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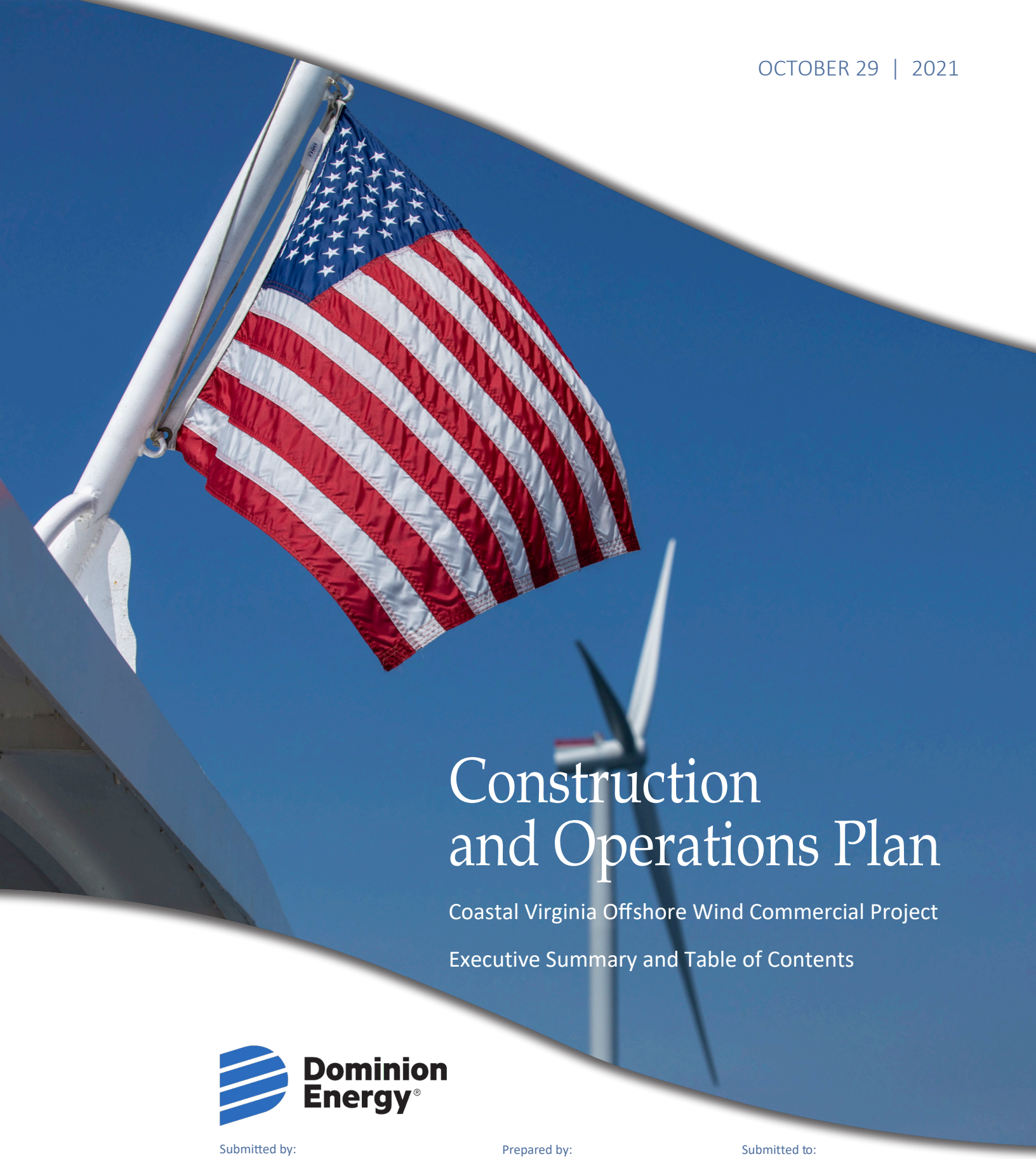

Construction and Operations Plan

Coastal Virginia Offshore Wind Commercial Project

Executive Summary and Table of Contents

Dominion Energy®

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EXECUTIVE SUMMARY

The Virginia Electric and Power Company, doing business as Dominion Energy Virginia (hereinafter referred to as Dominion Energy), is proposing to construct, own, and operate the Coastal Virginia Offshore Wind (CVOW) Commercial Project (hereinafter referred to as the Project). The Project will be located in the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS) Offshore Virginia (Lease No. OCS-A-0483) (Lease Area), which was awarded to Dominion Energy (Lessee) through the Bureau of Ocean Energy Management (BOEM) competitive renewable energy lease auction of the Wind Energy Area (WEA) offshore of Virginia in 2013. The Lease Area covers approximately 112,799 acres (ac; 45,658 hectares [ha]) and is approximately 27 statute miles (mi; 23.5 nautical miles [nm], 43.5 kilometers [km]) off the Virginia Beach coastline (Figure ES-1).

The purpose of this Project is to provide between 2,500 and 3,000 megawatts (MW) of clean, reliable offshore wind energy; to increase the amount and availability of renewable energy to Virginia and North Carolina consumers; to create the opportunity to displace electricity generated by fossil fuel-powered plants, and to offer substantial economic and environmental benefits to the Commonwealth of Virginia. This Project represents a viable and needed opportunity for Virginia to obtain clean renewable energy and realize its economic and environmental goals. The Project also directly supports the goals of the 2020 law passed by the Virginia General Assembly, the Virginia Clean Economy Act (VCEA), which supports development of 2,500 to 3,000 MW of clean, reliable offshore wind energy to be in service by 2028.

Dominion Energy has adopted a Project Design Envelope (PDE) approach to describe Project facilities and activities. A PDE is defined as "a reasonable range of project designs" associated with various components of the project (e.g., foundation and wind turbine generator [or wind turbine] options) (BOEM 2018). The PDE is then used to assess the potential impacts on key environmental and human use resources (e.g., marine mammals, fish, benthic habitats, commercial fisheries, navigation, etc.) focusing on the design parameter (within the defined range) that represents the greatest potential impact (i.e., the "maximum design scenario") for each unique resource (Rowe et al. 2017). The primary goal of applying a design envelope is to allow for meaningful assessments by the jurisdictional agencies of the proposed project elements and activities while concurrently providing the Lessee reasonable flexibility to make prudent development and design decisions prior to construction.

This Construction and Operations Plan (COP) covers the entire Lease Area, Offshore Export Cable Route Corridor, and associated Onshore Project Components and therefore addresses the proposed Project elements and the means and methods used for installing and operating the facilities as well as the potential positive and adverse effects of the Project.

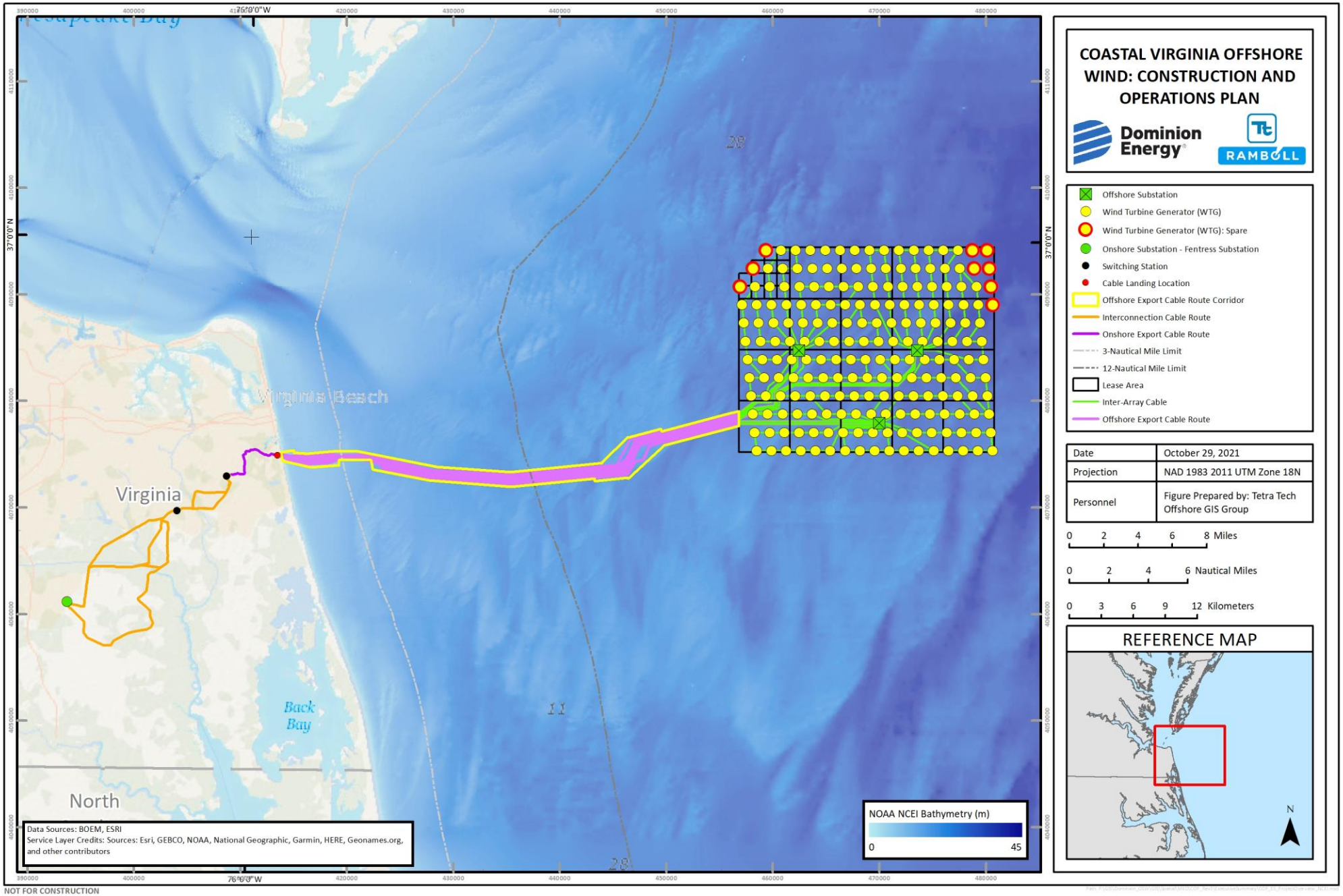

Figure ES-1. Coastal Virginia Offshore Wind Commercial Project Overview

Offshore Project Components will consist of up to 205 wind turbine generators (WTGs) and associated WTG Foundations (monopiles); between two and three Offshore Substations and associated Offshore Substation Foundations (jackets); and up to 300.7 mi (484 km) of Inter-Array Cables connecting WTGs and Offshore Substations, all of which will be located in federal waters within the Lease Area. In addition, the Project will include up to nine buried submarine high-voltage alternating-current Offshore Export Cables that will be installed within the Offshore Export Cable Route Corridor (see additional details in Section 3) within federal and state waters of the Commonwealth of Virginia. The Offshore Export Cables will be installed under the beach and dune using Trenchless Installation to the Cable Landing Location in Virginia Beach, Virginia.

The Onshore Project Components will include a Cable Landing Location in Virginia Beach, Virginia, that will be located at the Proposed Parking Lot west of the Firing Range at the State Military Reservation (SMR). At the Cable Landing Location, the nine Offshore Export Cables will transition to 27 Onshore Export Cables that will transfer electricity to a Common Location north of Harpers Road. The Onshore Export Cable Route will be buried within previously disturbed lands or existing roadways or rights-of-way, to the extent practicable and will be up to 4.32 mi (7.00 km) in length. The Switching Station will be located either north of Harpers Road (Harpers Switching Station, up to 20.6 ac [8.3 ha]) or will be located north of Princess Anne Road (Chicory Switching Station, up to 31.5 ac [12.7 ha]) in Virginia Beach, Virginia. From the Common Location north of Harpers Road, the Interconnection Cables would deliver power to the Onshore Substation through a new 230-kilovolt (kV) transmission line, consisting of a three single circuit structure configuration; via either an overhead transmission line or a hybrid (combination of overhead/underground) transmission line for a distance of up to 20.3 mi (32.7 km). The Onshore Substation will be located at the existing Fentress Substation in Chesapeake, Virginia, which will require expansion/upgrades. The current footprint of the Onshore Substation is approximately 11.7 ac (4.7 ha). The expansion/upgrades to the Onshore Substation footprint are anticipated to require approximately an additional 8.9 ac (3.6 ha), for a total of 20.6 ac (8.3 ha).

