Kitty Hawk Wind

AVANGRID

Construction and Operations Plan

Appendix FF - Summary of Applicant-Proposed Avoidance, Minimization, and Mitigation Measures

September 30, 2022

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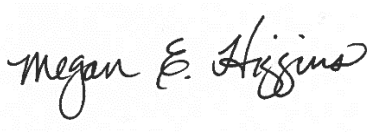
TETRA TECH		
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Revision Summary				
Rev	**Date**	**Prepared by**	**Checked by**	**Approved by**
01	28 Jun 2021	Tetra Tech, Inc.	Brian Benito Jr.	Marcus Cross
02	26 Jul 2021	Tetra Tech, Inc.	Brian Benito Jr.	Marcus Cross
03	01 Nov 2021	Tetra Tech, Inc.	Amanda Mayhew	Marcus Cross
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Description of Revisions			
Rev	**Page**	**Section**	**Description**
01	All	All	Submitted to BOEM
02	All	All	Updates to Project Design Envelope
03	Various	Various	Updated based on BOEM comments and Project updates
04	Various	Various	Updated based on BOEM comments and Project name

Table FF-1 Summary of Applicant-Proposed Avoidance, Minimization, and Mitigation Measures

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
001	The Project will be consistent with the enforceable policies of Virginia's and North Carolina's federally approved Coastal Zone Programs.	1.5.1	Entire Site	All Stages
002	The facility will be compliant with City of Virginia Beach building codes, electrical standards, and environmental regulations. When the Project reaches the design stage, consideration will be given to visually integrate the substation and switching station into the surrounding landscape and coordinating with regulatory agencies and the City of Virginia Beach.	3.2.1.1; 6.4 Visual Resources	Entire Site (Onshore)	Construction
003	The offshore export cables and inter-array cables typically have no maintenance requirements unless a fault or failure occurs. Cable failures are mainly anticipated as a result of damage from external influences, such as anchors and fishing gear. To evaluate integrity of the cables, the Company intends to conduct a bathymetry survey (or similar) along the cable routes immediately following installation to confirm cable burial depth. The Company may conduct up to two further maintenance surveys subject to the findings of the post-installation survey.	3.2.2.3; 3.2.5	Offshore Export Cable Corridor	Construction
004	The location of the offshore export cables and associated cable protection, inter-array cables and associated cable protection, wind turbine generators (WTGs), and the electrical service platform (ESP) will be provided to the National Oceanic and Atmospheric Administration's (NOAA) Office of Coast Survey after installation is completed for the purposes of inclusion on nautical charts.	3.2.2.3; 3.2.5.2; 3.2.6.1	Entire Site (Offshore)	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
005	The Company is evaluating the beneficial re-use of dredged material and will work with the appropriate stakeholders to determine if re-use is a feasible and practical solution for disposal of the material.	3.2.2.3	N/A	Pre-construction
006	Seabed debris and unexploded ordnance will be cleared as necessary, in accordance with industry guidelines and best management practices.	3.2.3	Entire Site (Offshore)	Construction
007	Project-related wastes will be disposed of in accordance with applicable regulations and will be reused or recycled to the extent practicable.	3.2.8	Entire Site	All Stages
008	As planning and design proceeds, a detailed chemical and waste management plan will be developed and provided to the Bureau of Ocean Energy Management (BOEM) (see Appendix I Oil Spill Response Plan). This plan will describe how each waste stream will be handled and stored, together with plans for proper disposal, recovery, recycling, or reuse.	3.2.8	N/A	Pre-construction
009	Distributed temperature sensing will be included in the offshore export cables to monitor temperature changes along the offshore export cables over the useful life of the Project. Distributed temperature sensing systems use fiber optic cable alongside the electrical conductor cores to monitor the temperature at each location along the length of the entire cable. The Company will be alerted in real time should the temperature change, which often is the result of cable exposure. If a change in temperature occurs, the Company will, as appropriate, inspect that location to determine if cables have become damaged, exposed, or over buried, and will conduct necessary repairs or maintenance.	3.3 Operations and Maintenance; 4.1 Physical and Oceanographic Conditions	Offshore Export Cable Corridor	Construction and O&M

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
010	The Company will conduct a complete as-built survey of the Project, following the completion of the offshore installation activities. This as-built survey will provide the baseline conditions for future survey campaigns. In addition, the Company proposes to implement a risk-based approach for post-construction survey campaigns, which will allow the Company to survey those areas determined to be at the highest risk at the time. Following the full coverage as-built survey, risk-based inspections will be conducted for years 1 and 2, then every 3 years. Additional survey activities will be completed on an as-needed basis, determined based on various factors such as extreme weather events.	3.3 Operations and Maintenance	Offshore Export Cable Corridor	O&M
011	The Company will comply with the April 2021 BOEM *Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development* subject to final design decisions and will work with the U.S. Coast Guard (USCG) and BOEM to achieve equivalent levels of safety performance as Aids to Navigation if the 2021 guidance is not practical given final design. BOEM's guidelines are modeled after the Federal Aviation Administration's (FAA) obstruction marking and lighting standards (see *Advisory Circular 70/7460-1M*) and USCG's recommendations for structure identification, lighting, and sound signal in its *NC, VA, MD, DE, NJ-Atlantic Ocean-Offshore Structure PATON Marking Guidance* (USCG 2020).	3.3.2; 7.3 Marine Transportation and Navigation; 7.6 Aviation and Radar	Wind Development Area	All Stages

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
012	In accordance with relevant guidance and subject to input from regulators, all foundation structures will be painted high visibility yellow RAL 1023 up to 15.2 meters (m, 50 feet [ft]) from Mean Higher High Water. Ladders at the foundation base will be painted in a color that contrasts with the high visibility yellow. Retro-reflective material will be used, visible through a 360-degree arc, and may be applied in at least 0.6-m (2-ft) bands around structures, no less than 9.1 m (30 ft) above Mean Higher High Water. Above 15.2 m (50 ft), WTGs will be painted a shade of white between the RAL specifications of Pure White (RAL 9010) and Light Grey (RAL 7035). WTGs will be labeled with an alphanumeric marking scheme, determined in coordination with the USCG. Letters will be easily visible using retroreflective material and will be as near 3 m high as practicable. Lettering will be visible from all directions from the water's surface. The bottom of the alphanumeric characters should be located at least 9.1 m (30 ft) and no more than 15.2 m (50 ft) above Mean Higher High Water.	3.3.2; 7.3 Marine Transportation and Navigation	Wind Development Area	All Stages

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
013	Two synchronized FAA "L-864" red flashing omnidirectional obstruction lights will be placed on the nacelle of each WTG. LED-based red obstruction lights will be visible to pilots using certain night vision goggle systems. Mid-level lighting will be placed at the halfway point of each WTG tower, consisting of at least three flashing red lights, and synchronized with the nacelle lighting.	3.3.2; 7.6 Aviation and Radar	Wind Development Area	All Stages
014	In accordance with USCG and BOEM guidance, lights on Significant Peripheral Structures (e.g., corner WTGs or ESP) will be quick flashing yellow with a nominal range of 9 kilometers (km; 5 nautical miles [nm]). Intermediate Perimeter Structures will flash yellow at 2.5 seconds at a nominal range of 6 km (3 nm). Inner boundary towers will be marked with flashing yellow lights at 6 or 10 seconds with a nominal range of 4 km (2 nm). Interior WTGs will be marked with 15-second flashing yellow lights with a nominal range of 2 km (1 nm). Flash sequences will be synchronized for each structure location. All lighting will be visible to mariners from all directions in the horizontal plane.	3.3.2; 7.3 Marine Transportation and Navigation	Wind Development Area	All Stages
015	Temporary components preceding the final structure completion will be marked with quick flashing yellow obstruction lights, which will be visible to mariners from all directions in the horizontal plane at a nominal range of 9 km (5 nm). Other temporary lighting may be utilized for safety purposes as necessary.	3.3.2; 7.3 Marine Transportation and Navigation	Wind Development Area	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
016	Sound signals will be located on Significant Peripheral Structures and other outer structures such as to not exceed 6 km (3 nm) between sound signals. Signals will sound every 30 seconds (4 seconds blast, 26 seconds off), will be Mariner Radio Activated Sound Signal activated by keying Very High Frequency Radio frequency 83A five times within ten seconds, and will be timed to energize for 45 minutes after the last activation. Sound signals will project to a nominal range of 4 km (2 nm).	3.3.2; 7.3 Marine Transportation and Navigation	Wind Development Area	All Stages
017	Automatic identification system (AIS) transponder signals will be used to mark structures within the Wind Development Area, pending additional guidance from the USCG.	3.3.2; 7.3 Marine Transportation and Navigation	Wind Development Area	All Stages

