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LIST OF APPENDICES

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Appendix M. Seascape, Landscape, and Visual Impact Assessment

M.1. Introduction

This appendix describes the Seascape, Landscape, and Visual Impact Assessment (SLVIA) methodology and key findings that BOEM used to identify the potential impacts of offshore wind structures (wind turbine generators [WTGs] and offshore substations [OSSs]) on scenic and visual resources within the geographic analysis area. This SLVIA methodology applies to any offshore wind energy development proposed for the outer continental shelf (OCS) and incorporates by reference the detailed description of the methodology described in the *Assessment of Seascape, Landscape, and Visual Impacts of Offshore Wind Energy Developments on the Outer Continental Shelf of the United States* (BOEM 2021). Section M.1.1, *Method of Analysis*, describes the specific methodology used to apply the SLVIA methodology to the Construction and Operations Plan (COP) and Section M.3, *Results,* summarizes the wind farm distances, field of view (FOV), noticeable elements, visual contrasts, scale of change, and prominence that contributed to the determination of impact levels for each key observation point (KOP) under the Proposed Action and each of the action alternatives that include modifications to WTG array layouts (Alternatives B, C, and D). An overview map of scenic resources present in the geographic analysis area is included as Attachment M-1, *Scenic Resources Overview Map*. Visual simulations of the Proposed Action alone, other planned offshore wind projects without the Proposed Action, and other offshore wind projects in combination with the Proposed Action are included in Attachment M-2, *Cumulative Visual Simulations*. Visual simulations of Alternatives B, C, and D are included in Attachment M-3, *Visual Simulations of Action Alternatives*. The onshore geographic analysis area includes landfalls, buried onshore export cables, onshore substations, and transmission connections to the electric grid. The visual impacts of onshore components are assessed in Section 3.20, *Scenic and Visual Resources*.

M.1.1 State and Local Codes, Ordinances, and Planning Guidance

State planning documents that refer to scenic resources and visual quality for coastal communities in Virginia and North Carolina within the geographic analysis area are summarized below.

- The Virginia Scenic Rivers Act (Code of Virginia 10.1-400, et seq.) requires all state agencies to "consider the visual, natural, and recreational values of a scenic river in planning and permitting processes," (VDCR 2020) but includes no specific land use or visual controls. A segment of the North Landing River is a Commonwealth-designated Scenic River.
- The State Scenic Highway and Virginia Byways Act of 1966 allows roads "having relatively high aesthetic or cultural value, leading to or within areas of historical, natural or recreational significance" to be designated as a scenic byway (VDOT 2019). The designation does not carry land use of visual impact controls, but instead recognizes roads "controlled by zoning or otherwise, so as to reasonably protect the aesthetic or cultural value of the highway" (Code of Virginia 33.2-406). A segment of Indian River Road crossed by several Project alternatives is a Virginia Byway.

Local land use plans and guidance that address scenic and visual resources include the following:

- Moving Forward City of Chesapeake Comprehensive Plan 2035 (Chesapeake Bay Planning Department 2018) outlines the vision for the City of Chesapeake's physical environment, built environment, and land use for 2023. The plan encourages the location or relocation of utilities underground and recommends working "with private energy providers to plan for high-capacity transmission lines and substations in order to minimize their impact on residences and businesses." (City of Chesapeake 2016; COP, Appendix I-2.3.2; Dominion Energy 2022.)

- PlaNorfolk2030 (City of Norfolk 2021) is the City of Norfolk's comprehensive plan, which serves as a guide for the future physical, social, and economic development and as a basis for land use decisions within the city.
- It's Our Future: A Choice City – City of Virginia Beach Comprehensive Plan (City of Virginia Beach 2020) addresses long-term sustainable and strategic city planning including visual design of new development on the shore and shoreline. The Green Sea Blueway and Greenway Management Plan is a functional component of the Comprehensive Plan that addresses the North Landing River and tributaries and portions of Indian River Road. While the management plan does not establish regulations related to the scenic resources, it treats scenic resources as a contributing factor to environmental protection, agricultural preservation, passive recreation, tourism, growth management, and cultural heritage preservation goals. (City of Virginia Beach 2015.)
- The Imagine Currituck 2040 Vision Plan (Currituck County 2019) satisfies the Coastal Area Management Act requirement to produce and adopt a local land use plan for Currituck County. Geographical areas addressed within the plan relevant to this Project include the Off-Road Area and the Corolla Area.

M.2. Method of Analysis

The SLVIA has two separate but linked parts: seascape, open ocean, and landscape impact assessment (SLIA) and visual impact assessment (VIA). SLIA analyzes and evaluates impacts on both the physical elements and features that make up a landscape, seascape, or open ocean; and the aesthetic, perceptual, and experiential aspects of the landscape, seascape, or open ocean that make it distinctive. These impacts affect the "feel," "character," or "sense of place" of an area of landscape, seascape, or open ocean, rather than the composition of a view from a particular place. In SLIA, the impact receptors (the entities that are potentially affected by the proposed Project) are the seascape/open ocean/landscape itself and its components, both its physical features and its distinctive character.

VIA analyzes and evaluates the impacts on people of adding the proposed development to views from selected viewpoints. VIA evaluates the change to the composition of the view itself and assesses how the people who are likely to be at that viewpoint may be affected by the change to the view. Enjoyment of a particular view is dependent on the viewer, and, in VIA, the impact receptors are people. The inclusion of both SLIA and VIA in the Bureau of Ocean and Energy Management (BOEM) SLVIA methodology is consistent with NEPA's objective of providing Americans with aesthetically and culturally pleasing surroundings and its requirement to consider all potentially significant impacts of development.

The magnitude of effect in a seascape, open ocean, landscape, or view depends on the nature, scale, prominence, and visual contrast of the change and its experiential duration. The SLVIA offshore geographic analysis area consists of the extent of the zone of theoretical visibility and zones of visual influence (COP, Appendix I-1; Dominion Energy 2022), as follows:

- A 40-mile (64.4-kilometer) radius area around the WTGs and OSSs. This distance is the maximum extent within which a seascape, landscape, or visual effect could occur, given visibility of the maximum height of the WTG rotor (869 feet [265 meters]).
- The OSSs (maximum height of 220 feet [67 meters]) would potentially be visible to a distance of 21 miles (33.7 kilometers).

WTG visibility would be variable through the day depending on many factors. View angle, sun angle, and atmospheric conditions would affect the WTG visibility. Visual contrast of WTGs would vary depending on the visual character of the horizon's backdrop and whether the WTGs are backlit, side-lit, or front-lit.

If less visual contrast is apparent in the morning hours, then it is likely that the visual contrast may be more pronounced in the afternoon. The inverse is possible, as well.

When placing WTGs offshore, the visual interplay and contrasting elements in form, line, color, and texture may vary with the ever-changing character of the backdrop. Front-lit WTGs may have strong color contrast against a darker gray sky, giving definition to the WTG vertical form and line contrast to the ocean's horizontal character and the line where the sea meets sky, or visually dissipate against a whiter backdrop created by high levels of evaporative atmospheric moisture during clear sunny days. Partly cloudy skies may create varying degrees of sunlight reflecting off the white color wind turbines, placing some WTGs in the shadow and making them appear darker gray and less conspicuous while highlighting others with a bright white color contrast. The level of noticeability would be directly proportional to the degree of visual contrast and scale of change between the WTGs and the corresponding backdrop.

The magnitude of effect is also influenced by the viewers context including the direction of view, distance between the viewer and the WTGs, and elevation of the viewer. At closer distances, approximately 12 miles or closer, the form of the WTG may be the dominant visual element creating the visual contrast regardless of color. At greater distances, color may become the dominant visual element creating that gives definition to the WTG's form and line. As the elevation of the viewer increases, the less Earth's curvature (EC) screens the visible height of individual WTGs and therefore a greater portion of the WTG is visible.

While the East Coast shoreline has a prevailing eastward viewing direction, localized views may vary from southwest to north-northeast. All cardinal directions are conceivable when viewing from a water vessel while at sea. When viewing from onshore toward a northerly direction and scanning to the south, the color of the horizon backdrop will often vary. Variation will continue as the sun arcs across the sky from sunrise to sunset. Depending on sun angle, the backdrop sky color may have various intensities of white to gray and sky blue to pale blue to dark blue-gray. Partly cloudy to overcast conditions will also influence the color make up of the horizon's backdrop. The sunrise and sunset have varying degrees of light blue to dark blue, light and dark purples intermixed with oranges, yellows, and reds. Partly cloudy skies may increase the remarkable color effects during the sunset and sunrise periods of the day. These variations through the course of the day may result in periods of moderate to major visual effect while at other times of day would have minor or negligible effect.

The visibility variables described above are represented through the visual simulations found in the COP. Table M-1 below identifies the photo simulation for each condition. It should be noted that this EIS analysis treats the potential view at each Key Observation Point represented by the photo simulation as a clear sky day.

Table M-1 Visibility Variables for Key Observation Point Simulations

Visibility Condition	Key Observation Point Photo Simulation
Morning – Back light	KOP 13 Cape Henry Lighthouse
Afternoon – Side light	KOP 22 King Neptune Statue/Boardwalk
Midday – Front light	KOP 31 Picnic Views on Beach at State Military Reservation
Nighttime	KOP 15b North End Beach – Residential View 1 (nighttime) KOP24b Virginia Beach Boardwalk – 16th Street entrance (nighttime)
Sunny and clear	KOP 24a Virginia Beach Boardwalk – 17th Street Park KOP 24d Virginia Beach Boardwalk – 16th Street entrance

Visibility Condition	Key Observation Point Photo Simulation
Overcast and hazy	KOP 15a North End Beach – Residential View 1 KOP 30a Croatan Beach A
Cloudy and rainy	KOP 44 Back Bay National Wildlife Refuge (Little Island Park)

The SLVIA methodology and parameters assessed consider local stakeholders' identity, culture, values, and issues and the understanding of baseline maritime conditions. Project activities for all stages of the Project life cycle (construction and installation, O&M, and decommissioning) are assessed against the environmental baseline to identify the potential interactions between the Project and the seascape, landscape, and viewers. Potential impacts are assessed to determine an impact level consistent with the definitions in Table M-2.

Table M-2 Definitions of Potential Adverse Impact Levels

Impact Level	Historic Properties under Section 106 of the NHPA	Visual Resources
Negligible	No historic properties affected, as defined at 36 CFR 800.4(d)(1).	SLIA: Very little or no effect on seascape/landscape/ocean unit features, elements, or key qualities, either because unit has minimal visibility/susceptibility or lacks value (distinctive character or key features/elements/qualities). VIA: Very little or no effect on viewers experiences, because project visibility/contrast/magnitude of change are minimal, and/or view receptor sensitivity/susceptibility/value is minimal.
Minor	No adverse effects on historic properties could occur, as defined at 36 CFR 800.5(b).	SLIA: The project would introduce features that may have noticeable low to medium levels of visual prominence within the geographic area of an ocean/ seascape/ landscape character unit. The project features may introduce a visual character that is somewhat inconsistent with the character of the unit, which may have minor to medium negative effects to the unit's features, elements, or key qualities, but the unit's features, elements, or key qualities have low susceptibility or value. VIA: The visibility of the project would introduce a small but noticeable to medium level of change to the view's character; have a low to medium level of visual prominence that attracts but may or may not hold the viewer's attention; and have a small to medium effect on the viewer's experience. The viewer receptor sensitivity/ susceptibility/ value is low. If the value, susceptibility, and viewer concern for change is medium or high, then evaluate the nature of the sensitivity to determine if elevating the impact to the next level is justified. For instance, a KOP with a low magnitude of change, but has a high level of viewer concern (combination of susceptibility/value) may justify adjusting to a moderate level of impact.

Impact Level	Historic Properties under Section 106 of the NHPA	Visual Resources
Moderate	Adverse effects on historic properties as defined at 36 CFR 800.5(a)(1) could occur but would be avoided or minimized using a less-impactful scenario contemplated under the PDE.	SLIA: The project would introduce features that would have medium to large levels of visual prominence within the geographic area of an ocean/seascape/landscape character unit. The project would introduce a visual character that is inconsistent with the character of the unit, which may have a moderate negative effect to the unit's features, elements, or the key qualities. In areas affected by large magnitudes of change, the unit's features, elements, or key qualities have low susceptibility and/ or value. VIA: The visibility of the project would introduce a moderate to large level of change to the view's character; may have moderate to large levels of visual prominence that attracts and holds but may or may not dominate the viewer's attention; and has a moderate effect on the viewer's visual experience. The viewer receptor sensitivity/susceptibility/value is medium to low. Moderate impacts are typically associated with medium viewer receptor sensitivity (combination of susceptibility/value) in areas where the view's character has medium levels of change; or low viewer receptor sensitivity in areas where the view's character has large changes. If the value, susceptibility, and viewer concern for change is high, then evaluate the nature of the sensitivity to determine if elevating the impact to the next level is justified.
Major	Adverse effects on historic properties as defined at 36 CFR 800.5(a)(1) could occur; at least some would require mitigation to resolve.	SLIA: The project would introduce features that would have dominant levels of visual prominence within the geographic area of an ocean/seascape/landscape character unit. The project would introduce a visual character that is inconsistent with the character of the unit, which may have a major negative effect to the unit's features, elements, or key qualities. The concern for change (combination of susceptibility/value) to the character unit is high. VIA: The visibility of the project would introduce a major level of character change to the view; will attract, hold, and dominate the viewer's attention; and have a moderate to major effect on the viewer's visual experience. The viewer receptor sensitivity/susceptibility/value is medium to high. If the magnitude of change to the view's character is medium, but the susceptibility or value at the KOP is high, then evaluate the nature of the sensitivity to determine if elevating the impact to major is justified. If the susceptibility and value at the KOP is low in an area where the magnitude of change is large, then evaluate the nature of the sensitivity to determine if lowering the impact to moderate is justified.

M.3. Results

M.3.1 Proposed Action

Atmospheric conditions offshore and near the shoreline limit views more than the typically drier-air conditions in inland areas. Visual simulations from representative viewpoints included as Appendix I-1 to the *Coastal Virginial Offshore Wind Visual Impact Assessment Report* (COP, Appendix I; Dominion Energy 2022) indicate that daytime and nighttime visibility of WTGs would be noticeable to the casual

observer from beach viewpoints. The OSS are not visible from beaches. Although 94-feet of the nearest OSS is visible from the upper floor restaurant of the Marriott Virginia Beach Oceanfront Hotel (KOP-26) it is 30-miles from shore. OSS views are completely obscured from the Cape Henry Lighthouse (KOP-13) and the Currituck Beach Lighthouse (KOP-47). The nearest view beaches are found along Myrtle Island, northwest of the PDE. The farthest view conditions are found along Parramore Island, Virginia, north of the PDE and Corolla Beach, North Carolina, south of the PDE. Distances to the Proposed Action WTG and OSSs array would range from:

- Parramore Island Nature Preserve range from 40 miles (64.4 kilometers) at the nearest WTG to 54.8 miles (88.2 kilometers);
- Myrtle Island Beach range from 23.7 miles (38.14 kilometers) at the northwestern-most WTG to 42 miles (67.5 kilometers) to the southeastern-most WTG; and
- Corolla Beach range from 40 miles (64.4 kilometers) at the nearest WTG to 57.5 miles (92.5 kilometers) on the southern-most WTG.

The noticeable daytime and nighttime elements of the Project's WTGs and their viewshed distances are listed in Table M-3. Each WTG would have two L-864 flashing red obstruction lights on the top of the nacelle, one of which is required to be lit (BOEM 2021). WTGs would have additional intermediate lighting on the tower utilizing low-intensity red flashing (L-810) obstruction lighting (see Section 2.1.1.2, *Offshore Activities and Facilities*). Line-of-sight calculations for onshore viewers (5-foot [1.5-meter] eye level) are based on intervening EC screening (7.98 inches [20.3 centimeters] height per mile). Heights of WTG and substation components are stated relative to MHW and highest astronomical tide (HAT).

Table M-4 and Table M-5 indicate the Proposed Action's effects based on horizontal FOV and vertical FOV, respectively, defined as the extent of the observable landscape seen at any given moment, usually measured in degrees (BOEM 2021). The horizontal FOV for each KOP is listed in COP, Appendix I-1, Attachment I-1-4 (Dominion Energy 2022). FOVs are one of several valid and reliable indicators of the Proposed Action facilities magnitude of impact. Typical human perception extends to 124° in the horizontal axis and 55° in the vertical axis. The nearest shoreline viewers would be 24.1 miles (38.8 kilometers) from the Wind Farm Area. At this distance the EC reduces the observable height of the nearest WTG from 869 feet (265 meters) MHW to 602.3 feet (183.5 meters), resulting in 0.4° and 0.73 percent of the overall view above the horizon. WTGs would further diminish in perceived size with distance and EC.

Table M-3 Heights of Noticeable[1] 16-MW WTG Elements and Substations and Visible Distances[2]

Noticeable Element	Height in Feet (Meters)	Visible Distance[2] in Miles (Kilometers)
Rotor Blade Tip	869 (265) MHW	0–39 (62.8)
Navigation Light	508 (162) MHW	0–30.5 (49.1)
Nacelle	498 (152) MHW	0–30.2 (48.6)
Indicative Hub Height	489 (149) MHW	0–29.9 (48.1)
OSS	177 (54) HAT	0–19.2 (30.9)
Mid-tower Light	244.5 (74.5) MHW	0–22 (35.4)
Yellow Tower Base Color	50 (15) MHHW	0–11.5 (18.5)

[1] Perception of Project elements, from 5.5-foot (1.7 meter) human eye level while standing at mean sea level, involves static distance-related sizes, forms, lines, colors, and textures; variable daytime lighting conditions; variable nighttime light conditions; and variable meteorological conditions.
[2] Based on intervening EC and clear-day conditions.
HAT = highest astronomical tide

Table M-4 Horizontal FOV Occupied by the Proposed Action

Noticeable Element	Width in Miles (Kilometers)	Distance in Miles (Kilometers)	Horizontal FOV	Human FOV	Percent of FOV
Wind Farm	17.8 (28.6)	24.1 (38.8)	36.4°	124°	29%

Table M-5 Vertical FOV Occupied by the Proposed Action

Noticeable Element	Height in Feet (Meters)	Distance in Miles (Kilometers)	Height Above Horizon[1] in Feet (Meters)	Vertical FOV	Human FOV	Percent of FOV
Rotor Blade Tip	869 feet (265) MHW	24.1 (38.8)	569 (173.4)	0.28°	55°	.01%

[1] Based on intervening EC and clear-day conditions.

The visual analysis considers the introduction of WTGs and OSSs to an open ocean baseline. The scale, size, contrast, and prominence of change focuses on the:

- Arrangement of WTGs and OSSs in the view;
- Horizontal FOV and vertical FOV scale of the wind farm array, based on WTG and OSS size and number;
- Position of the array in the open ocean;
- Position of the array in the view; and
- Turbine array's distance from the viewer.

Visibility, character-changing effects, and visual contrasts reduce steadily with distance from the observation point. Visibility, character-changing effects, scale, prominence, and visual contrasts increase with elevated observer position in comparison with the wind farm. Visibility thresholds have been described and rated through the research by Robert Sullivan at the Argonne Nation Laboratory based on WTGs in England. Table M-6 describes Visibility Threshold levels and ratings based on this work. This research along with distance and observer elevation considerations, informed by the VIA simulations (COP, Appendix I-1, Attachment I-1-5; Dominion Energy 2022), EC calculations, horizontal FOV, and vertical FOV in undeveloped open ocean provide the basis for evaluating visibility. The wind farm and nearest WTGs would be:

- Unavoidably dominant features in the view between 0 and 12 miles (0 and 19.3 kilometers) distance;
- Strongly pervasive features between 12 and 20 miles (19.3 and 32.2 kilometers) distance;
- Clearly visible features between 20 and 28 miles (19.3 and 45.1 kilometers) distance;
- Low on the horizon, but persistent features in the view between 28 and 31 miles (45.1 and 49.9 kilometers) distance;
- Intermittently noticed features between 31 and 39.6 miles (49.9 and 63.7 kilometers) distance; and
- Below the horizon beyond 39.6 miles (63.7 kilometers) distance.

Table M-7 lists the wind farm's distances, horizontal FOVs, noticeable features based on their heights and EC, and visual contrasts.

Table M-6 Visibility Threshold Levels

Visibility Rating	Description
Visibility level 1. Visible only after extended, close viewing; otherwise, invisible.	An object/phenomenon that is near the extreme limit of visibility. It could not be seen by a person who was

Visibility Rating	Description
	unaware of it in advance and looking for it. Even under those circumstances, the object can be seen only after looking at it closely for an extended period.
Visibility level 2. Visible when scanning in the general direction of the subject; otherwise, likely to be missed by casual observers.	An object/phenomenon that is very small and/or faint, but when the observer is scanning in the horizon or looking more closely at an area, can be detected without extended viewing. It could sometimes be noticed by casual observers; however, most people would not notice it without some active looking.
Visibility level 3. Visible after a brief glance in the general direction of the study subject and unlikely to be missed by casual observers.	An object/phenomenon that can be easily detected after a brief look and would be visible to most casual observers, but without sufficient size or contrast to compete with major landscape/seascape elements.
Visibility level 4. Plainly visible, so could not be missed by casual observers, but does not strongly attract visual attention or dominate the view because of its apparent size, for views in the general direction of the study subject.	An object/phenomenon that is obvious and with sufficient size or contrast to compete with other landscape/seascape elements, but with insufficient visual contrast to strongly attract visual attention and insufficient size to occupy most of an observer's visual field.
Visibility level 5. Strongly attracts the visual attention of views in the general direction of the study subject. Attention may be drawn by the strong contrast in form, line, color, or texture, luminance, or motion.	An object/phenomenon that is not large but contrasts with the surrounding landscape elements so strongly that it is a major focus of visual attention, drawing viewer attention immediately and tending to hold attention. Has strong contrasts in form, line, color, and texture. In addition, bright light sources and moving objects contribute substantially to drawing viewer attention. The study subject's visual prominence noticeably interferes with views of nearby landscape/seascape elements.
Visibility level 6. Dominates the view because the study subject fills most of the visual field of views in its general direction. Strong contrasts in form, line, color, texture, luminance, or motions may contribute to view dominance.	An object/phenomenon with strong visual contrasts that is so large this is occupies most of the visual field, and views cannot be avoided except by turning one's head more than 45 degrees from a direct view of the object. The phenomenon is the major focus of visual attention, and its large apparent size is a major factor in its view dominance. The study subject's visual prominence noticeably detracts from views of other landscape /seascape elements.

Source: Sullivan et. al 2013.

Visual contrast determinations involve comparisons of characteristics of the seascape, open ocean, and landscape before and after Project implementation. The range of potential contrasts includes strong, moderate, weak, and none (BOEM 2021). The strongest daytime contrasts would result from tranquil and flat seas combined with front-lit WTG towers, nacelles, flickering rotors, and a yellow tower base color against a dark background sky and an undifferentiated foreground. There would be daily variation in WTG color contrast as sun angles change from backlit to front-lit (sunrise to sunset), and the backdrop would vary under different lighting and atmospheric conditions. The weakest daytime contrasts would result from turbulent seas combined with overcast daylight conditions on WTG towers, nacelles, and rotors against an overcast background sky and a foreground modulated by varied landscape elements. The strongest nighttime contrasts would result from dark skies (absent moonlight) combined with navigation lights, activated lighting on the OSSs, mid-tower lights, and Project lighting reflections on low clouds and active (non-reflective) surf, and the dark-sky light dome. The weakest nighttime contrasts would result

from moonlit, cloudless skies; tranquil (reflective) seas; Aircraft Detection Lighting System (ADLS) is not activated (aviation warning lights off); and mid-tower lights on.

