	-	330,300	330,300	330,300	159,138	18,722	-	159,138	159,138	159,138	159,138
MA/RI	534	New England Wind Phase 1	498,604	498,604	498,604	498,604	498,604	498,604	263,650	263,650	263,650	263,650	263,650	263,650	263,650
MA/RI	534	New England Wind Phase 2	839,608	839,608	839,608	839,608	839,608	839,608	533,334	533,334	533,334	533,334	533,334	533,334	533,334
MA/RI	521	South Coast Wind	433,650	433,650	-	433,650	433,650	433,650	755,000	755,000	-	755,000	755,000	755,000	755,000
MA/RI	520	Beacon Wind Phase 1 and 2	830,736	254,902		830,736	254,902	830,736	172,002	52,777		172,002	172,002	52,777	172,002
MA/RI	500	Bay State Wind	310,200	147,413	-	310,200	147,413	310,200	160,000	30,522	-	160,000	160,000	30,522	160,000
MA/RI	522	Vineyard Northeast Wind	1,056,640	-		1,056,640	-	1,056,640	947016	-		947,016	947,016	-	947,016
MA/RI	500, 487	Remainder of projects	571,497	182,731		571,497	182,731	571,497	521,576	37,834		521,576	521,576	37,834	521,576
		Total MA/RI Leases	**5,532,647**	**2,956,695**	**1,338,212**	**5,532,647**	**3,348,621**	**5,532,647**	**3,824,890**	**1,908,821**	**796,984**	**3,824,890**	**3,824,890**	**2,145,429**	**3,824,890**
		MA/RI Leases without NE Wind	***4,194,435***	***1,618,483***	***-***	***4,194,435***	***2,010,409***	***4,194,435***	***3,027,906***	***1,111,837***	***-***	***3,027,906***	***3,027,906***	***1,348,445***	***3,027,906***
NY/NJ	498	Ocean Wind	187,964	-	-	187,964	-	187,964	238,707	-	-	238,707	238,707	-	238,707
NY/NJ	512	Empire Wind 1	285,684	-	-	285,684	-	285,684	158,503	-	-	158,503	158,503	-	158,503
NY/NJ	512	Empire Wind 2	451,080	-	-	451,080	-	451,080	158,503	-	-	158,503	158,503	-	158,503
NY/NJ	499	Atlantic Shores South	606,200	-	-	606,200	-	606,200	370,050	-	-	370,050	370,050	-	370,050
NY/NJ	532	Ocean Wind 2	417,714	-	-	417,714	-	417,714	185,452	-	-	185,452	185,452	-	185,452
NY/NJ	549	Atlantic Shores North	530,817	-	-	530,817	-	530,817	557,850	-	-	557,850	557,850	-	557,850
NY/NJ	537	OW Ocean Winds East OCS	306,579	-	-	306,579	-	306,579	185,452	-	-	185,452	185,452	-	185,452
NY/NJ	538	Attentive Energy	383,224	-	-	383,224	-	383,224	185,452	-	-	185,452	185,452	-	185,452
NY/NJ	539	Bight Wind Holdings	555,675	-	-	555,675	-	555,675	278,177	-	-	278,177	278,177	-	278,177
NY/NJ	541	Atlantic Shores Offshore Wind Bight	356,398	-	-	356,398	-	356,398	185,452	-	-	185,452	185,452	-	185,452
NY/NJ	542	Invenergy Wind Offshore	371,727	-	-	371,727	-	371,727	185,452	-	-	185,452	185,452	-	185,452
NY/NJ	544	Vineyard Mid-Atlantic	390,888	-	-	390,888	-	390,888	185,452	-	-	185,452	185,452	-	185,452
		Total NY/NJ Leases	**4,843,950**	**-**	**-**	**4,843,950**	**-**	**4,843,950**	**2,874,502**	**-**	**-**	**2,874,502**	**2,874,502**	**-**	**2,874,502**
DE/MD	519	Skipjack	61,316	-	-	61,316	-	61,316	92,726	-	-	92,726	92,726	-	92,726
DE/MD	490	US Wind	463,701	-	-	463,701	-	463,701	370,903	-	-	370,903	370,903	-	370,903
DE/MD	482, 519	GSOE I and remainder	360,231	-	-	360,231	-	360,231	185,452	-	-	185,452	185,452	-	185,452
		Total DE/MD Leases	**885,248**	**-**	**-**	**885,248**	**-**	**885,248**	**649,081**	**-**	**-**	**649,081**	**649,081**	**-**	**649,081**
VA/NC	497	CVOW Demonstration	7,660						-				-		
VA/NC	483	CVOW	430,664	-	-	430,664	-	430,664	258,300	-	-	258,300	258,300	-	258,300
VA/NC	508	Kitty Hawk Wind North	229,800	-	-	229,800	-	229,800	61,780	-	-	61,780	61,780	-	61,780
VA/NC	545	Total Energies	181,219	-	-	181,219	-	181,219	94,533	-	-	94,533		-	94,533
VA/NC	546	Duke Energy	180,939	-	-	180,939	-	180,939	94,533	-	-	94,533		-	94,533
VA/NC	508	Kitty Hawk South	447,507	-	-	447,507	-	447,507	247,117	-	-	247,117	247,117	-	247,117
		Total VA/NC Leases	**1,477,789**	**-**	**-**	**1,470,129**	**-**	**1,470,129**	**756,263**	**-**	**-**	**756,263**	**567,197**	**-**	**756,263**
		Atlantic OCS Total	**12,739,634**	**2,956,695**	**1,338,212**	**12,731,974**	**3,348,621**	**12,731,974**	**8,104,736**	**1,908,821**	**796,984**	**8,104,736**	**7,915,670**	**2,145,429**	**8,104,736**
		Atlantic OCS Total Without NE Wind	***11,401,422***	***1,618,483***	***-***	***11,393,762***	***2,010,409***	***11,393,762***	***7,307,752***	***1,111,837***	***-***	***7,307,752***	***7,118,686***	***1,348,445***	***7,307,752***