Dominion Energy identified the Onshore Substation at Fentress as the most suitable Point of Interconnection (POI) due to its proximity to the Cable Landing Location and Offshore and Onshore Project Components as well as its size and the capacity available for generation injection directly into the grid. The Fentress Substation is also most suitable because it is an integrated 230-kV and 500-kV substation—the only 500-kV substation located within a reasonable distance to the Cable Landing Location. The Pennsylvania-New Jersey-Maryland Interconnection Regional Transmission Organization, the regional electrical power transmission system operator, also considered the Fentress Substation as one of the most feasible options in its evaluation of multiple points along the East Coast for interconnection of a large offshore wind power generation project.

In addition to the proposed infrastructure, Portsmouth Marine Terminal is an existing port facility located on the west bank of the Elizabeth River. Dominion Energy and the Port of Virginia have executed a lease agreement for Portsmouth Marine Terminal to support the staging of components and construction vessels for the Project. Leasing an existing port in Newport News, Virginia, also is under consideration as an alternative in the Hampton Roads Region. Dominion Energy also is considering locations in Newport News, Portsmouth, and Norfolk, Virginia. Lambert's Point, which is located on a brownfield site, is the preferred location to serve as the operations and maintenance (O&M) facilities for the Project. For both Portsmouth

Marine Terminal and the O&M facilities, in the event that upgrades or a new built-to-suit facility is needed for any purpose, construction would be undertaken by the lessor and would be separately authorized, as needed.

As stated above, the purpose of this Project is to provide clean, reliable offshore wind energy; to increase the amount and availability of renewable energy to Virginia and North Carolina consumers; to create the opportunity to displace electricity generated by fossil fuel-powered plants; and to offer substantial economic and environmental benefits to the Commonwealth of Virginia. The Project also directly supports the goals of the 2020 law passed by the Virginia General Assembly, the VCEA, which supports development of 2,500 to 3,000 MW of clean, reliable offshore wind energy to be in service by 2028. The VCEA is intended to build a clean energy future for the Commonwealth of Virginia that reduces carbon emissions and creates significant economic improvement through local job creation and supply chain formation in both the Commonwealth of Virginia and neighboring states. The Project would increase the amount and availability of renewable energy to Virginia consumers while creating the opportunity to displace electricity generated by fossil fuel-powered plants and offering substantial economic and environmental benefits to the Commonwealth of Virginia. This Project, as designed, should provide approximately 8.8 million megawatt-hours of carbon-free power to the grid on an annual basis. This equates to over 5.3 million metric tons of carbon dioxide that will be reduced from the power generating fleet to meet the needs of Dominion Energy's customers. The onshore electrical portion will connect to the Pennsylvania-New Jersey-Maryland regional electric transmission grid, and at peak output, the Project will power approximately 660,000 homes.

The Project Components and locations presented in this COP have been selected based on environmental and engineering site characterization studies completed to date, existing information collection and analysis, as well as extensive engagement with regulators and stakeholders, and will be refined in the Facility Design Report (FDR) and Fabrication and Installation Report (FIR). The FDR/FIR will be reviewed by BOEM in accordance with 30 Code of Federal Regulations (CFR) §§ 585.700-702 prior to Project construction. In addition, a Certified Verification Agent, approved by BOEM, will conduct an independent assessment and verify that the Project components are fabricated and installed in accordance with both this COP and the FIR. Dominion Energy plans to submit the FDR and FIR to both the Certified Verification Agent and BOEM as multiple individual volumes at different milestone points along the Project schedule, consistent with major component fabrication start times at the various fabrication sites.

Within Volume 1, Section 1 provides an Introduction, Section 2 details the Project Siting and Design Development, and Section 3 provides a Description of the Proposed Activity. The Site Characterization and Assessment of Impact-Producing Factors for each resource area that may be impacted by the Project are provided in Section 4. The impacts and mitigation measures have been summarized for each resource area in Table ES-1.

Dominion Energy has provided a quick reference guide after Table ES-1 to aid in review of this COP. The quick reference guide describes Project terms, components, and activities that will be referenced throughout the COP.

Table ES-1. Summary of Potential Impacts and Avoidance, Minimization, Mitigation, and Monitoring Measures for each Resource Area

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
Physical and Oceanographic Conditions	
• Disturbance to seabed; • Disturbance to objects along the seabed; and • Disturbance to onshore geology.	• Dominion Energy would identify the most appropriate locations, based on geologic conditions, for installation that would require the least disturbance to the seabed. By opting for locations that avoid the most challenging geology, Dominion Energy would be able to utilize the least-invasive tools for Project installation to the extent practicable; • Dominion Energy would implement appropriate avoidance buffers to avoid contact with any objects on the seabed, to the extent practicable. Objects that cannot be avoided would be further investigated and an appropriate mitigation would be implemented. For cable crossings, this would include optimization of the crossing geometry as well as engineering of the crossing and associated protection. For potential unexploded ordnance, this would include investigation of contacts and mitigation through micrositing if possible and further action and mitigation if necessary; • Dominion Energy would minimize disturbance to onshore geology during the installation of Onshore Project Components by optimizing routes along previously disturbed onshore locations to the extent practicable; • Dominion Energy would consider weather forecasts at all times during the construction phase, and would halt operations in the event that extreme weather events are likely to occur; • Operations would occur at locations of previously disturbed seabed to minimize the potential for disturbing new seabed whenever possible; and • Whenever possible, operations and maintenance (O&M) would occur at locations of previously disturbed seabed to minimize the potential for disturbing new objects along the seabed whenever possible. In addition, the Project would conduct routine geophysical surveys to monitor the status of the installed cable on the seabed as discussed in Section 3, Description of Proposed Activity.
Water Quality	
• Short-term disturbance of seabed sediment due to installation of the wind turbine generator (WTG) and Offshore Substation Foundations, Inter-Array Cables, Offshore Export Cables, and site preparation for installation of scour protection; • Short-term potential for inadvertent return of drilling fluids during Trenchless Installation. • Short-term impacts due to accidental spills and/or releases offshore; • Short-term increase in erosion and runoff due to land disturbance;	• Dominion Energy would develop and implement an inadvertent release plan. Local pollution prevention and spill response procedures would be included in the Stormwater Pollution Prevention Plan (SWPPP) submitted to state agencies for the portions of the land-disturbing activity covered by the Virginia Pollutant Discharge Elimination System Construction General Permit; • Dominion Energy would manage accidental spills or releases of oils or other hazardous wastes through the Oil Spill Response Plan (Appendix Q). Project-related vessels would be subject to U.S. Coast Guard (USCG) wastewater and discharge regulations and would operate in compliance with oil spill prevention and response plans that meet USCG requirements. Specifically, all Project vessels would comply with USCG standards in U.S. territorial waters to legally discharge uncontaminated ballast and bilge water as well as standards regarding ballast water management. While outside the 3.0 nautical mile (nm) (5.6 kilometer [km]) state-border/no-discharge zone (NDZ), vessels would deploy a USCG-certified marine sanitation device (MSD) with certifications displayed. While inside the 3.0 nm (5.6 km) state-border/NDZ, vessels would take normal vessel procedures to close off MSD-effluence discharge piping and redirect it to onboard "Zero-Discharge Tanks" for appropriate disposal either at dock or outside of an NDZ. Additionally, all vessels less than 79 feet (ft) (24 meters [m]) would comply with the Small Vessel General Permit issued by U.S. Environmental Protection Agency (EPA) on September 10, 2014, for compliance

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
• Short-term impacts due to dewatering trenches and excavations; and • Short-term potential for accidental releases from onshore construction vehicles or equipment; • Long-term effects due to WTG and Offshore Substation Foundations and associated scour protection; • Short-term change in water quality due to oil spills or accidental release of fluids from vessels required during operations; and • Long-term effects due to stormwater runoff.	with National Pollutant Discharge Elimination System permitting. Prevention and response measures for accidental spills and releases are further described in Appendix Q, Oil Spill Response Plan; • Dominion Energy would avoid or minimize excavation dewatering in the location of the Battlefield Golf Club; • Dominion Energy would develop a SWPPP for construction activities that would conform with the Virginia Department of Environmental Quality (VDEQ) Construction General Permit, Dominion Energy's approved Annual Standards and Specifications for Erosion and Sediment Control (ESC) and Stormwater Management (SWM) for Electric Transmission Line Development, and local pollution prevention and spill response procedures. The SWPPP would include steps that Dominion Energy must take to comply with the permit, including water quality requirements, and discuss the potential to encounter contaminated groundwater during excavation near the Battlefield Golf Club. The SWPPP would discuss how to protect surface water and groundwater quality if contaminated groundwater is encountered; • Dominion Energy would restrict access to only existing paved roads and approved access roads at wetland and stream crossings where possible; • Dominion Energy would restrict access through wetlands and waterbodies to identified construction sites, access roads, and work zones; • Dominion Energy would conduct onshore refueling and/or maintenance of construction equipment and vehicles outside resource areas to the extent practicable; • Dominion Energy would implement an inadvertent release plan with use of non-toxic drilling fluids for review and approval by the appropriate regulatory agencies; • Dominion Energy would use scour protection as necessary around the WTG and Offshore Substation Foundations and cable protection mats to minimize effects of local sediment transport; • Dominion Energy would subject Project-related vessels to USCG wastewater and discharge regulations and ensure they operate in compliance with oil spill prevention and response plans that meet USCG requirements. Specifically, all Project vessels would comply with USCG standards in U.S. territorial waters to legally discharge uncontaminated ballast and bilge water as well as standards regarding ballast water management. While outside the 3.0 nm (5.6 km) state-border/NDZ, vessels would deploy a USCG-certified MSD with certifications displayed. While inside the 3.0 nm (5.6 km) state-border/NDZ, vessels would take normal vessel procedures to close off MSD-effluence discharge piping and redirect it to onboard "Zero-Discharge Tanks" for the appropriate disposal either at dock or outside of an NDZ. Additionally, all vessels less than 79 ft (24 m) would comply with the Small Vessel General Permit issued by EPA on September 10, 2014, for compliance with National Pollution Discharge Elimination System permitting. Prevention and response measures for accidental spills and releases are further described in Appendix Q, Oil Spill Response Plan; and • Dominion Energy would develop an SWM Plan and ESC Plan in accordance with Dominion Energy's approved Annual Standards and Specifications for SWM and ESC for Electric Transmission Line Development, and local ordinances as applicable. Dominion Energy would also routinely inspect and clean on-site stormwater control features to remove debris or excess vegetation that may impede the designed functionality. The SWM plan would describe how the stormwater control facilities would be operated and maintained after construction is complete.

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
Air Quality	
• Short-term increase in Project-related emissions; and • Long-term increase in Project-related emissions.	• Most of the vessels and the onboard construction equipment would utilize diesel engines burning ultra-low sulfur fuel, while some larger construction vessels may use bunker fuel; • Onshore Project Area construction activities would primarily utilize diesel-powered equipment, including Trenchless Installation operations, trenching/duct bank construction, and cable pulling and termination; • Any fugitive dust generated during construction of the Onshore Project Components would be managed in accordance with the Project's Fugitive Dust Control Plan; • Vessels constructed on or after January 1, 2016, would meet Tier III nitrogen oxide requirements when operating within the North American Emission Control Area (200 nm [370.4 km]) established by the International Maritime Organization; • Project-related vessels would use ultra-low sulfur diesel fuel where possible and be at or below the maximum fuel sulfur content requirement of 1,000 parts per million established per the requirements of 40 Code of Federal Regulations (CFR) § 80.510(k); • Project-related vessels would comply with applicable EPA or equivalent emission standards; • The Project would provide the Bureau of Ocean Energy Management (BOEM) with data on horsepower rating of all propulsion and auxiliary engines, duration of time operating in state waters, load factor, and fuel consumption for Project-related vessels to determine actual emissions from Project-related vessels, which will confirm that sufficient emissions offsets have been acquired; • The Project would provide vessel engines and emissions control equipment information to BOEM and the EPA in accordance with the requirements set forth in the Record of Decision and/or the issued Outer Continental Shelf (OCS) air permit; • As detailed in Appendix N, Air Emissions Calculations and Methodology, O&M activities are assumed to include one service operations vessel and two crew transfer vessels over the operational life of the Project; • O&M support vessels are assumed to operate out of a port located in the Hampton Roads area of Virginia (Portsmouth has been used for the purpose of estimating emissions); • Vessels constructed on or after January 1, 2016, would meet Tier III nitrogen oxide requirements when operating within the North American Emission Control Area (200 nm [370.4 km]) established by International Maritime Organization; • Project-related vessels would use ultra-low sulfur diesel fuel where possible and be at or below the maximum fuel sulfur content requirement of 1,000 parts per million established per the requirements of 40 CFR § 80.510(k); • Project-related vessels would comply with applicable EPA or equivalent emission standards; • The Project would provide BOEM with data on horsepower rating of all propulsion and auxiliary engines, duration of time operating in state waters, load factor, and fuel consumption for Project-related vessels to determine actual emissions from Project-related vessels, which will confirm that sufficient emissions offsets have been acquired;