The seascape character units, landscape character units, and viewer experiences would be affected by the Proposed Action's noticeable features, applicable distances and FOV extents, open views versus view framing and intervening foregrounds, and form, line, color, and texture contrasts, scale of change, and prominence in the characteristic seascape and landscape. Higher impact levels would stem from unique, extensive, and long-term appearance of strongly contrasting, large, and prominent vertical structures in the otherwise horizontal seascape environment; where structures are an unexpected element and viewer experience is of formerly open views of high-sensitivity seascape and landscape; and from high-sensitivity view receptors.

Viewer experience would change throughout the life cycle of the project. Construction operations involving moving and stationary barges, cranes, and lighting may have a greater visual effect on viewers than operational and decommissioning activities. However, construction impacts would be temporary and include:

- Daytime and nighttime movement of installation vessels, cranes, and other equipment visible in the seascape in and around the Lease Area;
- Dawn, dusk, and nighttime construction lighting on WTGs and OSSs;
- Beach, other sensitive land-based, and boat and cruise ship views of WTGs and OSSs under construction;
- Laying of the offshore and onshore buried export cables and the connections between offshore and onshore export cables near the Croatan Parking Lot east of Lake Christine, within the State Military Reservation; and
- Activities along the onshore landfalls, export cable routes, Harpers Switching Station, and Fentress onshore substations.

Operational effects of the WTGs and transporting crews for maintenance would be long-term and fully reversible.

Proposed Action impacts on high-sensitivity seascape character would be **moderate**. The daytime and nighttime (lighting) presence of the WTGs, OSSs, and construction and O&M vessel traffic would change perception of this area from natural, undeveloped seascape to a developed wind energy environment characterized by plainly visible WTGs with clear sky conditions in the afternoon.

Maintenance activities would cause **minor** effects on seascape character by increased O&M vessel traffic to and from the Wind Farm Area. Increases in these vessel movements would be noticeable to offshore viewers but are unlikely to have a significant effect.

Decommissioning would involve the removal of all offshore structures and is expected to follow the reverse of the construction activity. Decommissioning activities would cause effects similar to those of construction activities.

Viewshed analyses (COP, Appendix I-1; Dominion Energy 2022) determined that clear-weather visibility of the WTGs would occur within the Proposed Action's zone of visual influence. The Proposed Action would be visible along the eastern beaches. The majority of overland visibility would occur between 24 and 28 miles (39 and 45 kilometers) of the Proposed Action over inland bays. Visibility would diminish significantly between 28 and 40 miles (45 and 64 kilometers), contributing to the zone of visual influence. Due to coastal meteorological conditions, Proposed Action daytime views with visibility at

20 nautical miles for 50-percent of the day would occur approximately 20 percent of the year or 66 days per year, approximately 1 out of 5 days.

Daytime lighting of WTGs is not required. Nighttime aviation warning lights create a **major** impact. ADLS report (COP Appendix T; Dominion Energy 2022) indicates that based on historical air traffic data for flights passing through the light activation zone would activate obstruction lights for a total of 25 hours 33 minutes and 49 seconds over a one-year period. March would have the highest proportion of ADLS night lighting activation and September would have the smallest proportion. Considering the local sunrise and sunset times, an ADLS-controlled obstruction lighting system would result in over a 99% reduction in system activated duration as compared to a traditional always-on obstruction lighting system; therefore, greatly reducing the impact levels from **major** to **minor**. Residual impacts would result from the presence of continuously flashing lights, sky light dome, and reflections on clouds during those limited hours. Lights of the three OSSs, when lit for maintenance, would not be visible from beaches and adjoining land during hours of darkness. Lights from the OSS nearest to shore would be visible from the upper floors of the Marriott Virginia Beach Oceanfront Hotel (KOP-26). The nighttime sky light dome and cloud lighting caused by reflections from the water surface may be seen from distances beyond the 40-mile (64-kilometer) geographic analysis area, depending on variable ocean surface and meteorological reflectivity. Onshore substations' nighttime lighting would be visible in their immediate neighborhoods during hours of darkness and similar in degree and extent to existing conditions.

Table M-7 Wind Farm Distances, FOVs, Noticeable Elements, Visual Contrasts, Scale of Change, and Prominence

KOP	Offshore Components Distance in Miles (Kilometers) Onshore Components Distance from Viewer in Feet (Meters)				Proposed Action FOV Degrees (% of 124°) Visual Sim FOV Degrees % of image[1]	Noticeable Elements[2] & Impact Level	Contrast, Scale of Change, and Prominence							
	Proposed Action	Alternative B	Alternative C	Alternative D			Proposed Action Form	Proposed Action Line	Proposed Action Color	Proposed Action Texture	Proposed Action Scale	Proposed Action Prominence[3]	Alternatives B and C	Alternative D
KOP-5 Oyster Village Horse Island Trail	32.6 (52.5)	NA	NA	NA	14° (11%) 35.8%	R **Negligible**	Weak	Weak	Weak	None	Negligible	1	Same as Proposed Action	Same as Proposed Action
KOP-8 Eastern Shore of Virginia NWR	28.2 (45.4)	NA	NA	NA	14° (11%) 25.5%	R, NL, N, and H **Negligible**	Weak	Weak	Weak	Weak	Negligible	1	Same as Proposed Action	Same as Proposed Action
KOP-13 (elevated) Cape Henry Lighthouse	29.1 (46.8)	NA	NA	NA	21° (17%) 48.8%	R, NL, N, and H **Moderate**	Moderate	Moderate	Moderate	Weak	Medium	3	Same as Proposed Action	Same as Proposed Action
KOP-15a Beach Residential 1	28.1 (45.2)	NA	NA	NA	22° (18%) 73.3%	R, NL, N, and H **Minor**	Weak	Weak	Weak	Weak	Small	2	Same as Proposed Action	Same as Proposed Action
KOP-15b Beach Residential – Nighttime	28.1 (45.2)	NA	NA	NA	23° (18.5%) 41.8%	R, NL, N, and H **Major**	Weak	Moderate	Strong	Weak	Small	5	Same as Proposed Action	Same as Proposed Action
KOP-22 Neptune Statue/ V. B. Boardwalk	27.9 (45)	NA	NA	NA	23° (18.5%) 57.5%	R, NL, N, and H **Minor**	Weak	Weak	Moderate	Weak	Small	3	Same as Proposed Action	Same as Proposed Action
KOP-23 National Aviation Monument Park	27.9 (45)	NA	NA	NA	23° (18.5%) 57.5%	R, NL, N, and H **Minor**	Weak	Weak	Weak	Weak	Small	2	Same as Proposed Action	Same as Proposed Action
KOP-24a Virginia Beach Boardwalk – 17th St Park	27.8 (33.9)	NA	NA	NA	23° (18.5%) 60.5%	R, NL, N, and H **Minor**	Moderate	Moderate	Moderate	Weak	Small	4	Same as Proposed Action	Same as Proposed Action
KOP-24b Virginia Beach Boardwalk – 16th Street Nighttime	27.8 (33.9)	NA	NA	NA	23° (18.5%) 54.8%	R, NL, N, and H **Major**	Weak	Moderate	Strong	Weak	Small	5	Same as Proposed Action	Same as Proposed Action
KOP-24d Virginia Beach Boardwalk Fishing Pier	27.6 (44.4)	NA	NA	NA	23° (18.5%) 48%	R, NL, N, and H **Minor**	Moderate	Moderate	Strong	Weak	Small	4	Same as Proposed Action	Same as Proposed Action
KOP-24d Virginia Beach Boardwalk Fishing Pier – Nighttime	27.6 (44.4)	NA	NA	NA	23° (18.5%) 48%	R, NL, N, and H **Major**	Weak	Moderate	Strong	Weak	Small	5	Same as Proposed Action	Same as Proposed Action
KOP-26 (elevated) Marriott Virginia Beach	28 (45)	NA	NA	NA	23° (18.5%) 57.5%	R, NL, N, O, and H **Moderate**	Moderate	Moderate	Moderate	Weak	Medium	4	Same as Proposed Action	Same as Proposed Action
KOP-29 Grommet Island Park	27.7 (44.6)	NA	NA	NA	23° (18.5%) 51%	R, NL, N, and H **Minor**	Weak	Weak	Weak	Weak	Small	2	Same as Proposed Action	Same as Proposed Action
KOP-30a Croatan Beach A – North (cloudy)	27.7 (44.6)	NA	NA	NA	22.5° (18%) 46%	R, NL, N, and H **Minor**	Weak	Weak	Weak	Weak	Small	2	Same as Proposed Action	Same as Proposed Action
KOP-30c Croatan Beach C – South (cloudy)	27.7 (44.6)	NA	NA	NA	22.5° (18%) 35%	R, NL, N, and H **Minor**	Weak	Weak	Weak	Weak	Small	2	Same as Proposed Action	Same as Proposed Action
KOP-31 Picnic Views at State Military Reserve	27.7 (44.6)	NA	NA	NA	22° (18%) 55%	R, NL, N, and H **Minor**	Weak	Weak	Weak	Weak	Small	3	Same as Proposed Action	Same as Proposed Action
KOP-44 Little Island Park (raining)	26.8 (43.1)	NA	NA	NA	26° (21%) 66.7%	R, NL, N, and H **Moderate**[4]	Weak	Weak	Weak	Weak	Small	2	Same as Proposed Action	Same as Proposed Action
KOP-47 Currituck National Wildlife Refuge	34.7 (55.8)	NA	NA	NA	12.5° (10%) 35.7%	R **Negligible**	Weak	Weak	Weak	None	Small	1	Same as Proposed Action	Same as Proposed Action

KOP	Offshore Components Distance in Miles (Kilometers) Onshore Components Distance from Viewer in Feet (Meters)				Proposed Action FOV Degrees (% of 124°) Visual Sim FOV Degrees % of image[1]	Noticeable Elements[2] & Impact Level	Contrast, Scale of Change, and Prominence							
	Proposed Action	Alternative B	Alternative C	Alternative D			Proposed Action Form	Proposed Action Line	Proposed Action Color	Proposed Action Texture	Proposed Action Scale	Proposed Action Prominence[3]	Alternatives B and C	Alternative D
KOP-48 Currituck Beach Lighthouse (elevated)	36.8 (59.2)	NA	NA	NA	22.5° (18%) 55%	R **Minor**	Moderate	Weak	Moderate	Weak	Small	3	Same as Proposed Action	Same as Proposed Action
KOP-49a Whale Head Bay – Residential	36.6 (58.9)	NA	NA	NA	14.5° (12%) 30.2%	R **Negligible**	Weak	Weak	Weak	Weak	Small	1	Same as Proposed Action	Same as Proposed Action
KOP-49g Whale Head Bay – Albacore Street	39.1 (62.9)	NA	NA	NA	9° (7%) 24.3%	R **Negligible**	Weak	Weak	Weak	Weak	Small	1	Same as Proposed Action	Same as Proposed Action
KOP-50 Fishing and Tour Boats	0–40 (0–64)	NA	NA	NA	NA	R, NL, N, H, and Y **Major**	Strong	Strong	Strong	Strong	Large	6	Same as Proposed Action	Same as Proposed Action
KOP-51 Commercial and Cruise Ships	0–40 (0–64)	NA	NA	NA	NA	R, NL, N, H, and Y **Major**	Strong	Strong	Strong	Strong	Large	6	Same as Proposed Action	Same as Proposed Action
Onshore Components														
HF Route 1 KOP-3 Harpers Switching Station	1,000 (304.8)	Same as Prop. Act.	Same as Prop. Act.	NA	NA	SS **Major**	Strong	Strong	Strong	Strong	Large	6	Same as Proposed Action	NA
KOP-5	WPC	Same as Prop. Act.	Same as Prop. Act.	NA	NA	IC **Major**	Strong	Strong	Moderate	Moderate	Large	5	Same as Proposed Action	NA
KOP-10 Fentress Substation	1,056 (231.8)	Same as Prop. Act.	Same as Prop. Act.	NA	NA	S **Major**	Moderate	Moderate	Strong	Moderate	Large	5	Same as Proposed Action	NA
KOP-11	1584 (482.8)	Same as Prop. Act.	Same as Prop. Act.	NA	NA	IC **Moderate**	Moderate	Moderate	Moderate	Moderate	Medium	4	Same as Proposed Action	NA
KOP-12	1584 (482.8)	Same as Prop. Act.	Same as Prop. Act.	NA	NA	IC **Negligible**	None	None	None	None	Not Visible	0	Same as Proposed Action	NA
KOP-13	1,000 (304.8)	Same as Prop. Act.	Same as Prop. Act.	NA	NA	IC **Negligible**	None	None	None	None	Not Visible	0	Same as Proposed Action	NA
KOP-14a	WPC	Same as Prop. Act.	Same as Prop. Act.	NA	NA	IC **Moderate**	Moderate	Major	Moderate	Moderate	Large	4	Same as Proposed Action	NA
KOP-14b	WPC	Same as Prop. Act.	Same as Prop. Act.	NA	NA	IC **Moderate**	Moderate	Moderate	Moderate	Moderate	Large	3	Same as Proposed Action	NA
KOP-17	WPC	Same as Prop. Act.	Same as Prop. Act.	NA	NA	IC **Moderate**	Moderate	Moderate	Moderate	Moderate	Medium	5	Same as Proposed Action	NA
HF Hybrid Route 6 KOP-10 Fentress Substation	1,056 (231.8)	Same as Prop. Act.	Same as Prop. Act.	Same as Prop. Act.	NA	S **Major**	Moderate	Moderate	Strong	Moderate	Large	5	Same as Proposed Action	Same as Proposed Action
KOP-11	1584 (482.8)	Same as Prop. Act.	Same as Prop. Act.	Same as Prop. Act.	NA	IC **Minor**	Minor	Minor	Moderate	Moderate	Medium	3	Same as Proposed Action	Same as Proposed Action
KOP-12	1584 (482.8)	Same as Prop. Act.	Same as Prop. Act.	Same as Prop. Act.	NA	IC **Negligible**	None	None	None	None	Not Visible	0	Same as Proposed Action	Same as Proposed Action
KOP-13	1,000 (304.8)	Same as Prop. Act.	Same as Prop. Act.	Same as Prop. Act.	NA	IC **Negligible**	None	None	None	None	Not Visible	0	Same as Proposed Action	Same as Proposed Action

KOP	Offshore Components Distance in Miles (Kilometers) Onshore Components Distance from Viewer in Feet (Meters)				Proposed Action FOV Degrees (% of 124°) Visual Sim FOV Degrees % of image[1]	Noticeable Elements[2] & Impact Level	Contrast, Scale of Change, and Prominence							
	Proposed Action	Alternative B	Alternative C	Alternative D			Proposed Action Form	Proposed Action Line	Proposed Action Color	Proposed Action Texture	Proposed Action Scale	Proposed Action Prominence[3]	Alternatives B and C	Alternative D
KOP-14a	WPC	Same as Prop. Act.	Same as Prop. Act.	Same as Prop. Act.	NA	IC **Moderate**	Moderate	Major	Moderate	Moderate	Large	4	Same as Proposed Action	Same as Proposed Action
KOP-14b	WPC	Same as Prop. Act.	Same as Prop. Act.	Same as Prop. Act.	NA	IC **Moderate**	Moderate	Moderate	Moderate	Moderate	Large	3	Same as Proposed Action	Same as Proposed Action
KOP-17	WPC	Same as Prop. Act.	Same as Prop. Act.	Same as Prop. Act.	NA	IC **Moderate**	Moderate	Moderate	Moderate	Moderate	Medium	5	Same as Proposed Action	Same as Proposed Action
KOP- 18 Chicory Switching Station	528 (160)	Same as Prop. Act.	Same as Prop. Act.	Same as Prop. Act.	NA	**Moderate**	Not Visible	Not Visible	Not Visible	Not Visible	Not Visible	0	Same as Proposed Action	Same as Proposed Action

[1] Horizontal Field of View is measure both in human visual perspective as a percentage of 124 degrees. The visual simulations (found in CVOW-C COP, Appendix I-1 Attachment I-1-5, Dominion 2022) calculate and illustrate FOV as a percentage of the photographic image.
[2] Noticeable elements: R = rotor, NL = navigation light, N = nacelle, H = hub, O = OSS, M = mid-tower light, Y = yellow tower base color, SS = Switching Station, IC = Interconnecting Cable, S = Substation
[3] WTGs, OSS (onshore), and offshore component visibility based on the visual simulations: 0 = Not visible. 1 = Visible only after extended study; otherwise not visible. 2 = Visible when viewing in general direction of the wind farm; otherwise, likely to be missed by casual observer. 3 = Visible after brief glance in general direction of the wind farm; unlikely to be missed by casual observer. 4 = Plainly visible; could not be missed by casual observer but does not strongly attract visual attention or dominate view. 5 = Strongly attracts viewers' attention to the wind farm, moderate to strong contrasts in form, line, color, or texture, luminance, or motion. 6 = Dominates view; strong contrasts in form, line, color, texture, luminance, or motion fill most of the horizontal FOV or vertical FOV (NAEP 2012).
HF = Harpers to Fentress, WPC = Within Proposed Corridor.

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Table M-8 lists the Proposed Action's noticeable features based on their heights, distances, and EC.

Table M-8 Noticeable Elements and Impacts by Seascape Character Area, Open Ocean Character Area, Landscape Character Areas, and KOP for the Proposed Action

Noticeable Elements[1] Impacts	Seascape Areas, Open Ocean Area, Landscape Areas, and Offshore and Onshore Key Observation Points
R, NL, N, H, O, M, and Y **Major**	SLIA: Open Ocean, Historic Resources (Chesapeake Light Station) KOP-50 Recreational Fishing, Pleasure, and Tour Boat Area KOP-51 Cruise Ship Shipping Lanes
R, NL **Major**	KOP-15b North End Beach – Residential View – Nighttime KOP-24d Virginia Beach Boardwalk – Fishing Pier Nighttime KOP-24a Virginia Beach Boardwalk – 16th Street Entrance Nighttime
R, NL, N, and H **Moderate**	SLIA: Beach, Beachfront Residential, Recreation, Virginia Beach/Tourism, Historic Resources and Disadvantaged Communities, Lower Coastal Plain/Tide Water KOP-13 Cape Henry Lighthouse/Fort Story Military Base KOP-24a Virginia Beach Boardwalk – 17th Street Park KOP-24d Virginia Beach Boardwalk – Fishing Pier KOP-26 Marriott Virginia Beach Oceanfront Hotel KOP-44 Little Island Park/Back Bay National Wildlife Refuge
R, NL, N, and H **Minor**	SLIA: Industrial/Military, Transportation Corridor/Scenic Byways KOP-15a North End Beach – Residential View KOP-22 King Neptune Statue/Boardwalk KOP-23 Naval Aviation Monument Park KOP-29 Grommet Island Park/Boardwalk KOP-30a Croatan Beach A KOP-30b Croatan Beach C KOP-31 Picnic Views at SMR KOP-48 Currituck Beach Lighthouse
Unseen **Negligible**	SLIA: Rural Coastal Plain, Streets and Highways, Inland Bays, Agriculture, Commercial, High Density/Apartment District, Low Density Residential KOP-8 Eastern Shore of Virginia NWR KOP-47 Currituck NWR KOP-49a Whale Head Bay Residential View 4 KOP-49g Whale Head Bay Albacore Street Entrance – Elevated

[1] R = rotor, NL = navigation light, N = nacelle, H = hub, O = OSS, M = mid-tower light, Y = yellow tower base color
SMR = State Military Reservation, NWR = National Wildlife Refuge.

Table M-9 summarizes the Proposed Action's wind farm distance, percent of FOV occupied by the wind farm, and effects on the seascape areas, open ocean area, landscape areas, and KOPs.

Table M-9 Wind Farm Distance Effects by Seascape Character Areas, Open Ocean Character Area, Landscape Character Areas, and KOP for the Proposed Action

Distance in Miles (Kilometers) Effects	Seascape Areas, Open Ocean Area, Landscape Areas, and Offshore and Onshore Key Observation Points
0–40.0 (0–64.4) Dominant/Major to Minor Noticeability	SLIA: Open Ocean Character Area KOP-50 Recreational Fishing, Pleasure, and Tour Boat Area

Distance in Miles (Kilometers) Effects	Seascape Areas, Open Ocean Area, Landscape Areas, and Offshore and Onshore Key Observation Points
5.0–40.0 (8.0–64.4) Dominant/Major to Minor Noticeability	SLIA: Open Ocean Character Area KOP-51 Cruise Ship Shipping Lanes
13 to 28 (20.9 to 45.1) High Noticeability Nighttime Views	SLIA: Historic Resources and Disadvantaged Communities (Chesapeake Light Station) KOP-24d Virginia Beach Boardwalk – Fishing Pier Nighttime KOP-24a Virginia Beach Boardwalk – 16th Street Entrance Nighttime KOP-15b North End Beach – Residential View – Nighttime
24.1 to 27 (38.8 to 43.5) Moderate Noticeability	SLIA: Beach, Beachfront Residential, Recreation, Virginia Beach/Tourism, Historic Resources and Disadvantaged Communities, Lower Coastal Plain/Tide Water KOP-44 Little Island Park/Back Bay National Wildlife Refuge
28 to 29.1 (45.1 to 46.8) Moderate Noticeability Elevated Views	KOP-13 Cape Henry Lighthouse/Fort Story Military Base KOP-26 Marriott Virginia Beach Oceanfront Hotel
27.1 to 31 (43.6 to 49.9) Minor Noticeability	SLIA: Industrial/Military, Transportation Corridor/Scenic Byways KOP-15a North End Beach – Residential View KOP-22 King Neptune Statue/Boardwalk KOP-23 Naval Aviation Monument Park KOP-24a Virginia Beach Boardwalk – 17th Street Park KOP-24d Virginia Beach Boardwalk – Fishing Pier KOP-29 Grommet Island Park/Boardwalk KOP-30a Croatan Beach A KOP-30b Croatan Beach C KOP-31 Picnic Views at SMR
36.8 (59.2) Minor Noticeability Elevated Views	KOP-48 Currituck Beach Lighthouse
31–40.0 (45.1–64.4) Negligible Noticeability	SLIA: Rural Coastal Plain, Streets and Highways, Inland Bays, Agriculture, Commercial, High Density/Apartment District, Low Density Residential KOP-5 Oyster Village Horse Island Trail KOP-8 Eastern Shore of Virginia NWR KOP-47 Currituck NWR KOP-49a Whale Head Bay Residential View 4 KOP-49g Whale Head Bay Albacore Street Entrance – Elevated

SMR = State Military Reservation, NWR = National Wildlife Refuge.

Table M-10 summarizes the Proposed Action's wind farm distance, percent of FOV occupied by the wind farm, and effects on the seascape areas, landscape areas, and KOPs.