			Total Diesel Fuel in WTGs (gallons)							Total Volume of Diesel Fuel in ESP/OSP (gallons)						
Region	**Lease**	**Name**	**Overall**	**Air Quality**	**Cultural Resources**	**Finfish, Invertebrates, and EFH**	**Commercial Fisheries and For-hire Recreational Fishing**	**Water Quality**	**Birds, Bats, Marine Mammals, Sea Turtles**	**Overall**	**Air Quality**	**Cultural Resources**	**Finfish, Invertebrates, and EFH**	**Commercial Fisheries and For-hire Recreational Fishing**	**Water Quality**	**Birds, Bats, Marine Mammals, Sea Turtles**
NE	NA	NE Aqua Ventus I (state waters)	NA				-			NA				-		
NE	NA	Block Island (state waters)	NA				-			NA				-		
		Total State Waters	**NA**				**-**			**NA**				**-**		
MA/RI	501	Vineyard Wind 1	79,300	79,300	-	79,300	79,300	79,300	79,300	5,696	5,696	-	5,696	5,696	5,696	5,696
MA/RI	517	South Fork Wind	9,516	-	-	9,516	9,516	9,516	9,516	52,834	-	-	52,834	52,834	52,834	52,834
MA/RI	486	Sunrise Wind	-	-	-	-	-	-	-	24,304	20,722	-	24,304	24,304	24,304	24,304
MA/RI	487	Revolution Wind	79,300	9,329	-	79,300	79,300	79,300	79,300	105,668	12,432	-	105,668	105,668	105,668	105,668
MA/RI	534	New England Wind Phase 1	98,272	98,272	98,272	98,272	98,272	98,272	98,272	16,402	16,402	16,402	16,402	16,402	16,402	16,402
MA/RI	534	New England Wind Phase 2	162,712	162,712	162,712	162,712	162,712	162,712	162,712	24,603	24,603	24,603	24,603	24,603	24,603	24,603
MA/RI	521	South Coast Wind	132,300	132,300	-	132,300	132,300	132,300	132,300	40,000	40,000	-	40,000	40,000	40,000	40,000
MA/RI	520	Beacon Wind Phase 1 and 2	149,084	45,745		149,084	149,084	45,745	149,084		12,234			39,872	12,234	
MA/RI	500	Bay State Wind	75,200	26,455	-	75,200	75,200	26,455	75,200	39,872	7,075	-	39,872	-	7,075	39,872
MA/RI	522	Vineyard Northeast Wind	-	-		-	-	-	-		-			-	-	
MA/RI	500, 487	Remainder of projects	90,506	32,793		90,506	90,506	32,793	90,506		8,770			-	8,770	
		Total MA/RI Leases	**876,190**	**586,906**	**260,984**	**876,190**	**876,190**	**666,393**	**876,190**	**309,379**	**147,935**	**41,005**	**309,379**	**309,379**	**297,587**	**309,379**
		MA/RI Leases without NE Wind	***615,206***	***325,922***	**-**	***615,206***	***615,206***	***405,409***	***615,206***	***268,374***	***106,930***	**-**	***268,374***	***268,374***	***256,582***	***268,374***
NY/NJ	498	Ocean Wind	77,714	-	-	77,714	77,714	-	77,714	158,502	-	-	158,502	158,502	-	158,502
NY/NJ	512	Empire Wind 1	-	-	-	-	-	-	-	105,673	-	-	105,673	105,673	-	105,673
NY/NJ	512	Empire Wind 2	-	-	-	-	-	-	-	6,604	-	-	6,604	6,604	-	6,604
NY/NJ	499	Atlantic Shores South	80,000	-	-	80,000	80,000	-	80,000	75,000	-	-	75,000	75,000	-	75,000
NY/NJ	532	Ocean Wind 2	44,677	-	-	44,677	44,677	-	44,677	105,673	-	-	105,673	105,673	-	105,673
NY/NJ	549	Atlantic Shores North	62,800	-	-	62,800	62,800	-	62,800	60,000	-	-	60,000	60,000	-	60,000
NY/NJ	537	OW Ocean Winds East OCS	32,790	-	-	32,790	32,790	-	32,790	190,849	-	-	190,849	190,849	-	190,849
NY/NJ	538	Attentive Energy	40,988	-	-	40,988	40,988	-	40,988	145,563	-	-	145,563	145,563	-	145,563
NY/NJ	539	Bight Wind Holdings	59,432	-	-	59,432	59,432	-	59,432	135,859	-	-	135,859	135,859	-	135,859
NY/NJ	541	Atlantic Shores Offshore Wind Bight	38,119	-	-	38,119	38,119	-	38,119	153,650	-	-	153,650	153,650	-	153,650
NY/NJ	542	Invenergy Wind Offshore	39,758	-	-	39,758	39,758	-	39,758	152,033	-	-	152,033	152,033	-	152,033
NY/NJ	544	Vineyard Mid-Atlantic	41,807	-	-	41,807	41,807	-	41,807	101,894	-	-	101,894	101,894	-	101,894
		Total NY/NJ Leases	**518,085**	**-**	**-**	**518,085**	**518,085**	**-**	**518,085**	**1,391,300**	**-**	**-**	**1,391,300**	**1,391,300**	**-**	**1,391,300**
DE/MD	519	Skipjack	6,558	-	-	6,558	6,558	-	6,558	2,848	-	-	2,848	2,848	-	2,848
DE/MD	490	US Wind	49,595	-	-	49,595	49,595	-	49,595	11,392	-	-	11,392	11,392	-	11,392
DE/MD	482, 519	GSOE I and remainder	38,529	-	-	38,529	38,529	-	38,529	8,544	-	-	8,544	8,544	-	8,544
		Total DE/MD Leases	**94,682**	**-**	**-**	**94,682**	**94,682**	**-**	**94,682**	**22,784**	**-**	**-**	**22,784**	**22,784**	**-**	**22,784**
VA/NC	497	CVOW Demonstration	1,586				-			-				-		
VA/NC	483	CVOW	-	-	-	-	-	-	-	8,544	-	-	8,544	8,544	-	8,544
VA/NC	508	Kitty Hawk Wind North	47,580	-	-	47,580	47,580	-	47,580	8,544	-	-	8,544	8,544	-	8,544
VA/NC	545	Total Energies	23,563	-	-	23,563		-	23,563	9,771	-	-	9,771		-	9,771
VA/NC	546	Duke Energy	23,563	-	-	23,563		-	23,563	9,809	-	-	9,809		-	9,809
VA/NC	508	Kitty Hawk South	95,894	-	-	95,894	95,894	-	95,894	13,226	-	-	13,226	13,226	-	13,226
		Total VA/NC Leases	**192,186**	**-**	**-**	**190,600**	**143,474**	**-**	**190,600**	**49,895**	**-**	**-**	**49,895**	**30,314**	**-**	**49,895**
		Atlantic OCS Total	**#VALUE!**	**586,906**	**260,984**	**1,679,557**	**1,632,431**	**666,393**	**1,679,557**	**#VALUE!**	**147,935**	**41,005**	**1,773,358**	**1,753,777**	**297,587**	**1,773,358**
		Atlantic OCS Total Without NE Wind	***#VALUE!***	***325,922***	**-**	***1,418,573***	***1,371,447***	***405,409***	***1,418,573***	***#VALUE!***	***106,930***	**-**	***1,732,353***	***1,712,772***	***256,582***	***1,732,353***

Region	Lease	Name															
NE	NA	NE Aqua Ventus I (state waters)	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA		NA
NE	NA	Block Island (state waters)	586.0	25.7	101.2	37.2	NA	0.4	NA	42,940.0	21.4	0.8	2.8	1.4	NA	NA		1,572.0
		Total State Waters																
MA/RI	501	Vineyard Wind 1	4,961.0	122.0	1,116.0	172.0	125.0	38.0	-	250,920.0	71.0	2.0	18.0	12.3	12.0	0.9	-	342,121.0
MA/RI	517	South Fork Wind	521.5	11.7	80.7	17.5	16.9	3.6	-	97,026.0	92.9	1.9	17.3	3.0	2.8	0.5	-	18,894.0
MA/RI	486	Sunrise Wind	2,092.8	49.1	869.4	38.6	38.6	2.1	-	230,504.0	183.8	4.3	76.3	3.4	3.4	0.2	-	20,242.0
MA/RI	487	Revolution Wind	22,395.4	80.6	5,468.3	757.7	732.1	69.3	-	1,702,429.0	322.6	12.4	93.3	12.3	12.0	0.9	-	73,349.0
MA/RI	534	New England Wind Phase 1	5,917.0	124.0	1,406.0	238.0	230.0	41.0	18.0	393,627.0	178.0	3.2	45.0	6.0	5.8	0.5	0.5	20,259.0
MA/RI	534	New England Wind Phase 2	7,732.0	164.0	1,841.0	339.0	329.0	54.0	24.0	520,958.0	179.0	3.2	45.0	6.0	5.8	0.5	0.5	27,594.0
MA/RI	521	South Coast Wind	39,965.0	1,590.0	8,284.0	2,897.0	1,566.0	1,556.0	-	2,633,405.0	729.0	13.0	180.0	24.0	19.0	28.0	-	48,898.0
MA/RI	520	Beacon Wind Phase 1 and 2	17,677.1	729.6	1,757.7	290.4	269.9	507.5	-	1,012,652.4	124.4	5.0	23.6	3.4	3.2	5.0	-	32,068.8
MA/RI	500	Bay State Wind	12,304.3	148.8	2,936.9	451.6	74.5	61.0	-	304,762.0	249.9	6.7	64.8	11.7	11.4	1.0	-	21,252.0
MA/RI	522	Vineyard Northeast Wind	17,298.0	390.0	4,087.0	635.0	613.0	133.1	-	1,246,612.0	773.0	14.0	196.0	26.0	25.0	2.6	-	86,780.0
MA/RI	500, 487	Remainder of projects	15,222.7	396.6	3,239.3	679.0	464.7	286.8	-	976,299.7	337.8	7.6	88.3	12.6	11.7	4.7	-	80,433.5
		Total MA/RI Leases																
		MA/RI Leases without NE Wind																
NY/NJ	498	Ocean Wind																
NY/NJ	512	Empire Wind 1																
NY/NJ	512	Empire Wind 2																
NY/NJ	499	Atlantic Shores South																
NY/NJ	532	Ocean Wind 2																
NY/NJ	549	Atlantic Shores North																
NY/NJ	537	OW Ocean Winds East OCS																
NY/NJ	538	Attentive Energy																
NY/NJ	539	Bight Wind Holdings																
NY/NJ	541	Atlantic Shores Offshore Wind Bight																
NY/NJ	542	Invenergy Wind Offshore																
NY/NJ	544	Vineyard Mid-Atlantic																
		Total NY/NJ Leases																
DE/MD	519	Skipjack																
DE/MD	490	US Wind																
DE/MD	482, 519	GSOE I and remainder																
		Total DE/MD Leases																
VA/NC	497	CVOW Demonstration																
VA/NC	483	CVOW																
VA/NC	508	Kitty Hawk Wind North																
VA/NC	545	Total Energies																
VA/NC	546	Duke Energy																
VA/NC	508	Kitty Hawk South																
		Total VA/NC Leases																
		Atlantic OCS Total																
		Atlantic OCS Total Without NE Wind																

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The 28 active wind energy lease areas on the Atlantic OCS cover approximately 2,232,507 acres with a total technical capacity of about 35 GW (Musial et al. 2021). This capacity is greater than the 22 GW estimated in the Final EIS for the Vineyard Wind 1 Project [BOEM 2021]) and greater than the 30 GW assumed by BOEM for purposes of this EIS. This capacity would represent greater offtake (i.e., contracted use of power by states and other entities) than is presently planned by Atlantic states and may also reflect industry expectations of increasing available wind turbine generators (WTG) capacities (Musial et al. 2021). Unsuitable geological conditions identified during site characterization surveys, potential use conflicts, habitat resource concerns, endangered species impacts, and future navigation corridors identified by the U.S. Coast Guard (USCG) could exclude significant portions of the leases from development. Therefore, it is improbable that active Atlantic leases will be developed to their maximum technical capacity due to unsuitable conditions.

State pledges for offshore wind capacity currently total about 39 GW by 2040 (Musial et al. 2021), including awarded, scheduled, and planned but unscheduled procurements. This total capacity is specific to offshore wind and does not include more general renewable or clean energy goals. Out of the three categories of commitments, offtake awards provide the greatest certainty for development, followed by announced, scheduled solicitations. State goals that are planned but do not have scheduled award or procurement dates could occur as a series of procurements, or simply not be met if future cost reductions do not meet the states' award criteria. Some states have clauses requiring state boards or commissions to approve offshore wind procurements only if determined in the public interest or in the best interest of ratepayers. If offshore wind offtake is not awarded due to the cost of offshore wind subsidies or for other reasons, the planned state procurements would not be fully realized. Furthermore, state commitments for offshore wind development may not be met for lack of available lease area or technical capacity.