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
018	At the end of the Project's useful life, the Project will be decommissioned in accordance with a detailed Project decommissioning plan that will be developed in compliance with applicable laws, regulations, and best management practices at that time. Unless otherwise authorized by BOEM, pursuant to 30 Code of Federal Regulations (CFR) § 585.902 the Company is required to "remove or decommission all facilities, projects, cables, pipelines, and obstructions and clear the seafloor of all obstructions created by activities on the leased area." Furthermore, in accordance with 30 CFR § 585.905, the Company is required to submit a decommissioning application two years before the expiration of the Lease. Accordingly, the Company will develop a detailed decommissioning and removal plan for the facility that complies with all relevant permitting requirements. This plan will account for changing circumstances during the operations phase of the Project, including new discoveries in the marine environment, technology, and any relevant amended legislation.	3.4	Entire Site	Decommissioning
019	During decommissioning activities, the Company will mandate a careful inventory be made of all offshore Project components to be removed. As they are removed from the site, each Project component will be counted and noted, ensuring that all Project components are removed. The Company will prioritize re-use and recycling of materials as feasible and will otherwise dispose of materials in an appropriate fashion, consistent with both an approved decommissioning plan and relevant federal, state, and local regulations.	3.4	Entire Site	Decommissioning

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
020	After decommissioning is complete, unless otherwise authorized by BOEM, the Company will conduct a site clearance survey to ensure that all Project components are removed and that no unauthorized debris remains on the seabed. Details of the site clearance survey will be provided in the Project decommissioning plan.	3.4	Entire Site	Decommissioning
021	Onshore Project components were sited to avoid where practicable the use of undeveloped land and maximize the use of previously disturbed lands to the extent practicable.	4.2 Water Quality; 5.1 Wetlands and Waterbodies; 5.2 Terrestrial Vegetation and Wildlife; 5.3 Bat and Avian Species; 6.2 Terrestrial Archaeological and Cultural Resources; 6.3 Aboveground Historic Resources; 6.4 Visual Resources; 7.1 Recreation and Tourism; 7.10 Land Use and Zoning	Entire Site (Onshore)	Pre-construction
022	Once construction is completed, the roads and parking lot used for cable landfall and installation of the onshore export cables, with the exception of flush-mounted access covers, will be restored to previous conditions. The portion of the onshore substation site not required for long-term operation of the substation and switching station will be restored to previous conditions once construction is completed.	5.1 Wetlands and Waterbodies; 5.2 Terrestrial Vegetation and Wildlife; 5.3 Bat and Avian Species; 6.3 Aboveground Historic Resources; 6.4 Visual Resources; 7.1 Recreation and Tourism; 7.10 Land Use and Zoning	Entire Site (Onshore)	Construction
023	Use of horizontal directional drilling (HDD) for export cable landfall will avoid nearshore, beach, and sand dune impacts.	4.2 Water Quality; 5.1 Wetlands and Waterbodies; 5.2 Terrestrial Vegetation and Wildlife; 5.3 Bat and Avian Species; 5.4 Benthic Resources and Finfish, Invertebrates, and Essential Fish Habitat; 5.6 Sea Turtles; 7.1 Recreation and Tourism; 7.7 Other Coastal and Marine Uses	Landfall	Pre-construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
024	The offshore export cable corridor was sited to avoid known sensitive resources.	4.1 Physical and Oceanographic Conditions; 5.4 Benthic Resources and Finfish, Invertebrates, and Essential Fish Habitat; 6.1 Marine Archaeological and Cultural Resources; 7.2 Commercial and Recreational Fishing; 7.5 Offshore Renewable Energy, Mineral Exploration, and Infrastructure; 7.7 Other Coastal and Marine Uses	Offshore Export Cable Corridor	Pre-construction
025	Safety plans for extreme weather conditions will be in effect for all construction, operations, and decommissioning activities.	4.1 Physical and Oceanographic Conditions; 7.12 Health and Safety and Low Probability Events	Entire Site	All Stages
026	Crews will follow all operational limitations and weather-related activity restrictions as defined by equipment manufacturers.	4.1 Physical and Oceanographic Conditions; 7.12 Health and Safety and Low Probability Events	Entire Site	All Stages
027	Construction will be stopped during any weather event that exceeds the operational limits of the Project, such as lightning storms or excessive wind or waves.	4.1 Physical and Oceanographic Conditions; 7.12 Health and Safety and Low Probability Events	Entire Site	Construction
028	Relevant personnel will be trained in implementing response plans, should a non-routine event occur.	4.1 Physical and Oceanographic Conditions; 7.12 Health and Safety and Low Probability Events	Entire Site	Construction
029	A detailed Project Execution Plan (or similar) will be developed by the construction contractor prior to the beginning of construction.	4.1 Physical and Oceanographic Conditions; 7.12 Health and Safety and Low Probability Events	N/A	Pre-construction
030	Preliminary Project siting and design is informed by and sited to avoid natural and anthropogenic hazards to the extent possible.	4.1 Physical and Oceanographic Conditions	Entire Site	Pre-construction
031	Further refinement of siting and design will be completed based on additional high-resolution geophysical and geotechnical investigations and other evaluations.	4.1 Physical and Oceanographic Conditions	Entire Site	Pre-construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
032	Unexploded ordnance with the potential to impact the Project will be avoided or cleared prior to installation activities with industry best management practices and according to industry guidelines.	4.1 Physical and Oceanographic Conditions	Entire Site	Construction
033	Non-historically significant marine debris with the potential to impact or be impacted by the Project will be moved prior to installation activities following industry best management practices.	4.1 Physical and Oceanographic Conditions	Entire Site (Offshore)	Construction
034	Soft soils, shallow gas, and potentially mobile seabed features will be avoided by the Project to the extent practicable in order to avoid any areas of challenging geology.	4.1 Physical and Oceanographic Conditions	Entire Site (Offshore)	Construction
035	The Company will periodically monitor burial depth as deemed necessary and note and address any concerns.	4.1 Physical and Oceanographic Conditions; 7.5 Offshore Renewable Energy, Mineral Exploration, and Infrastructure	Offshore Export Cable Corridor	Operations and Maintenance (O&M)
036	The Company will continue to coordinate with the U.S. Army Corps of Engineers and other appropriate agencies as necessary to avoid impacts to federally authorized projects and navigation channels.	4.1 Physical and Oceanographic Conditions	Entire Site (Offshore)	All Stages
037	The decision of the locations for onshore Project components will consider the existing geologic conditions of the area and avoid areas for which the geologic conditions could pose a risk to the Project.	4.1 Physical and Oceanographic Conditions	Entire Site (Onshore)	Pre-construction
038	The Company will consider the geologic conditions when determining Project design and construction methods and account for any requirements specific to the geology of the area.	4.1 Physical and Oceanographic Conditions	Entire Site	Pre-construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
039	Project infrastructure will be designed to withstand normal and reasonably foreseeable physical and oceanographic conditions throughout the useful life of the Project, taking into consideration the possibility of extreme weather conditions within the Wind Development Area.	4.1 Physical and Oceanographic Conditions	Entire Site	O&M
040	Scour protection will be applied around WTG and ESP foundations as appropriate, which will mitigate impacts to and from ocean currents.	4.1 Physical and Oceanographic Conditions	Wind Development Area	O&M
041	Monitoring, including periodic geophysical surveys of the offshore export and inter-array cables will be conducted in order to assure that the cables remain properly buried throughout the useful life of the Project.	4.1 Physical and Oceanographic Conditions	Entire Site (Offshore)	O&M
042	In the event that an offshore export or inter-array cable has become unburied or damaged, industry standard methods will be implemented to bury or repair the cable.	4.1 Physical and Oceanographic Conditions	Entire Site (Offshore)	O&M
043	The Company will develop a Stormwater Pollution Prevention Plan (SWPPP) that will conform with the Virginia Department of Environmental Quality (VDEQ) Stormwater Management Program regulations (VDEQ 2020), the construction general permit, and the City of Virginia Beach Erosion and Sediment Control Ordinance. The SWPPP will include steps the Company will take to comply with the permit, including water quality requirements.	4.2 Water Quality; 5.1 Wetlands and Waterbodies; 5.2 Terrestrial Vegetation and Wildlife	Entire Site (Onshore)	Pre-construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
044	As design for the onshore export cable corridors and the associated onshore substation and switching station develops, the Company will determine through site test pits whether groundwater is expected to be encountered during excavation. If groundwater is expected and dewatering is required, the Company will develop a site-specific dewatering plan to protect groundwater and nearby surface water resources in accordance with an agency-approved, Project-specific SWPPP.	4.2 Water Quality	Entire Site (Onshore)	Pre-construction
045	The Company will develop and implement an HDD Inadvertent Release Plan, if applicable.	4.2 Water Quality; 5.1 Wetlands and Waterbodies; 5.2 Terrestrial Vegetation and Wildlife	Landfall	Construction
046	Local pollution prevention and spill response procedures will be included in the SWPPP submitted to state agencies for the portions of the land-disturbing activity covered by the Virginia Pollutant Discharge Elimination System permit.	4.2 Water Quality	Entire Site (Onshore)	Construction
047	During construction, access will be restricted to existing paved roads and approved access roads at wetland and stream crossings, where possible. If access through wetlands is required during construction, temporary matting will be installed to protect vegetation root systems, reduce compaction, and minimize ruts.	4.2 Water Quality; 5.1 Wetlands and Waterbodies	Entire Site (Onshore)	Construction
048	Onshore refueling and/or maintenance of construction equipment and vehicles will be conducted outside sensitive resource areas to the extent practicable.	4.2 Water Quality	Entire Site (Onshore)	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
049	Project-related vessels will be subject to USCG wastewater and discharge regulations and will operate in compliance with oil spill prevention and response plans that meet USCG requirements. Specifically, all Project vessels will comply with USCG standards in U.S. territorial waters to legally discharge uncontaminated ballast and bilge water, and standards regarding ballast water management.	4.2 Water Quality	Entire Site (Offshore)	All Stages
050	While outside of the 5.6 km (3 nm) state-border/No-Discharge Zone, vessels will deploy a USCG-certified marine sanitation device with certifications displayed. While inside of the 5.6 km state-border/No-Discharge Zone, vessels will take normal vessel procedures to close off marine sanitation device-effluence discharge piping and redirect it to onboard 'Zero-Discharge Tanks' for the appropriate disposal either at dock or outside of a No-Discharge Zone.	4.2 Water Quality	Entire Site (Offshore)	All Stages
051	All vessels less than 24.1 m (79 ft) will comply with the Small Vessel General Permit issued by the U.S. Environmental Protection Agency (EPA) on 10 Sep 2014 for compliance with National Pollutant Discharge Elimination System permitting.	4.2 Water Quality	Entire Site (Offshore)	All Stages
052	As necessary, the Company will install scour protection around foundations to further minimize effects of local sediment transport.	4.2 Water Quality	Entire Site (Offshore)	O&M