Table M-10 Wind Farm Percent of FOV and Effects by Seascape Character Areas, Open Ocean Character Area, Landscape Character Areas, and KOPs for the Proposed Action

Percent (°) of 124° FOV POV[1] Effects	Seascape Areas, Open Ocean Areas, Landscape Areas, and Offshore and Onshore Key Observation Points
100% (124°) to 16% (20°) Dominant/Major to Minor	SLIA: Open Ocean, Historic Resources (Chesapeake Light Station) KOP-50 Recreational Fishing, Pleasure, and Tour Boat Area
41% (51°) to 16% (20°) Dominant/Major to Minor	SLIA: Open Ocean KOP-51 Cruise Ship Shipping Lanes
33% (37.6°) to 29% (36°) Moderate	SLIA: Open Ocean Character Unit
28% (35°) to 20% (25°) Minor	SLIA: Beach, Beachfront Residential, Recreation KOP-44 Little Island Park/Back Bay NWR
20% (25°) to 7% (9°) Minor to Negligible	SLIA: Beachfront Residential, Recreation, Virginia Beach/Tourism, Historic Resources and Disadvantaged Communities, Lower Coastal Plain/Tide Water, Rural Coastal Plain, Industrial/Military, Transportation Corridor/Scenic Byways, Rural Coastal Plain, Streets and Highways, and Inland Bays KOP-5 Oyster Village Hoarse Island Trail KOP-8 Eastern Shore of Virginia NWR KOP-13 Cape Henry Lighthouse KOP-15a North End Beach Residential View 1 KOP-15b North End Beach Residential View 1 nighttime KOP-22 King Neptune Statue/Boardwalk KOP-23 Naval Aviation Monument Park KOP-24a Virginia Beach Boardwalk – 17th Street Park KOP-24b Virginia Beach Boardwalk – 16th Street Entrance nighttime KOP-24d virginal Beach Boardwalk – Fishing Pier & Nighttime KOP-26 Marriott Virginia Beach Oceanfront Hotel KOP-29 Grommet Island Park/Boardwalk KOP-30a Croatan Beach A KOP-30b Croatan Beach C KOP-31 Picnic Views at SMR KOP-47 Currituck Beach Lighthouse KOP-48 Currituck NWR KOP-49a Whale Head Bay Residential View 4 KOP-49g Whale Head Albacore Street Entrance – Elevated

[1] Percent of view.
SMR = State Military Reservation, NWR = National Wildlife Refuge.

Foreground influence assessments, involving the presence of intervening or framing elements and their influence on effects of Project characteristics, are based on each KOP's locale photography and visual simulations (COP, Appendix I; Dominion Energy 2022) and are summarized in Table M-11.

Table M-11 Foreground View Framing and Intervening Elements for the Proposed Action

Foreground Element(s) Influence	Seascape, Open Ocean, Landscape, and Offshore and Onshore Key Observation Points
Open Ocean Negligible Influence	SLIA: Open Ocean, KOP-26 Marriott Oceanfront Hotel KOP-24d Virginia Beach Boardwalk Fishing Pier KOP-24d Virginia Beach Boardwalk Fishing Pier Nighttime KOP-50 Recreational Fishing, Pleasure, and Tour Boat Area KOP-51 Cruise Ship Shipping Lanes
Beach, Dunes, and Ocean Minor Influence	SLIA: Beach, Beachfront Residential, Recreation KOP-15a Beach Residential 1 KOP-15b Beach Residential 1 nighttime KOP-22 Neptune Statue Boardwalk KOP-23 National Aviation Monument Park KOP-24a Virginia Beach Boardwalk 17th Street Park KOP-29 Grommet Island Park KOP-30a Croatan Beach A – North KOP-30c Croatan Beach A – South KOP-31 Picnic Views at SMR KOP-44 Little Island Park KOP-48 Currituck NWR KOP-49a Whale Head Beach Residential KOP-49g Whale Head Beach Albacore Street Entrance
Buildings, Vegetation, and Topography Moderate to Dominant Influence	SLIA: Virginia Beach/Tourism, Historic Resources and Disadvantaged Communities, Lower Coastal Plain/Tide Water, Rural Coastal Plain, Industrial/Military, Transportation Corridor/Scenic Byways, Rural Coastal Plain, Streets and Highways, Inland Bays, Agriculture, Commercial, High Density/Apartment District, Low Density Residential KOP-5 Horse Island Trail KOP-8 Eastern Shore Virginia NWR KOP-13 Cape Henry Lighthouse KOP-24b Virginia Beach Boardwalk 16th Street Entrance Nighttime KOP-48 Currituck Beach Lighthouse *Onshore Components* SLIA: Developed Commercial, Developed Industrial, Developed Recreation, Developed Rural Residential, Developed Suburban, Transportation Corridor, Forested KOP-3 (HF Route 1) KOP-5 (HF Route 1) KOP-10 (HF Routes 1and 6 Hybrid) KOP-11 (HF Route 1and 6 Hybrid) KOP-12 (HF Routes 1 and 6 Hybrid) KOP-13 (HF Routes 1 and 6 Hybrid) KOP-14a (HF Routes 1 and 6 Hybrid) KOP-14b (HF Routes 1 and 6 Hybrid) KOP-17 (HF Routes 1and 6 Hybrid) KOP-18 (HF Route 6 Hybrid)

Foreground Element(s) Influence	Seascape, Open Ocean, Landscape, and Offshore and Onshore Key Observation Points
Buildings, Vegetation, and Topography Minor Influence	*Onshore Components* SLIA: Agriculture/Undeveloped Land, Open Water

SMR = State Military Reservation, NWR = National Wildlife Refuge, HF = Harpers to Fentress.

Proposed Action contrasts in the characteristic seascape and landscape, as perceived in views from each KOP, are based on visual simulations (COP, Appendix I, Attachment I-1-5; Dominion Energy 2022). Seascape unit view contrasts are estimated based on similar open view conditions in ocean environments. Landscape and seascape compatibility and photography conditions for each viewpoint are presented in COP, Appendix I, Attachment I-1-4 (Dominion Energy 2022). The COP landscape and seascape evaluation scale ranges from faint, apparent, conspicuous, and prominent to dominant. No onshore viewpoints would result in either prominent or dominant conditions. Offshore potential viewpoints' evaluations range from faint to dominant. Visual contrast determinations involve comparisons of characteristics of the seascape and landscape before and after Proposed Action implementation. The range of potential contrasts includes strong, moderate, weak, and none. The strongest daytime contrasts would result from tranquil and flat seas combined with sunlit WTG towers, nacelles, flickering rotors, and the yellow tower 50-foot (15.2-meter) base color against a dark background sky and an undifferentiated foreground. The weakest daytime contrasts would result from turbulent seas combined with overcast daylight conditions on WTG towers, nacelles, and rotors against an overcast background sky and a foreground modulated by varied landscape elements. The strongest nighttime contrasts would result from dark skies (absent moonlight) combined with navigation lights, activated lighting on the OSSs, mid-tower lights, and Project lighting reflections on low clouds and active (non-reflective) surf, and the dark-sky light dome. The weakest nighttime contrasts would result from moonlit, cloudless skies, tranquil (reflective) seas, ADLS activation, and only mid-tower lights.

Photographic comparisons of characteristics of the seascape's and landscape's existing conditions and Proposed Action implementation are included in Attachment I-1-5 of COP Appendix I-1 (Dominion Energy 2022) for each of the KOPs in the following summary tables. Visual contrast determinations are listed in Table M-12.

Table M-12. Visual Contrasts to Seascape, Open Ocean, Landscape, and KOPs for the Proposed Action

Contrast Rating Effects	Seascape, Open Ocean, Landscape, and Offshore and Onshore Key Observation Points
Strong Contrasts **Major**	SLIA: Open Ocean Character Area, Beach, Beachfront Residential, Lower Coastal Plain/Tide Water, Recreation, Low Density Residential, Rural Coastal Plain KOP-50 Recreational Fishing, Pleasure, and Tour Boat Area KOP-51 Cruise Ship Shipping Lanes KOP-15b North End Beach Residential View 1 nighttime KOP-24b Virginia Beach Boardwalk – 16th Street Entrance nighttime KOP-24d Virginia Beach Boardwalk – Fishing Pier nighttime *Onshore Components* SLIA: Agriculture/Open Land, Developed – Rural Residential, Forested, and Open Water KOP-3 (HF Routes 1) KOP-4a/b (HF Route 1 and 6 Hybrid)

Contrast Rating Effects	Seascape, Open Ocean, Landscape, and Offshore and Onshore Key Observation Points
Moderate Contrasts **Moderate**	SLIA: Historic Resources and Disadvantaged Communities (Chesapeake Light Station), Industrial/Military, Virginia Beach/Tourism, Low Density Residential, Transportation Corridor/Scenic Byway KOP-13 Cape Henry Lighthouse KOP-24a Virginia Beach Boardwalk – 17th Street Park KOP-26 Marriott Virginia Beach Oceanfront Hotel *Onshore Components* SLIA: Developed – Suburban KOP-5 (HF Routes 1) KOP-14b (HF Routes 1 and 6) KOP-17 (HF Routes 1 and 6)
Weak Contrasts **Minor**	SLIA: Agriculture, Commercial, Inland Bay, Streets and Highways, High Density Residential KOP-15a North End Beach Residential View 1 KOP-22 King Neptune Statue/Boardwalk KOP-23 Naval Aviation Monument Park KOP-29 Grommet Island Park/Boardwalk KOP-30a Croatan Beach A KOP-30b Croatan Beach C KOP-31 Picnic Views at SMR KOP-44 Little Island Park (raining) KOP-48 Currituck Beach Lighthouse *Onshore Components* SLIA: Developed – Industrial, Transportation Corridor, Developed Recreation Area KOP-10 (HF Routes 1 and 6) KOP-11 (HF Route 1and 6) KOP-14a (HF Routes 1 and 6)
None (No Contrasts) **Negligible**	KOP-5 Oyster Village Hoarse Island Trail KOP-8 Eastern Shore of Virginia NWR KOP-47 Currituck NWR KOP-49a Whale Head Bay Residential View 4 KOP-49g Whale Head Albacore Street Entrance – Elevated *Onshore Components* KOP-12 (HF Routes 1 and 6) KOP-13 (HF Routes 1 and 6) KOP-18 (HF Route 6)

SMR = State Military Reservation, NWR = National Wildlife Refuge.

Table M-13 summarizes Proposed Action impacts on the seascape character areas, open ocean character area, landscape character areas, and viewer experience (KOP locations) throughout the geographic analysis area. The seascape, open ocean, landscape, and viewer experience criteria listed in Table M-2 and consideration of the preceding assessments would result in impact levels to viewer experience for KOPs as shown in Table M-14.

Table M-13 Proposed Action Impact on Seascape Character, Open Ocean Character, Landscape Character, and Viewer Experience

Impact Level	Seashore Character Areas, Open Ocean, Landscape Character Areas, and Offshore and Onshore Key Observation Points
Major	SLIA: Open Ocean Character Area, KOP-50 Recreational Fishing, Pleasure, and Tour Boat Area KOP-51 Cruise Ship Shipping Lanes *Onshore Components* SLIA: Agriculture/Open Land, Developed – Rural Residential, Developed – Suburban, Forested, and Open Water KOP-3 (HF Routes 1) KOP-5 (HF Routes 1)
Moderate	SLIA: Open Ocean (around Chesapeake Light Station), Beach, Beachfront Residential, Lower Coastal Plain/Tide Water, Historic Resources/Disadvantaged Communities, Recreation, Low Density Residential, Rural Coastal Plain, Virginia Beach/Tourism VIA KOP-13 Cape Henry Lighthouse/Fort Story Military Base KOP-15a North End Beach – Residential View KOP-15b North End Beach – Residential View – Nighttime KOP-22 King Neptune Statue/Boardwalk KOP-23 Naval Aviation Monument Park KOP-24d Virginia Beach Boardwalk – Fishing Pier KOP-24d Virginia Beach Boardwalk – Fishing Pier Nighttime KOP-24a Virginia Beach Boardwalk – 17th Street Park KOP-24a Virginia Beach Boardwalk – 16th Street Entrance Nighttime KOP-26 Marriott Virginia Beach Oceanfront Hotel KOP-29 Grommet Island Park/Boardwalk KOP-30a Croatan Beach A KOP-30b Croatan Beach C KOP-31 Picnic Views at SMR KOP-44 Little Island Park/Back Bay NWR *Onshore Components* SLIA: Transportation Corridor KOP-14a/b (HF Routes 1 and 6) KOP-17 (HF Routes 1and 6) KOP-18 (HF Route 6)
Minor	SLIA: Industrial/Military, Commercial, Inland Bay, Transportation/Scenic Byways VIA: KOP-47 Currituck Beach Lighthouse KOP-48 Currituck NWR KOP-49a Whale Head Bay Residential View 4 KOP-49g Whale Head Bay Albacore Street Entrance – Elevated *Onshore Components* *SLIA:* Developed – Industrial, Developed – Commercial, Developed Recreation Area KOP-11 (HF Route 1and 6)

Impact Level	Seashore Character Areas, Open Ocean, Landscape Character Areas, and Offshore and Onshore Key Observation Points
Negligible	SLIA: Agriculture, Streets and Highways, High Density Residential, Military (inland) KOP-5 Oyster Village Horse Island Trail KOP-8 Eastern Shore of Virginia NWR *Onshore Components* KOP-12 (HF Routes 1 and 6) KOP-13 (HF Routes 1 and 6)

SMR = State Military Reservation, NWR = National Wildlife Refuge, HF = Harpers to Fentress.

Table M-14 Impact Levels on Viewer Experience for the Proposed Action

Impact Level	Seashore Character Units, Open Ocean Unit, Landscape Character Units, and Offshore and Onshore Key Observation Points
Major	SLIA: Open Ocean Character Area, KOP-50 Recreational Fishing, Pleasure, and Tour Boat Area KOP-51 Cruise Ship Shipping Lanes *Onshore Components* SLIA: Agriculture/Open Land, Developed – Rural Residential, Developed – Suburban, Forested, and Open Water KOP-3 (HF Routes 1) KOP-5 (HF Routes 1)
Moderate	SLIA: Open Ocean (around Chesapeake Light Station), Beach, Beachfront Residential, Lower Coastal Plain/Tide Water, Historic Resources/Disadvantaged Communities, Recreation, Low Density Residential, Rural Coastal Plain, Virginia Beach/Tourism VIA KOP-13 Cape Henry Lighthouse/Fort Story Military Base KOP-15a North End Beach – Residential View KOP-15b North End Beach – Residential View – Nighttime KOP-22 King Neptune Statue/Boardwalk KOP-23 Naval Aviation Monument Park KOP-24d Virginia Beach Boardwalk – Fishing Pier KOP-24d Virginia Beach Boardwalk – Fishing Pier Nighttime KOP-24a Virginia Beach Boardwalk – 17th Street Park KOP-24a Virginia Beach Boardwalk – 16th Street Entrance Nighttime KOP-26 Marriott Virginia Beach Oceanfront Hotel KOP-29 Grommet Island Park/Boardwalk KOP-30a Croatan Beach A KOP-30b Croatan Beach C KOP-31 Picnic Views at SMR KOP-44 Little Island Park/Back Bay NWR *Onshore Components* SLIA: Transportation Corridor KOP-14a/b (HF Routes 1 and 6) KOP-17 (HF Routes 1, and 6) KOP-18 (HF Route 6)

Impact Level	Seashore Character Units, Open Ocean Unit, Landscape Character Units, and Offshore and Onshore Key Observation Points
Minor	SLIA: Industrial/Military, Commercial, Inland Bay, Transportation/Scenic Byways, VIA: KOP-47 Currituck Beach Lighthouse KOP-48 Currituck NWR KOP-49a Whale Head Bay Residential View 4 KOP-49g Whale Head Bay Albacore Street Entrance – Elevated *Onshore Components* *SLIA:* Developed – Industrial, Developed – Commercial, Developed Recreation Area KOP-11 (HF Route 1and 6)
Negligible	SLIA: Agriculture, Streets and Highways, High Density Residential, Military (inland) KOP-5 Oyster Village Horse Island Trail KOP-8 Eastern Shore of Virginia NWR *Onshore Components* KOP-12 (HF Routes 1 and 6) KOP-13 (HF Routes 1 and 6)

M.3.1.1. Reasonably Foreseeable Planned Actions

NEPA requires consideration of other reasonably foreseeable activities in the Project's viewshed and the Project's incremental effects on seascape character, open ocean character, landscape character, and viewer experience. These effects include direct physical effects on the seascape, open ocean, and landscape or changes to the distinct character of the seascape, open ocean, and landscape.

Effects on seascape character, open ocean character, and landscape character can occur in the following conditions (BOEM 2021, Chapter 8):

- Multi-project WTGs and OSS visible within or from the open ocean character unit as overlapping or adjacent features and elements
- Multi-project WTGs and OSS visible from seascape character units as overlapping or adjacent features and elements
- Multi-project WTGs and OSS visible from landscape character units as overlapping or adjacent features and elements

Effects on viewer experience can occur in the following conditions (BOEM 2021 Chapter 8):

- Multi-project WTGs and OSS visible as overlapping features and elements
- Multi-project WTGs and OSS visible as adjacent features and elements
- Multi-project WTGs and OSS visible as viewers move through the seascape, open ocean, and landscape

Attachment M-2 presents simulations of the incremental effects of the Project in the context of other planned wind farms.

Consideration of effects of other planned wind farms on seascape character, open ocean character, and landscape character is listed in Table M-15.

Consideration of effects on viewer experience of other planned wind farms is listed in Table M-16.

Consideration of effects on seascape character, open ocean character, and landscape character of other planned wind farms in combination with the Proposed Action is listed in Table M-17.

Consideration of effects on viewer experience of other planned wind farms in combination with the Proposed Action is listed in Table M-18.

Table M-15 Other Planned Wind Farms' Seascape, Open Ocean, and Landscape Units Cumulative Wind Farm Distances, FOVs, Noticeable Elements, Visual Contrasts, Scale of Change, and Prominence

	Character Unit		
	Seascape (Beaches)[1]	**Open Ocean**	**Landscape[4]**
Distance in miles (kilometers)			
Kitty Hawk	28 (45)	0 to 42.5 (0 to 68.4)	Variable to 42.5 (68.4)
Kitty Hawk South	37 (59.5)	0 to 42.5 (0 to 68.4)	Variable to 42.5 (68.4)
FOV Degrees (1% of 124°)	35° (28%)	82° to 360° (66 to 290%)	35° (28%)
Noticeable Elements[2] & Impact Level	R, NL, N, H **Moderate**	R, NL, N, H, O, M, and Y **Major**	R, NL, N, H **Minor**
Contrast, scale of change, and prominence			
Form	Moderate to Weak	Strong	Moderate to Weak
Line	Moderate to Weak	Strong	Moderate to Weak
Color	Strong to Weak	Strong	Moderate to Weak
Texture	Weak	Strong	Weak
Scale	Small	Large	Small
Prominence[3]	3	6	3

[1] The most conservative onshore case involves the seaward edge of the beach nearest the projects. The seascape unit edge is 3.45 miles (5.6 kilometers) offshore (New Jersey jurisdictional boundary).
[2] Noticeable elements: R = rotor, NL = navigation light, N = nacelle, H = hub, O = OSS, M = mid-tower light, Y = yellow tower base color
[3] WTGs and OSS Prominence (visibility): 0 = Not visible. 1 = Visible only after extended study; otherwise not visible. 2 = Visible when viewing in general direction of the wind farm; otherwise, likely to be missed by casual observer. 3 = Visible after brief glance in general direction of the wind farm; unlikely to be missed by casual observer. 4 = Plainly visible; could not be missed by casual observer but does not strongly attract visual attention or dominate view. 5 = Strongly attracts viewers' attention to the wind farm; moderate to strong contrasts in form, line, color, or texture, luminance, or motion. 6 = Dominates view; strong contrasts in form, line, color, texture, luminance, or motion fill most of the horizontal FOV or vertical FOV (NAEP 2012).
[4] The seaward edge between landscape and seascape varies. The most conservative case is a 1.0-mile (1.6-kilometer) distance from the seaward beach edge.

Table M-16 Other Planned Wind Farms' Cumulative Viewer Experience Wind Farm Distances, FOVs, Noticeable Elements, Visual Contrasts, Scale of Change, and Prominence

	KOP[1]				
	KOP-26	**KOP-31**	**KOP-45**	**KOP-47**	**KOP-49a**
Distance in miles (kilometers)					
Kitty Hawk	45.9 (73.8)	43.0 (69.2)	33.2 (53.4)	28.3 (45.5)	27.9 (44.9)
Kitty Hawk South	54.0 (86.9)	52.9 (85.1)	43.5 (70.0)	38.5 (62.0)	38.2 (61.5)

	KOP[1]				
	KOP-26	**KOP-31**	**KOP-45**	**KOP-47**	**KOP-49a**
Cumulative FOV Degrees (% of 124°)	9° (50%)	9° (50%)	13° (11%)	24° (19%)	24° (19%)
Noticeable Elements[2] & Impact Level	R, NL, N, H **Moderate**	Not Visible **Negligible**	R **Minor**	R, NL, N, H, M, O **Moderate**	R, NL, N, H **Minor**
Contrast, scale of change, and prominence					
Form	Moderate	Not Visible	Weak	Moderate	Weak
Line	Moderate	Not Visible	Weak	Moderate	Weak
Color	Moderate	Not Visible	Weak	Moderate	Weak
Texture	Weak	Not Visible	Weak	Moderate	Weak
Scale	Medium	Not Visible	Small	Medium	Small
Prominence[3]	3	0	1	4	3

[1] KOP-26 Marriott Virginia Beach Oceanfront Hotel, KOP-31 Picnic/Beach Views at State Military Reserve; KOP-45 False Cape State Park, KOP-47 Currituck Beach Lighthouse; KOP-49a Whale Head Bay Residential Area.
[2] Noticeable elements: R = rotor, NL = navigation light, N = nacelle, H = hub, O = OSS, M = mid-tower light, Y = yellow tower base color
[3] WTGs and OSS (onshore) visibility: 0 = Not visible. 1 = Visible only after extended study; otherwise not visible. 2 = Visible when viewing in general direction of the wind farm; otherwise, likely to be missed by casual observer. 3 = Visible after brief glance in general direction of the wind farm; unlikely to be missed by casual observer. 4 = Plainly visible; could not be missed by casual observer but does not strongly attract visual attention or dominate view. 5 = Strongly attracts viewers' attention to the wind farm; moderate to strong contrasts in form, line, color, or texture, luminance, or motion. 6 = Dominates view; strong contrasts in form, line, color, texture, luminance, or motion fill most of the horizontal FOV or vertical FOV (NAEP 2012).