The following sections describe reasonably foreseeable activities associated with offshore wind development on the Atlantic OCS and identify the development status of proposed offshore wind projects. These include site characterization studies, site assessment activities, construction and operation of offshore wind facilities, port upgrades, and construction and maintenance of offshore export cables. These sections also identify assumptions and mitigation and monitoring measures used to evaluate potential impacts in the geographic analysis areas identified for each resource evaluated in this EIS.

E.3.1 Assumptions

The analysis of the planned activities scenario for each resource evaluated in this EIS incorporates the assumptions listed below.

- The developers of the offshore wind projects in the Rhode Island and Massachusetts Lease Areas (RI/MA Lease Areas) have agreed to construct WTGs and electrical service platforms (ESP) in an east-to-west, north to-south grid pattern with 1 nautical mile (1.9 kilometers, 1.15 miles) × 1 nautical mile (1.9 kilometers, 1.15 miles) east-west and north-south spacing between positions.
- Where applicants have identified specific WTG models, the characteristics of those WTGs have been incorporated into this analysis. Where a project-specific COP has identified a project design envelope, the planned activities scenario reflects the maximum-case scenario for each affected resource. For projects with no published COP, BOEM's analysis includes assumptions about the WTG characteristics that would represent the likely maximum-case scenario for each project, based on WTG characteristics of projects proposed by the same developer, as well as the characteristics of WTGs from adjacent projects.
- The simultaneous construction of multiple projects on the Atlantic OCS would require a substantial number of specialized vessels and a robust supply chain. The planned activities scenario assumes the challenges of vessel availability and supply chain will be overcome, and projects will advance at the schedule the states and developers have announced.

- BOEM assumes that all planned offshore wind procurements will be awarded, even for those states that have clauses requiring state boards or commissions to only approve offshore wind procurements if determined in the public interest or in the best interest of ratepayers. If any offshore wind agreements are not awarded, fewer projects will be developed than BOEM foresees.
- Some states might include technical, economic, or environmental stipulations in their offshore wind solicitations that are too burdensome for prospective developers; this would reduce BOEM's build-out scenario.
- Infrastructure does not currently exist to handle interconnection points and transmission for all Atlantic offshore wind energy. BOEM assumes these challenges will be solved and that sufficient infrastructure will be built to accommodate all energy generated by Atlantic offshore wind. This analysis does not address potential solutions, although independent transmission proposals dedicated to offshore wind energy could assist.
- BOEM assumes that each offshore wind project would have its own offshore export cable and that regional transmission projects are not currently foreseeable. If a shared export cable becomes feasible and is developed in the future, environmental impacts would be reduced for most resources as compared to multiple cable corridors.
- EIS Section E.3.2 details BOEM's technical assumptions regarding the design and placements of potential future project elements (e.g., WTGs, cables). This appendix also specifies BOEM's assumptions related to the anticipated timing of reasonably foreseeable offshore wind activities from 2022 through 2030, some of which would overlap in time. The assumptions outlined are used in evaluating potential planned activities impacts on the resources analyzed in this document.
- Each resource has a geographic distribution, and these differ in the areas that may be affected by the proposed Project (Table D-1 in EIS Appendix D, Geographical Analysis Areas). Figures in EIS Sections 3.4 through 3.17 identify the resource-specific geographic analysis areas. Table E-1 identifies whether these projects or activities are located within particular resource-specific analysis areas and thus are considered in the EIS impacts analysis.

E.3.2 Site Characterization Studies

A lessee is required to provide the results of site characterization activities (shallow hazard, geological, geotechnical, biological, and archaeological surveys) with its Site Assessment Plan (SAP) or COP. The planned activities analysis in this appendix includes BOEM's assumptions—listed below—about the maximum-case scenario for survey and sampling activities.

- Site characterization would occur on all existing leases and potential export cable routes.
- Site characterization would likely take place in the first 3 years following execution of the lease, based on the fact that 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 a meteorological (met) tower and/or two buoys and commercial facilities (wind turbines). The surveys may be completed in phases, with the met 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 (BOEM 2016).

Table E-2 describes the typical site characterization surveys, equipment and/or method used, and which resources the survey information would inform.

Table E-2: Site Characterization Survey Assumptions

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,[a] archaeological,[b] bathymetric charting, benthic habitat
Geotechnical/sub-bottom sampling[c]	Vibracores, deep borings, cone penetration tests	Geological,[d] marine archaeology
Biological[e]	Grab sampling, benthic sled, underwater imagery/sediment profile imaging	Benthic habitat
	Aerial digital imaging; visual observation from boat or airplane	Avian, marine mammals, sea turtles
	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 and invertebrates

Source: BOEM 2016

[a] 30 CFR § 585.610(b)(2) and 30 CFR § 585.626(a)(1)
[b] 30 CFR § 585.610–585.611 and 30 CFR § 585.626(a)(5)
[c] 30 CFR § 585.610(b)(1) and 30 CFR § 585.626(a)(4)
[d] 30 CFR § 585.610(b)(4) and 30 CFR § 585.626(a)(2)
[e] 30 CFR § 585.610(b)(5), 30 CFR § 585.611(b)(3)-(5), 30 CFR § 585.626(a)(3), and 30 CFR § 585.627(a)(3-5)

E.3.3 Site Assessment Activities

After SAP approval, a lessee can evaluate the met conditions, such as wind resources, with the approved installation of met towers, buoys, or moorings. For those lessees with submitted SAPs (Table E-3), site assessment activities are also considered in this planned activities analysis.

E.3.4 Construction and Operation of Offshore Wind Facilities

For purposes of this planned activities analysis, BOEM is classifying 30 GW of potential future offshore wind construction within the Atlantic OCS as reasonably foreseeable. The 30 GW of constructed capacity would include a combination of development within the 28 active wind energy lease areas (27 commercial and 1 research) (Figure E-1), which include named projects and assumed future development within the remainder of lease areas outside of named project boundaries. A detailed description of proposed activities associated with each named project and remnant lease areas is provided in Table E-1. Figures in each of the resource sections in EIS Chapter 3 and Section G.2 of EIS Appendix G, Impact-Producing Factor Tables and Assessment of Resources with Minor (or Lower) Impacts, show the geographic analysis area for each resource evaluated. The specific locations of WTGs, ESPs, offshore export cable routes, principal ports to be used during construction, and principal ports to be used during operations and maintenance are unknown for projects in the early stage of development. Some similar information is also unknown for areas of offshore wind development required to meet the energy demands described in EIS Chapter 1, Introduction, within existing lease areas but outside of specifically named project boundaries. Therefore, when predicting the potential impacts of possible future offshore wind activities, BOEM has made assumptions to determine whether and how much the future offshore wind activities could overlap each geographic analysis area (described below and listed in Table E-1).

The anticipated construction schedule of when projects in the different regions would foreseeably start construction is presented in Table E-4.

Table E-3: Planned Activities Project Site Assessment Activities

Lease Number	State	Company Name	Initial Date SAP Received	Date SAP Approved	Date Deployed or to be Deployed	Facility Description
OCS-A 0482	Delaware	Garden State Offshore Energy I, LLC (Deepwater Wind and Public Service Enterprise Group)	7/2018	12/6/2019	Deployed, 1/20/2020	One met buoy
OCS-A 0483	Virginia	Dominion Energy Services, Inc.	5/2014	10/12/2017	2nd Quarter 2019	One met buoy
OCS-A 0486 and OCS-A 0517	Rhode Island and Massachusetts	Deepwater Wind New England, LLC	4/1/2016	10/12/2017	1/17/2019	One met buoy
OCS-A 0490	Maryland	US Wind, Inc.	11/2015	3/22/2018	8/2018	One met tower, seabed mountain sensors
OCS-A 0497	Virginia	Virginia Department of Mines, Minerals and Energy/Dominion Energy Services, Inc.	12/2014[a]	6/20/2019[a]	March–October 2020	One wave/current buoy
OCS-A 0498	New Jersey	OceanWind LLC	9/15/2017	5/16/2018	8/20/2018	Two met buoys, one met/current buoy
OCS-A 0499	New Jersey	EDF Renewables Development, Inc.	12/9/2019	TBD	TBD	Two met buoys
OCS-A 0500	Massachusetts	Bay State Wind	12/20/2016	6/29/2017	7/10/2017	Two met buoys
OCS-A 0501	Massachusetts	Vineyard Wind, LLC	3/31/2017	5/10/2018	5/22/2018	Two met buoys
OCS-A 0508	North Carolina	Avangrid Renewables, LLC	9/18/2019	4/3/2020	6/6/2020	Up to two buoys and up to two platforms
OCS-A 0512	New York	Equinor (Statoil), LLC	6/18/2018	11/21/2018	TBD	Two met buoys, one wave/met buoy, and one subsea Current Meter Mooring
OCS-A 0519	Delaware	Skipjack Offshore Energy, LLC	5/24/2019	TBD	TBD	One met buoy
OCS-A 0520	Massachusetts	Equinor Wind US, LLC	TBD	TBD	TBD	TBD
OCS-A 0521	Massachusetts	SouthCoast Wind	7/29/2019	5/26/2020	TBD	One met buoy
OCS-A 0522	Massachusetts	Vineyard Wind, LLC	3/6/2020	TBD	TBD	Two met buoys

met = meteorological; SAP = Site Assessment Plan; TBD = to be determined

[a] This is included in modifications to Research Activities Plan rather than SAP.