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
053	The onshore substation and switching station will be required to meet stormwater requirements for the state and Virginia Beach, which will control stormwater runoff based on state and local requirements. On-site stormwater control features may be required, and if so will be inspected and cleaned to remove debris or excess vegetation that may impede the designed functionality. The inspection schedule will be detailed in the SWPPP or appropriate Operations Plan.	4.2 Water Quality	Entire Site (Onshore)	O&M
054	Vessels constructed on or after 01 Jan 2016 will meet Tier III NO_X requirements when operating within the North American Emission Control Area (extending 370.4 km [200 nm] from shore) established by the International Maritime Organization (IMO).	4.3 Air Quality	Entire Site (Offshore)	All Stages
055	Project-related diesel-powered equipment will use ultra-low-sulfur diesel fuel, as required under 40 CFR § 80.510(b).	4.3 Air Quality	Entire Site (Onshore)	All Stages
056	Project-related vessels will use low-sulfur diesel fuel where possible and will meet or be less than the maximum fuel sulfur content requirement of 1,000 parts per million by weight established under 40 CFR § 80.510(k).	4.3 Air Quality	Entire Site (Offshore)	All Stages
057	Project-related vessels will comply with applicable EPA, or equivalent, emission standards.	4.3 Air Quality	Entire Site (Offshore)	All Stages

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
058	The Project will collect information necessary to determine actual emissions from Project-related vessels, in accordance with the requirements set forth in the Record of Decision and/or the issued Outer Continental Shelf air permit.	4.3 Air Quality	Entire Site (Offshore)	All Stages
059	Project-related vehicles, stationary diesel engines, and/or nonroad diesel engines at the staging site will comply with applicable state regulations regarding idling. In Virginia, 9VAC5-40-5670(C) limits the idling of diesel-powered motor vehicles to 10 minutes unless the operation of heat or air conditioning is needed.	4.3 Air Quality	Entire Site (Onshore)	All Stages
060	Project-related vessels will comply with applicable EPA, or equivalent, emission standards.	4.3 Air Quality	Entire Site (Offshore)	O&M