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
	• The Project would provide vessel engines and emissions control equipment information to BOEM and the EPA in accordance with the requirements set forth in the Record of Decision and/or the issued OCS air permit; and • Onshore emergency generators will comply with applicable emission standards in 40 CFR Part 60 Subpart JJJJ.
In-Air Acoustic Environment	
• Short-term elevated in-air noise levels associated with vibratory pile-driving at the cofferdam for Trenchless Installation exit at the Offshore Trenchless Installation Punch-Out location; • Short-term elevated in-air noise levels associated with Trenchless Installation at the Cable Landing Location; • Short-term elevated in-air noise levels associated with construction of the Onshore Export Cable Route, Switching Station, Interconnection Cable Route, and Onshore Substation; • Short-term elevated in-air noise levels associated with impact pile-driving of WTG and Offshore Substation Foundations; • Short-term elevated in-air noise levels associated with offshore support vessels; • Long-term elevated in-air sound levels associated with Switching Station and Onshore Substation; • Short-term elevated in-air sound levels associated with O&M activities; and • Long-term elevated in-air sound levels associated with the WTGs, Offshore Substation and, as necessary, operation of sound signals.	• Trenchless Installation activities would occur during the daytime period unless a situation arises that would require operation to continue into the night or as deemed acceptable from the appropriate regulatory authority; • Dominion Energy would consult with the appropriate regulatory agency regarding nighttime work in the case of an emergency. In the case of nighttime operations, only the Trenchless Installation equipment, power unit, and light banks would be used unless otherwise deemed acceptable from the appropriate regulatory authority; • If necessary, subject to regulatory requirements and stakeholder engagement, Dominion Energy would 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 A-weighted decibels; • Dominion Energy would limit construction to the daytime period unless deemed acceptable from the appropriate regulatory authority; • Dominion Energy would ensure construction equipment is well maintained and vehicles using internal combustion engines equipped with mufflers would be routinely checked to ensure they are in good working order; • Dominion Energy would ensure construction equipment is located as far as possible from noise-sensitive areas; • If noise issues are identified, Dominion Energy would 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 A-weighted decibels; • Dominion Energy would make a Project Communications Plan available to help actively address all noise-related issues in a timely manner; and • If the final design engineering requires sound mitigation measures, Dominion Energy would implement such measures within the Project footprint as necessary.

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
Underwater Acoustic Environment	
• Short-term increase in underwater noise levels associated with WTG Foundations and/or pin pile impact pile-driving activities required for the installation of WTG and Offshore Substation Foundations; • Short-term increase in underwater noise levels associated with pile-driving for installation of the cofferdams; • Short-term increase in underwater noise levels associated with Offshore Export Cables and Inter-Array Cable laying activities; • Short-term increase in underwater noise levels associated with Project-related vessels; • Increase in underwater noise levels associated with WTG operations; and • Increase in intermittent underwater noise levels associated with Project O&M and Project-related vessels.	• Noise mitigation requirements and methods have not been finalized at this stage of permitting; therefore, these two levels of reduction were applied to potentially mimic the use of noise mitigation options such as bubble curtains; • The results of the analysis would be used to inform development of evaluation and mitigation measures that would be applied during construction and O&M of the Project, in consultation with BOEM and National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NOAA Fisheries); and • The Project would obtain necessary permits to address potential impacts to marine mammals, sea turtles and fisheries resources from underwater noise and would establish appropriate and practicable mitigation and monitoring measures through discussions with regulatory agencies.
Wetlands and Waterbodies	
• Installation of permanent structures within wetlands, wetland transition areas, riparian areas, and protected watersheds; • The permanent conversion of existing wetland cover types; • The temporary removal of vegetation within wetlands, wetland transition areas, riparian buffers, and protected watershed features; • Erosion of sediment from construction activities into adjacent wetlands and waterbodies; • The potential for an inadvertent return of non-toxic drilling fluids to	• Dominion Energy would collocate Onshore Project Components in existing rights-of-way (ROWs), existing roads, previously disturbed areas, and otherwise urbanized locations to the maximum extent practicable; • Dominion Energy would site permanent structures outside of protected watershed features and flood-prone areas to the maximum extent practicable; • Dominion Energy would use a combination of HDD and overhead routing to the best extent practicable to avoid and minimize impacts to natural resources; • Dominion Energy would purchase stream and wetland mitigation credits in the applicable service area of a mitigation bank or contribute to an approved in-lieu-of-fee program, such as the Virginia Aquatic Resources Trust Fund Program, prior to construction to mitigate unavoidable impacts to wetlands and waterbodies; • Dominion Energy would restrict access during construction to existing paved roads or access roads constructed for stream or waterbody crossings. Where necessary, access would also be restricted to avoid alteration of soil properties (compaction) that may result in unintended impacts; • Dominion Energy would use temporary avoidance/minimization efforts for wetland access where avoidance is not possible. These efforts would include use of temporary timber mats, using 8 to 12 inches

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
the surface during HDD activities; and • The potential for accidental releases from construction vehicles or equipment.	(20 to 30 centimeters)-thick timber, for heavy machinery movement and to avoid unintended impacts to wetlands such as soil compaction, damage to root systems, and development of ruts; • Dominion Energy would develop an invasive species control plan to prevent the spread of invasive species throughout the maintained ROWs and recently disturbed locations. Only agency-approved native species would be replanted, and all plans would be guided by desktop and on-the-ground evaluation of invasive species present in the area; • Dominion Energy would develop a landscape restoration plan in accordance with local and regional ordinances, with specific attention paid to re-seeding and replanting with native plant stock; • Dominion Energy would develop a compensatory mitigation plan, where permanent conversion of wetlands is unavoidable, to include on-site mitigation where practicable, off-site mitigation, or purchase of mitigation credits. This mitigation plan would be further refined as a component of the U.S. Army Corps of Engineers permitting package; • Dominion Energy would restrict access through wetlands except where approved by regional and local regulatory entities; • Dominion Energy would develop and implement ESC plans in compliance with Dominion Energy's VDEQ-approved Standards and Specifications for ESC and SWM for Electric Transmission Line Development and appurtenant facilities such as substations and switching stations, as well as any additional requirements specific to the U.S. Department of Defense (DoD) lands (if applicable); • Dominion Energy would install temporary timber matting for access routes through wetlands to protect vegetation to reduce compaction, minimize ruts, and reduce soil discharge; • Dominion Energy would develop and implement an inadvertent release plan with use of non-toxic drilling fluids to be reviewed and approved by the appropriate regulatory agencies; • Dominion Energy would manage accidental spills or releases of oils through a spill prevention, control, and countermeasures plan for approval by the appropriate regulatory agency; • Dominion Energy would take protective measures to prevent access to any active operation area including, but not limited to, security and safety fencing; • Dominion Energy would monitor revegetation throughout the life of the Project and leading up to decommissioning. Monitoring would comply with a restoration plan and invasive species control plan. Monitoring would serve as the primary measure for ensuring return of wetland, waterbody, and special area functionality following completion of construction and during necessary O&M; • Dominion Energy would monitor mitigation efforts where appropriate and define via the approved permitting package; and • Dominion Energy would assess and maintain stormwater control and treatment features on a regular interval, as specified in the SWPPP. This would include removal of debris and a determination of functionality.
Terrestrial Vegetation and Wildlife	
• Vegetation removal associated with installation of all Onshore Project Components;	• Dominion Energy would collocate Onshore Project Components in or adjacent to existing ROWs, existing roads, previously disturbed areas, and other urbanized locations to the maximum extent practicable; • Dominion Energy would seed and stabilize construction areas involving temporary vegetation clearing with an appropriate grass seed mix (in urban areas) or native seed mix (in natural areas) and in

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
• The inadvertent release of drilling fluids to the surface during HDD activities within environmentally sensitive areas; • Noise and light activities associated with construction equipment and other noise-generating activities associated with construction; • Impedance to local migration of terrestrial biota (such as reptiles and amphibians) from installation and placement of erosion- and sediment-control measures such as staggered silt fencing or stabilization matting; • Accidental releases of petroleum products from construction vehicles or equipment; • Potential for erosion into adjacent vegetation and wildlife habitat; • Conversion of existing vegetation cover types (e.g. forested to herbaceous) where the Onshore Export Cable and Interconnection Routes are not collocated with existing road corridors or utility ROWs; • Permanent fragmentation of habitat as a result of clearing, particularly of large contiguous forested wetland habitats; • Colonization and establishment of invasive vegetation in formerly undisturbed areas due to clearing; • Impacts to locally rare or sensitive species and natural communities; • Conversion of existing vegetation cover types as a result of permanent access roads, structures, and facilities in previously vegetated areas;	accordance with Virginia Erosion and Sediment Control Law and Regulations (Virginia Department of Environmental Equity [VDEQ] 2014) and the Virginia Erosion and Sediment Control; Handbook (VDEQ 1992); • Dominion Energy would prepare and submit a mitigation planting plan to the City of Virginia Beach for approval to address unavoidable temporary impacts that would occur within sensitive ecological areas (such as within the Southern Rivers Watershed). The City of Virginia Beach may require native plantings; • Dominion Energy would plant or seed larval host plants and forage plants in the Interconnection Cable Routes after construction efforts have been completed in order to avoid and minimize impacts to pollinator species. A list of regionally appropriate species as well as regional suppliers of native seed mixes are available from the U.S. Department of Agriculture Natural Resources Conservation Service (2020); • Dominion Energy would develop and implement an inadvertent release plan with use of non-toxic drilling fluids to be reviewed and approved by the appropriate regulatory entities; • Dominion Energy would coordinate with the U.S. Fish and Wildlife Service (USFWS), Virginia Department of Wildlife Resources (VDWR), and Virginia Natural Heritage Program to ensure potential impacts to threatened and endangered (T&E) species are avoided and minimized to the maximum extent practicable; • Dominion Energy would evaluate time-of-year restrictions for applicable T&E species via coordination with the USFWS, VDWR, and Virginia Natural Heritage Program; • Dominion Energy would limit lighting associated with construction vehicles and work zones when possible to reduce interaction with or disturbance of wildlife species such as bats and insectivorous birds; • Dominion Energy would initiate coordination with the VDWR and Virginia Natural Heritage Program to evaluate potential impacts to T&E reptile and amphibian species, including the canebrake rattlesnake; • Dominion Energy would install staggered silt fencing in areas surrounding wetlands, waterbodies, and areas with the potential to contain T&E species, rare natural communities, and habitat for reptiles and amphibians. Staggered gaps would ensure reptiles and amphibians could continue to move relatively unrestricted through the Onshore Project Area. This strategy would be employed on a site-specific basis following coordination with VDWR and the Virginia Natural Heritage Program; • Dominion Energy would, when applicable, employ snake-friendly erosion-control blankets containing natural or biodegradable fibers or loose-weave netting in areas surrounding wetlands, waterbodies, and areas with the potential to contain habitat for reptiles and amphibians; • Dominion Energy would restrict vehicular access to paved roads, approved road crossings, and designated construction areas; • Dominion Energy would manage accidental spills or releases of oils through a spill prevention, control, and countermeasures plan approved by the appropriate regulatory entity; • Dominion Energy would develop and implement erosion and sediment control plans in compliance with Dominion Energy's VDEQ-approved Standards and Specifications for Erosion and Sediment Control (ESC) and Stormwater Management (SWM) for Electric Transmission Line Development and appurtenant facilities such as substations and switching stations; • Dominion Energy would prepare and maintain a stormwater pollution prevention plan (SWPPP) in compliance with Virginia Pollution Discharge Elimination System VAR10 Construction General Permit. A