Table E-4: Anticipated Construction Schedule in Number of Foundations (as of July 12, 2023)[a]

Project/Region	Before 2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030 and Beyond
State Waters											
Maine Aqua Ventus (state waters)					2[b]						
Block Island Wind Farm (state waters)	5[b]										
Massachusetts/Rhode Island Region											
Vineyard Wind 1, part of OCS-A 0501				62							
South Fork Wind, part of OCS-A 0517				12							
Revolution Wind, part of OCS-A 0486					67						
New England Wind Phase 1 (Proposed Action), part of OCS-A 0534					62						
New England Wind Phase 2, part of OCS-A 0534						68					
Sunrise, parts of OCS-A 0500 and OCS-A 0487					95						
South Coast Wind, part of OCS-A 0521					149						
Beacon Wind, Phase 1 and 2					164						
Bay State Wind						96					
Vineyard Northeast Wind						160					
Future Project(s) in Massachusetts/Rhode Island Region						119					
Estimated Annual Massachusetts/Rhode Island Construction:	*0*	*0*	*0*	*74*	*537*	*443*	*0*	*0*	*0*	*0*	*0*
Estimated Operations Total:	*0*	*0*	*0*	*0*	*74*	*611*	*1,054*	*1,054*	*1,054*	*1,054*	*1,054*
New York/New Jersey Region											
Ocean Wind, part of OCS-A 0498					101						
Empire Wind, part of OCS-A 0512					58						
Empire Wind Phase 2, part of OCS-A 0512					91						
Atlantic Shores South, part of OCS-A 0499						210					
Ocean Wind 2, part of OCS-A 0532							111				
Atlantic Shores North, part of OCS-A 0549							160–165				
OW Ocean Winds East OCS, part of OCS-A 0537							82				
Attentive Energy, part of OCS-A 0538							102				
Bight Wind Holdings, part of OCS-A 0539							148				
Atlantic Shores Offshore Wind Bight, part of OCS-A 0541							95				
Invenergy Wind Offshore, part of OCS-A 0542							99				
Vineyard Mid-Atlantic, part of OCS-A 0544							104				
Estimated Annual New York/New Jersey Construction:	*0*	*0*	*0*	*0*	*250*	*210*	*906*	*0*	*0*	*0*	*0*
Estimated Operations Total:	*0*	*0*	*0*	*0*	*0*	*250*	*460*	*1,366*	*1,366*	*1,366*	*1,366*

Project/Region	Before 2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030 and Beyond
Delaware/Maryland Region											
Skipjack, part of OCS-A 0519					17						
US Wind, part of OCS-A 0490					125						
Garden State Offshore Energy I, part of OCS-A 0482						96					
OCS-A 0519 remainder											
Estimated Annual Delaware/Maryland Construction:	*0*	*0*	*0*	*0*	*142*	*96*	*0*	*0*	*0*	*0*	*0*
Estimated Operations Total:	*0*	*0*	*0*	*0*	*0*	*142*	*238*	*238*	*238*	*238*	*238*
Virginia/North Carolina Region											
Coastal Virginia Offshore Wind, OCS-A 0497	2										
Coastal Virginia Offshore Wind, part of OCS-A 0483				205							
Kitty Hawk Wind North, part of OCS-A 0508								70			
Total Energies, part of OCS-A 0545										65	
Duke Energy, part of OCS-A 0546										65	
Kitty Hawk South, part of OCS-A 0508								123			
Estimated Annual Virginia Construction:	2	0	0	205	0	0	0	293	0	130	0
Estimated Operations Total:	2	2	2	2	207	207	207	207	500	500	630
Estimated Annual Total Construction:	**2**	**0**	**0**	**279**	**929**	**749**	**906**	**293**	**0**	**130**	**0**
Estimated Operations Total:	**7**	**7**	**7**	**7**	**286**	**1,215**	**1,964**	**2,870**	**3,163**	**3,163**	**3,293**

OCS = Outer Continental Shelf

[a] Construction schedules for projects are assumed to occur over a 2-year period; for this planned activities analysis, it has been assumed that pile driving would occur during year 1 of construction and that all other construction activities would occur in year 2.

[b] Foundations are located in state waters.

In addition to the assumptions identified under Table E-1, future offshore wind projects would be subject to evolving economic, environmental, and regulatory conditions. Lease areas may be split into multiple projects, expanded, or removed, and development within a particular lease area may occur in phases over long periods of time. Research currently being conducted[3] in combination with data gathered regarding physical, biological, socioeconomic, and cultural resources during development of initial offshore wind projects in the United States could affect the design and implementation of future projects, as could advancements in technology. For these reasons, it is not possible to accurately predict the nature, location, and scale of potential impacts on resources across all lease areas. At the time of this EIS, 49 percent of the OCS Atlantic lease areas (15 locations out of the 28; 1,099,966 acres) have submitted a COP to BOEM for review and consideration. BOEM has made the following qualitative assumptions about possible future impacts of offshore wind development across all leased areas that have been considered in the planned activities analysis:

- BOEM assumes proposed offshore wind projects will include the same or similar components as the proposed Project: wind turbines with fixed foundations, inter-array cable system, offshore export cable corridor, one or more ESPs, and onshore interconnection facilities. BOEM further assumes that other potential offshore wind projects will employ the same or similar construction, operation, and decommissioning activities as the proposed Project. Economies of scale could be realized in terms of port development and regional transmission support, as the onshore transmission systems could improve to support power incoming from multiple offshore wind projects. For purposes of this analysis, however, and as described below, BOEM assumes that each project will have its own cable (both onshore and offshore) and that future projects would not use regional transmission support.
- Where possible, future projects could potentially seek to collocate onshore facilities and offshore cabling systems to avoid creation of new impact areas.
- Public attitudes toward offshore wind facilities may change over time as initial projects become operational, potentially affecting potential impacts on recreation, visual resources, and socioeconomic resources, and affecting how future projects are designed.
- Adaptive management could be used for many resources, particularly regulated fisheries and wildlife resources (including birds, benthic resources, finfish, invertebrates, essential fish habitat, marine mammals, and sea turtles), which would be closely monitored for potential impacts. If data collected are sufficiently robust, BOEM or other resource agencies could use the information obtained to support potential regulation changes or new mitigation and monitoring measures for future projects.
- Build-out of the U.S. offshore wind industry could displace non-renewable resources such as fossil fuel plants for power generation, resulting in a greater beneficial impact on air quality and potential reduction in regional and national greenhouse gas (GHG) emissions to address climate change.

For consideration of environmental impacts from future offshore wind projects, Table E-5 provides a list of best management practices that were considered in the impact analysis. The best management practices were adopted from the Record of Decision (MMS 2007a) for the 2007 *Final Programmatic Environmental Impact Statement for Alternative Energy Development and Production and Alternate Use of Facilities on the Outer Continental Shelf* (MMS 2007b).

[3] In addition to private and state-funded research, BOEM-funded research continues to contribute to the growing body of scientific knowledge on the marine environment and informs BOEM's decision-making regarding renewable energy planning, leasing, and development efforts. Ongoing and completed studies are listed on BOEM's website at https://www.boem.gov/Renewable-Energy-Environmental-Studies/.