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
061	The Company will comply with the following local noise ordinances to the extent practicable, unless a situation arises that would require operations to continue into the night or deemed acceptable by the appropriate regulatory authority. Virginia Beach, Virginia, Municipal Code 23-69 provides absolute noise limits for both the nighttime and daytime periods, and also states that construction activities are exempt from daytime provisions: • Nighttime. No person shall permit, operate or cause any source of sound to create a sound level that can be heard in another person's residential dwelling during the hours between 10:00 p.m. and 7:00 a.m. in excess of 55 A-weighted decibels (dBA) when measured inside the residence at least four (4) ft from the wall nearest the source, with doors and windows to the receiving area closed. • Daytime. No person shall permit, operate or cause any source of sound to create a sound level in another person's residential dwelling during the hours between 7:00 a.m. and 10:00 p.m. in excess of 65 dBA when measured inside the residence at least four (4) ft from the wall nearest the source, with doors and windows to the receiving area closed. o Exemptions. The following activities or sources of noise shall be exempt from the daytime prohibition set forth in subsection (b) of this section: o Activities related to the construction, repair, maintenance, remodeling or demolition, grading or other improvement of real property.	4.4 In-Air Acoustic Environment	Entire Site (Onshore)	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
062	Additionally, Virginia Beach, Virginia, Municipal Code 23-71 cites limits to noise activities within proximity to defined noise-sensitive areas and limits construction activities to occur between 7:00 a.m. and 9:00 p.m., as follows: • Noise-sensitive areas. The making of any unreasonably loud and raucous noise within two hundred (200) ft of any school, place of worship, court, hospital, nursing home, or assisted-living facility while the same is being used as such, that substantially interferes with the workings of the institution. • Construction equipment. The operation of any bulldozer, crane, backhoe, front loader, pile driver, jackhammer, pneumatic drill, or other construction equipment between the hours of 9:00 p.m. and 7:00 a.m. except as provided in section 23-67 above, or as specifically deemed necessary and authorized by a written document issued by the city manager or his designee.	4.4 In-Air Acoustic Environment	Entire Site (Onshore)	Construction
063	HDD construction activities at the landfall will occur during the daytime period unless a situation arises that would require operations to continue into the night or deemed acceptable by the appropriate regulatory authority.	4.4 In-Air Acoustic Environment	Landfall	Construction
064	The Company will comply with these ordinances unless nighttime work in the case of an emergency is authorized by the City of Virginia Beach.	4.4 In-Air Acoustic Environment	Entire Site (Onshore)	Construction
065	In the case of nighttime operations at the landfall, only the HDD drill rig, power unit, light banks, and associated equipment needed for their safe operation will be used. Where additional equipment is needed approval from the appropriate regulatory authority will be sought.	4.4 In-Air Acoustic Environment	Landfall	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
066	If necessary near noise-sensitive areas, subject to regulatory requirements and stakeholder engagement, the Company will install moveable temporary noise barriers as close to the sound sources as possible, which have been shown to effectively reduce sound levels by 5 to 15 dBA.	4.4 In-Air Acoustic Environment	Entire Site (Onshore)	Construction
067	The Company will limit onshore construction activities to daytime periods, to the extent practicable, unless a situation arises that would require operations to continue into the night or deemed acceptable by the appropriate regulatory authority.	4.4 In-Air Acoustic Environment	Entire Site (Onshore)	Construction
068	Construction equipment will be well-maintained, and vehicles using internal combustion engines equipped with mufflers will be regularly checked to ensure they are in good working order.	4.4 In-Air Acoustic Environment	Entire Site (Onshore)	Construction
069	Quieter-type adjustable backup alarms will be used for vehicles as feasible.	4.4 In-Air Acoustic Environment	Entire Site (Onshore)	Construction
070	Construction equipment will be located within the confines of a temporary construction easement.	4.4 In-Air Acoustic Environment	Entire Site (Onshore)	Construction
071	A Project hotline will be made available to help actively address Project-related issues in a timely manner.	4.4 In-Air Acoustic Environment	N/A	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
072	The IMO (1981, 1975) has established vessel noise limits of received noise levels to 70 dBA at designated listening stations at the navigation bridge and windows during normal sail and operational conditions. In addition, the IMO further limits noise to 75 dBA at external areas and rescue stations with recommended limits 5 dBA lower. The vessels used for nearshore work and vessels transiting between Project ports and the Wind Development Area will comply with these IMO noise standards, as applicable.	4.4 In-Air Acoustic Environment	Entire Site (Offshore)	All Stages
073	Nearshore vessel activity will be generally concentrated in established shipping channels and near industrial port areas, and will be consistent with the existing noise environment in those areas.	4.5 Underwater Acoustic Environment	Entire Site (Offshore)	O&M
074	Structures and construction workspaces within the onshore substation site will be located outside of wetland and regulated watershed areas to the extent practicable. Where that is not possible, wetland impacts will be mitigated through the appropriate permitting process.	5.1 Wetlands and Waterbodies	Onshore Substation Site	Construction
075	The onshore export cables are sited within previously disturbed areas to the extent practicable, including paved roads and the existing, maintained utility right-of-way, to minimize conversion of wetland areas. Where conversion is unavoidable, conversion of wetland cover types will be mitigated through the appropriate permitting process.	5.1 Wetlands and Waterbodies	Onshore Export Cable Corridors	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
076	Soil stockpile areas will be sited on paved surfaces or on previously disturbed areas to the maximum extent practicable. Appropriate soil erosion and sediment control measures will be implemented in accordance with a site-specific Erosion and Sediment Control Plan, the VDEQ Virginia Erosion and Sediment Control Handbook (VDEQ 1992), the minimum standards specified in 9VAC25-840-40, and other applicable local, state, and federal laws and regulations.	5.1 Wetlands and Waterbodies; 5.2 Terrestrial Vegetation and Wildlife	Entire Site (Onshore)	Construction
077	Local pollution prevention and spill response procedures will be included in the SWPPP submitted to state agencies for the portions of the land-disturbing activity covered by the Virginia Pollutant Discharge Elimination System permit.	5.1 Wetlands and Waterbodies; 5.2 Terrestrial Vegetation and Wildlife	Entire Site (Onshore)	Construction
078	The Company will implement a Spill Prevention, Control, and Countermeasures Plan to prevent and guide response to accidental spills or releases of fuels, oils, or other hazardous materials within the onshore substation site.	5.1 Wetlands and Waterbodies; 5.2 Terrestrial Vegetation and Wildlife	Onshore Substation Site	Construction
079	The Company may stagger silt fencing and other restrictive erosion control features to allow movement of terrestrial wildlife between wetlands and other terrestrial locations.	5.1 Wetlands and Waterbodies; 5.2 Terrestrial Vegetation and Wildlife	Entire Site (Onshore)	Construction
080	The erosion and sediment control plan will be reviewed by the local Virginia Stormwater Management Program authority, which is the City of Virginia Beach, to ensure standards compliance while maintaining consideration for the movement of terrestrial wildlife.	5.1 Wetlands and Waterbodies	Entire Site (Onshore)	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
081	The Project will adhere to VDEQ Virginia Stormwater Management Program regulations authorized by the Virginia Stormwater Management Act.	5.1 Wetlands and Waterbodies; 5.2 Terrestrial Vegetation and Wildlife	Onshore Substation Site	O&M
082	Where suitable canebrake rattlesnake habitat cannot be avoided, a program will be implemented to instruct contractors involved in construction of the identification, natural history, and legal status of the canebrake rattlesnake.	5.2 Terrestrial Vegetation and Wildlife	Entire Site (Onshore)	Construction
083	Should a canebrake rattlesnake be observed prior to or during construction, the Virginia Department of Wildlife Resources will be contacted to assist in safe capture and relocation.	5.2 Terrestrial Vegetation and Wildlife	Entire Site (Onshore)	Construction
084	The Company will develop and implement an invasive species control plan, and temporarily disturbed areas will be revegetated with native vegetation or a regionally appropriate seed mix, as needed.	5.2 Terrestrial Vegetation and Wildlife	Entire Site (Onshore)	All Stages
085	Erosion and sediment control measures will be promptly removed within 30 days of final site stabilization, per minimum standard 18 of the Virginia Erosion and Sediment Control Regulations (9VAC25-840-40).	5.2 Terrestrial Vegetation and Wildlife	Entire Site (Onshore)	Construction
086	If erosion control mesh is used on site, a snake-friendly erosion control netting (polypropylene mesh with openings two or more inches, or biodegradable fiber mesh) will be considered for use in areas adjacent to wetlands and waterbodies (such as the utility right-of-way) to prevent entanglement.	5.2 Terrestrial Vegetation and Wildlife	Entire Site (Onshore)	Construction
087	Artificial lighting associated with construction vehicles, equipment, and work zones will be limited to the extent practicable.	5.2 Terrestrial Vegetation and Wildlife; 5.3 Bat and Avian Species	Entire Site (Onshore)	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
088	Light reduction measures such as downward projecting lights, motion-sensor activation, and limiting artificial lighting will be implemented to the extent practicable.	5.2 Terrestrial Vegetation and Wildlife	Entire Site (Onshore)	O&M
089	Access of Project personnel and vehicles will be limited, to the extent practicable, to existing disturbed areas and approved access roads.	5.2 Terrestrial Vegetation and Wildlife	Entire Site (Onshore)	All Stages
090	The Company will submit a framework for a Bird and Bat Post-Construction Monitoring Plan prior to BOEM finishing the Environmental Impact Statement.	5.3 Bat and Avian Species	Wind Development Area	O&M
091	If necessary, presence/probable absence surveys for both Indiana bats and northern long-eared bats would be conducted pursuant to discussions with federal and state regulators.	5.3 Bat and Avian Species	Entire Site (Onshore)	Construction
092	A raptor nest survey, as well as a breeding bird survey will be conducted along the forested sections of the onshore export cable corridors and onshore substation site, if tree clearing is required during nesting season (February to May for raptors and May to June for breeding birds).	5.3 Bat and Avian Species	Entire Site (Onshore)	Construction
093	In accordance with health and safety requirements and to the extent practical, anti-perching devices will be installed on Project structures to reduce perching opportunities for birds in some locations.	5.3 Bat and Avian Species	Entire Site (Offshore)	O&M
094	Potential impacts of avian and bat attraction will be minimized by reducing lighting on O&M vessels to the extent practicable.	5.3 Bat and Avian Species	Vessels	O&M
095	The impact of anchors on the seafloor would be reduced by placing any necessary anchors within previously cleared and disturbed areas to the extent possible. Each anchor is estimated to disturb approximately 30 square meters of substrate.	5.4 Benthic Resources and Finfish, Invertebrates, and Essential Fish Habitat	Entire Site (Offshore)	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
096	The offshore export cable corridor was sited to avoid known sensitive benthic habitats; further micro-siting within the offshore export cable corridor will avoid complex habitats where feasible.	5.4 Benthic Resources and Finfish, Invertebrates, and Essential Fish Habitat	Offshore Export Cable Corridor	Construction
097	The Company has committed to burying or armoring electric cables to minimize detectable electric and magnetic fields (EMF).	5.4 Benthic Resources and Finfish, Invertebrates, and Essential Fish Habitat; 5.5 Marine Mammals; 5.6 Sea Turtles; 7.2 Commercial and Recreational Fishing	Offshore Export Cable Corridor	O&M
098	The Company will require construction vessels to minimize the risk of fuel leaks and would prohibit vessels from refueling at sea, as detailed in Appendix I Oil Spill Response Plan.	5.4 Benthic Resources and Finfish, Invertebrates, and Essential Fish Habitat	Entire Site (Offshore)	Construction
099	Construction vessels will comply with USCG regulations and with discharge limits outlined by the Vessel Incidental Discharge Act of 2018. Project-related vessels will operate in accordance with laws regulating at-sea discharges of vessel-generated waste.	5.4 Benthic Resources and Finfish, Invertebrates, and Essential Fish Habitat; 5.5 Marine Mammals; 5.6 Sea Turtles; 7.7 Other Coastal and Marine Uses	Entire Site (Offshore)	Construction
100	Lights on the WTGs and ESP will be designed to penetrate only the top few centimeters of water to the extent practicable.	5.4 Benthic Resources and Finfish, Invertebrates, and Essential Fish Habitat	Wind Development Area	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
101	The Company will require Project-related personnel and vessel contractors to implement appropriate debris control practices and protocols. The Company will comply with Lease Condition 5.1.4 in regard to marine trash and debris prevention, including the required portions of Bureau of Safety and Environmental Enforcement Notice to Lessees and Operators No. 2015-G03. Vessel operators, employees, and contractors will be briefed on marine trash and debris awareness and elimination, the environmental and socioeconomic impacts associated with marine trash and debris, and their responsibilities for ensuring that trash and debris are not intentionally or accidentally discharged into the marine environment. The release of marine debris into the review area is not anticipated.	5.5 Marine Mammals; 5.6 Sea Turtles; 3.2.2.3	Entire Site (Offshore)	All Stages
102	The Company will implement measures to reduce the likelihood of vessel collocation with large whale species including maintaining minimum separation distances from marine mammals.	5.5 Marine Mammals	Entire Site (Offshore)	All Stages
103	To avoid, minimize, and mitigate impacts of underwater noise at thresholds that may potentially impact marine mammals and sea turtles, the Company will apply monitoring and exclusion zones where piled foundations are selected, as appropriate to underwater noise assessments and impact thresholds. These zones will be monitored by qualified NOAA National Marine Fisheries Service (NOAA Fisheries)-approved Protected Species Observers, real-time monitoring systems, and/or reduced-visibility monitoring tools (e.g., night vision, infrared and/or thermal cameras) as agreed upon with the relevant authorities.	5.5 Marine Mammals; 5.6 Sea Turtles	Wind Development Area	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
104	Soft-starts and, where technically feasible, shut-down procedures, will be employed as appropriate and as detailed in the Incident Harassment Authorization or Letter of Authorization to be issued by NOAA Fisheries.	5.5 Marine Mammals; 5.6 Sea Turtles; 4.5 Underwater Acoustic Environment	Wind Development Area	Construction
105	Where technically and commercially viable, measures to reduce underwater noise propagation will be evaluated.	5.5 Marine Mammals; 5.6 Sea Turtles; 4.5 Underwater Acoustic Environment	Wind Development Area	Construction
106	The Company will provide marine mammal and sea turtle sighting and reporting procedures training as appropriate for each specific phase of construction (pre-construction High Resolution Geophysical surveys, construction, and post-construction) to emphasize individual responsibility for marine mammal and sea turtle awareness and protection.	5.5 Marine Mammals; 5.6 Sea Turtles	Entire Site (Offshore)	All Stages
107	To avoid, minimize, and mitigate marine mammal ship strikes and physical disturbances, the Company will require Project-related vessels to comply with Ship Strike Reduction Rule speed restrictions within the Mid-Atlantic U.S. Seasonal Management Area for North Atlantic right whales (10 knots [18.5 km/h] or less for vessels 65 ft [20 m] or longer). The Company will also require all Project-related vessels to comply with the 10 knot (18.5 km/h) speed restriction in any Dynamic Management Area.	5.5 Marine Mammals	Entire Site (Offshore)	All Stages
108	Project-related vessels will maintain a distance of at least 328 ft (100 m) or greater from all whales and 1,640 ft (500 m) from North Atlantic right whales.	5.5 Marine Mammals	Entire Site (Offshore)	All Stages