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
• Vegetation disturbance as a result of routine or periodic facility maintenance (e.g., invasive species control, herbicide applications, and mowing) throughout the lifetime of the facility; and • Noise or light disturbance associated with routine facility maintenance and activities (at permanent facilities such as substations) throughout the lifetime of the facility.	permit would be required because the land-disturbing activity would exceed 1.0 acre (0.4 hectare). As a component of the permit, the SWPPP would be prepared and maintained throughout Project construction and retained for 3 years following construction completion as required by Virginia Law; • Dominion Energy would collocate Onshore Project Components with existing roads, ROWs, previously disturbed areas, and other urbanized locations to the maximum extent practicable; • Dominion Energy would restrict construction access to existing paved roads or access roads constructed for stream or waterbody crossings. Where possible, restrict access to avoid alteration of soil properties (compaction) that may result in unintended impacts; • Dominion Energy would use temporary timber mats in wetlands, using 8 to 12 inch (20 to 30 cm)-thick timber, for heavy machinery movement and to avoid unintended impacts to wetland soils; • Dominion Energy would develop an invasive species control plan to prevent the spread of invasive vegetation into natural communities via maintained ROWs and recently disturbed locations. Replanting would be an approved use of native species only, and all plans would be guided by desktop and on-site evaluation of invasive species present in the area; • Dominion Energy would develop and implement a landscape restoration plan in compliance with applicable local and regional ordinances, paying specific attention to re-seeding and replanting with native plant stock; • Dominion Energy would revegetate temporary access areas with native plants and/or an appropriate native seed mix; • Dominion Energy would develop standard BMPs to reduce the spread of invasive species to previously uncolonized areas that would be incorporated into the invasive species control plan and implemented during construction. Resources detailing BMPs to prevent the introduction and spread of invasive species are recommended by the U.S. Department of Agriculture (USDA) National Invasive Species Information Center (NISIC), and a comprehensive guide was published by the University of Georgia in 2011 (USDA NISIC 2020; Moorhead et al. 2011). Examples of applicable BMPs include: ○ Cleaning of construction and transporting equipment, as needed, prior to entering the Onshore Project Area; ○ Cleaning of equipment and vehicles used within areas infested with invasive species prior to leaving such areas; ○ Siting staging areas in locations that are free of invasive species; ○ Avoiding the cleaning of equipment, vehicles, or clothing in the vicinity of waterways; and ○ Disposing of plant materials appropriately that are removed during cleaning practices discussed above; • Dominion Energy would coordinate with the USFWS, VDWR, and the Virginia Natural Heritage Program to avoid impacts to rare and T&E species or natural communities to the greatest extent practicable, and to identify additional minimization and mitigation measures if necessary; • Dominion Energy would develop and implement invasive species control and landscape restoration plans to prevent the introduction and spread of invasive species and to facilitate restoration of disturbed habitats; and

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
	• Dominion Energy would develop a compensatory mitigation plan, where permanent conversion of wetlands is unavoidable, to include on-site mitigation where practical, off-site mitigation, or purchase of mitigation credits or payment of an in-lieu fee mitigation as appropriate. This mitigation plan would be further refined as a component of the U.S. Army Corps of Engineers permitting package. • Dominion Energy would implement an invasive species control plan to avoid the spread of invasive species for the lifetime of the Project, and provide the plan for agency review and approval, as applicable; • Dominion Energy would limit unauthorized access of Onshore Project personnel and vehicles beyond existing disturbed areas and approved access roads to the extent practicable; • Dominion Energy would plant and seed desirable noninvasive native species within the ROWs to reduce establishment of invasive woody vegetation requiring control; • Dominion Energy would adhere to all federal, state, and local laws and regulations pertaining to herbicide application. If herbicides are to be used in wetland habitats, use wetland-safe herbicide to avoid unintended impacts to sensitive wetland wildlife and vegetation; • During operations, the Project will be in compliance with relevant City of Virginia Beach and City of Chesapeake noise requirements. If the final design engineering requires sound mitigation measures, they will be implemented within the Project footprint, as necessary; • Dominion Energy would implement lighting-reduction measures, such as downward projecting lights, lights triggered by motion sensors, and limiting artificial light to the extent practicable, to avoid disruption to nocturnal avian and bat species; • Dominion Energy would take protective measures to prevent access to any active operation area including, but not limited to, security and safety fencing; • Dominion Energy would monitor revegetation throughout the life of the Onshore Project and leading up to decommissioning. Monitoring would comply with the approved landscape restoration plan and invasive species control plan, as required by the City of Virginia Beach and the City of Chesapeake, as well as an invasive species control plan. Monitoring would serve as the primary measure for ensuring return of natural habitat functionality following completion of construction and necessary operation; and • Dominion Energy would employ vegetation control methods, including application of herbicides for maintenance of ROWs that would comply with all applicable federal, state, and local laws and regulations.
Avian and Bat Species	
• Short-term attraction to, and potential collision with, Project-related vessels and partially installed Offshore Project Components; • Short-term disturbance of, and displacement from, offshore habitat; • Short-term disturbance of, and displacement from, onshore habitat; • Long-term risk of collision with WTGs and Offshore Substations;	• To mitigate impacts from lighting, Dominion Energy would use BMPs identified by BOEM Construction and Operations Plan (COP) guidelines and would comply with Federal Aviation Administration (FAA) and USCG requirements for lighting while to the extent practicable using lighting technology (e.g., low-intensity strobe lights) that minimize impacts on avian and bat species; • Dominion Energy would document any dead or injured birds or bats found on Project vessels or structures during the construction stage of the Project and would submit an annual report to BOEM and USFWS (any birds found with federal bands will be reported to the U.S. Geological Survey Bird Band Laboratory); • Dominion Energy would avoid potential effects to birds and bats by using Trenchless Installation in coastal areas at the Cable Landing Location; collocating the Onshore Export Cable Route with existing

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
• Long-term displacement from the Lease Area due to presence of WTGs and Offshore Substations; • Long-term attraction to and displacement from Project-related maintenance vessels; • Long-term risk of collision with overhead Interconnection Cables; and • Long-term displacement from onshore habitat at Onshore Project Components.	roads as much as possible; and timing construction activities to avoid critical periods when endangered and threatened species may be affected to the extent practicable; • The Harpers and Chicory Switching Stations would be constructed within either previously developed areas associated with an existing golf course or small areas of mixed forest and woody wetland. Some tree and vegetation clearing will be required, but will be minimized to the extent practicable; • To the extent practicable, Dominion Energy would collocate the Interconnection Cable Route within or adjacent to existing transmission line corridors and ROWs as much as possible, timing construction activities to avoid critical periods when endangered and threatened species may be affected; • Tree/vegetation clearing would avoid trees favorable for bat maternity roosting locations and would be conducted outside of the breeding/roosting season to avoid nesting birds and bat maternity roosting locations to the extent practicable; • If required, Dominion Energy would conduct presence/probable absence surveys for bats (acoustic and/or mist-net) along the Interconnection Cable Route, pursuant to discussions with VDWR, USFWS, and appropriate regulatory agencies; • If required, Dominion Energy would conduct an eagle/osprey/raptor/owl nest survey along the Interconnection Cable Route as well as a breeding bird survey along the forested, wetland, and scrub/shrub portions of the Interconnection Cable Route, pursuant to discussions with VDWR, USFWS, and appropriate regulatory agencies; • Where surveys indicate the presence of species of conservation concern, Dominion Energy would work with the VDWR and USFWS to minimize potential impacts prior to construction; • Dominion Energy would maintain a minimum no-tree-clearing buffer of 150 ft (45 m) around any known northern long-eared bat maternity roosts following the final 4(d) rule for the species; • Dominion Energy would develop avoidance and minimization measures in coordination with the VDWR, USFWS, and appropriate regulatory agencies to ensure protection of T&E species or to address the potential for incidental take, that may occur within the Project Area; • Dominion Energy would ensure avoidance, minimization, and mitigation measures protective of wetlands, vegetation, and other wildlife species discussed in Section 4.2.1, Wetlands and Waterbodies, and Section 4.2.2, Terrestrial Vegetation and Wildlife, also would be protective of bird and bat species and their habitats; • To mitigate the potential for collision with WTGs and Offshore Substations during the O&M stage of the Project, Dominion Energy would use BMPs identified by BOEM COP guidelines and comply with FAA and USCG requirements for lighting and, to the extent practicable, use lighting technology (e.g., low-intensity strobe lights, flashing red aviation lights) that minimize impacts on bat species; • Dominion Energy would reduce perching opportunities on offshore structures to the extent practicable and, where possible, in compliance with health and safety requirements for the WTGs and Offshore Substations; • Dominion Energy would develop a robust post-construction monitoring plan with clear goals, monitoring questions, and methods, including monitoring that focuses on areas of uncertainty such as bird and bat presence offshored, and would install automated radio telemetry receiver stations (i.e., Motus towers) on select offshore structures;

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
	• Dominion Energy would document any dead or injured birds or bats found on Project vessels or infrastructure (offshore and onshore) during construction, O&M, or decommissioning, in an annual report submitted to BOEM and USFWS (any birds found with federal bands would be reported to the U.S. Geological Survey Bird Band Laboratory); • Dominion Energy would limit risks of long-term displacement of offshore bird species to the extent practicable; • Potential impacts would be further minimized by reducing lighting on O&M vessels to the extent practicable; and • Dominion Energy would reduce potential impacts of the overhead lines by complying with Avian Power Line Interaction Committee best practices to reduce collision and electrocution.
Benthic Resources, Fishes, Invertebrates, and EFH	
• Disturbance of softbottom habitat; • Disturbance, injury, or mortality of benthic and pelagic species; • Change in water quality, including turbidity, sediment deposition, and chemical contamination; • Entrainment of plankton and ichthyoplankton; • Increase in underwater noise and vibration; • Long-term conversion of softbottom to artificial hardbottom habitat and introduction of vertical infrastructure to the water column; • Habitat creation for nonindigenous species; • Increase in shading and artificial lights; • Change in water quality, including fuel and chemical spills; and • Introduction of Project-related electric and magnetic fields (EMF).	• Dominion Energy would establish a horizontal buffer of at least 164 ft (50 m) around identified artificial reefs, shipwrecks, and other mapped hardbottom habitat in the Fish Haven area. No other hardbottom or sensitive habitat is known or expected to occur in the Offshore Project Area. Dominion Energy would further micro-site within the Offshore Export Cable Route Corridor to avoid such habitats where feasible to minimize the probability of adverse interactions with sensitive benthic resources; • Dominion Energy would commit to using a soft-start procedure and noise mitigation systems such as bubble curtain technologies to avoid or minimize impacts to marine mammals, sea turtles, fishes, and mobile invertebrates; • As required by the USCG for navigational safety, artificial lights would be installed on all Project structures; • Dominion Energy would develop and implement an Oil Spill Response Plan (Appendix Q) describing measures to avoid accidental spills and protocols to be implemented should a spill occur. Dominion Energy would also require all Project-related vessels to operate in accordance with laws regulating at-sea discharges of vessel-generated waste; and • Dominion Energy would commit to burying Project-related cables wherever feasible to minimize detectable EMF.
Marine Mammals	
• Short-term disturbance of habitat; • Short-term loss of local prey species; • Short-term introduction of marine debris;	• Dominion Energy would site Offshore Project Components, including WTG and Offshore Substation Foundations and Offshore Export Cable Route Corridors, to avoid sensitive benthic habitats and minimize disturbance of benthic features to the extent practical; • Dominion Energy would implement practices to prevent Project personnel from commencing or continuing certain construction activities should marine mammals be observed within monitoring and exclusion

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
• Short-term increase in risk of entanglement and entrapment; • Short-term increase in underwater noise; • Short-term increase in risk of ship strike due to the increase in vessel traffic; • Short-term change in water quality, including oil spills; • Modification of habitat; • Project-related EMF; • Project-related marine debris; • Project-related underwater noise; • Increase in risk for ship strike due to the increase in vessel traffic; and • Changes in water quality, including oil spills.	zones based on required NOAA Fisheries monitoring and mitigation protocols and stipulations of the Lease; • During pile-driving of WTG and Offshore Substation Foundations, Dominion Energy would apply monitoring and exclusion zones as appropriate to underwater noise assessments and impact thresholds; • Qualified NOAA Fisheries-approved Protected Species Observers, real-time monitoring systems, Passive Acoustic Monitoring systems, and reduced visibility monitoring tools (e.g., night vision, infrared, and/or thermal cameras) would be employed to enforce these zones; • Construction personnel would employ soft starts and shut-down procedures as appropriate to thresholds of noise-emitting survey equipment; soft starts will last 30 minutes at the onset of pile-driving; • Dominion Energy would use commercially and technically available noise-reducing technologies as appropriate and will provide marine mammal sighting and reporting training for each specific stage of construction to emphasize individual responsibility for marine mammal awareness and protection; • Dominion Energy would ensure continued engagement with regulatory agencies regarding potential best practices; • All Project-related vessels larger than 65 ft (20 m) will be required to abide by speed restrictions when transiting within the Seasonal Management Area (SMA) from November 1 to April 30; • Dominion Energy would conduct monitoring of NOAA's website for updates to Dynamic Management Area (DMA) locations; • All Project-related vessels would be required to comply with the Ship Strike Reduction Rule speed restrictions within the Mid-Atlantic U.S. SMA and any DMA that intersects the Marine Mammal Study Area (10 nautical miles per hour [18.5 kilometers per hour] or less for vessels 65 ft [20 m] or longer); • Dominion Energy would require Project-related vessels to maintain a distance of 328 ft (100 m) or greater from all marine mammals and 1,640 ft (500 m) from right whales. Vessels larger than 300 gross tons (305 metric tons) will receive whale sighting updates and vessel speed reminders when transiting right whale territory by reporting to the right whale Mandatory Ship Reporting System; • Project personnel, particularly marine mammal observers, would check the NOAA Fisheries website for DMA locations; • Dominion Energy would provide Project personnel with marine mammal sighting, take and harassment, and reporting training to emphasize individual responsibility for marine mammal awareness and protection; • Dominion Energy has also developed an Oil Spill Response Plan (Appendix Q), proposing measures to avoid inadvertent releases and spills and a protocol to be implemented should an event occur. Project-related vessels would operate in accordance with laws regulating at-sea discharges of vessel-generated waste; • Dominion Energy proposes to use high-voltage alternating-current cables for the Project; such cables emit EMF below levels documented to have adverse effects on fish or marine mammal behavior; • Dominion Energy would require all Project personnel to implement appropriate practices and protocols to prevent the release of marine debris; • Dominion Energy would implement several measures to avoid, minimize, and mitigate marine mammal physical disturbances, strikes, and collisions;