Table E-5: Best Management Practices for Future Offshore Wind Activities

Preconstruction Planning
Lessees and grantees shall minimize the area disturbed by preconstruction site monitoring and testing activities and installations.
Lessees and grantees shall contact and consult with the appropriate affected federal, state, and local agencies early in the planning process.
Lessees and grantees shall consolidate necessary infrastructure requirements between projects whenever practicable.
Lessees and grantees shall develop a monitoring program to ensure that environmental conditions are monitored during construction, operation, and decommissioning phases. The monitoring program requirements, including adaptive management strategies, shall be established at the project level to ensure that potential adverse impacts are mitigated.
Seafloor Habitats
Lessees and grantees shall conduct seafloor surveys in the early phases of a project to ensure that the alternative energy project is sited appropriately to avoid or minimize potential impacts associated with seafloor instability or other hazards.
Lessees and grantees shall conduct appropriate pre-siting surveys to identify and characterize potentially sensitive seafloor habitats and topographic features.
Lessees and grantees shall avoid locating facilities near known sensitive seafloor habitats, such as coral reefs, hard-bottom areas, and chemosynthetic communities.
Lessees and grantees shall avoid anchoring on sensitive seafloor habitats.
Lessees and grantees shall minimize seafloor disturbance during construction and installation of the facility and associated infrastructure.
Lessees and grantees shall employ appropriate shielding for underwater cables to control the intensity of electromagnetic fields.
Lessees and grantees shall reduce scouring action by ocean currents around foundations and to seafloor topography by taking all reasonable measures and employing periodic routine inspections to ensure structural integrity.
Lessees and grantees shall take all reasonable actions to minimize seabed disturbance and sediment dispersion during cable installation.
Marine Mammals
Lessees and grantees shall evaluate marine mammal use of the proposed project area and design the project to minimize and mitigate the potential for mortality or disturbance. The amount and extent of ecological baseline data required will be determined on a project basis.
Vessels related to project planning, construction, and operation shall travel at reduced speeds when assemblages of cetaceans are observed and maintain a reasonable distance from whales, small cetaceans, and sea turtles as determined during site-specific consultations.
Lessees and grantees shall minimize potential vessel impacts on marine mammals and sea turtles by requiring project-related vessels to follow the NMFS and BOEM requirements while in transit. Operators shall be required to undergo training on applicable vessel requirements.
Lessees and grantees shall take efforts to minimize disruption and disturbance to marine life from sound emissions, such as pile driving, during construction activities.
Lessees and grantees shall avoid and minimize impacts on marine species and habitat in the project area by posting a qualified observer approved by BOEM and NMFS on-site during construction activities.
Fish Resources and Essential Fish Habitat
Lessees and grantees shall conduct pre-siting surveys (may use existing data) to identify important, sensitive, and unique marine habitats in the vicinity of the project and design the project to avoid, minimize, or otherwise mitigate adverse impacts on these habitats.
Lessees and grantees shall minimize construction activities in areas containing anadromous fish during migration periods.
Lessees and grantees shall minimize seafloor disturbance during construction and installation of the facility and associated infrastructure.
Sea Turtles
Lessees and grantees shall minimize potential vessel impacts on marine mammals and sea turtles by requiring project-related vessels to follow the NMFS Regional Viewing Guidelines while in transit. Operators shall be required to undergo training on applicable vessel guidelines.
Lessees and grantees shall take efforts to minimize disruption and disturbance to marine life from sound emissions, such as pile driving, during construction activities.
Lessees and grantees shall locate cable landfalls and onshore facilities so as to avoid impacts on known nesting beaches.
Avian Resources
Lessees shall evaluate avian use of the project area and design the project to minimize or mitigate the potential for bird strikes and habitat loss. The amount and extent of ecological baseline data required will be determined on a project-by-project basis.
Lessees and grantees shall take measures to reduce perching opportunities.
Lessees and grantees shall locate cable landfalls and onshore facilities so as to avoid impacts on known nesting beaches.
Lessees and grantees shall comply with FAA and USCG requirements for lighting while using lighting technology (e.g., low-intensity strobe lights) that minimizes impacts on avian species.

Acoustic Environment
Lessees and grantees should plan site characterization surveys by using the lowest sound levels necessary to obtain the information needed.
Lessees and grantees shall take efforts to minimize disruption and disturbance to marine life from sound emissions such as pile driving during construction activities.
Lessees and grantees shall employ, to the extent practicable, state-of-the- art, low-noise turbines or other technologies to minimize operational sound impacts.
Fisheries
Lessees and grantees shall work cooperatively with commercial/recreational fishing entities and interests to ensure that the construction and operation of a project will minimize potential conflicts with commercial and recreational fishing interests.
Lessees and grantees shall review planned activities with potentially affected fishing organizations and port authorities to prevent unreasonable fishing gear conflicts. Lessees and grantees shall minimize conflict with commercial fishing activity and gear by notifying registered fishermen of the location and time frame of project construction activities well in advance of mobilization with updates throughout the construction period.
Lessees and grantees shall use practices and operating procedures that reduce the likelihood of vessel accidents and fuel spills.
Lessees and grantees shall avoid or minimize impacts on the commercial fishing industry by marking applicable structures (e.g., wind turbines, wave generation structures) with USCG approved measures (such as lighting) to ensure safe vessel operation.
Lessees and grantees shall avoid or minimize impacts on the commercial fishing industry by burying cables, where practicable, to avoid conflict with fishing vessels and gear operation. If cables are buried, lessees and grantees shall inspect cable burial depth periodically during project operation to ensure that adequate coverage is maintained to avoid interference with fishing gear/activity.
Coastal Habitats
Lessees and grantees shall avoid hard-bottom habitats, including seagrass communities and kelp beds, where practicable, and restore any damage to these communities.
Lessees and grantees shall implement turbidity reduction measures to minimize impacts on hard-bottom habitats, including seagrass communities and kelp beds, from construction activities.
Lessees and grantees shall minimize impacts on seagrass and kelp beds by restricting vessel traffic to established traffic routes.
Lessees and grantees shall minimize impacts on wetlands by maintaining buffers around wetlands, implementing best management practices for erosion and sediment control, and maintaining natural surface drainage patterns.
Electromagnetic Fields
Lessees and grantees shall use submarine cables that have proper electrical shielding and bury the cables in the seafloor where practicable.
Transportation and Vessel Traffic
Lessees and grantees shall site alternative energy facilities to avoid unreasonable interference with major ports and USCG-designated Traffic Separation Schemes.
Lessees and grantees shall meet FAA guidelines for siting and lighting of facilities.
Lessees and grantees shall place proper lighting and signage on applicable alternative energy structures to aid navigation per USCG circular NVIC 01-19 (USCG 2020) and comply with any other applicable USCG requirements.
Lessees and grantees shall conduct all necessary studies of potential interference of proposed WTGs with commercial air traffic control radar systems, national defense radar systems, and weather radar systems, including identification of possible solutions.
Visual Resources
Lessees and grantees for wind projects shall address key design elements including visual uniformity, use of tubular towers, and proportion and color of turbines.
Lessees and grantees for wind projects shall use appropriate viewshed mapping, photographic and virtual simulations, computer simulation, and field inventory techniques to determine with reasonable accuracy the visibility of the proposed project. Simulations should illustrate sensitive and scenic viewpoints.
Lessees and grantees shall comply with FAA and USCG requirements for lighting while minimizing the impacts through appropriate application.
Lessees and grantees shall seek public input in evaluating the visual site design elements of proposed wind energy facilities.
Lessees and grantees, within FAA guidelines, shall use directional aviation lights that minimize visibility from shore.
Cultural Resources
Lessees and grantees shall conduct magnetometer tows using 100-foot (30-meter) line spacing in areas where there is a high potential for shipwrecks.

Source: Adopted from MMS 2007b

BOEM = Bureau of Ocean Energy Management; FAA = Federal Aviation Administration; NMFS = National Marine Fisheries Service; USCG = U.S. Coast Guard; WTG = wind turbine generator

E.3.5 Port Upgrades

Ports in Connecticut, Rhode Island, Massachusetts, New York, and New Jersey may require upgrades to support the offshore wind industry.[4] Upgrades may include onshore developments or underwater improvements (such as dredging). The following summarizes reasonably foreseeable activities at regional ports that are planned to support the proposed Project and other past, present, and reasonably foreseeable offshore wind project activities at ports near the RI/MA Lease Areas:

- The Connecticut Port Authority 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 2018), 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 Ørsted 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). In 2013 the Port of Davisville added a 150-megaton mobile harbor crane, which will enable the port to handle wind turbines and heavy equipment and participate in regional offshore wind projects (Quonset Development Corporation 2016). 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 offshore wind transmission cables manufacturing, turbine component manufacturing and assembly, substation manufacturing and assembly, operations and maintenance bases, and turbine component storage. The 18 sites include two identified by Vineyard Wind, LLC, as potential construction or operations and maintenance ports: the Brayton Point Power Plant site and the Montaup Power Plant site.
  - The former Brayton Point Power Plant is currently being redeveloped as the Brayton Point Commerce Center, a "world-class logistical port and support center built for offshore wind…capable of component manufacturing, staging, operations, and maintenance for offshore wind and other related sectors" (Brayton Point Commerce Center 2022). The site redevelopment includes the proposed Anbaric Renewable Energy Center, which will include development of a 1,200 megawatts (MW) high-voltage direct current converter and 400 MW of battery storage on the site (Anbaric 2019a). Development of the Brayton Point Commerce Center and the Anbaric Renewable Energy Center is considered reasonably foreseeable, as the projects are currently active.

[4] BOEM 2016 includes an assessment of port capacity, potential environmental and socioeconomic consequences of port modifications to support offshore wind development, and the effectiveness of potential mitigation measures to reduce the consequences of port modifications.

  - The Montaup Power Plant site is a former power plant site located in Somerset, Massachusetts, that was also identified by the MassCEC as having potential to support construction of turbine components, as well as operations and maintenance activities (MassCEC 2017a). No plan for redevelopment of the Montaup Power Plant has been released (MassCEC 2017a); therefore, improvements at this site are not considered reasonably foreseeable.
  - The New Bedford Foss Marine Terminal (formerly the Eversource/Sprague Oil site) is a 30-acre site in New Bedford, Massachusetts, being redeveloped to support offshore wind projects. The terminal will provide areas for storage and laydown, berths for tug and barge, crew transfer, and service operation vessels, as well as associated office and support services (Foss Maritime 2022).

- The MassCEC manages the New Bedford Marine Commerce Terminal (MCT) 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 2022). The *New Bedford Port Authority Strategic Plan 2018–2023* contains goals related to expanding the MCT 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 MCT in October 2018 (Port of New Bedford Undated) 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). Due to the continued development and approval of offshore wind projects in the United States, these improvements are reasonably foreseeable.
- 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). Due to the continued development and approval of offshore wind projects in the United States, these improvements are reasonably foreseeable.
- Vineyard Wind would use Vineyard Haven Harbor in Tisbury as the location of the Vineyard Wind 1 Project's Operations and Maintenance Facility. Vineyard Haven Harbor is the island's year-round working port and is home to most of the Martha's Vineyard boatyards. Small coastal tankers and ferries regularly use Vineyard Haven Harbor to transport freight, vehicles, and passengers. The areas of Tisbury near the Vineyard Haven Harbor are a mix of marine-related, commercial, and residential uses. Due to the continued development and approval of offshore wind projects in the United States, these improvements are reasonably foreseeable.