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
109	Vessels larger than 300 gross tons moving into North Atlantic right whale habitat will report to the North Atlantic right whale Mandatory Ship Reporting System to receive whale sighting updates and vessel speed reminders.	5.5 Marine Mammals	Entire Site (Offshore)	All Stages
110	Marine mammal observers and other Project personnel will check NOAA Fisheries' website for Dynamic Management Area locations and will respond accordingly.	5.5 Marine Mammals	Entire Site (Offshore)	All Stages
111	The Company will coordinate with the local stranding networks and the Back Bay National Wildlife Refuge, which track sea turtle nests, to ensure no sea turtle nests are present before proceeding with construction activities in beach areas.	5.6 Sea Turtles	Landfall	Construction
112	The Company will implement measures such as maintaining minimum separation distances to reduce the probability of vessel collocation with sea turtles and to cease construction activities, to the extent practicable should sea turtles be observed within monitoring and exclusion zones.	5.6 Sea Turtles	Entire Site (Offshore)	All Stages
113	The Company's proposed measures to avoid, minimize, and mitigate the impacts of vessel collisions with marine mammals (see Section 5.5 Marine Mammals) would benefit sea turtles.	5.6 Sea Turtles	Entire Site (Offshore)	All Stages
114	For targets or features that cannot be avoided by Project impacts, the Qualified Marine Archaeologist (QMA), in consultation with the Company, has developed a Historic Properties Treatment Plan (HPTP) with recommended actions to minimize and/or mitigate effects to those resources (Appendix GG Marine Archaeological Resources Assessment Treatment Plan).	6.1 Marine Archaeological and Cultural Resources	Entire Site (Offshore)	All Stages

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
115	The marine archaeological resources assessment of the high-resolution geophysical data within the preliminary area of potential effect identified three potential submerged cultural resources within the gradiometer, side-scan sonar, and/or multibeam echosounder datasets, all of which are located within the offshore export installation cable corridor. The QMA recommends avoidance of these targets by a minimum distance of 100 m (328 ft) around Target 01, and a buffer of 50 m (164 ft) around the outer extents of the Targets 02 and 03 magnetic anomalies or acoustic contacts	6.1 Marine Archaeological and Cultural Resources	Offshore Export Cable Corridor	All Stages
116	Disturbance to submerged marine archaeological and cultural resources will be avoided to the extent practicable through the thorough analysis of the review area conducted by the QMA and adherence to the resulting recommended avoidance buffers. Disturbance to known resources that cannot practicably be avoided would only occur with appropriate consultations and approvals.	6.1 Marine Archaeological and Cultural Resources; 4.1 Physical and Oceanographic Conditions	Entire Site (Offshore)	Construction
117	The Company will develop and implement an Unanticipated Discoveries Protocol to avoid and mitigate impacts to unknown archaeological and cultural resources.	6.1 Marine Archaeological and Cultural Resources; 6.2 Terrestrial Archaeological and Cultural Resources	Entire Site (Offshore)	Construction
118	Repairs and other future activities will only occur within previously disturbed portions of the review area which have been previously assessed by the QMA, such as the offshore export cable corridor and existing WTG and ESP locations. Therefore, adherence to the QMA recommended avoidance buffers will still be in effect.	6.1 Marine Archaeological and Cultural Resources	Entire Site (Offshore)	O&M