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
	• All Project-related vessels would be required to comply with the Ship Strike Reduction Rule speed restrictions within the Mid-Atlantic U.S. SMA and any DMA that intersects the Marine Mammal Study Area (10 nautical miles per hour [18.5 kilometers per hour] or less for vessels 65 ft [20 m] or longer); • Dominion Energy would require Project-related vessels to maintain a distance of 328 ft (100 m) or greater from all marine mammals and 1,640 ft (500 m) from right whales; • Vessels larger than 300 gross tons (305 metric tons) would receive whale sighting updates and vessel speed reminders when transiting right whale territory by reporting to the right whale Mandatory Ship Reporting System; • Project personnel, particularly marine mammal observers, would check the NOAA Fisheries website for DMA locations; • Dominion Energy would provide Project personnel with marine mammal sighting and reporting training to emphasize individual responsibility for marine mammal awareness and protection; • Dominion Energy has also developed an Oil Spill Response Plan (Appendix Q) proposing measures to avoid inadvertent releases and spills and a protocol to be implemented, should a potential vessel oil and fuel spill or contaminant release from resuspended sediments occur; and • Project-related vessels would operate in accordance with laws regulating at-sea discharges of vessel-generated waste.
Sea Turtles	

• Short-term disturbance of habitat;
• Short-term loss of local prey species;
• Short-term increase in construction-related lighting;
• Short-term introduction of marine debris;
• Short-term increase in risk of equipment interaction;
• Short-term increase in underwater noise;
• Short-term increase in risk of ship strike due to the increase in vessel traffic;
• Short-term change in water quality, including oil spills;
• Modification of habitat;
• Project-related EMF;
• Project-related lighting;
• Project-related marine debris;
	• Dominion Energy has sited the Offshore Export Cable Route Corridor to avoid sensitive benthic habitats to the extent practical (including submerged aquatic vegetation) to minimize impacts to sea turtles, particularly juveniles;
	• Dominion Energy would require all offshore personnel and vessel contractors to implement appropriate debris control practices and protocols to prevent the accidental release of marine debris. All Project-related vessels would operate in accordance with regulations pertaining to at-sea discharge of vessel-generated waste;
	• Dominion Energy would implement the following measures as appropriate to avoid, minimize, and mitigate potential impacts of construction-related underwater noise:
	  ○ Implement monitoring and exclusion zones where pile-driven foundations are installed, enforced by qualified NOAA Fisheries-approved Protected Species Observers;
	  ○ Implement real-time monitoring systems;
	  ○ Employ soft starts and shut-down procedures where technically feasible;
	  ○ Employ soft starts for a duration of 30 minutes at the onset of pile-driving activities;
	  ○ Use reduced visibility monitoring tools/technologies (e.g., night vision, infrared, and/or thermal cameras);
	  ○ Use commercially and technically available noise-reducing technologies;
	  ○ Provide sea turtle sighting and reporting procedures for appropriate Project-related personnel specific to construction and its potential impacts to sea turtles;
	• Dominion Energy would also ensure continued engagement with regulatory agencies regarding potential best practices;

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures

• Project-related underwater noise;
• Project-related vessel traffic and increased risk for shop strike; and
• Changes in water quality, including oil spills.
	• Dominion Energy has developed an Oil Spill Response Plan (Appendix Q) detailing all proposed measures to avoid accidental spills and a protocol to be implemented should such an event occur. Additional information may be found in Section 4.4.12, Public Health and Safety. All Project-related vessels would operate in accordance with regulations pertaining to at-sea discharge of vessel-generated waste;
	• Dominion Energy would provide a full decommissioning plan to the appropriate regulatory agencies for approval prior to decommissioning activities, and potential impacts will be re-evaluated at that time;
	• Dominion Energy has identified areas where sufficient cable burial is achievable, further buffering the pelagic environment from cable EMF, and cable protection would serve as an alternative barrier where sufficient cable burial is not feasible;
	• Dominion Energy would consult appropriate regulatory agencies regarding operational lighting requirements;
	• Dominion Energy would require all offshore personnel to implement appropriate practices and protocols to avoid and minimize the release of marine debris;
	• Dominion Energy would implement the following measures as appropriate to avoid, minimize, and mitigate potential vessel-related impacts:
	  ○ Vessel speed restrictions while transiting to and from the review area; and
	  ○ Vessel collision avoidance measures for vessels working in or transiting to and from the Sea Turtle Study Area, including a 164 ft (50 m) separation distance from all sea turtle species;
	• Dominion Energy has developed an Oil Spill Response Plan (Appendix Q) that details all measures proposed to avoid an inadvertent spill of vessel oil or fuel and a protocol to be implemented should such an event occur; and
	• Dominion Energy would implement the following measures as appropriate to avoid, minimize, and mitigate potential impacts to water quality:
	  ○ Vessel operation in accordance with regulations pertaining to at-sea discharges of vessel-generated waste.

Marine Archaeological Resources	
• Disturbance to submerged marine archaeological and cultural resources. • Disturbance to submerged marine archaeological and cultural resources.	• Dominion Energy will develop a plan to ensure that construction activities adhere to the recommended avoidance buffers; • Disturbance to known resources that cannot practicably be avoided would only occur with appropriate consultations and approvals; • Additional archaeological investigation of resources that cannot be avoided may be needed in order to determine whether or not they are historic properties and to fully assess Project effects; • Dominion Energy would develop and implement an Unanticipated Discoveries Plan to avoid and mitigate impacts to unknown resources; • Repairs and other future activities will only occur within previously disturbed portions of the APE which have been previously assessed by the QMA; and • Adherence to the QMA recommended avoidance buffers would remain in effect during Operations.

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
Terrestrial Archaeological Resources	
• As detailed in the Section 106 Phased Identification Plan, a summary of avoidance, minimization, and mitigation measures will be assessed following completion of the survey and analysis and submitted in the final Terrestrial Archaeological Resources Assessment Report.	• Dominion Energy is committed to minimizing impacts to cultural resources through the siting, routing, and design process of the Onshore Project Components to the extent practicable. Additionally, Dominion Energy plans to have an Unanticipated Discoveries Plan (Appendix G, Attachment G-3) in place throughout construction, O&M, and decommissioning of the Project.
Historic Properties Assessment	
• Short-term or long-term visual impacts to maritime settings that are significant to the historical integrity of the resources, including three lighthouses.	• Mitigations may include: ○ Support for preparation of NRHP nominations for Chesapeake Beach, Doyletown, and/or Queen City, Virginia Beach; ○ Support for planning and design studies for the rehabilitation of the St. Teresa's Chapel and/or the 1902 Railroad Station; ○ Support for the recognition and preservation of historic properties associated with African-American history, including Seatack Elementary School and the Mount Olive Baptist Church; ○ Support for updating the publication, 50 Most Significant Houses and Structure in Virginia Beach; ○ Support the development of interpretive signs in the Historic Kempsville mini park in the City of Virginia Beach; ○ Preservation planning support for 302 22nd Street—the C & P Telephone Building; ○ Support for the survey and designation of resources associated with underrepresented communities; and ○ Support for a public lecture series on preservation topics to support regional historic preservation planning objectives.
Visual Resources	
• Short-term visual impacts during offshore construction activities; • Short-term visual impacts during onshore construction activities; • Long-term visual effects from the presence of Offshore Project Components; and • Long-term visual effects from the presence of Onshore Project Components.	• Dominion Energy would implement a Fugitive Dust Plan to minimize dust and visual pollution. The Onshore Project Area would be maintained free of debris, trash, and waste to the extent possible during construction, and areas temporarily disturbed during construction will be restored to the conditions required by state and/or local permits; • The WTGs would be uniform in shape and color, and it is anticipated that they would be uniform in size of rotor blades, nacelle and towers; and • Dominion Energy would evaluate vegetative screening to help screen views of the Onshore Substation and Switching Station and design the lighting of the Onshore Substation and Switching Station to reduce light pollution where feasible (e.g., downward lighting, motion-detecting sensors).

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
Population, Economy, Employment, Housing, and Public Services	
• Short-term increase in spending on construction materials and services and related economic activity in the region (Hamptons Road area) and state (Virginia); • Short-term increase in construction-related employment and income in the region and state; • Short-term increase in tax revenues for state and local governments; • Short-term increase in the demand for housing; • Potential short-term effects to property values; • Short-term increase in the demand for public services; • Long-term increase in spending on O&M and related economic activity in the region; • Long-term increase in O&M-related employment and income in the region; • Long-term increase in tax revenues for state and local governments; • Long-term increase in demand for housing; • Long-term increase in the demand for public services; and • Long-term change in property values due to O&M activities.	• Project-related vessels transiting to the Lease Area would be consistent with existing vessel traffic off the coast of Virginia; and • Dominion Energy would coordinate with local fire and police departments as needed throughout construction of the Project.
Environmental Justice	
• Short-term increase in construction vehicle traffic and activity; • Temporary shortage of affordable temporary housing due to increased demand; • Short-term increase in tax revenues for state and local governments;	• Dominion Energy would coordinate with local fire and police departments as needed throughout construction of the Project; • The Project would use existing roads, ROWs, and infrastructure where possible; • Communications and outreach to foster the meaningful public participation of potential environmental justice communities is ongoing to better understand how communities may be affected and identify related mitigation measures;

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
• Short-term increase in construction-related employment and income in the region and state; • Short-term increase in the demand for public services; • Decrease in availability of long-term housing due to in-migration of operations workers; • Long-term presence of Offshore Project Components in the Lease Area (e.g. WTGs and Offshore Substations); • Long-term presence of Onshore Project Components; • An increase in O&M-related vehicle traffic; • Long-term increase in local and regional government tax revenues; • Long-term increase in O&M-related employment and income in the region; and • Long-term increase in the demand for public services.	• Dominion Energy has attempted to site the Offshore Project Area where it would have the least impact on commercial fishing. Further, the addition of Offshore Project Components (WTGs and scouring) would facilitate natural reef building which can increase overall species abundance and diversity. This may have positive benefits for the fishing industries in the area; • Dominion Energy is committed to coexistence with commercial and recreational fishing and is conducting extensive outreach and engagement with the fishing community as part of this Project, which will assist in identifying additional environmental justice populations that may rely on the Offshore Project Area for fishing and who may require additional engagement; and • Dominion Energy would coordinate with local fire and police departments as needed throughout the operations period of the Project.
Land Use and Zoning	
• Short-term disruption to adjacent land uses at the Cable Landing Location and along the Onshore Export Cable Route and Interconnection Cable Route Corridors, including recreational uses associated with the State Military Reservation (SMR) property within the Onshore Export Cable Route Corridor; • Direct disturbance during construction and installation of the Onshore Export Cable Route, Switching Station, Interconnection Cable Route, and Onshore Substation; and	• To avoid disruption of recreational uses, installation of the Onshore Export Cable would be coordinated with localities and stakeholders to avoid and minimize potential impacts to recreational and tourism uses to the extent practicable. Once construction is complete, the roads and parking lots would be restored to previous conditions; • To further minimize potential construction effects, adjacent landowners would be provided timely information regarding the planned construction activities and schedule, and work also would be coordinated with appropriate regulatory agencies. Dominion Energy would provide regular updates to the local community through social media, public notices, and/or other appropriate communications tools. Potential impacts to traffic are addressed in Section 4.4.4, Land Transportation and Traffic; • Temporary safety zones would be implemented around construction activities to ensure the safety of the public; • Dominion Energy would provide regular updates to the local community through social media, public notices, and/or other appropriate communications tools; • Any additional temporary staging areas necessary to support onshore construction activities are anticipated to be located on either previously disturbed lands or within the area of disturbance for construction, to the extent practicable;