Table M-17 CVOW-C and Other Planned Wind Farms' Seascape, Open Ocean, and Landscape Units Cumulative Wind Farm Distances, FOVs, Noticeable Elements, Visual Contrasts, Scale of Change, and Prominence

	Character Unit		
	Seascape (Beaches)[1]	**Open Ocean**	**Landscape[4]**
Distance in miles (kilometers)			
Proposed Action	23.7 (38.14)	0 to 40 (0 to 64.4)	Variable to 40 (64.4)
Alternative B	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Alternative C	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Alternative D-1 and D-2	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Kitty Hawk North	28 (45)	0 to 42.5 (0 to 68.4)	Variable to 42.5 (68.4)
Kitty Hawk South	37 (59.5)	0 to 42.5 (0 to 68.4)	Variable to 42.5 (68.4)
FOV Degrees (% of 124°)	92° (74%)	92° to 124° (74 to 100%)	85° (68%)
Noticeable Elements[2] & Impact Level	R, NL, N, H **Moderate**	R, NL, N, H, O, M, and Y to R **Major**	R, NL, N, H **Moderate**

	Character Unit		
	Seascape (Beaches)[1]	**Open Ocean**	**Landscape[4]**
Contrast, Scale of Change, and Prominence			
Form	Moderate to Weak	Strong	Moderate to Weak
Line	Moderate to Weak	Strong	Moderate to Weak
Color	Moderate to Weak	Strong	Moderate to Weak
Texture	Weak	Strong	Weak
Scale	Small	Large	Small
Prominence[3]	4	6	4

[1] The most conservative onshore case involves the seaward edge of the beach nearest the projects. The seascape unit edge is 3.45 miles (5.6 kilometers) offshore (New Jersey jurisdictional boundary).
[2] Noticeable elements: R = rotor, NL = navigation light, N = nacelle, H = hub, O = OSS, M = mid-tower light, Y = yellow tower base color
[3] WTGs and OSS (onshore) visibility: 0 = Not visible. 1 = Visible only after extended study; otherwise not visible. 2 = Visible when viewing in general direction of the wind farm; otherwise, likely to be missed by casual observer. 3 = Visible after brief glance in general direction of the wind farm; unlikely to be missed by casual observer. 4 = Plainly visible; could not be missed by casual observer but does not strongly attract visual attention or dominate view. 5 = Strongly attracts viewers' attention to the wind farm; moderate to strong contrasts in form, line, color, or texture, luminance, or motion. 6 = Dominates view; strong contrasts in form, line, color, texture, luminance, or motion fill most of the horizontal FOV or vertical FOV (NAEP 2012).
[4] The seaward edge between landscape and seascape varies.

Table M-18 CVOW-C and Other Planned Wind Farms' Cumulative Viewer Experience Wind Farm Distances, FOVs, Noticeable Elements, Visual Contrasts, Scale of Change, and Prominence

	KOP[1]				
	KOP-26	**KOP-31**	**KOP-45**	**KOP-47**	**KOP-49a**
Distance in miles (kilometers)					
Proposed Action	28.0 (45.0)	27.6 (44.4)	27.1 (43.6)	36.8 (59.2)	39.1 (62.9)
Alternative B	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Alternatives C	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Alternative D-1 and D-2	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Kitty Hawk	45.9 (73.8)	43.0 (69.2)	33.2 (53.4)	28.3 (45.5)	27.9 (44.9)
Kitty Hawk South	54.0 (86.9)	65 (52.4)	43.5 (70.0)	38.5 (62.0)	38.2 (61.5)
Cumulative FOV Degrees (1% of 124°)	61° (50%)	64° (52%)	85° (68%)	76° (61%)	84° (68%)
Noticeable Elements[2] & Impact Level	R, NL, N, H **Major**	R, NL, N, H **Minor**	R, NL, N, H **Moderate**	R, NL, N, H **Moderate**	R, NL, N, H **Minor**
Contrast, scale of change, and prominence					
Form	Moderate	Weak	Moderate	Moderate	Weak

	KOP[1]				
	KOP-26	**KOP-31**	**KOP-45**	**KOP-47**	**KOP-49a**
Line	Moderate	Weak	Moderate	Moderate	Weak
Color	Moderate	Weak	Moderate	Moderate	Weak
Texture	Weak	Weak	Moderate	Moderate	Weak
Scale	Medium	Small	Medium	Medium	Small
Prominence[3]	4	3	4	4	3

[1] KOP-26 Marriott Virginia Beach Oceanfront Hotel, KOP-31 Picnic/Beach Views at State Military Reserve; KOP-45 False Cape State Park, KOP-47 Currituck Beach Lighthouse; KOP-49a Whale Head Bay Residential Area.
[2] Noticeable elements: R = rotor, NL = navigation light, N = nacelle, H = hub, O = OSS, M = mid-tower light, Y = yellow tower base color
[3] WTGs and OSS (onshore) visibility: 0 = Not visible. 1 = Visible only after extended study; otherwise not visible. 2 = Visible when viewing in general direction of the wind farm; otherwise, likely to be missed by casual observer. 3 = Visible after brief glance in general direction of the wind farm; unlikely to be missed by casual observer. 4 = Plainly visible; could not be missed by casual observer but does not strongly attract visual attention or dominate view. 5 = Strongly attracts viewers' attention to the wind farm; moderate to strong contrasts in form, line, color, or texture, luminance, or motion. 6 = Dominates view; strong contrasts in form, line, color, texture, luminance, or motion fill most of the horizontal FOV or vertical FOV (NAEP 2012).

M.3.2 Impacts of Alternatives B and C on Scenic and Visual Resources

Visual contrast assessments and form, line, color, and texture comparisons of characteristics of the seascape, open ocean, and landscape before and after implementation of Alternatives B and C are indicated in Table M-7. The difference in contrasts between Alternatives B and C and the Proposed Action due to the removal of between 29 and 34 14-megawatt (MW) WTG positions from the northern end of the Lease Area would have a minor effect on visual resources. Table M-19 and Table M-20 list Alternative B and C wind farm width-, height-, and distance-related occupation of views from the nearest shoreline area. Distance and FOV comparisons with the Proposed Action indicate similar effects. These results indicate perceptible changes to the FOV results compared to the Proposed Action would be minor (Table M-19 and Table M-20).

Table M-19 Horizontal FOV Occupied by Alternatives B and C

Noticeable Element	Width[1] in Miles (Kilometers)	Distance[2] in Miles (Kilometers)	Horizontal FOV	Human FOV	Percent of FOV
14-MW WTGs	17.8 (28.6)	24.1 (38.8)	36.4°	124°	29%

[1] Maximum extent of the wind farm array.
[2] Nearest onshore distance to the wind farm array.

Table M-20 Vertical FOV Occupied by Alternatives B and C

Noticeable Element	Height in Feet (Meters) MHW	Distance in Miles (Kilometers)	Visible Height[1] in Feet (Meters)	Vertical FOV	Human FOV	Percent of FOV
Hub Up	836 (255)	24.1 (38.8)	586 (178.6)	0.26°	55°	0.01%

[1] Based on intervening EC, clear-day, and clear-night conditions.

M.3.2.1. Conclusion

M.3.3 Impacts of Alternative D on Scenic and Visual Resources

Visual contrast assessments include form, line, color, and texture comparisons of characteristics of the seascape, open ocean, and landscape before and after implementation of Alternative D are indicated in Table M-7. There would be a substantial difference in contrasts between Alternative D and the Proposed Action due to the undergrounding of 4.5 miles (7.2 kilometers) of Transmission Corridor and constructing the Chicory Switching Station instead of the Harpers Switching Station. The Interconnection Cable Route 6 (Hybrid) would follow Interconnection Cable Route 1 in its entirety but would remain underground between Harpers Road and the Chicory Switching Station site in Virginia Beach. This would avoid visual impacts on an area of suburban residential development (Castleton and Pine Ridge) at the eastern end of the route. The Chicory Switching Station would replace primarily forested areas adjacent to a Transportation Corridor (Princess Anne Road—a multi-lane divided highway flanked by forest). Existing ROW within or near the subdivisions would be expanded to accommodate the underground portion of the route, but no new structures would be built in these areas. The northern edge of the Chicory Switching Station could be visible from adjacent subdivisions, across an existing transmission ROW and through trees along the facility's northern boundary. As a result, Interconnection Cable Route 6 would have lower impacts on suburban residential Landscape Character Units than other alternatives.

M.4. SLIA Summary

SLIA considers the impacts on the physical elements and features that make up a seascape, open ocean, or landscape and the aesthetic, perceptual, and experiential aspects of the seascape, open ocean, or landscape that contribute to its distinctive character. These impacts affect the "feel," "character," or "sense of place" of an area of seascape, open ocean, or landscape. Table M-21 summarizes the effects of the character of the offshore and onshore components of the Project with the aspects that contribute to the distinctive character of the seascape, open ocean, and landscape areas from which the Project would be visible (BOEM 2021).

M.5. VIA Summary

The VIA considers the characteristics of the view receptor, characteristics of the view toward the Project facilities, and experiential impacts of the Project. Table M-22 summarizes the viewer sensitivity, view receptor susceptibility, view value, and summary of the measures of effects from the visible character and magnitude of the offshore and onshore components of the Project (BOEM 2021).

Table M-21 Seascape Character, Open Ocean Character, Landscape Character and Impact Levels

Character Unit	Affected Environment						Proposed Action																Impact Levels					
	Unit Susceptibility			Unit Value			Project Visibility				Character Key Feature Change			Character Key Element Change			Character Key Quality Change			Proposed Action				Alternatives B and C				
	High	Medium	Low	High	Medium	Low	Major	Moderate	Minor	Negligible	High	Medium	Low	High	Medium	Low	High	Medium	Low	Major	Moderate	Minor	Negligible	Impact Level				
Open Ocean	X			X			X				X			X			X			X				Same as Proposed Action				
Open Ocean – Historic Resources (Chesapeake Light Station Area)		X		X			X					X			X			X			X			Same as Proposed Action				
Seascape Character Areas																													
Beach	X			X				X			X			X			X				X			Same as Proposed Action				
Beachfront Residential	X			X				X			X			X			X				X			Same as Proposed Action				
Historic Resources and Disadvantages Communities	X			X				X				X			X			X			X			Same as Proposed Action				
Industrial/ Military		X		X					X			X			X			X					X		Same as Proposed Action				
Inland Bay	X			X						X			X			X			X				X	Same as Proposed Action				
Lower Coastal Plain/ Tide Water	X			X				X			X			X			X				X			Same as Proposed Action				

Character Unit	Affected Environment						Proposed Action														Impact Levels				
	Unit Susceptibility			Unit Value			Project Visibility				Character Key Feature Change			Character Key Element Change			Character Key Quality Change				Proposed Action				Alternatives B and C
	High	Medium	Low	High	Medium	Low	Major	Moderate	Minor	Negligible	High	Medium	Low	High	Medium	Low	High	Medium	Low		Major	Moderate	Minor	Negligible	Impact Level
Recreation	X			X				X			X			X			X					X			Same as Proposed Action
Rural Coastal Plain	X			X						X			X			X			X					X	Same as Proposed Action
Streets and Highways			X		X					X			X			X			X					X	Same as Proposed Action
Transportation Corridor/Scenic Byways		X		X					X			X			X			X				X			Same as Proposed Action
Virginia Beach/ Tourism		X		X				X			X				X		X					X			Same as Proposed Action
Landscape Character Areas																									
Inland Bay	X			X						X			X			X			X					X	Same as Proposed Action
Agriculture	X				X				X			X			X				X					X	Same as Proposed Action
Commercial		X			X					X			X			X			X					X	Same as Proposed Action

Character Unit	Affected Environment						Proposed Action														Impact Levels					
	Unit Susceptibility			Unit Value			Project Visibility				Character Key Feature Change			Character Key Element Change			Character Key Quality Change				Proposed Action				Alternatives B and C
	High	Medium	Low	High	Medium	Low	Major	Moderate	Minor	Negligible	High	Medium	Low	High	Medium	Low	High	Medium	Low		Major	Moderate	Minor	Negligible	Impact Level
High Density/ Apartment District		X			X					X			X			X			X					X	Same as Proposed Action
Low Density Residential		X			X					X	X			X			X				X			X	Same as Proposed Action
Industrial/Military (inland)			X		X						X		X			X			X					X	Same as Proposed Action
Onshore Components																										
Agriculture, Open, and Undeveloped Lands		X			X		X					X		X				X				X			Same as Proposed Action
Developed – Commercial			X		X			X				X			X				X				X		Same as Proposed Action
Developed – Suburban Residential		X		X			X				X			X			X				X				Same as Proposed Action
Developed – Industrial		X			X				X			X				X		X				X			Same as Proposed Action
Developed Recreation Areas		X			X				X			X				X		X				X			Same as Proposed Action

Character Unit	Affected Environment						Proposed Action															Impact Levels					
	Unit Susceptibility			Unit Value			Project Visibility				Character Key Feature Change			Character Key Element Change			Character Key Quality Change			Proposed Action				Alternatives B and C		
	High	Medium	Low	High	Medium	Low	Major	Moderate	Minor	Negligible	High	Medium	Low	High	Medium	Low	High	Medium	Low	Major	Moderate	Minor	Negligible	Impact Level		
Developed – Rural Residential		X		X			X					X		X				X		X				Same as Proposed Action		
Forested	X			X			X				X			X				X		X				Same as Proposed Action		
Open Water	X			X			X				X			X				X		X				Same as Proposed Action		
Inland Streets and Highways		X		X					X			X			X			X			X			Same as Proposed Action		

Table M-22 Viewer Sensitivity, Receptor Susceptibility, View Value, Viewer Experience, and Impact Levels

KOP[1]	Affected Environment									Viewer Experience				Impact Levels			
	Viewer Sensitivity			Receptor Susceptibility			View Value			Distance-Noticeable Elements-HFOV-VFOV-Contrast-Scale-Prominence Effects				Preferred Alternative			
	High	Medium	Low	High	Medium	Low	High	Medium	Low	Dominant	Substantial	Low	Unseen	Major	Moderate	Minor	Negligible
KOP-5	X			X			X					X					X
KOP-8	X			X			X					X					X
KOP-13[2]	X			X			X				X				X		
KOP-15a	X			X			X					X				X	
KOP-15b[3]	X			X			X			X					X		
KOP-22	X			X			X				X	X				X	
KOP-23	X			X			X				X	X				X	
KOP-24a	X			X			X				X	X				X	
KOP-24b[3]	X			X			X			X					X		
KOP-24d	X			X			X				X	X				X	
KOP-24d[3]	X			X			X			X					X		
KOP-26[2]	X			X			X				X				X		
KOP-29		X		X			X				X	X				X	
KOP-30a	X			X			X				X	X				X	
KOP-30b	X			X			X				X	X				X	
KOP-31	X			X			X				X	X				X	
KOP-44	X			X			X				X				X		
KOP-47[2]	X			X			X				X	X					X
KOP-48	X			X			X					X				X	
KOP-49a	X			X			X					X					X
KOP-49g	X			X			X					X					X
KOP-50	X			X			X			X				X			
KOP-51	X			X			X			X				X			
Onshore Components																	
HF Route 1 KOP-3		X			X			X		X				X			
KOP-5		X			X			X			X			X			
KOP-10			X		X				X			X		X			
KOP-11			X		X				X			X			X		
KOP-12			X		X				X				X				X
KOP-13			X		X				X				X				X

KOP[1]	Affected Environment									Viewer Experience				Impact Levels			
	Viewer Sensitivity			Receptor Susceptibility			View Value			Distance-Noticeable Elements-HFOV-VFOV-Contrast-Scale-Prominence Effects				Preferred Alternative			
	High	Medium	Low	High	Medium	Low	High	Medium	Low	Dominant	Substantial	Low	Unseen	Major	Moderate	Minor	Negligible
KOP-14a		X			X			X				X			X		
KOP-14b		X			X			X			X				X		
KOP-17			X		X				X		X			X			
HF Hybrid Route 6 KOP-10			X		X				X			X		X			
KOP-11			X		X				X			X			X		
KOP-12			X		X				X				X		X		
KOP-13			X		X				X				X				X
KOP-14a		X			X			X				X			X		
KOP-14b		X			X			X			X				X		
KOP-17			X		X				X		X			X			
KOP-18		X												X			

[1] KOP-5 Oyster Village Horse Island Trail; KOP-8 Eastern Shore of Virginia NWR; KOP-13 Cape Henry Lighthouse/Fort Story Military Base; KOP-15a North End Beach – Residential View; KOP-15b North End Beach – Residential View – Nighttime; KOP-22 King Neptune Statue/Boardwalk; KOP-23 Naval Aviation Monument Park KOP-24a Virginia Beach Boardwalk – 17th Street Park; KOP-24b Virginia Beach Boardwalk – 16th Street Entrance Nighttime; KOP-24d Virginia Beach Boardwalk – Fishing Pier, KOP-24d Virginia Beach Boardwalk – Fishing Pier – Nighttime, KOP-26 Marriott Virginia Beach Oceanfront Hotel, KOP-29 Grommet Island Park/Boardwalk, KOP-30a Croatan Beach A, KOP-30b Croatan Beach C, KOP-31 Picnic Views at SMR, KOP-44 Little Island Park/Back Bay NWR, KOP-47 Currituck Beach Lighthouse, KOP-48 Currituck National Wildlife Refuge, KOP-49a Whale Head Bay Residential View 4, KOP-49g Whale Head Bay Albacore Street Entrance – Elevated, KOP-3 Harpers Switching Station, KOP-4a Interconnection Cable, KOP-4b Interconnection Cable, KOP-5 Interconnection Cable, KOP-6 Interconnection Cable, KOP-7 Interconnection Cable, KOP-8a Interconnection Cable, KOP-8c Interconnection Cable, KOP-9 Interconnection Cable, KOP-10 Fentress Substation, KOP-11 All Interconnection Cable Route Alternatives, KOP-12 Interconnection Cable (Alternative 1 and Overhead Portion of Hybrid Alternative), KOP-13 Interconnection Cable (Alternative 1 and Overhead Portion of Hybrid Alternative), KOP-14a Interconnection Cable (Alternative 1 and Overhead Portion of Hybrid Alternative), KOP-14b Interconnection Cable (Alternative 1 and Overhead Portion of Hybrid Alternative), KOP-15 Interconnection Cable, KOP-17 Interconnection Cable, KOP-18 Chicory Switching Station.
[2] Elevated observation deck or lighthouse.

M.5.1 Impacts of Alternatives B on Scenic and Visual Resources

Visual contrast assessments include form, line, color, and texture comparisons of characteristics of the seascape, open ocean, and landscape before and after implementation of Alternatives B are indicated in Table M-7. The difference in contrasts between Alternatives B and the Proposed Action due to the removal of between 29 and 34 14-MW WTG positions from the northern end of the Lease Area would have a minor effect on visual resources. Table M-23 and Table M-24 list Alternative B wind farm width-, height-, and distance-related occupation of views from the nearest shoreline area. Distance and FOV comparisons with the Proposed Action indicate similar effects. Although three WTGs at the northwestern corner of the wind farm are removed for navigational safety and eight along the northern edge are

removed to protect a Fish Haven area, views of the northern boundary of the wind farm have limited access. Additional WTGs proposed for removal are located on the interior of the wind farm. These results indicate perceptible changes to the FOV results compared to the Proposed Action would be minor.

Table M-23 Horizontal FOV Occupied by Alternatives B

Noticeable Element	Width[1] in Miles (Kilometers)	Distance[2] in Miles (Kilometers)	Horizontal FOV	Human FOV	Percent of FOV
14-MW WTGs	17.8 (28.6)	24.1 (38.8)	36.4°	124°	29%

[1] Maximum extent of the wind farm array.
[2] Nearest onshore distance to the wind farm array.

Table M-24 Vertical FOV Occupied by Alternatives B

Noticeable Element	Height in Feet (Meters) MHW	Distance in Miles (Kilometers)	Visible Height[1] in Feet (Meters)	Vertical FOV	Human FOV	Percent of FOV
Hub Up	836 (255)	24.1 (38.8)	586 (178.6)	0.26°	55°	0.01%

[1] Based on intervening EC, clear-day, and clear-night conditions.

M.5.1 Impacts of Alternative Con Scenic and Visual Resources

Visual contrast assessments include form, line, color, and texture comparisons of characteristics of the seascape, open ocean, and landscape before and after implementation of Alternative Cis indicated in Table M-7. The difference in contrasts between Alternative C and the Proposed Action due to the removal of four 14-MW WTG positions from the sand ridge habitat area of the Lease Area, resulting in 172 total WTGs, would have a minor effect on visual resources. The horizontal FOV difference between the 14-MW and the 16-MW WTGs of 33 feet (10 meters) is imperceptible at 24.1 miles (38.8 milometers).

Table M-25 and Table M-26 list Alternative C wind farm width-, height-, and distance-related occupation of views from the nearest shoreline area. Although three WTGs at the northwestern corner of the wind farm are removed for navigational safety and eight along the northern edge are removed to protect a Fish Haven area, views of the northern boundary of the wind farm have limited access. Additional WTGs proposed for removal are located on the interior of the wind farm. This may slightly reduce the visible mass of the wind farm from certain shoreline locations during clear afternoons, but it will not reduce the overall horizontal FOV. These results indicate perceptible changes to the FOV results compared to the Proposed Action would be **minor**.

Table M-25 Horizontal FOV Occupied by Alternative C

Noticeable Element	Width[1] in Miles (Kilometers)	Distance[2] in Miles (Kilometers)	Horizontal FOV	Human FOV	Percent of FOV
14-MW WTGs	17.8 (28.6)	24.1 (38.8)	36.4°	124°	29%
16-MW WTGs	17.8 (28.6)	24.1 (38.8)	36.4°	124°	29%

[1] Maximum extent of the wind farm array.
[2] Nearest onshore distance to the wind farm array.

Table M-26 Vertical FOV Occupied by Alternatives C-1, C-2 and C-3

WTG Size	Noticeable Element	Height in Feet (Meters) MHW	Distance in Miles (Kilometers)	Visible Height[1] in Feet (Meters)	Vertical FOV	Human FOV	Percent of FOV
14-MW	Hub Up	836 (255)	24.1 (38.8)	536 (163.4)	0.26°	55°	0.01%
16-MW	Hub Up	869 (265)	24.1 (38.8)	569 (173.4)	0.28°	55°	0.01%

[1] Based on intervening EC, clear-day, and clear-night conditions.

M.5.2 Impacts of Alternatives D-1 and D-2 on Scenic and Visual Resources

Visual contrast assessments include form, line, color, and texture comparisons of characteristics of the seascape, open ocean, and landscape before and after implementation of Alternative D-2 are indicated in Table M-27. There would be a substantial difference in contrasts between Alternative D-2 and the Proposed Action D-1 due to the undergrounding of 4.5 miles (7.2 kilometers) of Transmission Corridor and constructing the Chicory Switching Station instead of the Harpers Switching Station. Alternative D-2 Interconnection Cable Route 6 (Hybrid) would follow Interconnection Cable Route 1 (Alternative D-1) in its entirety but would remain underground between Harpers Road and the Chicory Switching Station site in Virginia Beach. This would avoid visual impacts on an area of suburban residential development (Castleton and Pine Ridge) at the eastern end of the route. The Chicory Switching Station would replace primarily forested lands adjacent to a Transportation Corridor (Princess Anne Road—a multi-lane divided highway flanked by forest). Existing ROW within or near the subdivisions would be expanded to accommodate the underground portion of the route, but no new structures would be built in these areas. The northern edge of the Chicory Switching Station would likely be visible from adjacent subdivisions, across an existing transmission ROW and through trees along the facility's northern boundary. The photo simulation for KOP-18 indicates the Chicory Switching Station is not visible from the street during the summer when trees are in leaf. However, the switching station would clearly be visible to residences from rear and second story windows, especially in the winter months when trees are out of leaf. Overall, Interconnection Cable Route 6 would have lower impacts on suburban residential character areas than other alternatives. This change to Developed – Suburban Residential Character Area is represented in Table M-22.