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
119	The Stone Family Cemetery will be included in an Avoidance and Monitoring Plan, which will be submitted to BOEM for review.	6.2 Terrestrial Archaeological and Cultural Resources	Onshore Export Cable Corridors	Construction
120	Due to the archaeologically sensitive nature of the area and the unknown extent of disturbance caused by pavement installation along the thoroughfares contained within the Terrestrial Archaeological Area of Potential Effects, SEARCH, Inc. recommends that the onshore export cable installation be monitored by a qualified archaeologist during the construction.	6.2 Terrestrial Archaeological and Cultural Resources	Onshore Export Cable Corridors	Construction
121	A Phase IB archaeological investigation identified two potentially National Register of Historic Places-eligible archaeological resources located within the onshore substation site. The Project will avoid these resources or, if avoidance by the Project is not possible, Phase II significance evaluation testing is recommended to assess each site's National Register of Historic Places eligibility. If Phase II evaluation testing is necessary, the Company will consult with the appropriate agencies.	6.2 Terrestrial Archaeological and Cultural Resources	Onshore Substation Site	Pre-construction
122	Any additional temporary staging areas necessary to support onshore construction activities are anticipated to be located on previously disturbed lands.	6.2 Terrestrial Archaeological and Cultural Resources	Entire Site (Onshore)	Construction
123	Two previously recorded archaeological resources within the onshore export cable corridors will be avoided.	6.2 Terrestrial Archaeological and Cultural Resources	Onshore Export Cable Corridors	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
124	A program of archaeological monitoring will be implemented during excavation activities in areas believed to be previously undisturbed to identify any potentially intact terrestrial archaeological deposits that may remain within the onshore export cable corridors.	6.2 Terrestrial Archaeological and Cultural Resources	Onshore Export Cable Corridors	Construction
125	SEARCH, Inc. recommends the monitoring of excavation activities during construction at the landfall to inspect the excavations for evidence of any intact archaeological deposits that may remain.	6.2 Terrestrial Archaeological and Cultural Resources	Landfall	Construction
126	If additional ground-disturbing activities outside of the Project footprint become necessary in the future, measures implemented to limit impacts to potential cultural resources would be established during the required permitting activities. These measures would be anticipated to be similar to those undertaken during construction.	6.2 Terrestrial Archaeological and Cultural Resources	Entire Site (Onshore)	O&M

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
127	A final determination regarding the suitable location of the O&M facility will be made upon conclusion of thorough site assessments and due diligence of all locations under consideration. The Terrestrial Archaeological Area of Potential Effect and Onshore Viewshed Area of Potential Effect for the O&M facility will be defined using a process of phased identification and evaluation, in consultation with BOEM and the relevant state historic preservation office, as defined in 36 CFR 800.4(b)(2). The Company will provide BOEM with a detailed plan for how physical and visual effects will be determined, a description of what will be done to identify historic properties, how adverse effects will be assessed, and how mitigation measures will be developed in consultation with National Historic Preservation Act consulting parties to resolve effects. This plan will be written in a programmatic fashion for all potential outcomes to be considered, including construction of new building(s), modification of existing buildings, and use of existing building(s) without modification. The phased identification process will align with the relevant sections of the National Historic Preservation Act Section 106 implementing regulations (36 CFR Part 800) and will be developed in consultation with BOEM and the Virginia Department of Historic Resources. The final plan will be incorporated into applicable proposals for mitigation, as needed.	6.2 Terrestrial Archaeological and Cultural Resources; 6.3 Aboveground Historic Resources	O&M Facility	Pre-Construction
128	Vessels used for installation of the offshore export cables will not remain in any area for more than several weeks.	6.3 Aboveground Historic Resources; 6.4 Visual Resources	Offshore Export Cable Corridor	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
129	Visual impacts are minimized through BOEM's siting of the Lease Area, which considered visual impacts in the selection of offshore lease blocks for the Wind Energy Area (BOEM 2014). Historic properties in the Offshore Viewshed Area of Potential Effects are beyond the range of visibility for nighttime FAA obstruction lighting (see Section 6.4 Visual Resources). WTG towers, nacelles, and blades will be off-white or light gray color in order to decrease visual contrast with the sky under most daytime lighting conditions, in line with measures recommended by BOEM (2021), reducing the visibility from shore. Furthermore, navigational lighting that minimizes the visibility of the WTGs and ESP, without compromising safety, will also be employed (see Chapter 3 for additional information).	6.3 Aboveground Historic Resources; 6.4 Visual Resources	Wind Development Area	O&M
130	The maximum height of equipment, buildings, and walled structures is commensurate with the existing local built environment of the Corporate Landing Business Park.	6.3 Aboveground Historic Resources	Onshore Substation Site	Construction
131	Activities at staging and construction facilities will be consistent with the established and permitted uses of these facilities, and the Company will comply with applicable permitting standards to limit environmental impacts from Project-related activities.	6.4 Visual Resources	Entire Site (Onshore)	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
132	Lights flashing in unison at the slowest allowable frequency will further reduce visual impact. BOEM lighting guidance (BOEM 2021) and the FAA-required off-white or light gray paint color for WTG towers, nacelles, and blades will also decrease visual contrast with the sky under most daytime lighting conditions, reducing the visibility from shore (BOEM 2021).	6.4 Visual Resources	Wind Development Area	O&M
133	The existing landscape along the onshore export cable corridors will be preserved, with the exception of trees cleared, and will remain consistent with adjacent uses.	6.4 Visual Resources	Onshore Export Cable Corridors	O&M
134	Security lighting will be directed downward and shielded to avoid light pollution impacts, where possible. The amount of light generated by the security lights will be consistent with existing sources produced by human-made structures near the proposed onshore substation site.	6.4 Visual Resources	Onshore Substation Site	O&M
135	To avoid and minimize impacts to recreation and tourism, onshore construction activities associated with the export cable landfall will be scheduled during the off-peak tourism season, to the extent practicable.	7.1 Recreation and Tourism; 7.7 Other Coastal and Marine Uses; 7.8 Population, Economy, Employment, and Housing; 7.10 Land Use and Zoning; 7.9 Environmental Justice; 7.11 Land Transportation and Traffic	Landfall	Construction
136	The Company will develop a Traffic Management Plan in coordination with local authorities.	7.1 Recreation and Tourism; 7.9 Environmental Justice; 7.11 Land Transportation and Traffic	Entire Site (Onshore)	All Stages
137	Onshore safety zones will be temporary, localized, and will be scheduled during the off-peak tourism season, to the extent practicable.	7.1 Recreation and Tourism; 7.10 Land Use and Zoning; 7.11 Land Transportation and Traffic	Entire Site (Onshore)	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
138	Offshore, safety zones will be established, as applicable, surrounding the construction areas of Project components such as foundations, WTGs, the ESP, and the offshore export and inter-array cables. Where feasible, a minimum advisory safe passing distance for cable laying vessels will be implemented, as per the International Regulations for Preventing Collisions at Sea 1972 (COLREGs). Where USCG Safety Zone authorities are not applicable, the Company will use safety vessels to promote awareness of these activities and the safety of the construction equipment and personnel. The William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 authorizes a two-year pilot program under which the USCG may establish safety zones to address special activities in the exclusive economic zone, including offshore energy development activities on or near a fixed platform. Project construction is not anticipated to begin within two years of the passage of the Act; however, the authority may be extended or made permanent. The Company will continue to monitor the results of this pilot program and any implementing regulations to determine where safety zones may be applicable during Project construction. Where applicable, safety zones will extend up to 500 m around construction sites, per 33 CFR § 147.15. All areas will be lit and marked in accordance with USCG requirements and monitored by a safety vessel that will be available to assist local mariners. Vessels will not be permitted to enter the safety zone without express consent from the Company.	7.1 Recreation and Tourism; 7.2 Commercial and Recreational Fishing; 7.3 Marine Transportation and Navigation; 7.4 Department of Defense and Outer Continental Shelf National Security Maritime Uses; 7.7 Other Coastal and Marine Uses; 7.12 Health and Safety and Low Probability Events	Entire Site (Offshore)	All Stages