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
• Long-term conversion of land for the Onshore Export Cable access, Switching Station, Interconnection Cables, and the Onshore Substation.	• During construction, the Project would additionally involve temporary construction laydown area(s). The portion of the parcel not required for long-term operation of the Onshore Substation would be restored to previous conditions once construction is complete; • If necessary, permitting, regulatory actions, and other actions would be taken in the future for development of the Interconnection Route as part of the Preferred Alternative if direct land use displacement, land acquisitions, or re-zonings are required; and • Dominion Energy intends to coordinate with permitting authorities and stakeholders to identify what, if any, land use may continue within land acquired for the Interconnection Route, as well as any additional mitigation measures that may be appropriate related to impacts to local land use and resources during construction and O&M.
Land Transportation and Traffic	
• Short-term increase in Project-related construction vehicle traffic, including workforce commuting trips; • Temporary modification of roadway traffic patterns due to lane closures, street closures, and travel restrictions (e.g., one-way traffic, alternating traffic); and • An increase in operation and maintenance vehicle traffic, including workforce commuting trips.	• Dominion Energy would develop a Traffic Management Plan (TMP) in coordination with, and approved by, the affected federal, state, and local agencies as applicable to offset any anticipated traffic-related impacts associated with increased vehicle demand during construction. As part of the preparation of the TMP, Dominion Energy would coordinate with local and state transportation and public works departments to identify any planned roadway improvements that may impact traffic operations within the Transportation and Traffic Study Area. The TMP would include, but not be limited to, the development of vehicular travel routes to and from the Project construction site; provision of highly visible markings, signage, and lighting of active construction sites; provision of sufficient on-site parking; and implementation of temporary, localized construction zones to minimize areas or sections of road closure; • Dominion Energy would provide regular updates to the local community through social media, public notices, and other appropriate communications methods and schedule construction activities to minimize impacts to the summer peak tourism season to the extent practicable where appropriate and as deemed necessary by local authorities; and • Dominion Energy would develop a TMP that would offset any anticipated traffic-related impacts associated with increased vehicle demand during construction in the same manner as described above for Project-related construction vehicle traffic.
Recreation and Tourism	
• Short-term displacement of marine users due to the establishment of safety zones around Project-related vessels and structures; • Short-term displacement of recreational users onshore due to the establishment of safety zones around Project-related equipment and construction areas; • Minor and temporary increases to local traffic during construction for the Onshore Project Area;	• Dominion Energy would establish a Project-specific website to share information about the Project's construction progress with the community and to give guidance on the construction activities and how they may affect marine traffic in the area. Dominion Energy would also issue specific Local Notices to Mariners (LNTM) in coordination with USCG throughout the construction period. To ensure the safety of commercial and recreational mariners, temporary vessel restrictions may reduce access within the temporary WTG work areas, the Nearshore Trenchless Installation Area, and along the Offshore Installation Corridor during construction. As appropriate, these areas would be marked and illuminated in accordance with USCG requirements and monitored by a security boat available to assist local mariners; • Dominion Energy would coordinate shoreline construction activities with localities and stakeholders to avoid and minimize conflicts with users to the extent practicable. In addition, Dominion Energy intends on coordinating construction activities with the Virginia SMR to avoid and minimize conflicts with recreational uses to the extent practicable;

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
• Long-term modification of existing marine uses in the Offshore Project Area; and • Long-term displacement of recreational activities in the Onshore Project Area.	• To avoid disruption of recreational uses, installation of the Onshore Export Cable would be coordinated with localities and stakeholders to avoid and minimize potential impacts to recreational and tourism uses to the extent practicable. Once construction is complete, the roads and parking lots would be restored to previous conditions; • Dominion Energy intends to coordinate construction activities to minimize impacts to the extent practicable and to provide regular updates to the local community through social media, public notices, and/or other appropriate communications tools; • Dominion Energy would not block roadways to the SMR vehicular traffic for long periods of time for onshore construction activities; • Dominion Energy would notify recreational mariners of all non-emergency Project-related maintenance activities on its website and social media sites and work in accordance with the USCG requirements. When possible, Dominion Energy would schedule and plan maintenance activities to minimize impact and interruption to recreation and tourism activities in the Project Area. In order to maintain navigational safety for marine recreational users, Dominion Energy would place a radar beacon (radar responder) at the WTG site and light, individually mark, and maintain Private Aids to Navigation per USCG Aids to Navigation requirements; and • When possible, Dominion Energy would schedule and plan maintenance activities to minimize impact and interruption to recreation and tourism activities in the Project Area.
Commercial and Recreational Fishing	
• Potential for temporary displacement of fishing activity; • Potential for temporary disturbance to local commercial fish species; • Potential for risk of gear entanglements on partially installed structures; • Potential for increase in Project-related vessel traffic; • Potential for loss of access to traditional fishing grounds; • Potential for modification of habitat and displacement of target commercial species; • Potential for increased Project-related vessel traffic; • Potential for positive beneficial increases in species diversity and abundance; and	• Closures would be limited to discrete segments of the Offshore Project Components that would have restricted access on a temporary basis while construction is active; • Dominion Energy would work with fishermen ahead of marine construction operations to review operational planning and schedules in order to identity any areas where fishing operations may be temporarily displaced. Dominion Energy would also work with the USCG and make notices of area closures publicly available through LNTM posted to Dominion Energy's website and social media; • Dominion Energy would work with those affected fishermen to minimize any potential impact. Dominion Energy would remain committed to coexistence with the commercial and recreational fishing industries; • Dominion Energy would utilize underwater noise mitigation (e.g., bubble curtain or equivalent) to mitigate temporary impacts of pile-driving on marine species; • The Fisheries Communications Plan (Appendix V) developed for the Project, combined with the direct outreach activities anticipated during construction, would provide the fishing community with advance notice, prior to formal LNTM, describing the extent and duration of construction activities and locations of all fixed structures within the Offshore Project Area, including partially installed structures within the safety zone; • For the safety of both mariners and Project technicians, Dominion Energy would establish safety zones around construction activities as applicable. Dominion Energy would notify all mariners via LNTM of the presence and location of partially installed structures; • Dominion Energy would ensure that all Project-related vessels follow appropriate navigational routes and communicate to other mariners via LNTM and/or radio communications to mitigate risks to the commercial and recreational fishing industries as well as other mariners;

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
• Potential for impacts to marine radar/navigation instruments due to the presence of WTGs.	• Dominion Energy would continue to coordinate with existing commercial fishermen that utilize the Offshore Project Area (largely using fixed gear [pots/traps and gillnets]) and emerging fisheries to ensure they can deploy and recover their gear safely during operations and maintenance; • Dominion would also ensure that the operational WTGs and Offshore Substations include adequate marking and lighting in accordance with USCG approved measures to ensure safe vessel operation; • Dominion Energy is in the process of establishing partnerships with local and regional experts from institutions, including the Virginia Institute of Marine Science and the Virginia Aquarium to facilitate preparation of pre- and post-construction monitoring plans, driven by the stakeholders' interests and built upon existing data; • Dominion Energy would continue to ensure that all Project-related vessels follow appropriate navigational routes and other USCG "rules of the road," communicate via USCG LNTM, issue regular mariner updates and/or direct offshore radio communications to help mitigate risks to the commercial and recreational fishing industry as well as other mariners; and • Dominion Energy would leverage its experience on this topic with the Coastal Virginia Offshore Wind Pilot Project and would work with the USCG and the local fishing community to refine site-specific controls or settings that may help to mitigate potential interference of marine radar associated with the presence of Offshore Project Components.
Marine Transportation and Navigation	
• Temporary displacement of existing regional vessel traffic; • Vessel allision risk with partially installed structures; • Long-term displacement of maritime vessels due to new fixed structures; • Temporary diversion of maritime vessel traffic due to occasional O&M activities to the Offshore Export and Inter-Array Cable(s), WTGs, and Offshore Substations; • Long-term vessel collision risk; and • Long-term vessel allision risk with WTGs and Offshore Substations.	• Project-related vessel traffic would follow existing transit routes to the extent practicable and Dominion Energy would coordinate with the USCG and local port authorities during the construction stage of the Project; • Project-related construction and vessel activities would be communicated to the maritime community by use of LNTMs in coordination with the USCG throughout the construction stage. This information would also be posted on Dominion Energy's social media pages and website; • To reduce the risks of vessel allision, Dominion Energy would mark potential hazards in coordination with the USCG; • Dominion Energy would develop LNTMs that would include locations of partially installed structures. In addition, Dominion Energy would advise mariners of safety zones around all Offshore Project Components under construction and construction-related activities for the safety of mariners; • The WTG layout was designed to have a 397 ft (121 m) buffer to the edges of the Lease Area to ensure that no structures would be outside of the Lease Area including the blades; • Dominion Energy would provide information to the USCG for publication in the LNTM, which provides schedules and locations for all O&M activities, and would continue to coordinate with the USCG; • All Offshore Project Components (i.e., infrastructure associated with the Project) would be charted on the relevant nautical charts (electronic and print) in conjunction with NOAA. Dominion Energy would seek to have infrastructure charted prior to the start of the construction stage. This includes precise, planned Offshore Export Cable location information provided in spreadsheet and geographic information system formats; and • Dominion Energy would follow all BOEM, International Association of Marine Aids to Navigation and Lighthouse Authorities, and USCG lighting and marking requirements for each WTG.

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
DoD and OCS National Security Maritime Uses	
• Short-term increase in Project-related vessel traffic due to the construction of Offshore Project Components; • Short-term adjustments to military vessel traffic during offshore construction activities; • Short-term disturbance at the Cable Landing Location and along the Onshore Export Cable Route Corridor; • Long-term modification of existing waterway use; • Long-term presence of new fixed structures (e.g., WTGs, Offshore Substations, Offshore Export Cables, and Inter-Array Cables) in the Offshore Project Area; and • Occasional diversion of national security maritime vessel traffic due to short-term inspection, repair, or replacement of Offshore Export Cables or Inter-Array Cables, and other such O&M activities.	• Dominion Energy would schedule and track Project-related vessels to best manage congestion and traffic flow in coordination with the USCG, DoD, and other national security stakeholders; • Where practical, Project vessels would utilize transit lanes, fairways, and predetermined passage plans consistent with existing waterway uses; • Dominion Energy would continue to communicate and engage with key national security stakeholders, including the USCG, DoD, and others, to coordinate installation activities; • USCG would publish LNTMs and broadcast LNTMs to inform mariners and aviators of Project activities in the area; • Dominion Energy would publish an operations plan on the Project website to inform mariners and other interested parties on what work is being done in the Offshore Project Area; • Dominion Energy would establish and enforce safety zones around active construction areas; • Should USCG safety zone authorities not extend beyond 12 nm (22 km) at the time of construction, Dominion Energy would utilize a combination of safety vessels, LNTMs, and Convention on the International Regulations for Prevention of Collisions at Sea to promote both awareness of these activities and the safety of the construction equipment and personnel; • Once construction is complete, the lands, roads, and parking lots would be restored to previous conditions; • To minimize potential construction effects on DoD activities, the DoD would be provided timely information regarding the planned construction activities and schedule; • Dominion Energy may need to implement temporary safety zones (e.g., foundation locations and/or cable installation vessels) during O&M activities; • Dominion Energy would maintain regular communications and updates with all key national security stakeholders on timing and locations of maintenance activities in order to avoid, minimize, and mitigate impacts; • Dominion Energy would ensure that WTGs and Offshore Substations are properly marked and lighted in accordance with the FAA Advisory Circular 70/7460-1M, BOEM's Draft Proposed Guidelines for Providing Information on Lighting and Marking of Structures Supporting Renewable Energy Development, the International Association of Marine Aids' Navigation and Lighthouse Authorities Recommendation O-139 on the Marking of Man-Made Offshore Structures, and referencing Appendix T, Obstruction Evaluation and Additional Analysis; • Dominion Energy would provide as-built information to the NOAA National Ocean Service to support necessary updates to navigation charts in coordination with other stakeholders as needed; • Dominion Energy would work with the USCG to facilitate training exercises within the Offshore Project Area as requested. Dominion Energy would also provide regular communications and updates with key national security stakeholders on Project-related activities that may affect national security operations; • Dominion Energy would employ helicopters for O&M activities for the transfer of personnel and materials to the Offshore Project Area. Dominion Energy would control Project vessel and helicopter movements