Table M-27 Landscape Character and Impact Levels for Onshore Components Alternative D-2

Character Unit	Affected Environment						Alternative D-2												Impact Levels			
	Unit Susceptibility			Unit Value			Project Visibility				Character Key Feature Change			Character Key Element Change			Character Key Quality Change			Alternative D-2			
	High	Medium	Low	High	Medium	Low	Major	Moderate	Minor	Negligible	High	Medium	Low	High	Medium	Low	High	Medium	Low	Major	Moderate	Minor	Negligible
Agriculture, Open, and Undeveloped Lands		X			X			**X**				X		X				X				**X**	
Developed – Commercial			X		X					**X**		X			X				X				**X**
Developed – Suburban Residential		X		X				**X**			X			X			X					**X**		
Developed – Industrial		X			X					**X**		X				X		X				X		
Developed Recreation Areas		X			X				X			X				X		X				X		
Developed – Rural Residential		X		X			X					X		X				X				**X**		
Forested	X			X			X				X			X				X		X				
Open Water	X			X			X				X			X				X		X				
Inland Streets and Highways		X		X					X			X			X			X				X		

Bold text indicates a reduced rating or impact as compared to the Proposed Action (D-1)

M.6. References

Bureau of Ocean Energy Management (BOEM). 2021. *Assessment of Seascape, Landscape, and Visual Impacts of Offshore Wind Energy Developments on the Outer Continental Shelf of the United States*. OCS Study BOEM 2021-032. April.

Dominion Energy, LLC (Dominion Energy). 2021. *Coastal Virginia Offshore Wind Construction and Operations Plan, Appendix I-1 Offshore Visual Impact Assessment and Appendix I-2 Onshore Visual Impact Assessment.* October. Available: https://www.boem.gov/renewable-energy/state-activities/cvow-construction-and-operations-plan.

National Association of Environmental Professionals (NAEP). 2012. *Offshore Wind Turbine Visibility and Visual Impact Thresholds*. Available: https://blmwyomingvisual.anl.gov/docs/EnvPractice_Offshore%20Wind%20Turbine%20Visibility%20and%20Visual%20Impact%20Threshold%20Distances.pdf.

ATTACHMENT M-1
SCENIC RESOURCES OVERVIEW MAP

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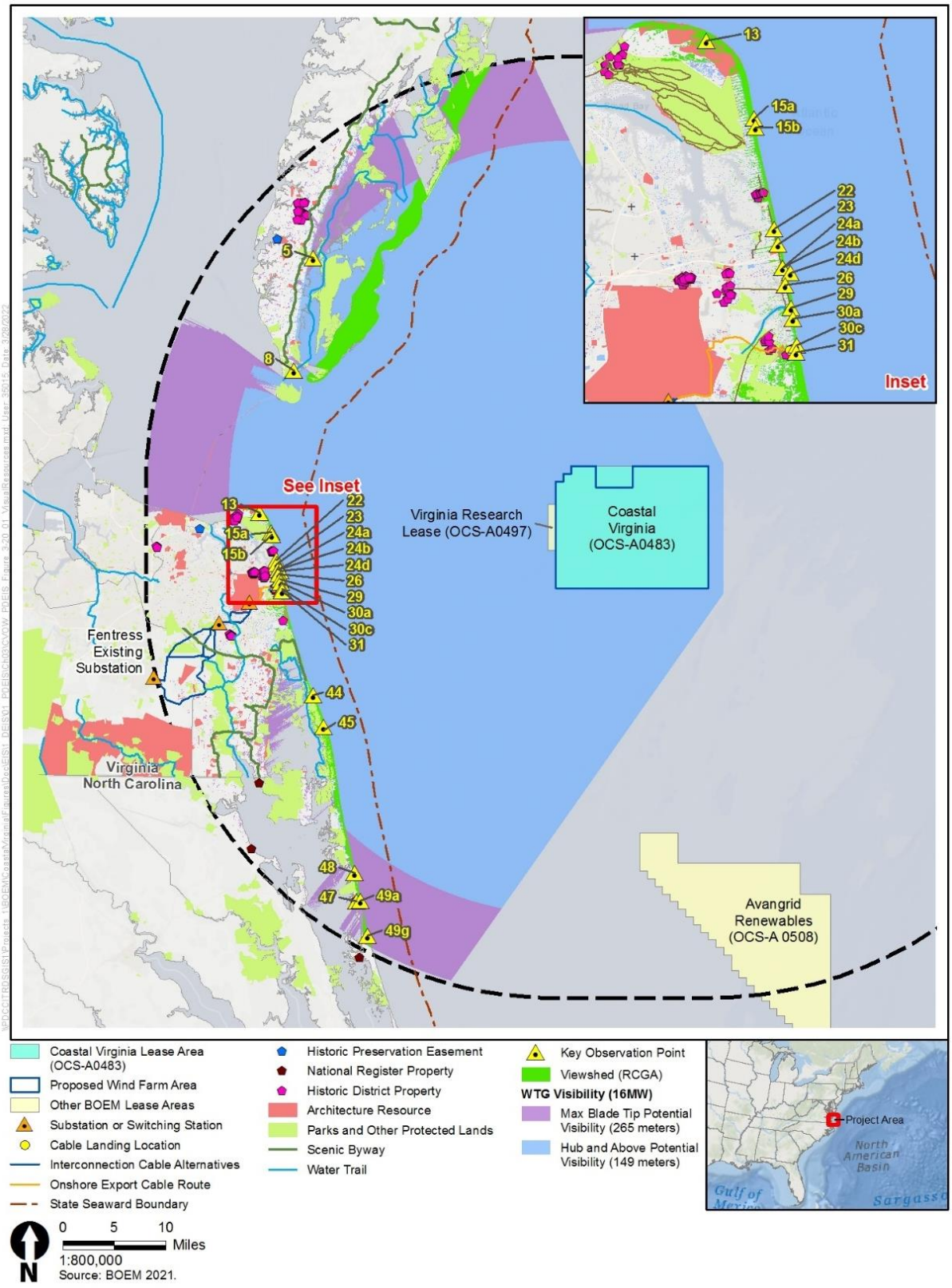

Scenic Resources and Key Observation Points

ATTACHMENT M-2
CUMULATIVE VISUAL SIMULATIONS

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Coastal Virginia Offshore Wind Commercial Project

Cumulative Effects Simulations

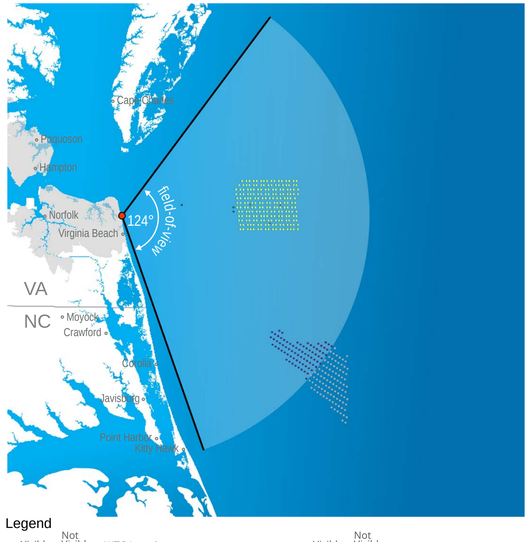
Coastal Virginia Offshore Wind Commercial Project: Cumulative Effects Simulations

TABLE OF CONTENTS

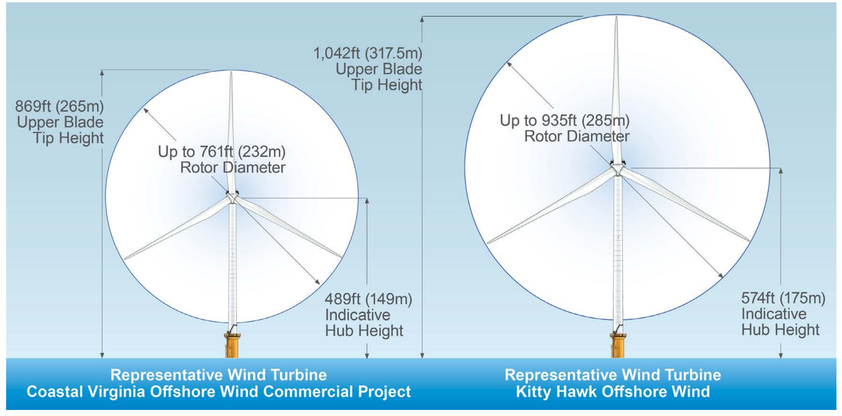
SIM 1

Existing Condition

View of the existing condition at Marriott Virginia Beach Oceanfront



Locator Map



Project	Distance to the closest WTG (mi)	Distance to the farthest WTG (mi)
Coastal Virginia Offshore Wind Commercial Project WTG	28.0	42.8
Kitty Hawk Offshore Wind WTG	45.9	58.1

Turbine Data

Viewpoint Location:	Oceanfront Hotel Rooftop
Date of Photograph:	September 29, 2021
Time of Photograph:	10:56AM (EDT)
Latitude:	36.8617° N
Longitude:	-75.9856° W
Viewing Direction:	East
Ground Elevation + Tripod Height:	236 feet

ENVIRONMENTAL	
Temperature:	71° F
Humidity:	61%
Wind Direction:	NNE
Wind Speed:	10 mph
Weather Condition:	Fair

CAMERA			
	Type	Brand	Model
Camera	Mirrorless	Nikon	Z6
Lens			NIKKOR Z 50mm
Focal Length			50 mm

*The image on this page approximates the full horizontal field-of-view of typical human eyesight (124° horizontal)

Photograph Information

SIM 1A

Simulation 1A.1: CVOWC

Simulation illustrating Coastal Virginia Offshore Wind Commercial Project without other foreseeable future changes

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 1A.2: CVOWC + Kitty Hawk

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Kitty Hawk is not present in this view angle.

Complete Panoramic View

Simulation 1A.2: CVOWC + Kitty Hawk - *Annotated*

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Kitty Hawk is not present in this view angle.

Complete Panoramic View

SIM 1A

Simulation 1A.3: Kitty Hawk

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout not including Coastal Virginia Offshore Wind Commercial Project. Kitty Hawk is not present in this view angle.

Complete Panoramic View

SIM 1B

Simulation 1B.1: CVOWC

Simulation illustrating Coastal Virginia Offshore Wind Commercial Project without other foreseeable future changes

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

SIM 1B

Simulation 1B.2: CVOWC + Kitty Hawk

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 1B.2: CVOWC + Kitty Hawk - *Annotated*

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 1B.3: Kitty Hawk

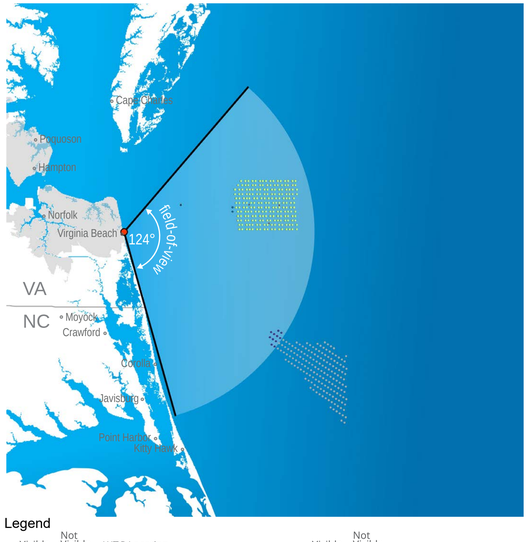
Simulation illustrating full lease buildout not including Coastal Virginia Offshore Wind Commercial Project

*The simulation image includes approximately 62° horizontal field of view.

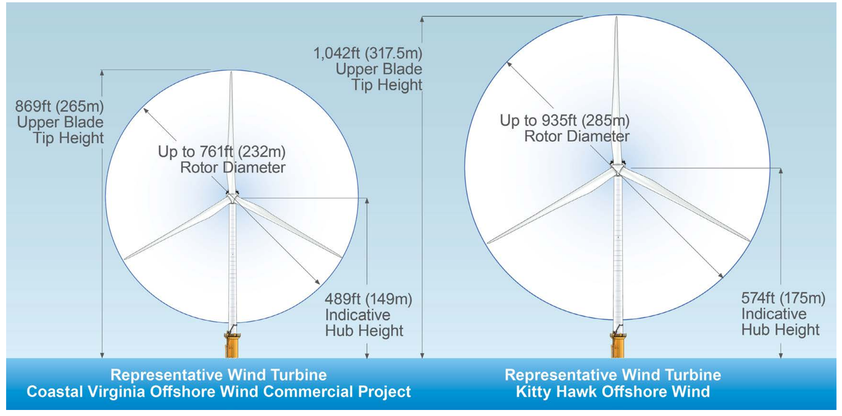
Complete Panoramic View

Existing Condition

Beach view of the existing condition at State Military Reservation



Locator Map



Project	Distance to the closest WTG (mi)	Distance to the farthest WTG (mi)
Coastal Virginia Offshore Wind Commercial Project WTG	27.6	41.5
Kitty Hawk Offshore Wind WTG	43.0	44.8

Turbine Data

Viewpoint Location:	State Military Reservation
Date of Photograph:	September 28, 2021
Time of Photograph:	1:11pm (EDT)
Latitude:	36.815716° N
Longitude:	-75.966839° W
Viewing Direction:	East
Ground Elevation + Tripod Height:	14 feet

ENVIRONMENTAL	
Temperature:	82° F
Humidity:	51%
Wind Direction:	SW
Wind Speed:	9 mph
Weather Condition:	Fair

CAMERA			
	Type	Brand	Model
Camera	Mirrorless	Nikon	Z6
Lens			NIKKOR Z 50mm
Focal Length			50 mm

*The image on this page approximates the full horizontal field-of-view of typical human eyesight (124° horizontal)

Photograph Information

Simulation 2A.1: CVOWC

Simulation illustrating Coastal Virginia Offshore Wind Commercial Project without other foreseeable future changes

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 2A.2: CVOWC + Kitty Hawk

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Kitty Hawk is not present in this view angle.

Complete Panoramic View

Simulation 2A.2: CVOWC + Kitty Hawk - *Annotated*

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Kitty Hawk is not present in this view angle.

Complete Panoramic View

Simulation 2A.3: Kitty Hawk

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout not including Coastal Virginia Offshore Wind Commercial Project. Kitty Hawk is not present in this view angle.

Complete Panoramic View

Simulation 2B.1: CVOWC

Simulation illustrating Coastal Virginia Offshore Wind Commercial Project without other foreseeable future changes

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 2B.2: CVOWC + Kitty Hawk

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Coastal Virginia Offshore Wind Commercial Project is not present in this view angle.

Complete Panoramic View

Simulation 2B.2: CVOWC + Kitty Hawk - *Annotated*

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Coastal Virginia Offshore Wind Commercial Project is not present in this view angle.

Complete Panoramic View

Simulation 2B.3: Kitty Hawk

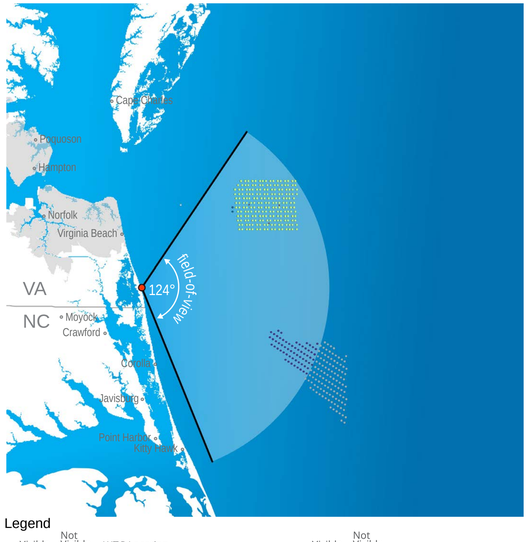
Simulation illustrating full lease buildout not including Coastal Virginia Offshore Wind Commercial Project

*The simulation image includes approximately 62° horizontal field of view.

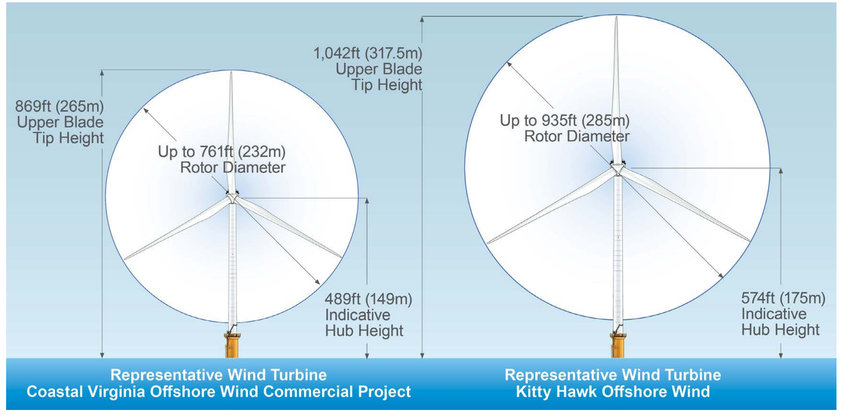
Complete Panoramic View

Existing Condition

View of the existing condition at False Cape State Park



Locator Map



Project	Distance to the closest WTG (mi)	Distance to the farthest WTG (mi)
Coastal Virginia Offshore Wind Commercial Project WTG	27.1	40.9
Kitty Hawk Offshore Wind WTG	33.2	44.2

Turbine Data

Viewpoint Location:	False Cape State Park
Date of Photograph:	September 26, 2021
Time of Photograph:	12:55pm (EDT)
Latitude:	36.6252° N
Longitude:	-75.8885° W
Viewing Direction:	Southeast
Ground Elevation + Tripod Height:	15 feet

ENVIRONMENTAL	
Temperature:	73° F
Humidity:	41%
Wind Direction:	N
Wind Speed:	7 mph
Weather Condition:	Fair

CAMERA			
	Type	Brand	Model
Camera	Mirrorless	Nikon	Z6
Lens			NIKKOR Z 50mm
Focal Length			50 mm

*The image on this page approximates the full horizontal field-of-view of typical human eyesight (124° horizontal)

Photograph Information

Simulation 3A.1: CVOWC

Simulation illustrating Coastal Virginia Offshore Wind Commercial Project without other foreseeable future changes

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 3A.2: CVOWC + Kitty Hawk

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Kitty Hawk is not present in this view angle.

Complete Panoramic View

Simulation 3A.2: CVOWC + Kitty Hawk - *Annotated*

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Kitty Hawk is not present in this view angle.

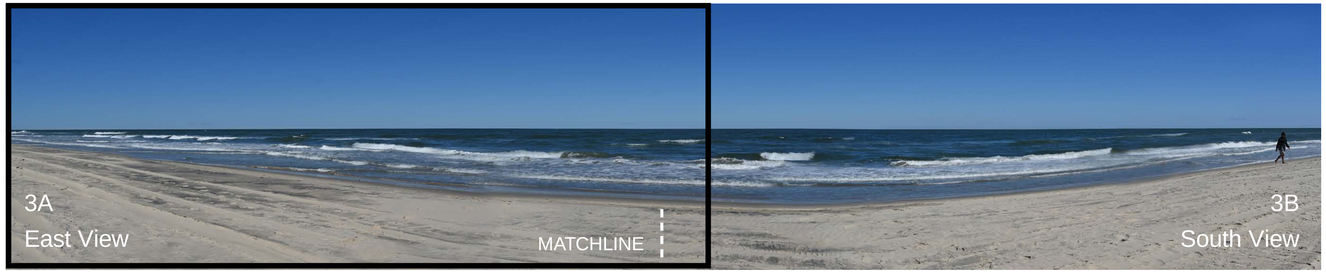
Complete Panoramic View

Simulation 3A.3: Kitty Hawk

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout not including Coastal Virginia Offshore Wind Commercial Project. Kitty Hawk is not present in this view angle.

Complete Panoramic View



Simulation 3B.1: CVOWC

Simulation illustrating Coastal Virginia Offshore Wind Commercial Project without other foreseeable future changes

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 3B.2: CVOWC + Kitty Hawk

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Coastal Virginia Offshore Wind Commercial Project is not present in this view angle.

Complete Panoramic View

Simulation 3B.2: CVOWC + Kitty Hawk - *Annotated*

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Coastal Virginia Offshore Wind Commercial Project is not present in this view angle.

Complete Panoramic View

Simulation 3B.3: Kitty Hawk

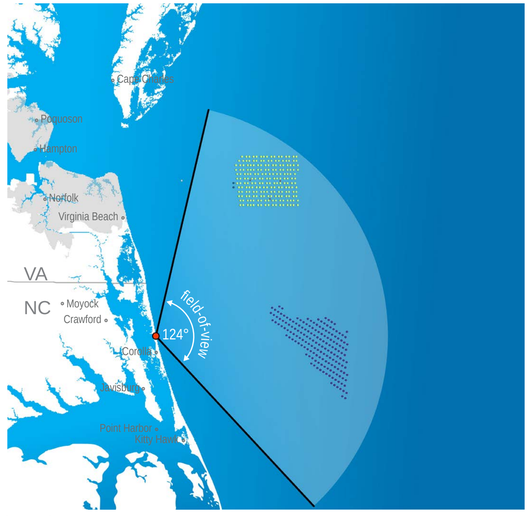
Simulation illustrating full lease buildout not including Coastal Virginia Offshore Wind Commercial Project

*The simulation image includes approximately 62° horizontal field of view.

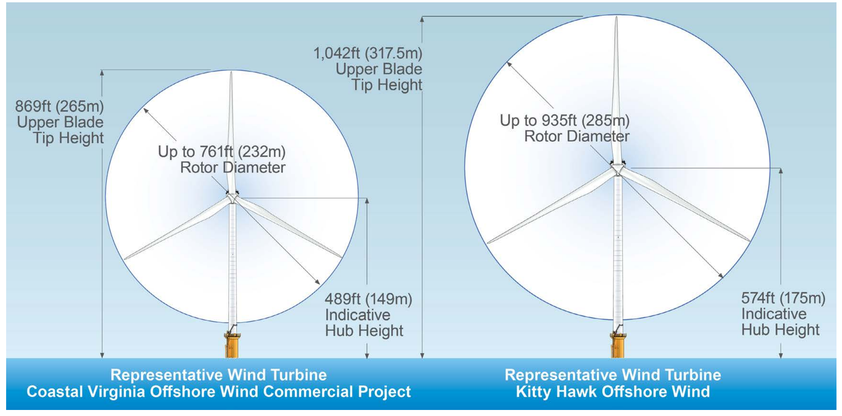
Complete Panoramic View

Existing Condition

View of the existing condition at Currituck Beach Lighthouse



Locator Map



Project	Distance to the closest WTG (mi)	Distance to the farthest WTG (mi)
Coastal Virginia Offshore Wind Commercial Project WTG	36.8	51.4
Kitty Hawk Offshore Wind WTG	28.3	39.1

Turbine Data

Viewpoint Location:	Currituck Beach Lighthouse
Date of Photograph:	July 7, 2021
Time of Photograph:	2:40 PM (EDT)
Latitude:	36.3767° N
Longitude:	-75.8307° W
Viewing Direction:	Northeast
Ground Elevation + Tripod Height:	155 feet

ENVIRONMENTAL	
Temperature:	93° F
Humidity:	38%
Wind Direction:	S
Wind Speed:	14 mph
Weather Condition:	Clear

CAMERA			
	Type	Brand	Model
Camera	Mirrorless	Nikon	Z6
Lens			NIKKOR Z 50mm
Focal Length			50 mm

*The image on this page approximates the full horizontal field-of-view of typical human eyesight (124° horizontal)

Photograph Information

Simulation 4A.1: CVOWC

Simulation illustrating Coastal Virginia Offshore Wind Commercial Project without other foreseeable future changes

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 4A.2: CVOWC + Kitty Hawk

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 4A.2: CVOWC + Kitty Hawk - *Annotated*

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 4A.3: Kitty Hawk

Simulation illustrating full lease buildout not including Coastal Virginia Offshore Wind Commercial Project

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 4B.1: CVOWC

Simulation illustrating Coastal Virginia Offshore Wind Commercial Project without other foreseeable future changes

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 4B.2: CVOWC + Kitty Hawk

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Coastal Virginia Offshore Wind Commercial Project is not present in this view angle.