Potential impacts related to port upgrades could include, but are not limited to, the following:

- Increased seafloor disturbance, turbidity, and benthic habitat alterations;
- Risk of direct physical impacts, displacement, or disturbance to wildlife, including threatened/endangered species;
- Increased vessel traffic and associated effluent discharges, air emissions, and noise;
- Visual impacts on onshore and offshore observers within the daytime and nighttime visibility zones;
- Economic impacts, including beneficial impacts on tax revenues, employment, and economic activity associated with operating the wind energy facility, maintaining the wind energy facility, tourism, and other ocean economy sectors;
- Displacement or reduction in fishing opportunities (commercial and recreational), marine mineral extraction, and other ocean economy sectors;

- Displacement of recreational opportunities or change in value of recreational opportunities;
- Disturbance of cultural resources or impacts on cultural values; and
- Introduction of navigational obstructions to aviation and marine vessels (submarine and surface vessels).

E.3.6 Offshore Transmission Cables Construction and Maintenance

The following summarizes reasonably foreseeable activities for offshore transmission cables, not associated with any specific wind projects, that are planned near the RI/MA Lease Areas:

- Anbaric Development Partners, LLC, has submitted unsolicited proposals to BOEM for development of two open-access offshore transmission systems designed to support offshore wind in the northeastern United States; however, neither is considered a reasonably foreseeable project for this analysis.
- The proposed New York/New Jersey Ocean Grid Project would consist of approximately 185 nautical miles (213 miles) of subsea transmission cables and up to nine offshore collector platforms. The transmission network would collect and distribute power from wind lease areas offshore New York and New Jersey to up to six onshore landing locations from Long Island to Cardiff, New Jersey (Anbaric 2018).
- The proposed Southern New England OceanGrid Project would consist of 337 nautical miles (388 miles) of subsea transmission cables and up to eight offshore collector platforms around the RI/MA Lease Areas. The transmission network would collect and distribute power generated from RI/MA Lease Areas to landings between Long Island Sound and Massachusetts (Anbaric 2019b).

The transmission systems would be "open access" and allow multiple offshore wind farms to connect to a single transmission line, potentially consolidating cabling systems, landing areas, and onshore infrastructure. Using a transmission network may reduce total miles of cables required to connect offshore wind farms, environmental impacts associated with subsea cabling and onshore interconnections, and costs of development and operation. BOEM issued a Request for Competitive Interest for the New York/New Jersey Ocean Grid Project in June 2019 (84 Fed. Reg. 118 pp. 28582–28587). These projects are currently under review with BOEM and are not considered reasonably foreseeable due to the current lack of concrete development plans. Even if BOEM did consider these projects reasonably foreseeable, they would not be considered in the maximum-case scenario because implementation of these networks would serve to reduce impacts associated with the transmission system. The maximum-case scenario for offshore cables associated with offshore wind development is defined as each lease having separate offshore cables, landing sites, and onshore interconnection facilities.

Reasonably foreseeable impacts of new transmission system projects associated with individual offshore wind projects could include (BOEM 2016):

- Increased vessel traffic and associated effluent discharges, air emissions, and noise during construction and decommissioning;
- Increases of accidental releases of trash and marine debris during construction and decommissioning;
- Intermittent underwater noise associated with construction, including noise from ESP construction activities;
- Temporary disturbance of benthic habitat from installation and long-term impacts from habitat conversion;
- Increased potential for oil spills during construction and decommissioning;

- Potential interaction with existing telecommunication cables; and
- Temporary sediment disturbance during installation or maintenance.

E.3.7 Mitigation and Monitoring

Future offshore wind projects could require monitoring or mitigation as part of BOEM approvals under the National Environmental Policy Act (U.S. Code, Title 42, Section 4321 et seq. [42 USC § 4321 et seq.]) and Outer Continental Shelf Lands Act (43 USC § 1337(p)(1)(c)). Although specific measures are too speculative to include at this time, measures could include actions such as passive acoustic monitoring, trawl surveys, acoustic telemetry, and gillnet or ventless trap surveys.

E.4 Incorporation by Reference of Cumulative Impacts Study

BOEM has completed a study of IPFs on the 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 on the North Atlantic OCS that were incorporated into this EIS analysis. If an IPF was not associated with the proposed 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 proposed Project or other offshore wind projects, possibly via the same IPFs or via IPFs through which offshore wind projects do not contribute. The following subsections list reasonably foreseeable non-offshore wind activities that may contribute to the cumulative impacts of the proposed Project.

E.5 Other Activities

E.5.1 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 proposed Project:

- New Shoreham (Block Island), Rhode Island, is served by a submarine power cable from the Block Island Wind Farm.
- A submarine power cable connects Block Island to the mainland electrical grid at Narragansett, Rhode Island.
- Electric service to Martha's Vineyard is provided by four cables from Falmouth, located in three corridors through Vineyard Sound. Two cables are collocated in a corridor between Elm Road in Falmouth and West Chop; one is located between Shore Street in Falmouth and Eastville (East Chop), and one connects Mill Road in Falmouth to West Chop.

- Two electric cables service Nantucket through Nantucket Sound, from Dennis Port and Hyannis Port to landfall at Jetties Beach.
- Additional submarine cables are located offshore New England and mid-Atlantic states, but outside the SWDA. These include fiber-optic cables and trans-Atlantic cables that originate near Charlestown, Rhode Island; New York City; Long Island; and Wall, New Jersey.
- Two natural gas pipelines are located offshore Boston, Massachusetts, in Massachusetts Bay and lead to the Neptune pipeline and the Northeast Gateway liquified natural gas (LNG) export facilities.

E.5.2 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 (MRECo 2017a, 2017b);
- The Western Passage Tidal Energy Project, a proposed tidal energy site in the Western Passage, received a preliminary permit from the Federal Energy Regulatory Commission (FERC) in 2016. The preliminary permit allows developers to study a project but does not authorize construction (Tethys Undated); and
- The Roosevelt Island Tidal Energy (RITE) Project is 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 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 2012). Tidal testing for the RITE Project is underway (USDOE 2021).

E.5.3 Dredging and Port Improvement Projects

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

- The U.S. Army Corps of Engineers (USACE) New England District, in partnership with Rhode Island Coastal Resources Management Council has proposed a project to 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).
- 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 Rhode Island Coastal Resources Management Council has awarded funding for seven habitat restoration projects, including a dune habitat restoration project, a salt marsh adaptation project, a coastal habitats restoration project, an in-water and bank habitat improvement project, and three projects involving restoration of fish passage (RI CRMC 2021).
- The Town of Dennis is conducting selective annual dredging of multiple navigation and mooring basins within multiple waterways in the towns of Dennis and Yarmouth. Suitable dredged material would be used as nourishment on multiple town-owned beaches in Dennis, while material deemed unsuitable for beach nourishment would be disposed of at the Cape Cod Bay Disposal Site and at the South Dennis Landfill. The town would dredge approximately 434,310 cubic yards from approximately 96.03 acres of these waterways over 10 years (USACE 2018d; capecod.gov 2022).
- The State of New Jersey is planning to build an offshore wind port on the eastern shore of the Delaware River in Lower Alloways Creek, Salem County, approximately 7.5 miles southwest of the city of Salem. The New Jersey Economic Development Authority is leading the development of the project on behalf of multiple state agencies. The development plan includes dredging the Delaware River Channel, with a targeted completion date of late 2023 (New Jersey Wind Port Undated).
- USACE has proposed maintenance dredging of portions of the Newark Bay, New Jersey Federal Navigation Channel, including the removal of material from the Main and Port Newark Channels. Maintenance dredging and associated upland placement activities are planned to occur between June 2022 and January 2022 (USACE 2021).

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

- The Connecticut Port Authority 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 2018), 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. Redevelopment of the Connecticut State Pier partially to support the offshore wind industry is intended to increase regional job growth. The development partnership includes a 3-year plan to upgrade infrastructure to meet heavy-lift requirements of Ørsted and Eversource offshore wind components (Cooper 2019).

E.5.4 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 Maryland near Fenwick Island, Delaware, and Ocean City, Maryland (Lease Number OCS-A 0536) (NOAA 2022).

Reconnaissance and/or design-level OCS studies along the East Coast from Rhode Island to Florida have identified potential future sand resources. The closest sand resources to the proposed Project include locations offshore Rhode Island (between Block Island and Charlestown), the southern shore of Long Island (Rockaway Beach, Long Beach, and Fire Island, New York), and Sandy Hook, New Jersey.

U.S. Environmental Protection Agency Region 1 is responsible for designating and managing ocean disposal sites for dredged materials offshore in the region of the proposed Project. USACE issues permits for ocean disposal sites pursuant to Marine Protection, Research, and Sanctuaries Act (16 USC § 1431 et seq. and 33 USC § 1401 et seq.). There are ten active dredge disposal projects along the Massachusetts,

Rhode Island, Connecticut, and New York coasts. The closest to the proposed Project is the Rhode Island Sound Disposal Site northeast of Block Island (NOAA 2022).

E.5.5 Military Use

Military activities can include various vessel training exercises, submarine and antisubmarine training, and aircraft exercises. The U.S. Navy, 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 the USCG Academy (COP Volume III, Section 7.9.1; Epsilon 2023). 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 (COP Volume III, Section 7.9.1; Epsilon 2023).