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
	through the Control Center to minimize vessel encounters during training operations in and near the Offshore Project Area; • Dominion Energy would communicate with key national stakeholders on the timing and location of O&M activities. Dominion Energy would also follow the USCG establishment of safety zones around O&M activities; and • Dominion Energy intends to coordinate with the SMR to identify what, if any, land use may continue within land acquired or leased for the Cable Landing Location, as well as any additional mitigation measures that may be appropriate related to impacts to DoD activities and resources during O&M.
Marine Energy and Infrastructure	
• Short-term restricted access to sand resources and dredge disposal sites due to the implementation of safety zones; • Short-term disturbance to seafloor, including existing submarine cables; • Short-term increase in vessel traffic during construction; • Short-term noise impacts during construction; • Short-term restricted access in the vicinity of inspection, survey, maintenance, or repair; and • Long-term restricted access for inspection, maintenance, and repairs to existing cables.	• Dominion Energy would provide advance notice of construction and maintenance activities through LNTMs and broadcast LNTMs as well as on the Project website; • Dominion Energy would monitor and control Project vessel movements to minimize impact to sand-borrowing and dredge spoil dumping activities; • Because safety zones would be implemented during construction activities, marine users are expected to be outside of this potential area of effect and are therefore not anticipated to be affected by this temporary disturbance in the Offshore Project Area, other than temporarily being restricted from accessing these areas during construction activities; • Installation of the Offshore Export Cables in proximity to the four existing submarine cables (the BRUSA fiber optic cable, the MAREA fiber optic cable, the DUNANT fiber optic cable, and the Commercial Virginia Offshore Wind Pilot Export Cable) would be coordinated with these asset owners to avoid impacts to any of these critical seabed assets; • Dominion Energy would schedule and track Project-related vessels to best manage congestion and traffic flow in coordination with the USCG and other maritime stakeholders; • Where practical, Project vessels would utilize traffic separation schemes, fairways (should they be developed), and predetermined passage plans consistent with existing waterway uses; • The USCG would publish LNTM and broadcast LNTMs to inform mariners of Project activities in the area. Additionally, a Project website with the operations plan would be updated so that mariners know what work is being done in the various offshore Project locations; • During pile-driving of WTG Foundations, Dominion Energy would apply monitoring and exclusion zones as appropriate to underwater noise assessments and impact thresholds; • Construction personnel would employ soft starts and shut-down procedures as appropriate to thresholds of noise-emitting survey equipment; soft starts would last 30 minutes at the onset of pile-driving; • Dominion Energy would use commercially and technically available noise-reducing technologies as appropriate and provide marine mammal sighting and reporting training for each specific stage of construction to emphasize individual responsibility for marine mammal awareness and protection; • Dominion Energy would ensure continued engagement with regulatory agencies regarding potential best practices for noise and mitigation; • Should activity be conducted near the Atlantic Ocean Channel and shipping lanes, Dominion Energy would schedule and control Project-related vessels to best manage congestion and traffic flow in coordination with the USCG, as well as DoD exercises and training activities, as appropriate;

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
	• Dominion Energy has proactively sited the Offshore Export Cables to avoid active sand borrow sites and disposal sites to the extent practicable in an effort to avoid impacts; and • Dominion Energy would work with the appropriate federal and state agencies to safeguard the export cable assets.
Aviation and Radar	
• Short-term interference with airspace and aviation radar systems due to the temporary presence of construction equipment onshore and offshore, as well as transportation of Project Components to the Offshore Project Area; • Long-term interference with regulated airspace due to the presence of fixed structures (Onshore and Offshore Project Components); • Long-term interference with regulated aviation radar systems; • Long-term interference with military radar operations, and • Long-term interference with HF radar operations	• Notice Criteria check (14 CFR § 77.9) and/or additional airspace and aviation radar system assessment would be performed to determine whether there are potential airspace impacts and FAA filing is required during the storage or transit of Project materials and Offshore Project Components. It is also possible that the DoD would request to be informed through the Informal Review Process for the transit of large materials. Further coordination with the DoD would occur as a result of the findings of the Informal Review Process and any notifications requested by the DoD will be applied to the Project as needed; • Dominion Energy would be in direct communication with applicable agencies and personnel to alert the appropriate parties to planned construction movements and actions. All WTG Components and construction equipment would be properly lighted and marked in accordance with FAA's Advisory Circular 70/7460-1M within FAA jurisdiction and beyond, or other methods as deemed required during consultation and as applicable; • Dominion Energy would coordinate with the FAA to make this required change to the airspace as necessary. In addition, all WTGs would be properly lighted and marked in accordance with FAA's Advisory Circular number 70/7460-1M within FAA jurisdiction and beyond; • Dominion Energy would continue to engage and coordinate with applicable military contacts to assess and address potential impacts as needed; and • Dominion Energy would continue to engage and coordinate with applicable owners and operators of these HF radar systems to assess and address potential impacts as needed.
Other Coastal and Marine Resources	
• Short-term change in Project-related vessel traffic; • Short-term displacement of marine users due to the establishment of safety zones around Project-related vessels and structures; • Short-term interference with access to nearshore and beach area; • Short-term increases in turbidity and water quality; • Short-term disturbance and displacement of local marine wildlife; • Long-term modification of existing uses;	• Dominion Energy would take measures to minimize impacts associated with construction vessels, including transiting within existing traffic lanes to the extent feasible, regular communication with stakeholders regarding Project activity, completing construction as quickly as is safely practicable, and limiting vessel activity to necessary transits; • Dominion Energy would continue to coordinate with appropriate personnel from the Navy to ensure construction activities do not conflict with training and testing activities within the Virginia Capes Range Complex, including transits to/from such activities; • Dominion Energy would minimize displacement of other marine users by establishing restricted zones in portions of the Offshore Project Area only for the time required to complete the work; • Dominion Energy would provide frequent and regular updates of construction activity and implemented safety zones to the local marine community through the Project website, social media, and the LNTM and by actively engaging other stakeholders. Impacts to other marine and coastal uses will be short term and localized; • Dominion Energy would minimize the size of safety areas and duration of exclusion to reduce impacts on other users of the area. Dominion Energy is committed to keeping the coastal community informed by

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
• Long-term changes in vessel traffic; • Increase in diving, snorkeling, and other tourism in the wind farm in the Offshore Project Area; and • Increase in recreational fishing (including tournaments) near the WTGs as artificial reefs become established on the WTG and Offshore Substation Foundations.	providing advance notice of area restrictions and regular updates to the public via local news, onsite signage, social media, and other suitable information outlets; • All Dominion Energy vessel crews would be familiar with practices to avoid and minimize accidental spills as detailed in Dominion Energy's Marine Trash and Debris Prevention Training, Emergency Response Plan, and Oil Spill Response Plan (Appendix Q); • Dominion Energy would avoid and minimize disturbance of wildlife, particularly endangered sea turtles and marine mammals. Avoidance, minimization, and mitigation measures include soft-start pile driving, dedicated marine mammal and sea turtle observers on vessels, and other activities; and • Dominion Energy would minimize and mitigate impacts to other users by notifying local marine users when any major repairs are planned and reducing any necessary restriction to the extent that safety precautions allow. The CTV and O&M vessels would use established transit lanes and will not substantially restrict other uses. No measurable impact of vessel traffic is expected.
Public Health and Safety	
• Accidents; • Public access to Project components; • Accidental releases of hazardous materials; • EMF; and • Non-routine emergency events.	• Employees, customers, and vendors engaging in work on the Project would be provided a work environment that would strive to eliminate all injuries and illnesses from recognized hazards through designing, planning, training, and executing safe work BMPs; • Dominion Energy would restrict temporary access along the Inter-Array Cables and Offshore Export Cable construction ROW, the work areas surrounding each Offshore Substation and WTG, and the offshore Trenchless Installation work area to minimize potential impacts to local mariners, including cargo vessels, fishing vessels, recreational vessels, and others. Dominion Energy will provide frequent Project updates on planned work areas, actively engage with maritime stakeholders to communicate the same, and provide information to the USCG for publication in the LNTM; • Public access to all work sites would be limited during construction activities; • The Switching Station and Onshore Substation equipment, including the transformer and shunt reactor, would also contain small amounts of oils, fuel, and other hazardous materials. As described in Appendix A, Safety Management System, each of these pieces of equipment would include secondary containment, as required, in accordance with applicable regulations; • As standard practice, marine vessels involved in construction and O&M of the Project will operate under oil spill prevention and response plans that comply with USCG requirements relating to prevention and control of oil spills and the discharge of wastes. Secondary containment would be utilized for oils and greases in accordance with all state and federal regulations. Adequate spill response kit(s) will be present on site at the construction port; • The Project would minimize potential impacts through appropriate construction BMPs and compliance with the Project Spill Prevention, Control, and Countermeasures Plan and Oil Spill Response Plan (Appendix Q) that would be provided for agency review and approval prior to construction; • The Project's offshore and onshore cables would be buried to sufficient depths (Inter-Array Cables, Offshore Export Cables, Interconnection Cables, and Onshore Export Cables) or suspended at sufficient heights (Interconnection Cables) to prevent public interaction; • The Switching Station and Onshore Substation would be surrounded by secured perimeter fencing and locked to prevent public access;

Potential Impacts	Avoidance, Minimization, Mitigation, and Monitoring Measures
	• Direct access to Project Components will be prohibited and all access points will be locked at all times; • As standard practice, marine vessels involved in O&M of the Project would operate under oil spill prevention and response plans that comply with USCG requirements relating to prevention and control of oil spills and the discharge of wastes. Secondary containment would be utilized for oils and greases in accordance with all state and federal regulations. Adequate spill response kit(s) will be present on site at the construction port; • The Project would minimize potential impacts through appropriate construction BMPs and compliance with the Project Spill Prevention, Control, and Countermeasures Plan and the Oil Spill Response Plan (Appendix Q) that would be provided for agency review and approval prior to construction; • Offshore Export and Inter-Array Cables will be buried beneath the seafloor to the extent possible and therefore will not present an opportunity for interaction with persons coming into close proximity to the submarine cables. Onshore Export and Interconnection Cables will be either buried or run as overhead lines and therefore will not present an opportunity for interaction with persons coming into close proximity to those cables; • For wind speeds beyond the operating range of 6.7 miles per hour (3 meters per second) to 67.1 miles per hour (30 meters per second), the WTG is designed to ramp down power output to ensure safety/protection of the equipment during such conditions (see Section 2, Project Siting and Design Development); • WTG blades would be protected from lightning strike by a receptor at their tip and a conductive cable system leading to the tower and then down to the earth; and • Dominion Energy would have additional O&M safety systems on each WTG to include backup power, FAA- and USCG-compliant aviation and navigation obstruction lighting, fire suppression, and first aid and survival equipment.

QUICK REFERENCE GUIDE

Key Project Terms	Description
Base Port	Port associated with operations and maintenance activities. Preferred location is in an existing brownfield site at Lambert's Point.
Cable Landing Location	Area where the offshore export cable is spliced and connected to the onshore export cable in a duct bank. Includes Proposed Parking Lot, west of Firing Range at the State Military (SMR).
Cable Protection	Measures to protect cable in instances where sufficient burial is not feasible and/or at existing submarine asset crossings, which can include placement of material, typically stone or rocks on and around the cable.
Foundation	Structure required to secure the wind turbine generator, offshore substation, and other offshore structures vertically—Offshore Substation Foundation, Wind Turbine Generator (WTG) Foundation.
Inter-Array Cable	Submarine cable interconnecting the WTGs and Offshore Substation. The cable consists of strings of three-core copper and/or aluminum conductor, with a rated voltage of 72.5 kV and an operating voltage of 66 kV.
Interconnection Cable Route Corridor	Corridor centered on the Interconnection Cable Route from a Common Location north of Harpers Road to the Onshore Substation (located at Fentress) for connection into the grid Point of Interconnection (POI).
Interconnection Cable Route	Interconnection cable route from a Common Location north of Harpers Road to the Onshore Substation (located at Fentress) for connection into the grid (POI).
Lease	Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0483).
Lease Area	Bureau of Ocean Energy Management-designated Renewable Energy Lease Area OCS-A 0483.
Metocean Facilities	Two floating light and detection ranging buoys (FLiDARs) installed in the Lease Area.
Nearshore Trenchless Installation Area	Area between the Offshore Punch-Out Location and the Cable Landing Location that includes the beach and dune. Trenchless Installation methods under consideration include horizontal directional drilling and direct steerable pipe thrusting.
Offshore Export Cable(s)	Two to three 230-kV cable connecting the Offshore Substation to the transition bay at the onshore Cable Landing Location. A single 'cable' consists of a 3-core copper-conductor 230-kV subsea cable, for a total of six to nine physical cables.
Offshore Export Cable Route	Export cable route from the Offshore Substation in the Lease Area to the Cable Landing Location.
Offshore Export Cable Route Corridor	The overall corridor where the nine Offshore Export Cables will be installed.
Offshore Trenchless Installation Punch-Out	Location where Nearshore Trenchless Installation punches out on the seafloor, located approximately 730 to 3,281 ft (223 to 235 m) from shore. Trenchless Installation methods under consideration include horizontal directional drilling and direct steerable pipe thrusting.
Offshore Project Area	Lease Area and Offshore Export Cable Route Corridor to the Offshore Trenchless Installation Punch-Out.
Offshore Project Components	The offshore portion of the Project Area to be developed for commercial operation, consisting of 176 to 205 WTGs, up to three Offshore Substations, Inter-Array Cables located in the Lease Area, and the Offshore Export Cables located within the Offshore Export Cable Route Corridor.
Offshore Substation	Structure that receives the power from the WTGs through the Inter-Array Cables.
Onshore Construction Corridor	Cable Landing Location, Onshore Export Cable Route Corridor, Switching Station, Interconnection Cable Route Corridor, construction access roads, and additional area required for construction to install the Onshore Export Cables, Switching Station, and the Interconnection Cables to the Onshore Substation for connection into the grid (POI).
Onshore Export Cable(s)	230-kV cable connecting the transition bay at Cable Landing Location to a Common Location north of Harper's Road.