Complete Panoramic View

Simulation 4B.2: CVOWC + Kitty Hawk - *Annotated*

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Coastal Virginia Offshore Wind Commercial Project is not present in this view angle.

Complete Panoramic View

Simulation 4B.3: Kitty Hawk

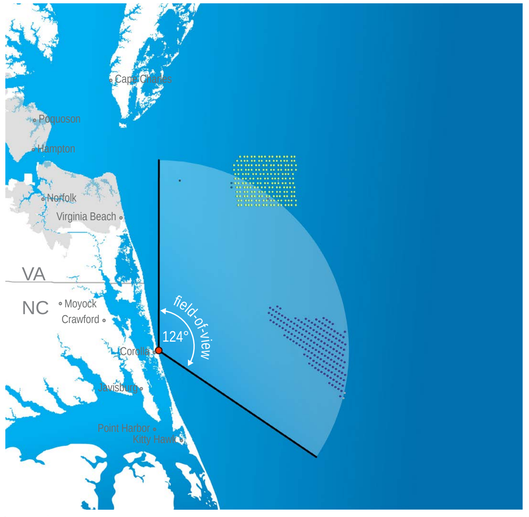
Simulation illustrating full lease buildout not including Coastal Virginia Offshore Wind Commercial Project

*The simulation image includes approximately 62° horizontal field of view.

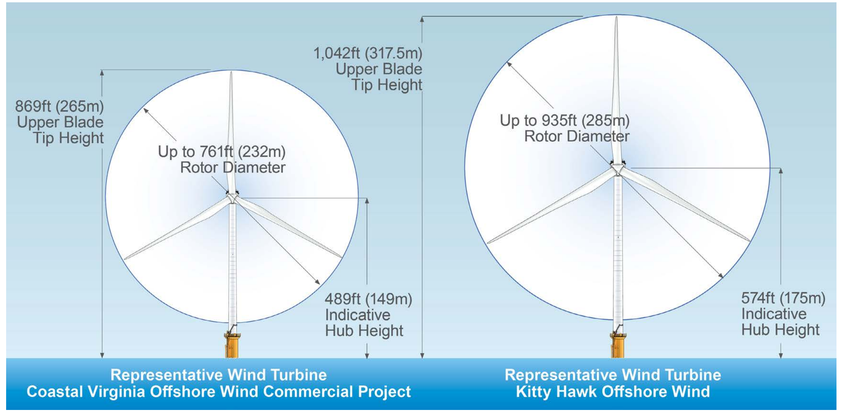
Complete Panoramic View

Existing Condition

View of the existing condition at Whale Head Bay Residential Area



Locator Map



Project	Distance to the closest WTG (mi)	Distance to the farthest WTG (mi)
Coastal Virginia Offshore Wind Commercial Project WTG	39.1	41.4
Kitty Hawk Offshore Wind WTG	27.9	37.6

Turbine Data

Viewpoint Location:	Whale Head Bay Residential Area
Date of Photograph:	July 7, 2021
Time of Photograph:	12:20 PM (EDT)
Latitude:	36.3776° N
Longitude:	-75.8242° W
Viewing Direction:	Northeast
Ground Elevation + Tripod Height:	25 feet

ENVIRONMENTAL	
Temperature:	91° F
Humidity:	48%
Wind Direction:	SW
Wind Speed:	13 mph
Weather Condition:	Fair

CAMERA			
	Type	Brand	Model
Camera	Mirrorless	Nikon	Z6
Lens			NIKKOR Z 50mm
Focal Length			50 mm

*The image on this page approximates the full horizontal field-of-view of typical human eyesight (124° horizontal)

Photograph Information

Simulation 5A.1: CVOWC

Simulation illustrating Coastal Virginia Offshore Wind Commercial Project without other foreseeable future changes

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 5A.2: CVOWC + Kitty Hawk

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Kitty Hawk is not present in this view angle.

Complete Panoramic View

Simulation 5A.2: CVOWC + Kitty Hawk - *Annotated*

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Kitty Hawk is not present in this view angle.

Complete Panoramic View

Simulation 5A.3: Kitty Hawk

Simulation illustrating full lease buildout not including Coastal Virginia Offshore Wind Commercial Project

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 5B.1: CVOWC

Simulation illustrating Coastal Virginia Offshore Wind Commercial Project without other foreseeable future changes

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

Simulation 5B.2: CVOWC + Kitty Hawk

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Coastal Virginia Offshore Wind Commercial Project is not present in this view angle.

Complete Panoramic View

Simulation 5B.2: CVOWC + Kitty Hawk - *Annotated*

*The simulation image includes approximately 62° horizontal field of view.

Simulation illustrating full lease buildout showing foreseeable projects located in leased area with Coastal Virginia Offshore Wind Commercial Project. Coastal Virginia Offshore Wind Commercial Project is not present in this view angle.

Complete Panoramic View

Simulation 5B.3: Kitty Hawk

Simulation illustrating full lease buildout not including Coastal Virginia Offshore Wind Commercial Project

*The simulation image includes approximately 62° horizontal field of view.

Complete Panoramic View

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ATTACHMENT M-3
VISUAL SIMULATIONS OF ACTION ALTERNATIVES

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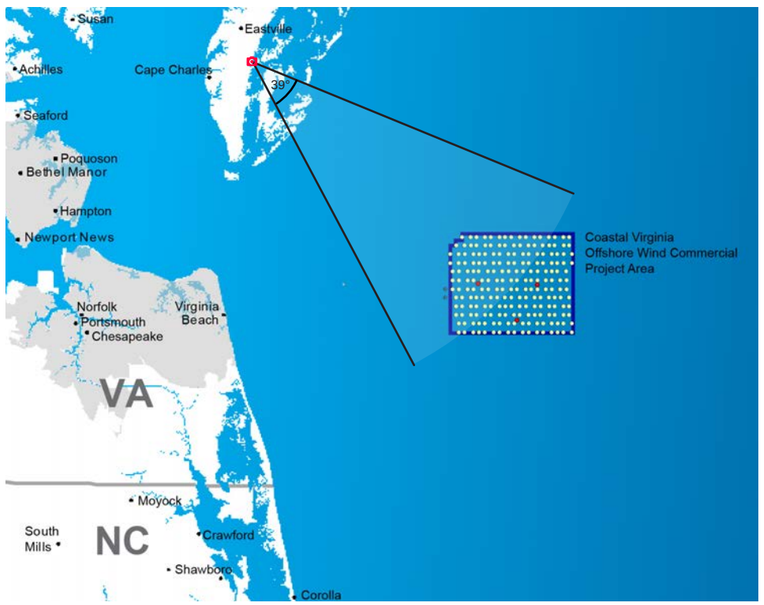
Coastal Virginia Offshore Wind Commercial Project

Attachment I-1-5: Visual Simulations

KOP 5: Oyster Village Horse Island Trail

Northhampton County, VA

Vicinity Map

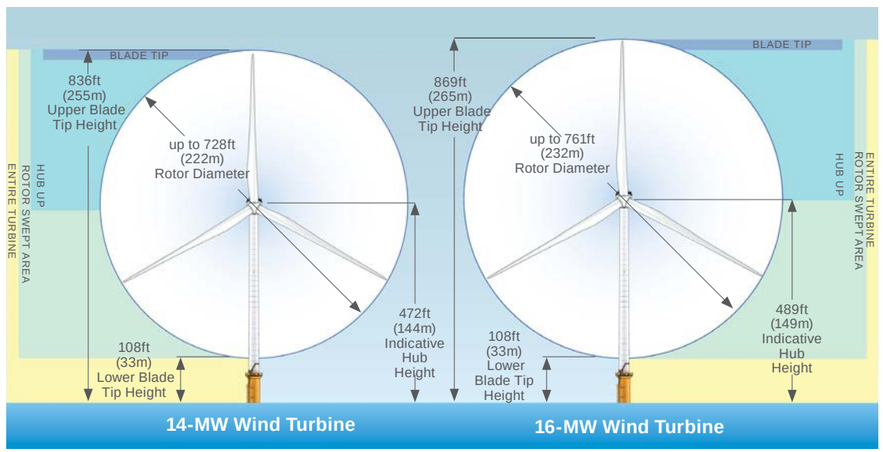


Pilot Project Turbine · Turbine Location · Photo Point
Chesapeake Light Tower · Offshore Substation · Lease Area

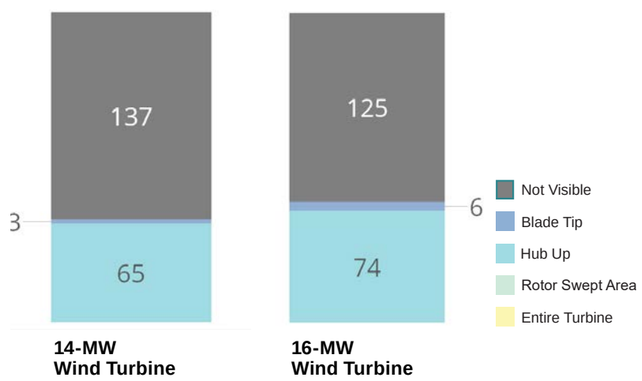
Existing Panoramic View

Located near Oyster Village Horse Island Trail

Turbine Dimensions



Turbine Visibility



14-MW Wind Turbine · **16-MW Wind Turbine**

Image Data

FIELD ID # 5

PHOTO INFORMATION	
Date	7/12/2021
Time	10:12 AM
Latitude	37.287571°
Longitude	-75.917941°
Direction of View	SE
Elevation	10’
Horizontal Field of View Represented in Simulated Image	39°

PROJECT INFRASTRUCTURE	
Turbines	205
Offshore Substations	3

ENVIRONMENTAL	
Temperature	87° F
Humidity	63%
Wind Direction	SW
Wind Speed	13 mph
Weather Condition	Partly Cloudy

PROJECT VIEW	
Distance to Nearest Turbine	32.5 miles
Horizontal Area Occupied by Visible Turbines	14°
Area Occupied by Visible Turbines as a Percent of the FOV	35.8%

KOP 5: Oyster Village Horse Island Trail

Northhampton County, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 5: Oyster Village Horse Island Trail

Northhampton County, VA

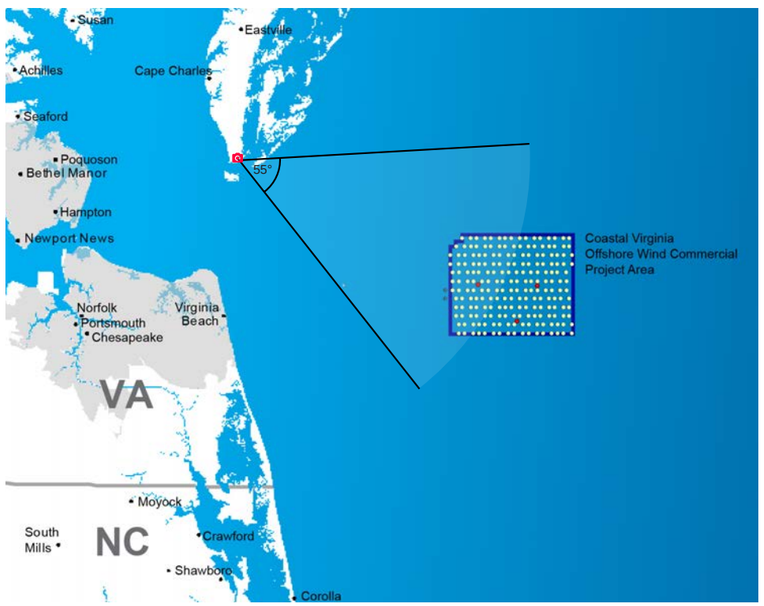
Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 8: Eastern Shore of Virginia National Wildlife Refuge

Northhampton County, VA

Vicinity Map

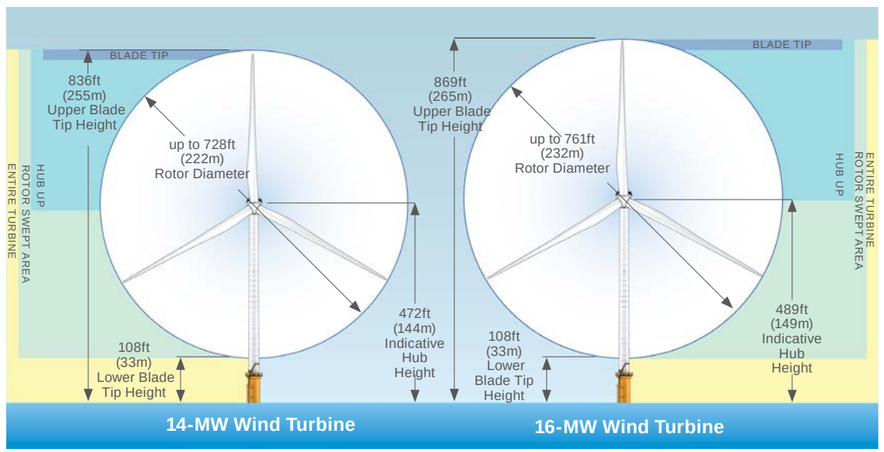


Pilot Project Turbine · Turbine Location · Photo Point
Chesapeake Light Tower · Offshore Substation · Lease Area

Existing Panoramic View

Located on Wise Point Boat Ramp

Turbine Dimensions



Turbine Visibility

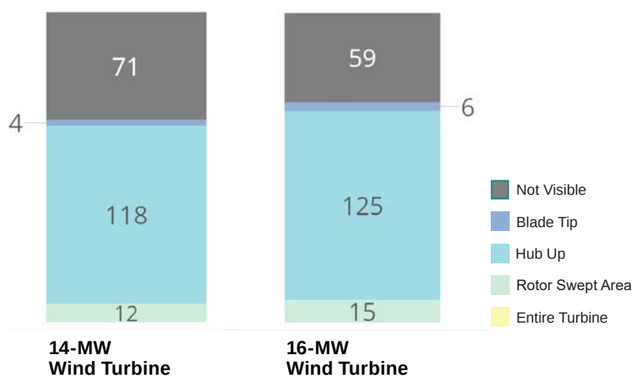


Image Data

FIELD ID # 8

PHOTO INFORMATION	
Date	7/12/2021
Time	10:12 AM
Latitude	37.127849°
Longitude	-75.949910°
Direction of View	SE
Elevation	8'
Horizontal Field of View Represented in Simulated Image	55°

PROJECT INFRASTRUCTURE	
Turbines	205
Offshore Substations	3

ENVIRONMENTAL	
Temperature	92° F
Humidity	52%
Wind Direction	SW
Wind Speed	8.7 mph
Weather Condition	Partly Cloudy

PROJECT VIEW	
Distance to Nearest Turbine	28.1 miles
Horizontal Area Occupied by Visible Turbines	14°
Area Occupied by Visible Turbines as a Percent of the FOV	25.5%

KOP 8: Eastern Shore of Virginia National Wildlife Refuge

Northhampton County, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 8: Eastern Shore of Virginia National Wildlife Refuge

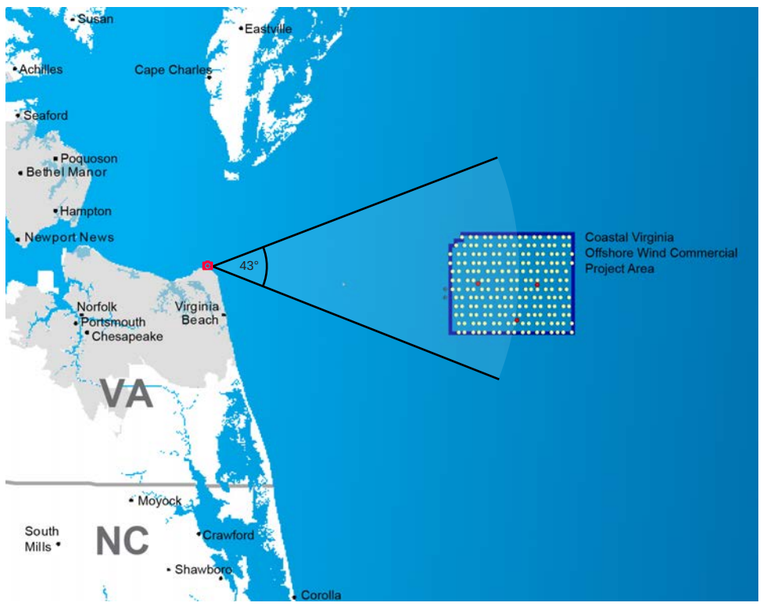
Northhampton County, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

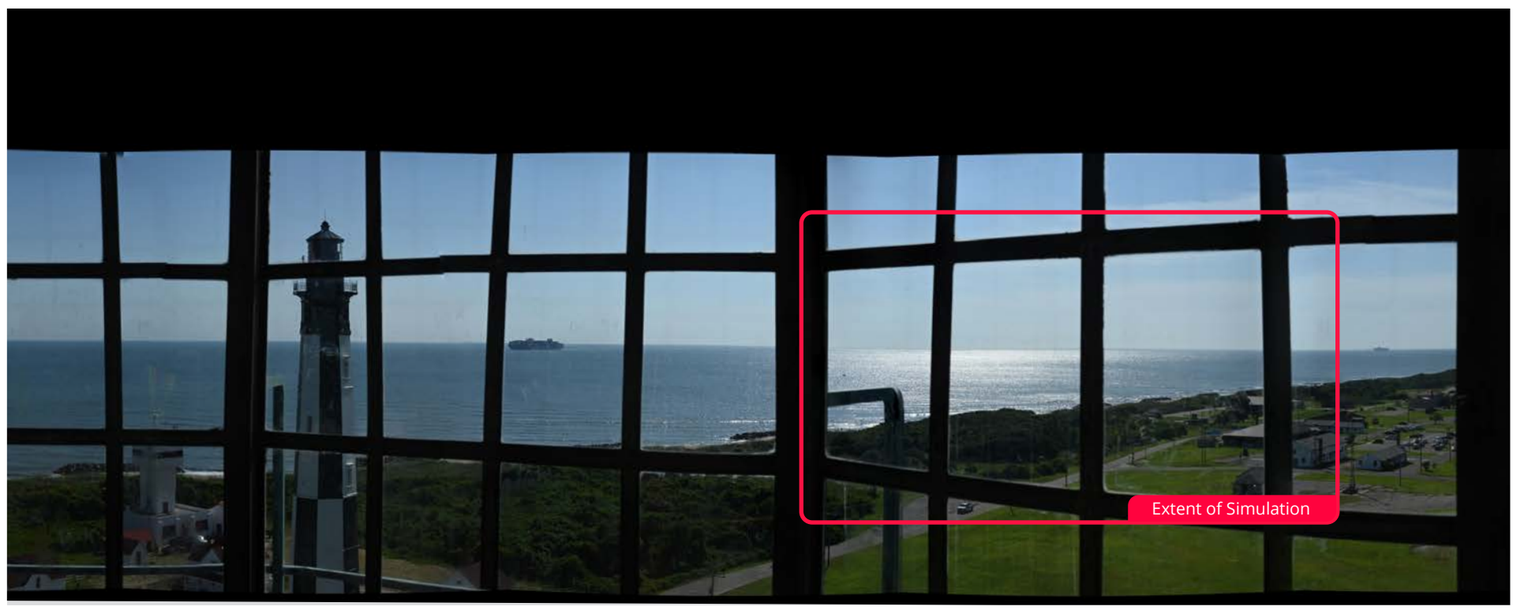
KOP 13: Cape Henry Lighthouse

Virginia Beach, VA



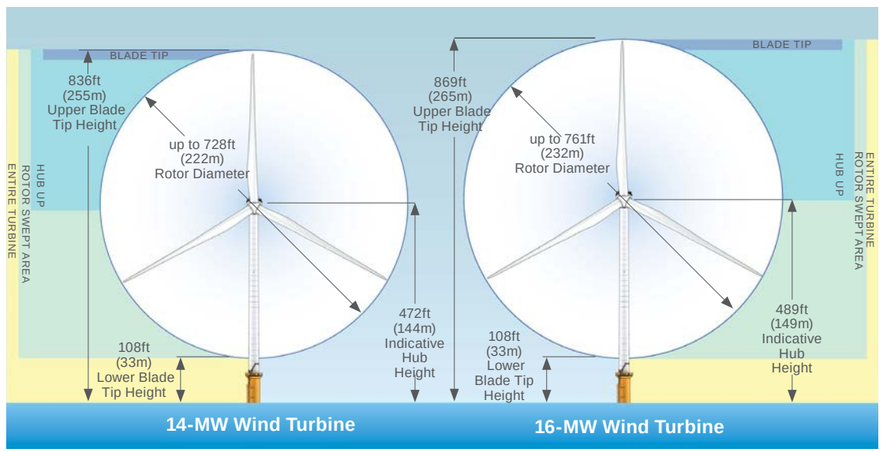
Vicinity Map

- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

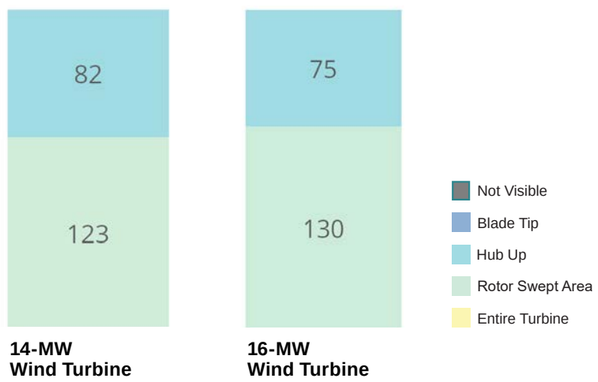


Existing Panoramic View

Located inside the Cape Henry Lighthouse



Turbine Dimensions



Turbine Visibility

FIELD ID # 13

PHOTO INFORMATION	
Date	7/9/2021
Time	9:18 AM
Latitude	36.925742°
Longitude	-76.008139°
Direction of View	ENE
Elevation	90’
Horizontal Field of View Represented in Simulated Image	43°

PROJECT INFRASTRUCTURE	
Turbines	205
Offshore Substations	3

ENVIRONMENTAL	
Temperature	80° F
Humidity	74%
Wind Direction	WSW
Wind Speed	9 mph
Weather Condition	Fair

PROJECT VIEW	
Distance to Nearest Turbine	29.1miles
Horizontal Area Occupied by Visible Turbines	21°
Area Occupied by Visible Turbines as a Percent of the FOV	48.8%