E.5.6 Marine Transportation

Marine transportation in the region is diverse and uses many ports and private harbors from New Jersey 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. Multiple federal agencies, state agencies, educational institutions, and environmental non-governmental organizations participate in ongoing research offshore including oceanographic, biological, geophysical, and archaeological surveys. Most vessel traffic, excluding recreational vessels, tends to travel within established vessel traffic routes and the number of trips, as well as the number of unique vessels, has remained consistent between 2017 and 2019 (USCG 2021). In response to future offshore wind projects in the New York Bight, multiple additional fairways and a new anchorage may be established to route existing vessel traffic around wind energy projects (USCG 2021). One new regional maritime highway project received funding from the Maritime Administration: a new barge service (Davisville/Brooklyn/ Newark Container-on-Barge 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 (MARAD 2021), which is located on Quonset Point, one of the potential operations and maintenance locations.

E.5.7 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 Endangered Species Act (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 SWDA. 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 New England south into the mid-Atlantic region. Surveys include:

- The NEFSC Bottom Trawl Survey, a more than 50-year multispecies stock assessment tool using a bottom trawl;
- The NEFSC Sea Scallop/Integrated Habitat Survey, a sea scallop stock assessment and habitat characterization tool, using a bottom dredge and camera tow;
- The NEFSC Surf clam/Ocean Quahog Survey, a stock assessment tool for both species using a bottom dredge; and
- 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.

E.5.7.1 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 SWDA, 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 (*Eubalaena glacialis*), and research on population dynamics of harbor (*Phoca vitulina*) and gray seals (*Halichoerus grypus*). 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).

E.5.7.2 Fisheries Use and Management

NMFS implements regulations to manage commercial and recreational fisheries in federal waters, including those where the proposed Project would be located. The states of New York, Rhode Island, and New Jersey and Commonwealth of Massachusetts regulate commercial fisheries in state-regulated waters (within 3 nautical miles [3.5 miles] of the coastline). Existing aquaculture operations lie near the southern portion of Horseshoe Shoals, near the main channel of Nantucket Sound (NOAA 2022). The proposed Project is not anticipated to impact leased aquaculture sites.

The proposed Project overlaps two of NMFS' eight regional councils to manage federal fisheries: the Mid-Atlantic Fishery Management Council, which includes New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina, and the New England Fishery Management Council, which includes Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut (NEFMC 2016). The councils manage species with fishery management plans that are frequently updated, revised, and amended and coordinate with each other to jointly manage species across jurisdictional boundaries (MAFMC Undated). The councils work with the Atlantic States Marine Fisheries Commission (ASMFC) on regional issues. 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 American lobster (*Homarus americanus*) and Jonah crab (*Cancer borealis*) fisheries are cooperatively managed by the states and NMFS under the framework of the ASMFC (2022).

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. NMFS also manages highly migratory species, such as tuna and sharks, that can travel long distances and cross domestic boundaries.

E.5.8 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* (MMS 2007b) 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 for Atlantic OCS offshore wind development 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 found that the risks associated with an increase of global warming of 1.5 degrees Celsius (°C) or 2°C 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 on terrestrial ecosystems; impacts on marine biodiversity, fisheries, and ecosystems and their functions and services to humans; and impacts on health, livelihoods, food security, water supply, and economic growth (IPCC 2018). Table E-6 summarizes regional plans and policies in place to address climate change, and Table E-7 summarizes resiliency plans.

Table E-6: Climate Change Plans and Policies

Plans and Policies	Summary/Goal
New York	
Reforming the Energy Vision (State of New York 2014)	State's energy policy to build integrated energy network; clean energy goal to reduce GHGs 40% by 2030 and 80% by 2050.
Order Adopting a Clean Energy Standard (State of New York Public Service Commission 2022)	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 (NYSERDA 2015, 2017a)	Requires 40% reduction in GHGs from 1990 levels; 50% electricity will come from renewable energy resources; 600 trillion British thermal units increase in statewide energy efficiency.
Governor Cuomo State of State Address 2017, 2018, 2021	2017: Set offshore wind energy development goal of 2,400 MW by 2030 (New York Governor's Office 2017). 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 (New York Office of the Attorney General 2018; New York Governor's Office 2018). 2021: Establishes a goal of building out its renewable energy program (New York Governor's Office 2021).
New York State Offshore Wind Master Plan (2017) (NYSERDA 2017b)	Grants NYSERDA ability to award 25-year-long 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 required to submit at least one proposal of approximately 400 MW.
The Climate Leadership and Community Protection Act, enacted on July 18, 2019, signed into law in July 2019 and effective January 1, 2020	Establishes economy-wide targets to reduce GHG emissions by 40% of 1990 levels by 2030 and 85% of 1990 levels by 2050.
Massachusetts	
Global Warming Solutions Act of 2008	Framework to reduce GHG emissions by requiring 25% reduction in emissions from all sectors below 1990 baseline emission level in 2020 and at least 80% reduction in 2050. Full implementation is projected to result in total net reduction of 25.0 million metric tons of carbon dioxide equivalent, or 26.4% below 1990 baseline level (Commonwealth of Massachusetts 2018a).
Massachusetts CECP for 2020; 2015 CECP Update	Policies that aim to reduce GHG emissions across all sectors; full implementation 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).

Plans and Policies	Summary/Goal
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 (Commonwealth of Massachusetts 2018a, 2018b).
Massachusetts CECP for 2030	The 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 (Massachusetts Executive Office of Energy and Environmental Affairs 2022) 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 2020c).
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 2020a).
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 carbon dioxide 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% below the 1990 level (Commonwealth of Massachusetts 2020b).
Rhode Island	
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).
Resilient Rhode Island Act (2014) (Rhode Island General Laws, § 42-6.2)	Established the Executive Climate Change Coordinating Council and set specific GHG reduction targets; incorporates consideration of climate change impacts into the powers and duties of all state agencies.
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).
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 2035 (State of Rhode Island 2015b).
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 on the Rhode Island Office of Energy Resources to conduct economic and energy market analyses to develop an actionable plan to reach 100% renewable electricity by 2030 (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 Rhode Island Office of Energy Resources developed specific policy, programmatic, planning, and equity-based actions that will support achieving the 100% renewable electricity goal (State of Rhode Island 2020b).
2021 Act on Climate (Rhode Island General Laws § 42-6.2-2)	This legislation updates Rhode Island's climate-emission reduction goals laid out in the 2014 Resilient Rhode Island Act and address areas such as environmental injustices, public health inequities, and a fair employment transition as fossil fuel jobs are

Plans and Policies	Summary/Goal
	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.
Connecticut	
2008 Global Warming Solutions Act (Public Act 08-98)	Sets forth statutory requirements to reduce GHG emissions 10% below 1990 levels by 2020 and 80% below 2001 levels by 2050.
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 CES and IRP.
Comprehensive Energy Strategy (2018)	Connecticut DEEP update to CES to advance the state's goal of creating a cheaper, cleaner, more reliable energy future for residents and businesses. The CES analyzes energy use and key trends of the region (State of Connecticut 2018b).
Executive Order No. 3 (2019)	Re-establishes and expands the membership and responsibilities of the 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 Building a Low Carbon Future for Connecticut: Achieving a 45% GHG reduction by 2030 (State of Connecticut 2019).
Integrated Resources Plan (2020)	DEEP is required to prepare an 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% zero carbon electric supply by 2040 in this IRP (State of Connecticut 2021a).
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 2021b).
New Jersey	
New Jersey Energy Master Plan (State of New Jersey 2019a)	Updated in 2019, the plan sets the framework to implement Executive Order 28 by decarbonizing and modernizing New Jersey's energy system, expanding the clean energy innovation economy, and accelerating the deployment of renewable energy resources to meet the offshore wind energy generation goal established in Executive Order 92.
Executive Order 28: Measures to Advance New Jersey's Clean Energy Economy (2018)	Sets target of total conversion of the state's energy production profile to 100% clean energy sources on or before January 1, 2050.
Executive Order 92: Increase Offshore Wind Goal to 7,500 Megawatts by 2036 (2019b)	Establishes a goal of 3,500 MW of offshore wind energy generation by 2030.
Executive Order 100: Protecting Against Climate Threats; Land Use Regulations and Permitting (State of New Jersey 2020b)	Establishes a GHG monitoring and reporting program, establishes criteria to govern and reduce emissions, and integrates climate change considerations, such as sea level rise, into regulatory and permitting programs.