Key Project Terms	Description
Onshore Export Cable Route	Cable route(s) from Cable Landing Location to a Common Location north of Harper's Road.
Onshore Export Cable Route Corridor	Corridor centered on the Onshore Export Cable Route from the Cable Landing Location to a Common Location north of Harpers Road.
Onshore Project Area	Area from Cable Landing Location to the POI. Includes Onshore Export Cable Route, Switching Station, Interconnection Cable Route, and Onshore Substation (Fentress).
Onshore Project Components	The onshore portion of the Project Area to be developed for commercial operation, comprised of the Onshore Export Cable Route, Switching Station, Interconnection Cable Route, and the and the Onshore Substation (Fentress).
Onshore Substation	The facility where the Project will interconnect into the existing grid, or POI, located at existing Dominion Energy Fentress Substation.
Point of Interconnection (POI)	Location(s) where the Project connects into the grid in Chesapeake, Virginia at the Onshore Substation (Fentress).
Preferred Alternative	Portion of Project Design Envelope that are the preferred options to move forward : 14-MW WTG, 176 Turbine layout, 208 Inter-Array Cables, 9 Offshore Export Cables, Cable Landing Location at the Proposed Parking Lot, west of the Firing Range at SMR.
Project	The Coastal Virginia Offshore Wind (CVOW) Commercial Project.
Project Area	The Onshore Project Area and Offshore Project Area.
Scour Protection	Material, typically stone or rocks, placed around/on top of a structure to prevent seabed sediment from being flushed away as a result of water flow.
Seabed Preparation	The preparation of the seabed prior to foundation installation, consisting of removal of soft, mobile, or uneven sediments, the leveling of the seabed, or the installation of a stone or aggregate foundation bed.
Study Area	To be defined specific to resource being assessed when the area differs from the Offshore Project Area, Nearshore Trenchless Installation Area, and Onshore Project Area. Sections will inevitably contain different study areas.
Wind Turbine Generator (WTG)	A machine consisting of a rotor with three blades connected to the nacelle, which contains an electrical generator and other equipment. WTGs transform the kinetic energy created by the rotation of the blades (due to wind energy) into electricity.

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
µg	microgram
µm	micrometers
µPa	micropascal
14C-AMS	Carbon-14/Accelerator Mass Spectrometry
AADT	average annual daily traffic
ac	acre
ADLS	Aircraft Detection Lighting System
AGL	above ground level
AIS	Automatic Identification System
AMAPPS	Atlantic Marine Assessment Program for Protected Species
AOC	Atlantic Ocean Channel
APE	Area of Potential Effects
APLIC	Avian Power Line Interaction Committee
ASCE	American Society of Civil Engineers
ASMFC	Atlantic States Marine Fisheries Commission
ATON	U.S. Coast Guard Aids to Navigation
AWOIS	NOAA Automated Wreck and Obstruction Information System
BBC	big bubble curtain
BCC	Bird of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP	best management practices
BOEM	Bureau of Ocean Energy Management
BSB	below seabed
BSEE	Bureau of Safety and Environmental Enforcement
CAA	Clean Air Act
cal BP	calibrated dates before present
CEQ	Council for Environmental Quality
CFR	Code of Federal Regulations
cm	centimeter
CO_2	carbon dioxide
COA	Corresponding Onshore Area
COP	Construction and Operations Plan
CPCN	certificate of public convenience and necessity

CPP	Coordinated Project Plan
CTV	crew transfer vessel
CVA	Certified Verification Agent
CVOW	Dominion Energy Coastal Virginia Offshore Wind
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
dB	decibel
dBA	A-weighted sound level
DIN	dissolved inorganic nitrogen
DIP	dissolved inorganic phosphorus
DMA	Dynamic Management Area
DMME	Virginia Department of Mines Minerals and Energy
DNODS	Dam Neck Ocean Disposal Site
DO	dissolved oxygen
DOAv	Virginia Department of Aviation
DoD	U.S. Department of Defense
DOL	depth of lowering
Dominion Energy	Dominion Energy Virginia
DP	dynamically positioned
DPS	distinct population segments
DSPT	Direct Steerable Pipe Thrusting
DSTBM	direct steerable tunnel boring machine
EFH	essential fish habitat
EJ	Environmental Justice
EJSCEEN	the EPA's Environmental Justice Screening and Mapping Tool
EMF	Electromagnetic fields
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESC	Erosion and Sediment Control
FAA	Federal Aviation Administration
FAST	Fixing America's Surface Transportation
FDR	Facility Design Report
FEMA	Federal Emergency Management Quality
FIN	Fast-41 Initiation Notice
FIR	Fabrication Installation Report
FLO	Fisheries Liaison Officer
FMP	fishery management plan

ft	foot
FT	Federally Threatened
ft/hr	feet per hour
FTE	full-time equivalent
gal	gallon
GARFO	Greater Atlantic Regional Fisheries Office
GBS	Gravity-Based Structure
GHG	greenhouse gas
GIS	geographical information system
GPS	Global Positioning System
GW	gigawatt
ha	hectare
Hampton Roads	Norfolk-Virginia Beach-Newport News
HAP	hazardous air pollutant
HAPC	habitat areas of particular concern
HDD	horizontal directional drilling
HF	high frequency
HLV	heavy lift vessel
HMS	Highly Migratory Species
HPOWEB	NCHPO Web Service
HRG	high-resolution geophysical
HVAC	high-voltage alternating-current
HVDC	high-voltage direct-current
Hz	hertz
IAMA	International Association of Marine Aids
IMO	International Maritime Organization
in	inch
IPaC	Information for Planning and Consultation
ISO	International Organization for Standardization
JUV	jack-up vessel
kHz	kilohertz
km	kilometer
km/h	kilometers per hour
km^2	square kilometers
KOP	Key Observation Point
kV	kilovolt
kW	kilowatt
l	liter

Lease Area	Lease Area OCS-A 0483
Leq	equivalent sound level
LF	low-frequency
LGM	last glacial maximum
LNTM	local notice to mariners
LOS	line of sight
L_{PK}	peak sound pressure levels
Lw	sound power level
LWB	local wetland boards
m	meter
m/hr	meters per hour
MABS	Mid-Atlantic Baselines Studies
MAFMC	Mid-Atlantic Fishery Management Council
MARA	Marine Archaeological Resource Assessment
MARCO	Mid-Atlantic Regional Council on the Ocean
MBTA	Migratory Bird Treaty Act
MCL	maximum contaminant level
MCS	Multi-Channel Seismic
MDAT	Marine-life Data and Analysis Team
MF	mid-frequency
mg	milligram
mi	mile
MIS	marine isotope stage
mL	milliliter
mm	millimeter
MMPA	Marine Mammal Protection Act
MSA	Metropolitan Statistical Area
MSD	marine sanitation device
MVA	minimum vectoring altitude
MW	megawatt
n.d.	no date
NAAQS	National Ambient Air Quality Standards
NAS	Naval Air Station
NASO-DNA	Naval Air Station Oceana Dam Neck Annex
Navy	U.S. Navy
NCHPO	North Carolina State Historic Preservation Office
NDBC	National Data Buoy Center
NDZ	no-discharge zone

NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NHD	National Hydrography Dataset
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NISIC	National Invasive Species Information Center
NLCD	National Land Cover Database
NLEB	Northern Long-Eared Bat
nm	nautical mile
nm^2	square nautical miles
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOAA	National Ocean and Atmospheric Administration
NOI	Notice of Intent
NOS	National Ocean Service
NO_X	nitrogen oxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSAs	noise sensitive area
NSR	New Source Review
NVIC	Navigation and Inspection Circular
NWI	National Wetland Inventory
O&M	operations and maintenance
OBIS	Ocean Biogeographic Information System
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
ORF	Norfolk
PAM	Passive Acoustic Monitoring
PATON	Private Aids to Navigation
PBR	Potential Biological Removal
PDE	Project Design Envelope
PJM	Pennsylvania–New Jersey-Maryland
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PMT	Portsmouth Marine Terminal
POI	Point of Interconnection
Project	CVOW Commercial Project
PSO	Protected Species Observer

PTS	permanent threshold shift
PW	Phocids Underwater
QMA	Qualified Marine Archaeologist
RACON	Radar Beacon
ROD	Record of Decision
ROV	remotely operated vehicle
ROW	right-of-way
RPS	RPS Ocean Science
RSZ	rotor swept zone
SAFMC	South Atlantic Fishery Management Council
SAR	Stock Assessment Reports
SCC	Virginia State Corporation Commission
SCUBA	self-contained underwater breathing apparatus
SE	State Endangered
SEGB	Southern Expressway and Greenbelt
SEL_{cum}	cumulative sound exposure levels
SERO	Southeast Regional Office
SESEF	Shipboard Electronic Systems Evaluation Facilities
SGCN	Species of Greatest Conservation Need
SGRE	Siemens Gamesa Renewable Energy
SHPO	State Historic Preservation Office
SMA	Seasonal Management Area
SMCS	Southern Migratory Coastal Stock
SMR	State Military Reservation
SMS	Safety Management System
SO_2	sulfur dioxide
SPCC	spill prevention, control, and countermeasures
SPL	sound pressure level
SPL RMS	root mean squared sound pressure level
ST	State Threatened
SWM	Stormwater Management
SWPPP	Stormwater Pollution Prevention Plan
T&E	Threatened and Endangered
TARA	Terrestrial Archaeological Resources Assessment
TCEQ	Texas Commission on Environmental Quality
TerraSond	TerraSond Ltd.
TEWG	Turtle Expert Working Group
TMDL	total maximum daily load

TMP	Traffic Management Plan
TNC	The Nature Conservancy
TOC	total organic carbon
TRACON	Terminal Radar Approach Control
TSS	total suspended solids
TTS	temporary threshold shift
U.S.C.	U.S. Code
UME	Unusual Mortality Event
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USDA NRCS	U.S. Department of Agriculture Natural Resources Conservation Service
USGS	U.S. Geological Survey
UXO	unexploded ordnance
VAC	Virginia Administrative Code
VACAPES	Virginia Capes
VaFWIS	Virginia Fish and Wildlife Information Service
VBHR	Virginia Beach Historical Register
VCEA	Virginia Clean Economy Act
V-CRIS	Virginia Cultural Resource Information System
VCZMP	Virginia Coastal Zone Management Program
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VDH	Virginia Department of Health
VDHR	Virginia Department of Historic Resources
VDOT	Virginia Department of Transportation
VDWR	Virginia Department of Wildlife Resources
VIMS	Virginia Institute of Marine Science
VLR	Virginia Landmarks Register
VMRC	Virginia Marine Resources Commission
VMS	Vessel Monitoring System
VNHDE	Virginia Natural Heritage Data Explorer
VOC	volatile organic compound
VPA	Virginia Port Authority
VPD	vehicles per day
VPDES	Virginia Pollutant Discharge Elimination System
VRM	Visual Resource Management
VTR	Vessel Trip Report

WEA	Wind Energy Area
WetCAT	Wetland Condition Assessment Tool
WNAOS	Western North Atlantic Offshore Stock
WTG	wind turbine generator