Image Data

KOP 13: Cape Henry Lighthouse

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 13: Cape Henry Lighthouse

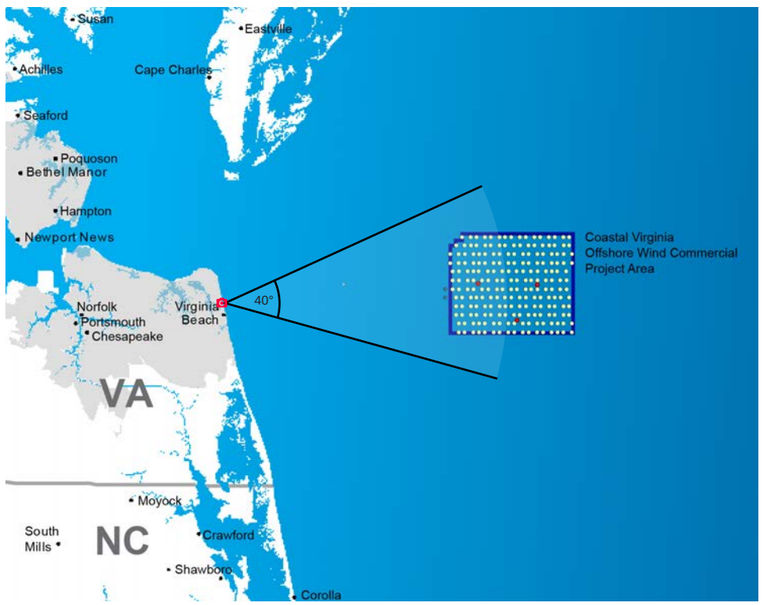
Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 22: Neptune Statue/Boardwalk

Virginia Beach, VA

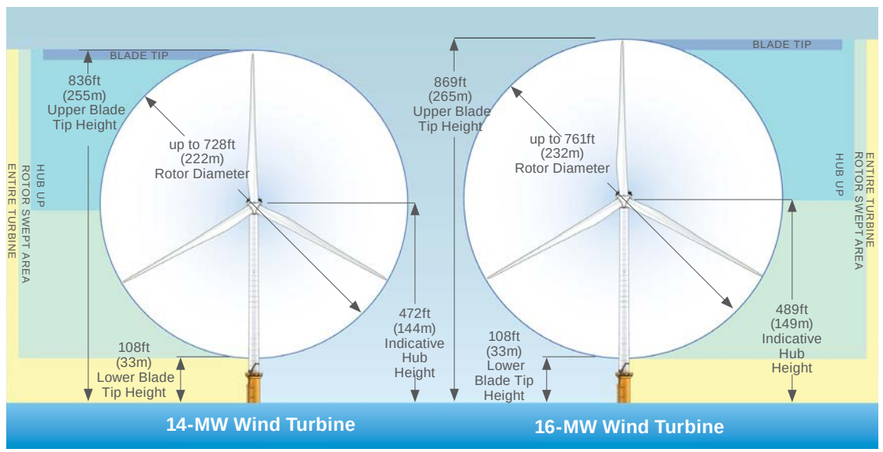


Vicinity Map

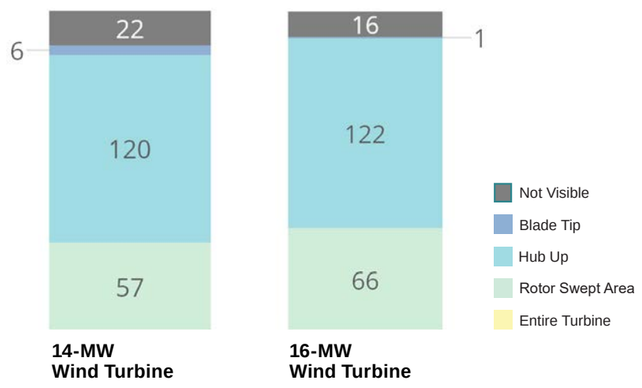
- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

Existing Panoramic View

Located on the Virginia Beach Boardwalk near the Neptune Statue



Turbine Dimensions



14-MW Wind Turbine

16-MW Wind Turbine

Turbine Visibility

FIELD ID # 22

PHOTO INFORMATION	
Date	7/7/2021
Time	2:40 PM
Latitude	36.859392°
Longitude	-75.977296°
Direction of View	E
Elevation	20’
Horizontal Field of View Represented in Simulated Image	40°

PROJECT INFRASTRUCTURE	
Turbines	205
Offshore Substations	3

ENVIRONMENTAL	
Temperature	88° F
Humidity	59%
Wind Direction	SW
Wind Speed	10 mph
Weather Condition	Fair

PROJECT VIEW	
Distance to Nearest Turbine	27.9 miles
Horizontal Area Occupied by Visible Turbines	23°
Area Occupied by Visible Turbines as a Percent of the FOV	57.5%

Image Data

KOP 22: Neptune Statue/Boardwalk

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 22: Neptune Statue/Boardwalk

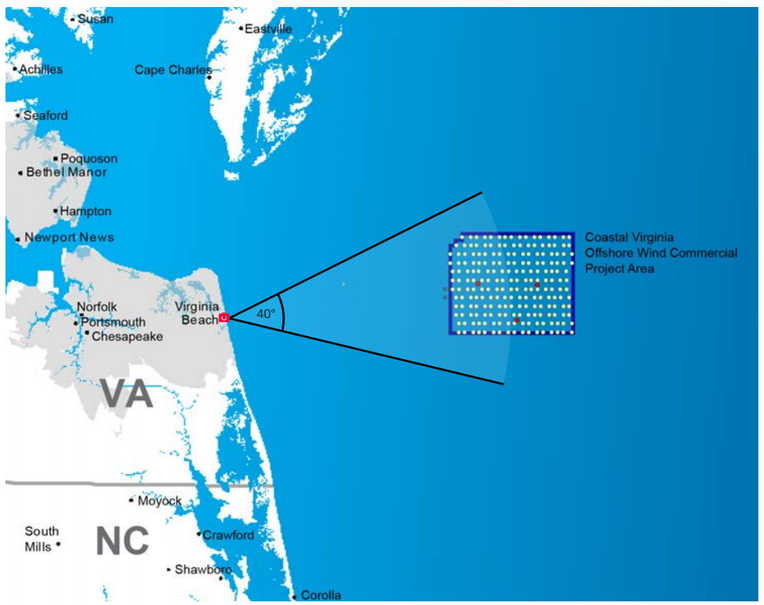
Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 23: Naval Aviation Monument Park

Virginia Beach, VA

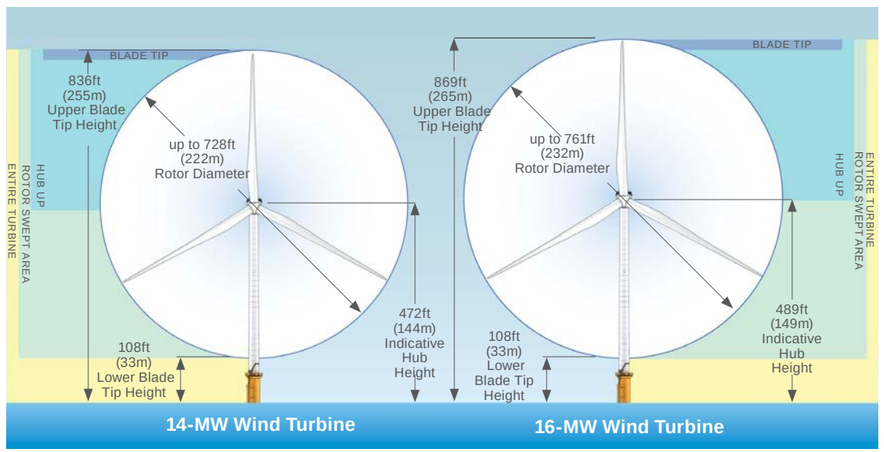


Vicinity Map

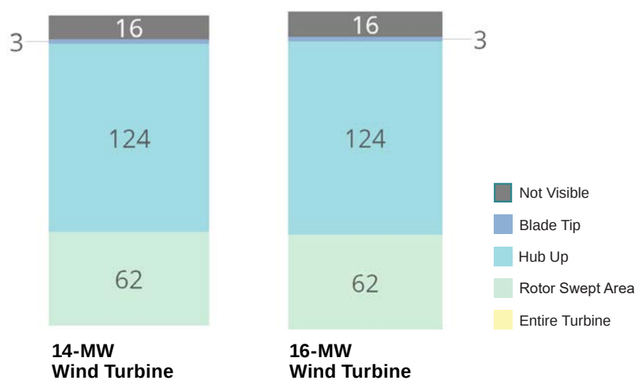
- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

Existing Panoramic View

Located on Virginia Beach Boardwalk, near Naval Aviation Monument - 25th St.



Turbine Dimensions



Turbine Visibility

FIELD ID # 23

PHOTO INFORMATION	
Date	7/9/2021
Time	12:20 PM
Latitude	36.853785°
Longitude	-75.975655°
Direction of View	NE
Elevation	18’
Horizontal Field of View Represented in Simulated Image	40°

PROJECT INFRASTRUCTURE	
Turbines	205
Offshore Substations	3

ENVIRONMENTAL	
Temperature	89° F
Humidity	57%
Wind Direction	SSW
Wind Speed	12 mph
Weather Condition	Fair

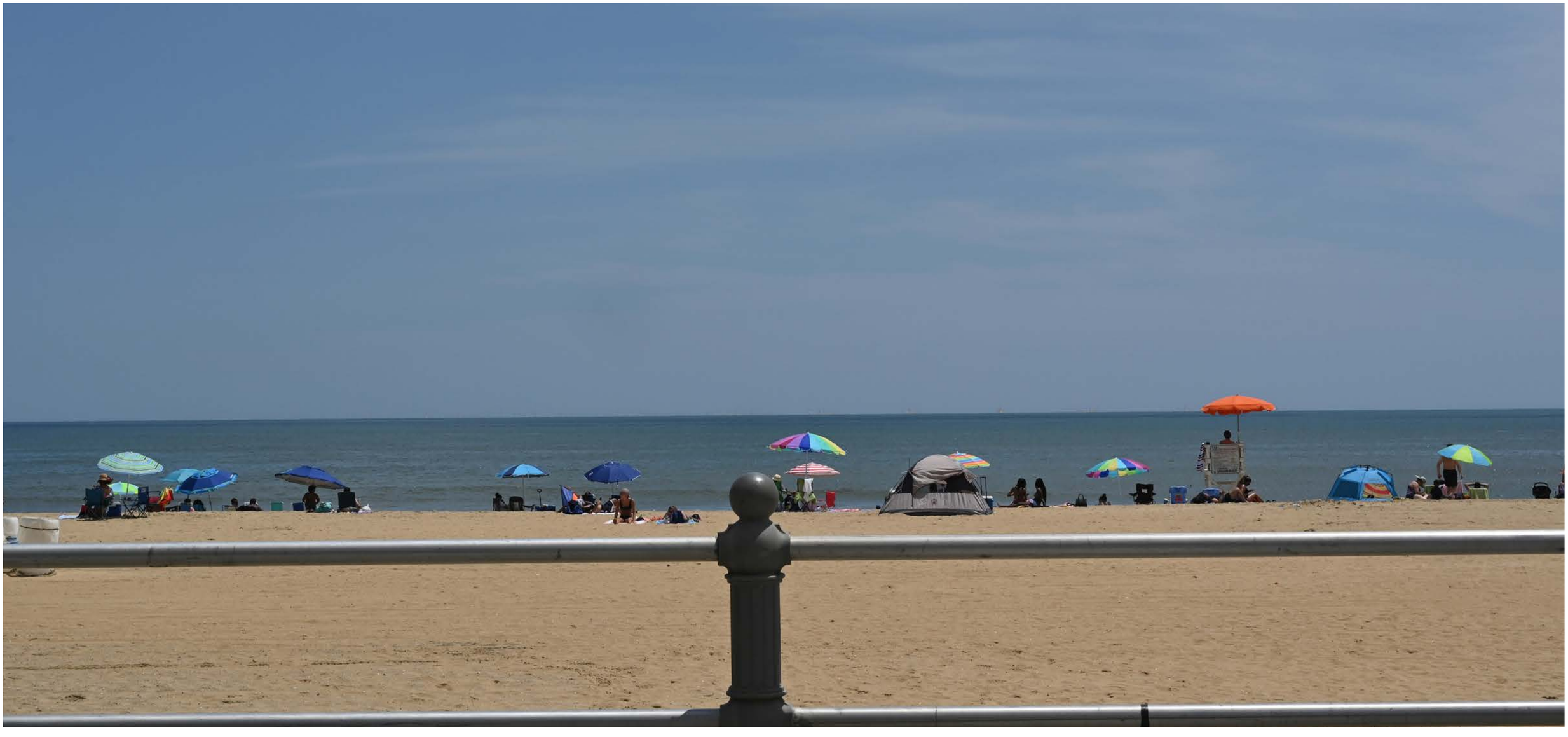
PROJECT VIEW	
Distance to Nearest Turbine	27.8 miles
Horizontal Area Occupied by Visible Turbines	23°
Area Occupied by Visible Turbines as a Percent of the FOV	57.5%

Image Data

KOP 23: Naval Aviation Monument Park

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

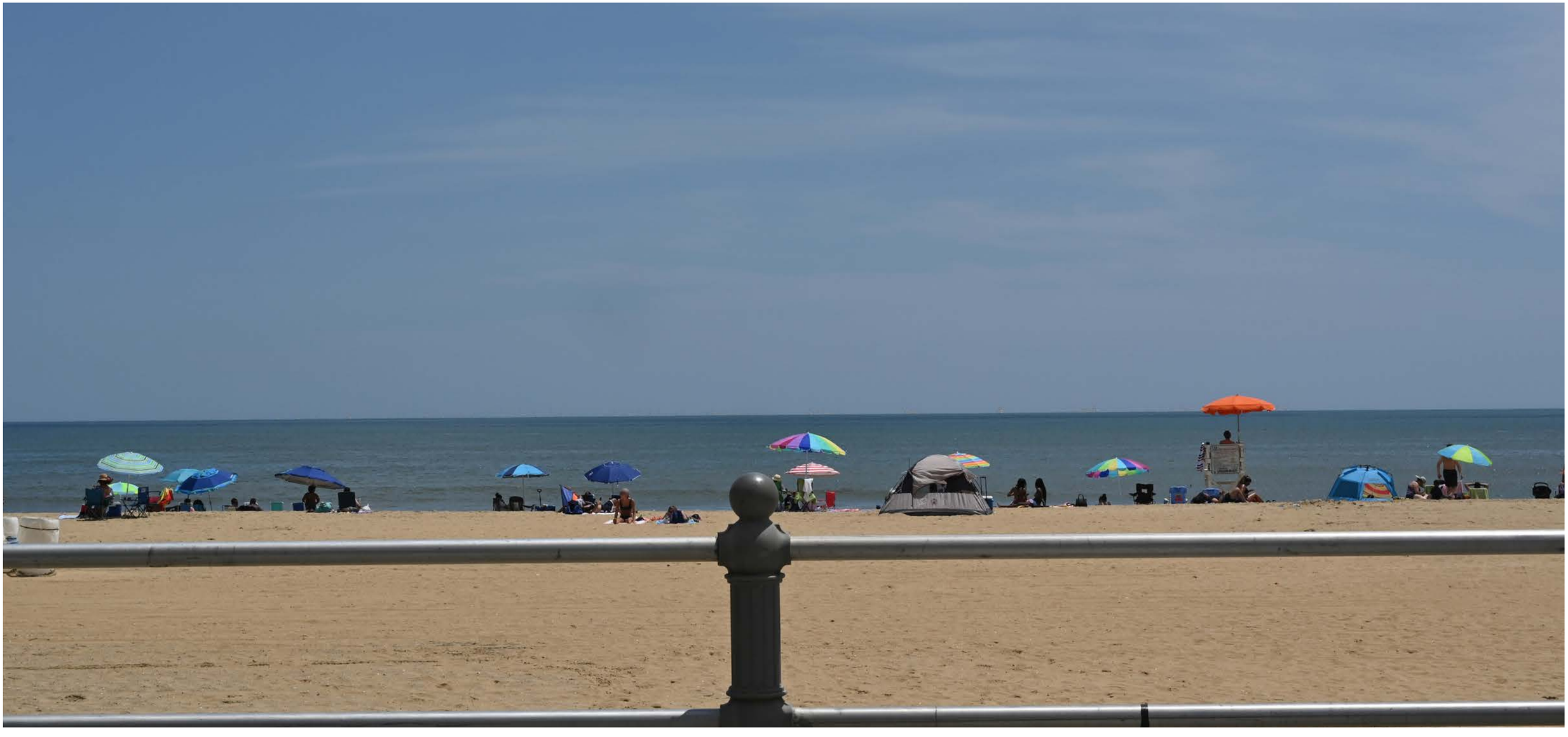


Visual Simulation: 14-MW Wind Turbine

KOP 23: Naval Aviation Monument Park

Virginia Beach, VA

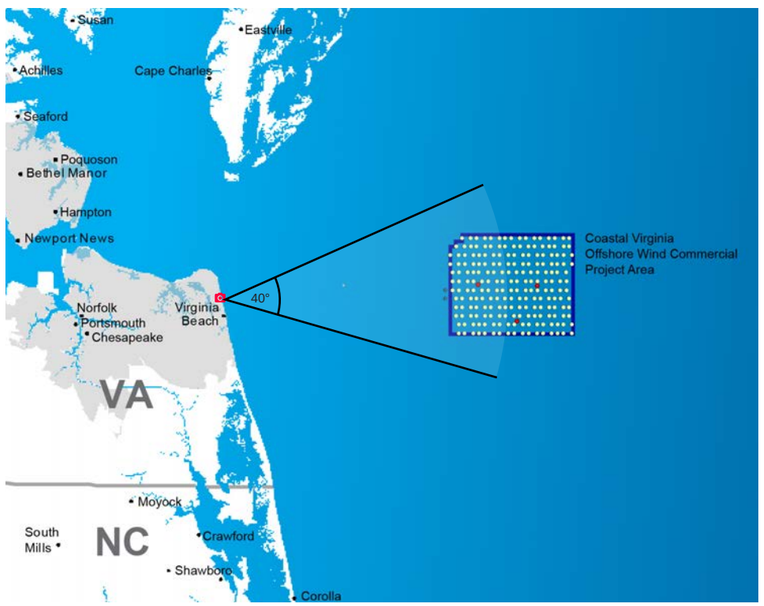
Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).



Visual Simulation: 16-MW Wind Turbine

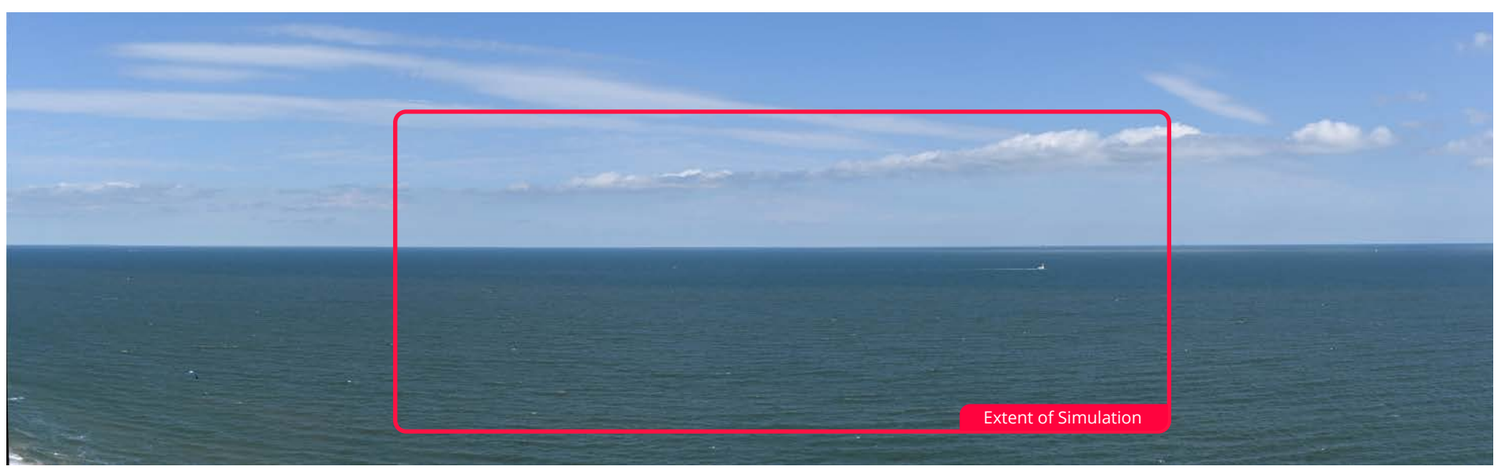
KOP 26: Marriott Virginia Beach Oceanfront Hotel

Virginia Beach, VA



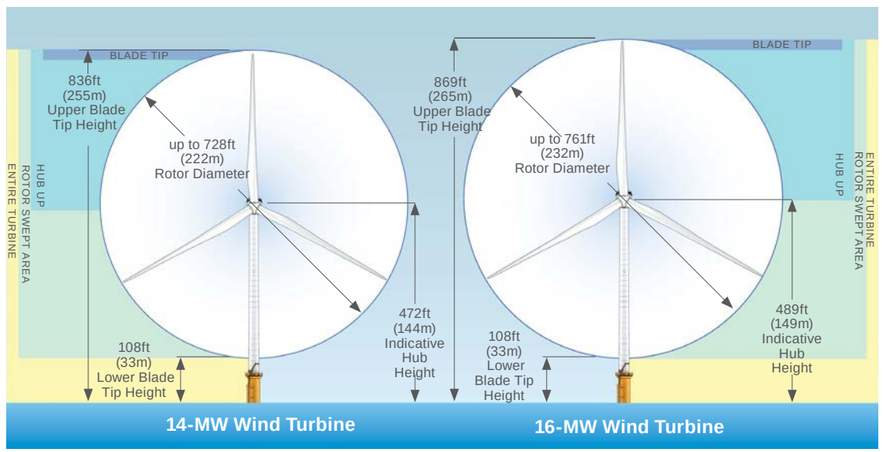
Vicinity Map

Pilot Project Turbine · Turbine Location · Photo Point
Chesapeake Light Tower · Offshore Substation · Lease Area

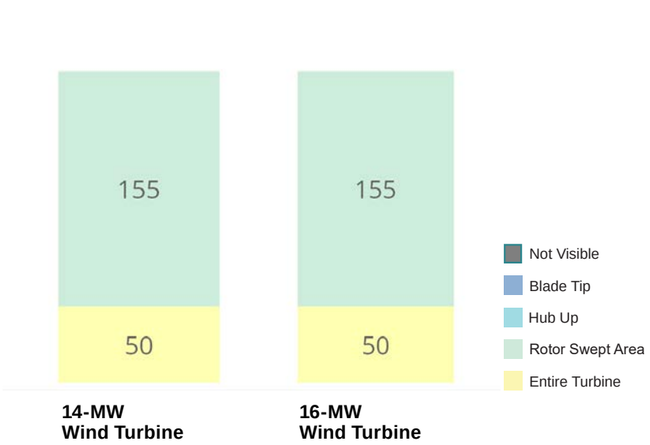


Existing Panoramic View

Located on rooftop of Marriott Virginia Beach Oceanfront hotel



Turbine Dimensions



14-MW Wind Turbine · **16-MW Wind Turbine**

Turbine Visibility

FIELD ID # 26

PHOTO INFORMATION	
Date	9/29/2021
Time	10:56am
Latitude	36.870082°
Longitude	-75.980527°
Direction of View	E
Elevation	236'
Horizontal Field of View Represented in Simulated Image	40°

PROJECT INFRASTRUCTURE	
Turbines	205
Offshore Substations	3

ENVIRONMENTAL	
Temperature	71° F
Humidity	61%
Wind Direction	NNE
Wind Speed	10 mph
Weather Condition	Fair