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
139	The locations of offshore safety zones will be made available in USCG-issued Local Notices to Mariners (LNMs) and posted on the Project website (www.kittyhawkoffshore.com).	7.1 Recreation and Tourism; 7.3 Marine Transportation and Navigation; 7.4 Department of Defense and Outer Continental Shelf National Security Maritime Uses	Entire Site (Offshore)	All Stages
140	Project-related vessels will originate from existing ports and will follow existing transit lanes as much as practicable. Where practical, Project vessels will utilize transit lanes, fairways, and predetermined passage plans consistent with existing waterway uses.	7.1 Recreation and Tourism; 7.2 Commercial and Recreational Fishing; 7.3 Marine Transportation and Navigation; 7.5 Offshore Renewable Energy, Mineral Exploration, and Infrastructure; 7.7 Other Coastal and Marine Uses	Entire Site (Offshore)	All Stages
141	Recreational users will not be excluded from using the area and existing recreational uses will be able to continue within the area.	7.1 Recreation and Tourism; 7.7 Other Coastal and Marine Uses	Wind Development Area	O&M
142	To mitigate potential short-term loss of access to fishing grounds, should there be any during seasonal fisheries, the Company will continue to engage with fishers, as described in the Fisheries Communications Plan, prior to and during all construction and O&M activities to ensure all required area closures will be communicated to the fishing industry and all other necessary parties.	7.2 Commercial and Recreational Fishing; 7.3 Marine Transportation and Navigation; 7.7 Other Coastal and Marine Uses	Entire Site (Offshore)	All Stages
143	Prior to construction, the Company will develop a Gear Loss/Damage Compensation Plan to address gear interactions with partially or fully installed structures.	7.2 Commercial and Recreational Fishing	Entire Site (Offshore)	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
144	The Project has a comprehensive Fisheries Communications Plan and network and will provide the local and regional fishing communities with fisheries notices describing construction operations and locations of all fixed structures within the Wind Development Area, including partially installed structures within the Wind Development Area.	7.2 Commercial and Recreational Fishing	Entire Site (Offshore)	All Stages
145	The Company will schedule and control Project-related vessels to best manage congestion and traffic flow in coordination with the USCG, Department of Defense (DoD), and other national security stakeholders.	7.2 Commercial and Recreational Fishing; 7.3 Marine Transportation and Navigation; 7.4 Department of Defense and Outer Continental Shelf National Security Maritime Uses; 7.5 Offshore Renewable Energy, Mineral Exploration, and Infrastructure; 7.7 Other Coastal and Marine Uses	Entire Site (Offshore)	All Stages
146	The Project's layout is oriented on a NNE/SSW axis to incorporate local trawl tow directionality in order to accommodate historical fishing practices. The layout also avoids specific areas of fisheries habitat.	7.2 Commercial and Recreational Fishing	Wind Development Area	All Stages
147	The Company recognizes that discussions are ongoing regarding pre- and post-construction monitoring needs for commercial and recreational fishing.	7.2 Commercial and Recreational Fishing	Entire Site (Offshore)	All Stages
148	LNMs and Broadcast LNMs will be published by the USCG to inform mariners of Project activities in the area.	7.3 Marine Transportation and Navigation; 7.4 Department of Defense and Outer Continental Shelf National Security Maritime Uses; 7.5 Offshore Renewable Energy, Mineral Exploration, and Infrastructure	Entire Site (Offshore)	All Stages

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
149	For each vessel type, the route plan for the vessel operation area will be developed to meet industry guidelines and best practices in accordance with International Chamber of Shipping guidance.	7.3 Marine Transportation and Navigation	Entire Site (Offshore)	All Stages
150	The Company will monitor Project vessel movements during O&M activities in and near the Wind Development Area via a marine management system. The Project will require operational AIS on all vessels associated with the construction, operations, and decommissioning of the Project, pursuant to USCG and AIS carriage requirements. AIS will be required to monitor the number of vessels and traffic patterns for analysis and compliance with vessel speed requirements.	7.3 Marine Transportation and Navigation; 7.7 Other Coastal and Marine Uses	Entire Site (Offshore)	All Stages
151	All vessels will operate in accordance with applicable rules and regulations for maritime operation within state and federal waters.	7.3 Marine Transportation and Navigation	Entire Site (Offshore)	All Stages
152	The Project will adhere to vessel speed restrictions, as appropriate, in accordance with NOAA requirements.	7.3 Marine Transportation and Navigation	Entire Site (Offshore)	All Stages
153	Information on all partially installed structures and other navigational hazards will be announced on the Project website and social media pages and coordinated with the USCG.	7.3 Marine Transportation and Navigation	Wind Development Area	Construction
154	Partially installed structures and other navigational hazards will be appropriately lit and marked in accordance with BOEM, USCG, and FAA guidance, as applicable.	7.3 Marine Transportation and Navigation; 7.4 Department of Defense and Outer Continental Shelf National Security Maritime Uses; 7.12 Health and Safety and Low Probability Events	Wind Development Area	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
155	The Company will post regular updates on their website and social media pages to give mariners and fisheries information on the location and schedule of Project-related safety zones. The Project website will be updated regularly so that mariners know what work is being done in the various offshore Project locations.	7.3 Marine Transportation and Navigation; 7.7 Other Coastal and Marine Uses	Entire Site (Offshore)	Construction
156	The Company's Safety Management System will include an Emergency Response Plan detailing procedures for on-site self-rescue and emergency medical attention.	7.3 Marine Transportation and Navigation	Entire Site (Offshore)	All Stages
157	The Company will continue to closely coordinate with the USCG regarding search and rescue (SAR) operations and the necessary safety measures.	7.3 Marine Transportation and Navigation; 7.12 Health and Safety and Low Probability Events	Entire Site (Offshore)	All Stages
158	The Company will create and adhere to operational SAR procedures that will instruct Project personnel on how to engage with the USCG in the event of an emergency and assist emergency responders with their missions (Appendix BB Navigation Safety Risk Assessment).	7.3 Marine Transportation and Navigation; 7.12 Health and Safety and Low Probability Events	Entire Site (Offshore)	All Stages
159	As-built plans will be provided to NOAA and appropriate stakeholders to update nautical charts with structure locations, including WTGs and the ESP, along with the location of the offshore export cable corridor.	7.3 Marine Transportation and Navigation; 7.12 Health and Safety and Low Probability Events	Entire Site (Offshore)	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
160	The Company will work with the USCG to develop an operational protocol that outlines the procedures for braking systems requested on the WTGs to be engaged within a specific time upon request from the USCG during SAR operations and other emergency response situations. The protocol will include formal procedures that will enable efficient, effective processes for communicating and engaging the braking mechanism requests during SAR operations and other emergency response situations. These communication and shut down procedures, as well as the brake systems, will be tested at a frequency agreed upon with the UCSG and BOEM.	7.3 Marine Transportation and Navigation	Wind Development Area	All Stages
161	In the event that a structure is allided by a vessel, the Company will conduct a structural inspection as quickly as possible and advise the USCG is the structure has become a hazard to navigation.	7.3 Marine Transportation and Navigation	Wind Development Area	All Stages
162	The Company will maintain an operations center throughout the life of the Project. This center can assist the USCG in the response to distress calls through active control over the WTG braking system. The operations center personnel will have access to charts providing GPS position and identification numbers for each structure. The USCG will also be provided with this chart. The contact telephone number for the operations center will be provided to the USCG and posted in various public notices which are issued.	7.3 Marine Transportation and Navigation	N/A	O&M
163	The Company will communicate and coordinate construction activities with the Virginia Capes Fleet Area Control and Surveillance Facility.	7.4 Department of Defense and Outer Continental Shelf National Security Maritime Uses	N/A	All Stages

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
164	The Company will continue to communicate and engage with key national security stakeholders, including the USCG, DoD, and others to coordinate installation activities.	7.4 Department of Defense and Outer Continental Shelf National Security Maritime Uses	N/A	Construction
165	The Company will publish a regular operations plan on the Project website so that mariners and aviators are aware of Project activities.	7.4 Department of Defense and Outer Continental Shelf National Security Maritime Uses; 7.6 Aviation and Radar; 7.5 Offshore Renewable Energy, Mineral Exploration, and Infrastructure;	N/A	All Stages
166	In siting the Lease Area, BOEM worked with the DoD to identify areas with military use conflicts, which were then removed from further leasing consideration (BOEM 2015).	7.4 Department of Defense and Outer Continental Shelf National Security Maritime Uses	Wind Development Area	Pre-construction
167	As-built plans will be provided to NOAA Fisheries and appropriate stakeholders to update nautical charts with structure locations, including WTGs and the ESP, along with the offshore export cable corridor. To prevent future designations of sand borrow areas or dredge disposal sites over installed cables, the Company will provide accurate cable location information on NOAA charts and will make cable location shape files available.	7.4 Department of Defense and Outer Continental Shelf National Security Maritime Uses; 7.5 Offshore Renewable Energy, Mineral Exploration, and Infrastructure	Entire Site (Offshore)	Construction
168	The Company will control Project vessel and helicopter movements to minimize vessel encounters during training operations in and near the Wind Development Area.	7.4 Department of Defense and Outer Continental Shelf National Security Maritime Uses	Wind Development Area	All Stages