CECP = Clean Energy and Climate Plan; CES = Comprehensive Energy Strategy; DEEP = Department of Energy and Environmental Protection; GC3 = Governor's Council on Climate Change; GHG = greenhouse gas; IRP = Integrated Resource Plan; MW = megawatt; NYSERDA = New York State Energy Research and Development Authority

Table E-7: Resiliency Plans and Policies

Plans and Policies	Summary
New York	
Part 490 of Community Risk and Resiliency Act of 2014 (Title 6, New York Codes, Rules, and Regulations, Part 490)	Establishes statewide science-based sea level rise projections for coastal regions of the state. As of 2019, New York State Department of Environmental Conservation is in the process of developing a State Flood Risk Management Guidance document for state agencies.
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 (New York Governor's Office of Storm Recovery 2018).
Water Infrastructure Improvement Act, Water Quality Improvement Project Program, and Intermunicipal Grant	$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 (New York Governor's Office 2021).
Massachusetts	
Municipal Vulnerability Preparedness grant program (2022)	Provides support for cities and towns to plan for resiliency and implement key climate change adaptation actions for resiliency. The City of New Bedford received a Municipal Vulnerability Preparedness designation as of November 1, 2018 (Commonwealth of Massachusetts 2022b).
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 2022a).
General Appropriations Bill, Fiscal Year 2022 (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 outlines Nantucket's approaches to preparing for and responding to sea level rise, coastal flooding, and coastal erosion. Key management activities include infrastructure improvement, revised zoning and other regulations, and budgetary measures to help the community address these concerns (Town and County of Nantucket 2021).
Rhode Island	
Shoreline Change Special Area Management Plan	The Rhode Island Coastal Resources Management Council is developing the Shoreline Change Special Area Management Plan to improve the state's resilience and manage the shoreline (RI CRMC 2018).
Act Authorizing Municipal Climate Change and Coastal Resiliency Reserve Funds (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	
Resilient Connecticut	Connecticut Institute for Resilience & Climate Adaptation was awarded an $8 million from the National Disaster Relief Competition to develop the Resilient Connecticut project. Coordination of the institute, 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 (CIRCA 2021).

Plans and Policies	Summary
An Act Concerning Climate Change Adaptation (Public Act 21-115)	Act approved July 6, 2021. Addresses the rising seas, frequent flooding, heat waves, and drought expected between now and 2050. 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.
New Jersey	
New Jersey Draft Climate Change Resilience Strategy	This is New Jersey's first statewide climate resiliency strategy and was released as a draft in April 2021. Develops a framework for policy, regulatory, and operational changes to support the resilience of New Jersey's communities, economy, and infrastructure. Includes 125 recommended actions across the following six priority areas: build resilient and healthy communities, strengthen the resilience of New Jersey's ecosystems, promote coordinated governance, invest in information, increase public understanding, promote climate-informed investments and innovative financing, and coastal resilience plan (State of New Jersey 2021).

E.5.9 Oil and Gas Activities

The proposed Project is located in the North Atlantic Planning Area of the OCS Oil and Gas Leasing 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 from July 1, 2022, through June 30, 2032. Existing leases in the withdrawn areas are not affected.

BOEM issues geological and geophysical (G&G) permits to (1) obtain data for hydrocarbon exploration and production; (2) locate and monitor marine mineral resources; (3) aid in locating sites for alternative energy structures and pipelines; (4) identify possible human-made, seafloor, or geological hazards; and (5) locate potential archaeological and benthic resources. G&G surveys are typically classified into the following categories by equipment and survey type:

- Deep-penetration seismic airgun surveys (two-, three-, and four-dimensional, ocean-bottom nodal, and azimuth multi-vessel surveys);
- Airgun high-resolution geophysical 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-airgun high-resolution geophysical 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; and
- 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 the *Gulf of Mexico OCS Proposed Geological and Geophysical Activities: Western, Central, and Eastern Planning Areas* Final Programmatic EIS (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 Undated). Table E-8 lists the eight existing or approved 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, storage of LNG for periods of peak demand, or production of LNG for fuel and industrial use (FERC 2022).

Table E-8: Liquid Natural Gas Terminals Located in the Eastern United States

Terminal Name	Type	Company	Jurisdiction	Approximate Location Relative to Proposed Project	Status
Everett, Massachusetts	Import terminal	GDF SUEZ—DOMAC	FERC	90 miles north	Existing
Offshore Boston, Massachusetts	Import terminal	GDF SUEZ—Neptune LNG	MARAD/USCG	100 miles north	Existing
Offshore Boston, Massachusetts	Import terminal, authorized to re-export delivered LNG	Excelerate Energy—Northeast Gateway	MARAD/USCG	95 miles north	Existing
Cove Point, Maryland (Chesapeake Bay)	Import terminal	Dominion—Cove Point LNG	FERC	340 miles southwest	Existing
Cove Point, Maryland (Chesapeake Bay)	Export terminal	Dominion—Cove Point LNG	FERC	340 miles southwest	Existing
Elba Island, Georgia (Savannah River)	Import terminal	El Paso—Southern LNG	FERC	835 miles southwest	Existing
Elba Island, Georgia (Savannah River)	Export terminal	Southern LNG Company	FERC	835 miles southwest	Existing
Jacksonville, Florida	Export terminal	Eagle LNG Partners	FERC	960 miles southwest	Approved

Source: Adopted from FERC 2022

FERC = Federal Energy Regulatory Commission; LNG = liquified natural gas; MA = Massachusetts; MARAD = U.S. Department of Transportation Maritime Administration; USCG = U.S. Coast Guard

E.5.10 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-9).

Table E-9: Existing, Approved, and Proposed Onshore Development Activities

Type	Description
Local planning documents	• Suffolk County Master Plan (Suffolk County 2015) • A City Master Plan: New Bedford 2020 (Vanasse Hangen Brustlin, Inc 2010) • Town of North Kingstown Comprehensive Plan Update 2008 (Town of North Kingstown 2008) • Washington County Transfer of Development Rights Study (Horsely Witten Group 2012) • North Kingstown Comprehensive Plan Re-Write 2019 (Interface Studio 2019)
Onshore wind projects	There are 14 onshore wind projects located within the 46-mile viewshed of the project (Hoen et al. 2018).
Communications towers	There are numerous communications towers in communities within the viewshed of the proposed Project components, including 134 communication towers within a 3-mile radius of Nantucket, 327 communication towers within a 3-mile radius of Barnstable, and 89 communication towers within a 3-mile radius of Bridgeport (AntennaSearch.com 2022).
Development projects	The Fire Island Inlet to Montauk Point project is a $1.2 billion project by USACE, the New York Department of Environmental Concern, and Long Island, New York, 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 (USACE 2022). In 2019, National Grid completed and began operating a diesel generator and a battery electric storage system at an existing electric generating facility approximately 1 mile north of Nantucket's southern coastline (Renewable Energy World 2019; Walton 2018).
Port studies/upgrades	The State of New Jersey plans to build an offshore wind port on the eastern shore of the Delaware River in Lower Alloways Creek, Salem County, approximately 7.5 miles southwest of the city of Salem. The port site is adjacent to Public Service Enterprise Group's Hope Creek Nuclear Generating Station. Construction is planned to be completed in late 2023. The development plan includes construction of a heavy-lift wharf with a dedicated delivery berth and an installation berth that can accommodate jack-up vessels, a 30-acre marshaling area for component assembly and staging, a dedicated overland heavy-haul transportation corridor, and potential for additional laydown areas (New Jersey Wind Port Undated). Both the Atlantic Shores South and Ocean Wind 2 projects have committed to building a nacelle assembly facility at the New Jersey Wind Port. Atlantic Shores plans to partner with MHI Vestas for this facility, while Ocean Wind will collaborate with General Electric (NJ BPU 2021). In 2020, the State of New Jersey announced a $250 million investment in a manufacturing facility to build steel components for offshore wind turbines at the Port of Paulsboro on the Delaware River in New Jersey (State of New Jersey State 2020a). Construction on the facility began in January 2021, with production anticipated to begin in 2023 (Pytell 2020). Both the Atlantic Shores South and Ocean Wind 2 projects will use the foundation manufacturing facility at the Port of Paulsboro (NJ BPU 2021). USACE completed the Lake Montauk Harbor Feasibility Study in 2020 (USACE and NYSDEC 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. 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 [offshore wind] projects" (Table 26; NYSERDA 2017b). Nearly all identified sites would require some level of infrastructure upgrade (from minimal to significant) depending on offshore wind activities intended for the site. Sites of interest include Red Hook- Brooklyn, South Brooklyn Marine Terminal, and the Port of Coeymans (NYSERDA 2017b; City of New York 2022; NYCREDC 2022; AAPA 2016; Rulison 2018; NYCEDC 2018).

Type	Description
	Construction is currently ongoing to upgrade the facilities at the Connecticut State Pier in New London under a long-term operating agreement (CPA Undated). Strategic objectives of the upgrades include managing and redeveloping the pier support the offshore wind industry and increase regional job growth. Redevelopment of the pier is currently ongoing (with anticipated completion in 2023), and upgrades include the creation of two heavy-lift pads and increasing the rest of the facility's load bearing capacity to meet the facility requirements of the offshore wind industry. The South Fork Wind, Revolution Wind, and Sunrise Wind projects would use the upgraded Connecticut State Pier facility (CPA Undated). In Rhode Island, Ørsted 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 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 (Quonset Development Corporation 2016). 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, operations and maintenance 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 MCT to improve and expand services to the offshore wind industry (MassCEC 2022; Port of New Bedford 2018), but no new improvements were identified. New York State proposed port improvements include upgrades to create five dedicated port facilities for offshore wind, including the following: • The nation's first offshore wind tower manufacturing facility, to be built at the Port of Albany; • An offshore wind turbine staging facility and operations and maintenance hub to be established at the South Brooklyn Marine Terminal; • Increasing the use of the Port of Coeymans for turbine foundation manufacturing; and • Buttressing ongoing operations and maintenance out of Port Jefferson and Port of Montauk Harbor in Long Island.

MCT = Marine Commerce Terminal; MLLW = mean lower low water; NYSERDA = New York State Energy Research and Development Authority; USACE = U.S. Army Corps of Engineers

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