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
169	The Company will communicate with key national security stakeholders on the timing and location of O&M activities.	7.4 Department of Defense and Outer Continental Shelf National Security Maritime Uses; 7.5 Offshore Renewable Energy, Mineral Exploration, and Infrastructure	Entire Site	O&M
170	If necessary, an additional assessment will be completed to investigate any potential direct airspace or aviation radar system interference that could take place during the transit of Project materials and components. Coordination with local and/or DoD airfields may be required for transit of large materials (e.g., WTG and ESP components) through any affected airspace segments.	7.6 Aviation and Radar	Entire Site (Offshore)	Construction
171	The presence of the WTGs in the Wind Development Area may cause FAA to raise Sector B of the Norfolk Terminal Radar Approach Control Facilities or create an isolation area with a higher segment altitude. In order to mitigate this indirect impact, the Company will coordinate with the FAA to make this required change to the airspace, as necessary.	7.6 Aviation and Radar	Wind Development Area	All Stages
172	The Company will continue to engage and coordinate with applicable military contacts to assess potential impacts to radar.	7.6 Aviation and Radar	Wind Development Area	All Stages
173	The public will be prevented from entering onshore construction zones for safety.	7.7 Other Coastal and Marine Uses; 7.12 Health and Safety and Low Probability Events	Entire Site (Onshore)	Construction
174	To reduce the risk of accidental releases, construction personnel will undergo training prior to the start of activities.	7.7 Other Coastal and Marine Uses; 4.2 Water Quality	Entire Site	Construction

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
175	Secondary containment measures will be in place on construction sites for oils and greases in accordance with state and federal regulations.	7.7 Other Coastal and Marine Uses; 7.12 Health and Safety and Low Probability Events	Entire Site	Construction
176	Spill response kits will be present at all construction sites.	7.7 Other Coastal and Marine Uses; 7.12 Health and Safety and Low Probability Events	Entire Site	Construction
177	Hazardous materials will be transported to and from the construction sites in water-tight containers.	7.7 Other Coastal and Marine Uses; 7.12 Health and Safety and Low Probability Events	Entire Site	Construction
178	Trainings undertaken in support of the offshore wind industry would prepare local workers with the skills necessary for work on future offshore wind projects in the area.	7.8 Population, Economy, Employment, and Housing	N/A	Construction
179	The Company will coordinate with local fire, police, and emergency medical departments as needed throughout construction and operations of the Project.	7.8 Population, Economy, Employment, and Housing	N/A	All Stages
180	The Company is engaged in extensive outreach with local stakeholders, including those in potential environmental justice areas, to ensure the opportunity for meaningful involvement from these communities.	7.9 Environmental Justice	Entire Site (Onshore)	All Stages
181	Local hiring will be conducted to the extent practicable to help stimulate the local economy.	7.9 Environmental Justice; 7.8 Population, Economy, Employment, and Housing	Entire Site	All Stages
182	Onshore Project facilities, including the onshore export cables, onshore substation and switching station, will not be located in potential environmental justice communities.	7.9 Environmental Justice	Entire Site (Onshore)	All Stages

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
183	Adjacent landowners will be provided timely information regarding the planned construction activities and schedule.	7.10 Land Use and Zoning	Entire Site (Onshore)	Construction
184	Onshore work will also be coordinated with the DoD, Virginia Department of Transportation and the Virginia Beach Public Works Department.	7.10 Land Use and Zoning	Entire Site (Onshore)	Construction
185	The Company will provide regular updates to the local community through social media, public notices, and/or other appropriate communications tools.	7.10 Land Use and Zoning	Entire Site (Onshore)	All Stages
186	There will be sufficient parking at the onshore substation site and at O&M facilities to support workers.	7.11 Land Transportation and Traffic	Onshore Substation Site; O&M Facility	All Stages
187	Road closures will be localized and limited to the time required for the installation of the onshore export cables, or for inspections or repairs.	7.11 Land Transportation and Traffic	Onshore Export Cable Corridors	All Stages
188	The Company will provide regular updates through social media, the Project website, and public notices to notify the local community of temporary road and parking lot closures. The Company will notify the local community of temporary road closures in the event of a repair.	7.11 Land Transportation and Traffic	Entire Site (Onshore)	All Stages
189	Onshore, safety zones will be established around active construction sites and appropriate security personnel will manage public access into the area. Inactive construction sites will be secured with fences and locks. Video security will be installed, as necessary, to prevent unauthorized access and potential injury from excavated grounds or Project-related equipment.	7.12 Health and Safety and Low Probability Events	Entire Site (Onshore)	Construction
190	Construction and O&M equipment will be maintained and operated by qualified personnel and will be regularly inspected.	7.12 Health and Safety and Low Probability Events	Entire Site	All Stages

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
191	Relevant Project personnel will undergo thorough health and safety training prior to the commencement of construction. Training will continue to occur periodically as needed. This training will be specific to the sites and activities that may occur during construction (e.g., rough sea conditions, hazardous materials).	7.12 Health and Safety and Low Probability Events	Entire Site	All Stages
192	Emergency response plans will be in place, and will include a clear chain of command, emergency evacuation routes, warning signals, and locations of fire extinguishers, spill kits, and first aid kits. Relevant personnel will be trained in implementing these response plans, should an accident occur (see Appendix F Safety Management System).	7.12 Health and Safety and Low Probability Events	Entire Site	All Stages
193	Vessels will have only chemicals needed for construction and reasonable ancillary volumes.	7.12 Health and Safety and Low Probability Events	Entire Site (Onshore)	Construction
194	Access points to WTGs and the ESP will be secured and restricted to properly trained professionals, ladders and doors will be locked and chained when not in use by Project personnel, and video security will be installed as necessary.	7.12 Health and Safety and Low Probability Events	Wind Development Area	All Stages
195	Onshore export cable access covers and/or joint bays will be secured and restricted to approved personnel.	7.12 Health and Safety and Low Probability Events	Onshore Export Cable Corridors	All Stages
196	Onshore export cable towers, if used, will be designed to prevent unauthorized access by members of the public.	7.12 Health and Safety and Low Probability Events	Onshore Export Cable Corridors	All Stages
197	Infrastructure will be properly maintained to minimize risk of a fallen power line.	7.12 Health and Safety and Low Probability Events	Onshore Export Cable Corridors	All Stages

Number	Proposed Measure	Applicable Resource(s) and COP Section(s)	Applicable Project Location	Timeframe
198	At the onshore substation site, public access will be restricted to outside the boundary fence where EMF levels will be near background levels, except where power cables cross the fence into the substation site. Within the onshore substation site, Project personnel access will be limited to O&M activities where EMF levels will be less then occupational exposure levels deemed safe by the American Conference of Governmental Industrial Hygienists.	7.12 Health and Safety and Low Probability Events	Onshore Substation Site	All Stages
199	USCG required lighting will be present on vessels.	7.12 Health and Safety and Low Probability Events; 7.3 Marine Transportation and Navigation	Entire Site (Offshore)	All Stages
200	The minimum spacing between offshore wind structures and the two lines of orientation consistent across all internal structures will ensure that access to the sea area occupied by the array for SAR purposes is not compromised significantly.	7.12 Health and Safety and Low Probability Events	Wind Development Area	All Stages
201	The Company will have the capacity for shut-down operations in the event of a SAR mission in the Wind Development Area.	7.12 Health and Safety and Low Probability Events	Wind Development Area	All Stages
202	Project infrastructure will be designed to withstand weather events that are reasonably foreseeable during the useful life of the Project. WTGs will be rated to withstand (at a minimum) a Category 3 hurricane.	7.12 Health and Safety and Low Probability Events	Wind Development Area	All Stages

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