PROJECT VIEW	
Distance to Nearest Turbine	28.0 miles
Horizontal Area Occupied by Visible Turbines	23°
Area Occupied by Visible Turbines as a Percent of the FOV	57.5%

Image Data

KOP 26: Marriott Virginia Beach Oceanfront Hotel

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 26: Marriott Virginia Beach Oceanfront Hotel

Virginia Beach, VA

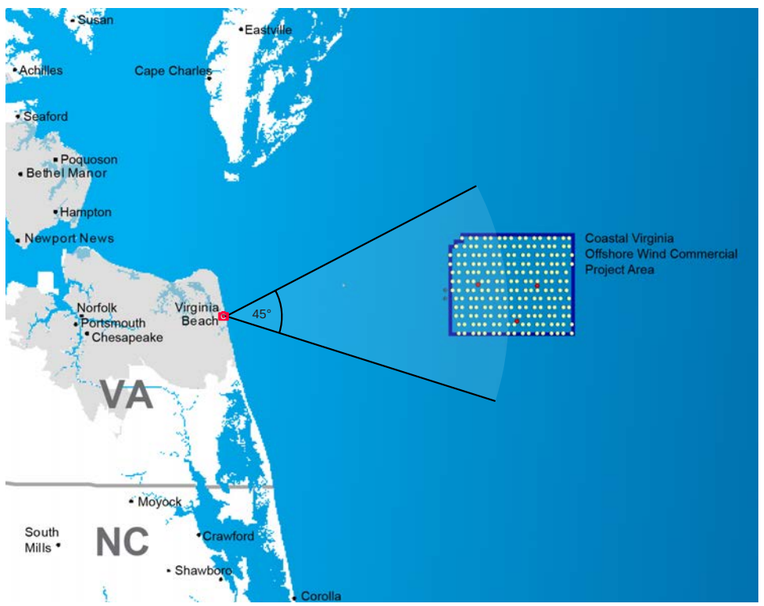
Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 29: Grommet Island Park

Virginia Beach, VA

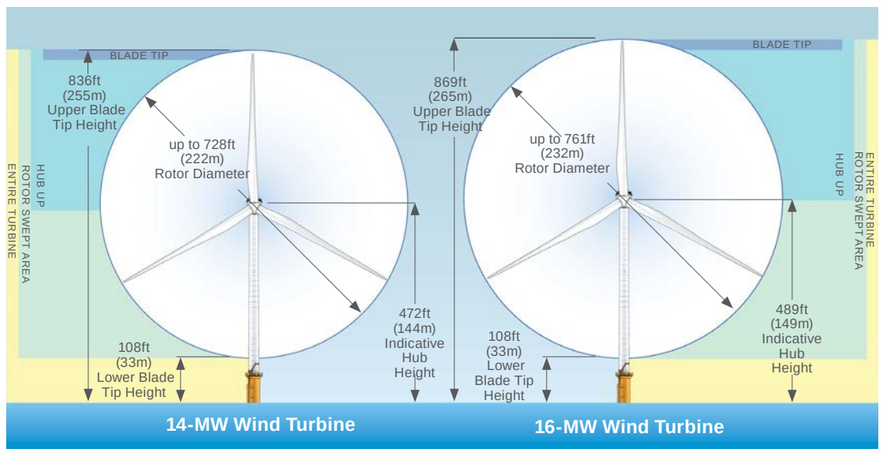
Vicinity Map



Existing Panoramic View

Located on Virginia Beach Boardwalk, near Grommet Island Park

Turbine Dimensions



Turbine Visibility

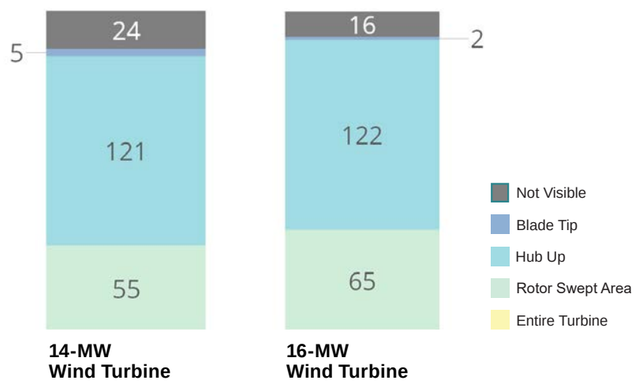


Image Data

FIELD ID # 29

PHOTO INFORMATION	
Date	7/8/2021
Time	12:04pm
Latitude	36.831427°
Longitude	-75.969656°
Direction of View	E
Elevation	18'
Horizontal Field of View Represented in Simulated Image	45°

PROJECT INFRASTRUCTURE	
Turbines	205
Offshore Substations	3

ENVIRONMENTAL	
Temperature	82° F
Humidity	79%
Wind Direction	S
Wind Speed	18 mph
Weather Condition	Rain

PROJECT VIEW	
Distance to Nearest Turbine	27.7 miles
Horizontal Area Occupied by Visible Turbines	23°
Area Occupied by Visible Turbines as a Percent of the FOV	51.1%

KOP 29: Grommet Island Park

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 29: Grommet Island Park

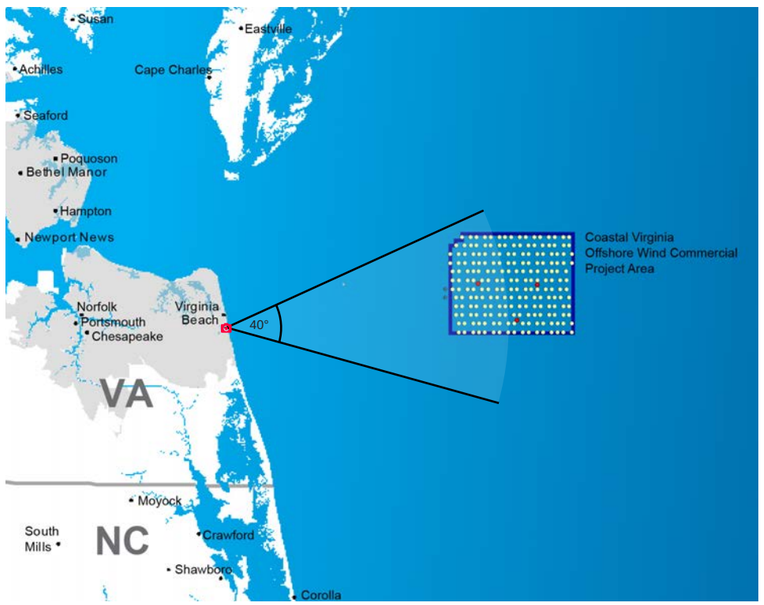
Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

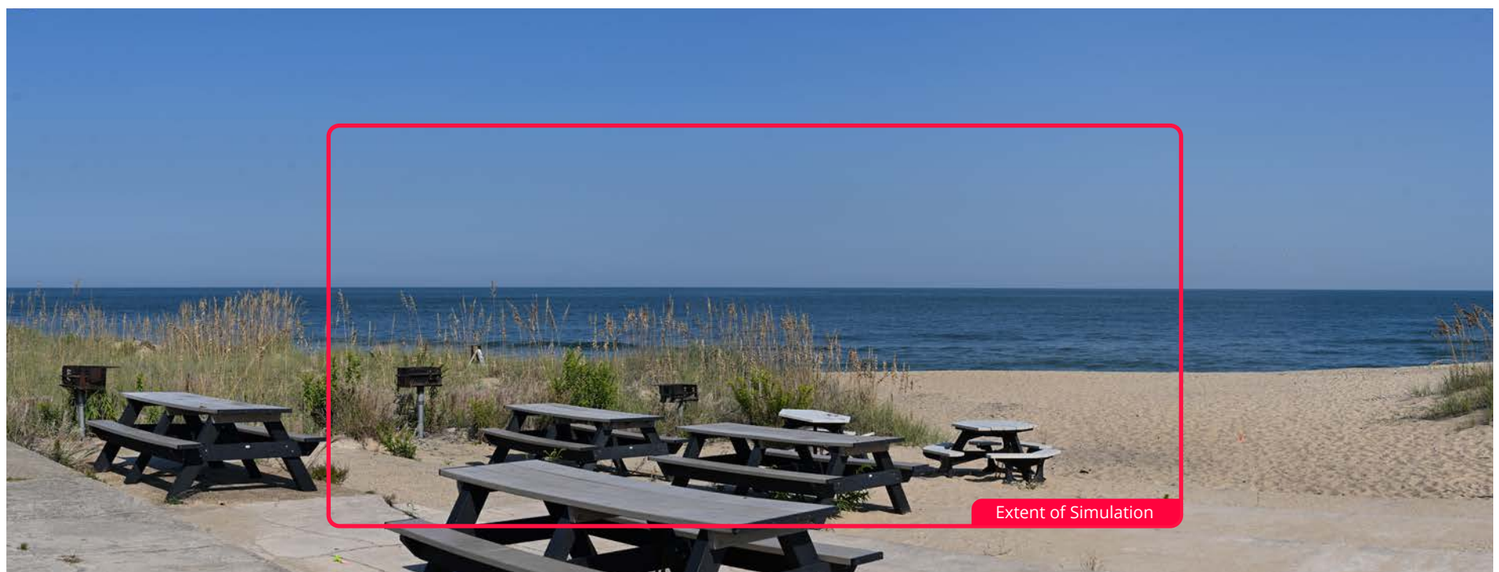
KOP 31: Picnic Views at State Military Reservation

Virginia Beach, VA



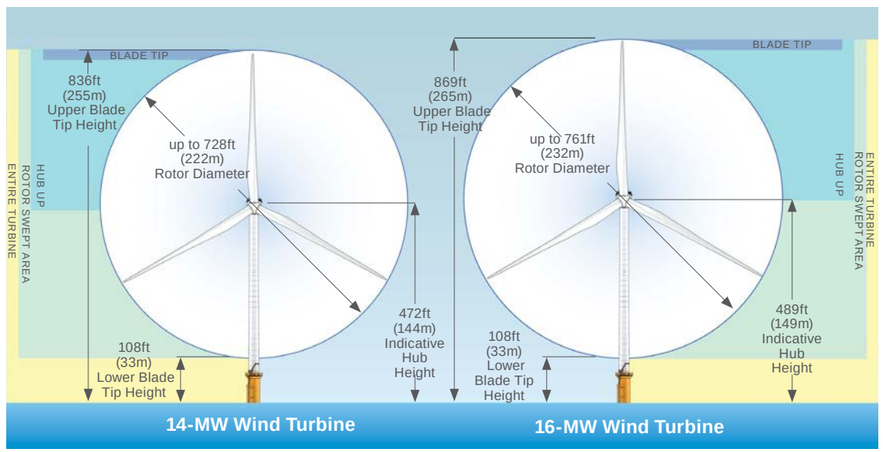
Vicinity Map

- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

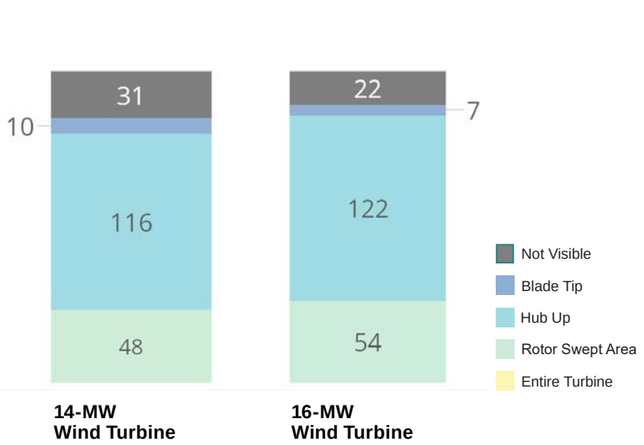


Existing Panoramic View

Located on Picnic Area near State Military Reservation



Turbine Dimensions



Turbine Visibility

FIELD ID # 31

PHOTO INFORMATION

Date	9/28/2021
Time	1:11pm
Latitude	36.815689°
Longitude	-75.967075°
Direction of View	E
Elevation	14'
Horizontal Field of View Represented in Simulated Image	40°

PROJECT INFRASTRUCTURE

Turbines	205
Offshore Substations	3

ENVIRONMENTAL

Temperature	82° F
Humidity	51%
Wind Direction	SW
Wind Speed	9 mph
Weather Condition	Fair

PROJECT VIEW

Distance to Nearest Turbine	27.6 miles
Horizontal Area Occupied by Visible Turbines	22°
Area Occupied by Visible Turbines as a Percent of the FOV	55.0%

Image Data

KOP 31: Picnic Views at State Military Reservation

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 31: Picnic Views at State Military Reservation

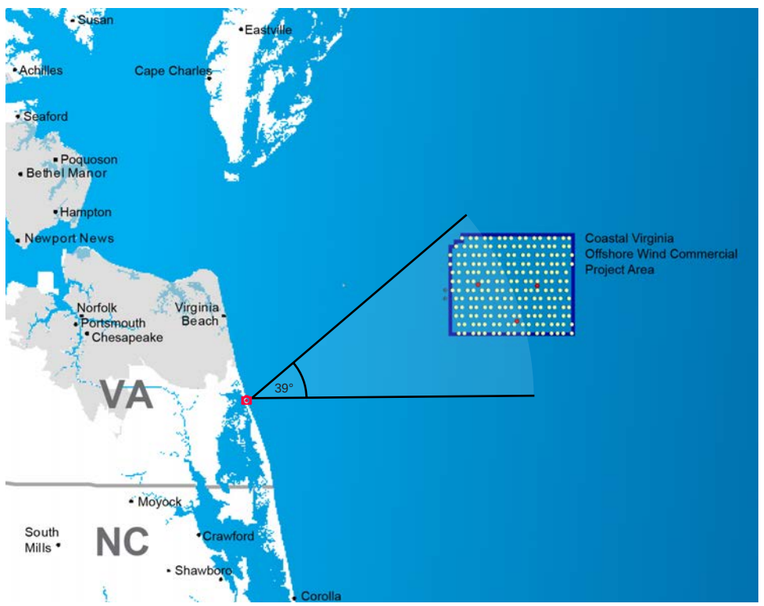
Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 44: Little Island Park

Virginia Beach, VA

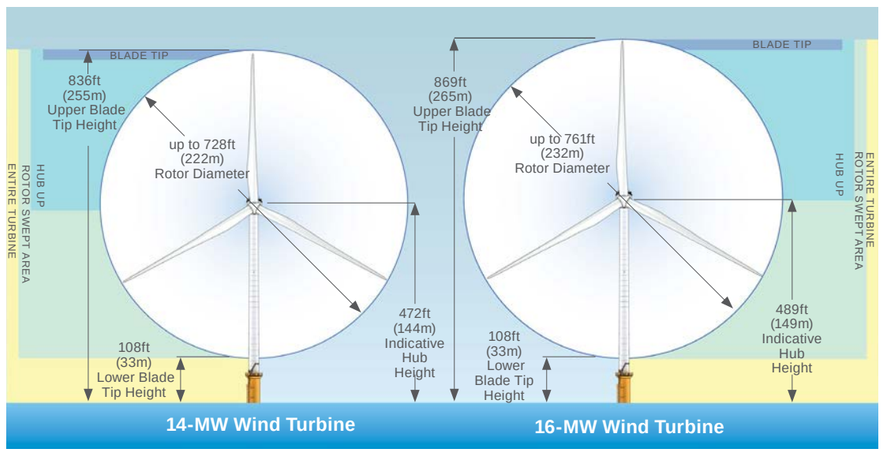


Vicinity Map

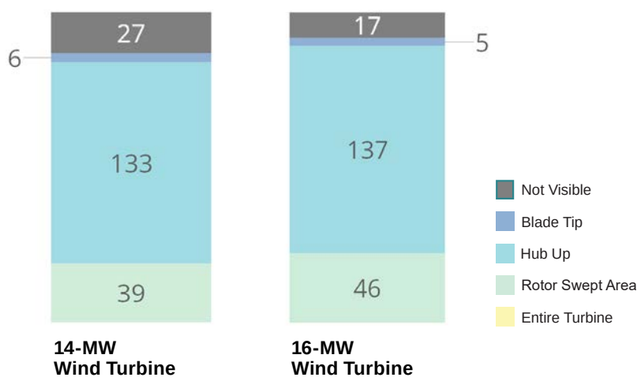
- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

Existing Panoramic View

Located on Little Island Park near Sandpiper Rd.



Turbine Dimensions



Turbine Visibility

FIELD ID # 44

PHOTO INFORMATION	
Date	7/8/2021
Time	9:15 AM
Latitude	36.668282°
Longitude	-75.909911°
Direction of View	NE
Elevation	15’
Horizontal Field of View Represented in Simulated Image	39°

PROJECT INFRASTRUCTURE	
Turbines	205
Offshore Substations	3

ENVIRONMENTAL	
Temperature	84° F
Humidity	72%
Wind Direction	SSW
Wind Speed	14 mph
Weather Condition	Overcast

PROJECT VIEW	
Distance to Nearest Turbine	26.8 miles
Horizontal Area Occupied by Visible Turbines	26°
Area Occupied by Visible Turbines as a Percent of the FOV	66.7%

Image Data

KOP 44: Little Island Park

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 44: Little Island Park

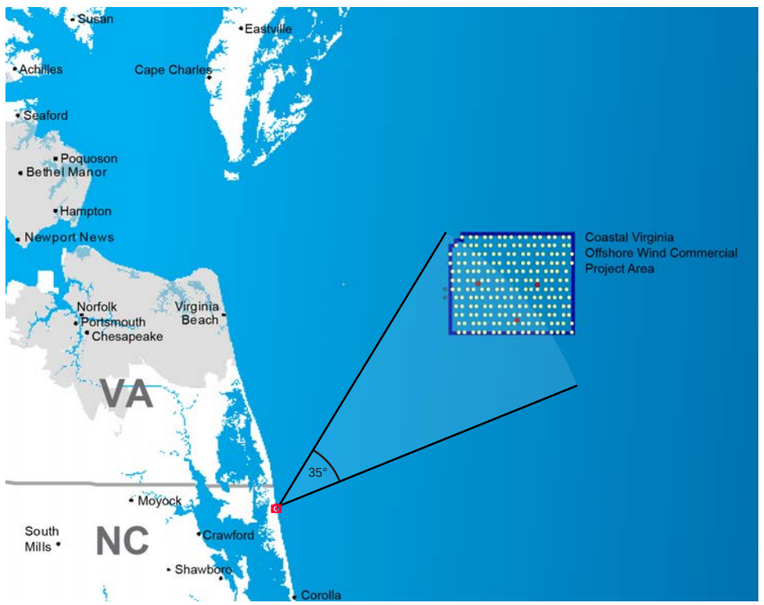
Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 47: Currituck National Wildlife Refuge

Corolla, NC

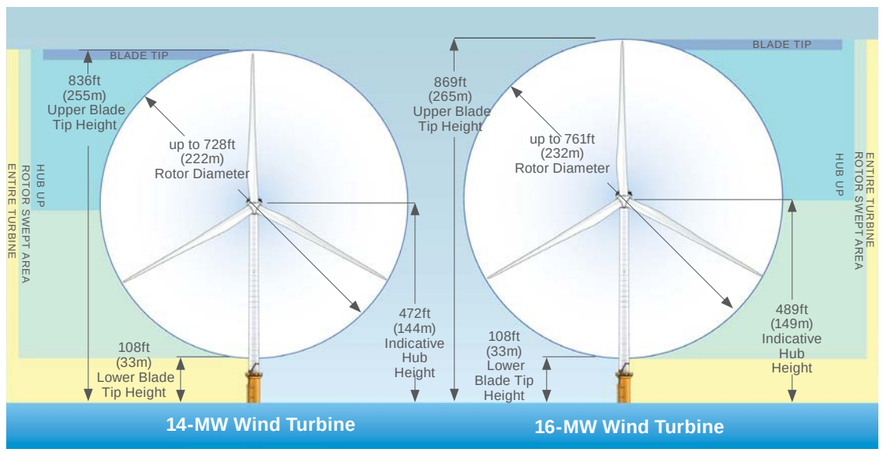


Vicinity Map

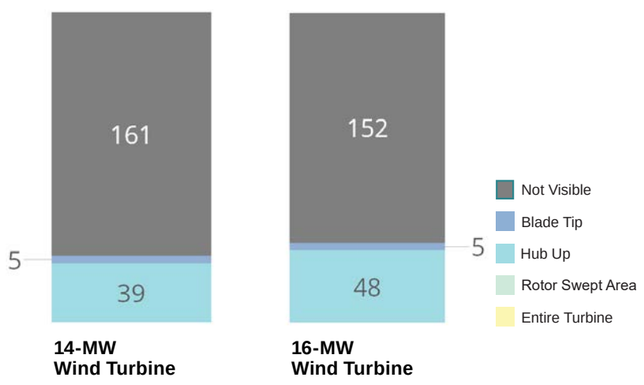
- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

Existing Panoramic View

Located on Currituck National Wildlife Refuge near N Beach Access Rd 12



Turbine Dimensions



Turbine Visibility

FIELD ID # 47

PHOTO INFORMATION	
Date	7/7/2021
Time	10:58am
Latitude	36.417169°
Longitude	-75.834243°
Direction of View	NE
Elevation	15’
Horizontal Field of View Represented in Simulated Image	35°

PROJECT INFRASTRUCTURE	
Turbines	205
Offshore Substations	3

ENVIRONMENTAL	
Temperature	88° F
Humidity	57%
Wind Direction	SSW
Wind Speed	9 mph
Weather Condition	Fair

PROJECT VIEW	
Distance to Nearest Turbine	34.6 miles
Horizontal Area Occupied by Visible Turbines	12.5°
Area Occupied by Visible Turbines as a Percent of the FOV	35.7%

Image Data

KOP 47: Currituck National Wildlife Refuge

Corolla, NC

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 47: Currituck National Wildlife Refuge

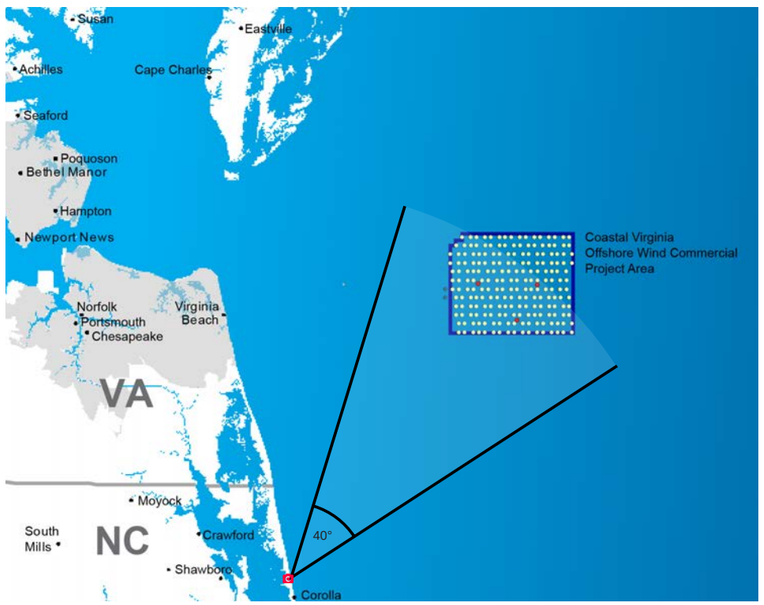
Corolla, NC

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

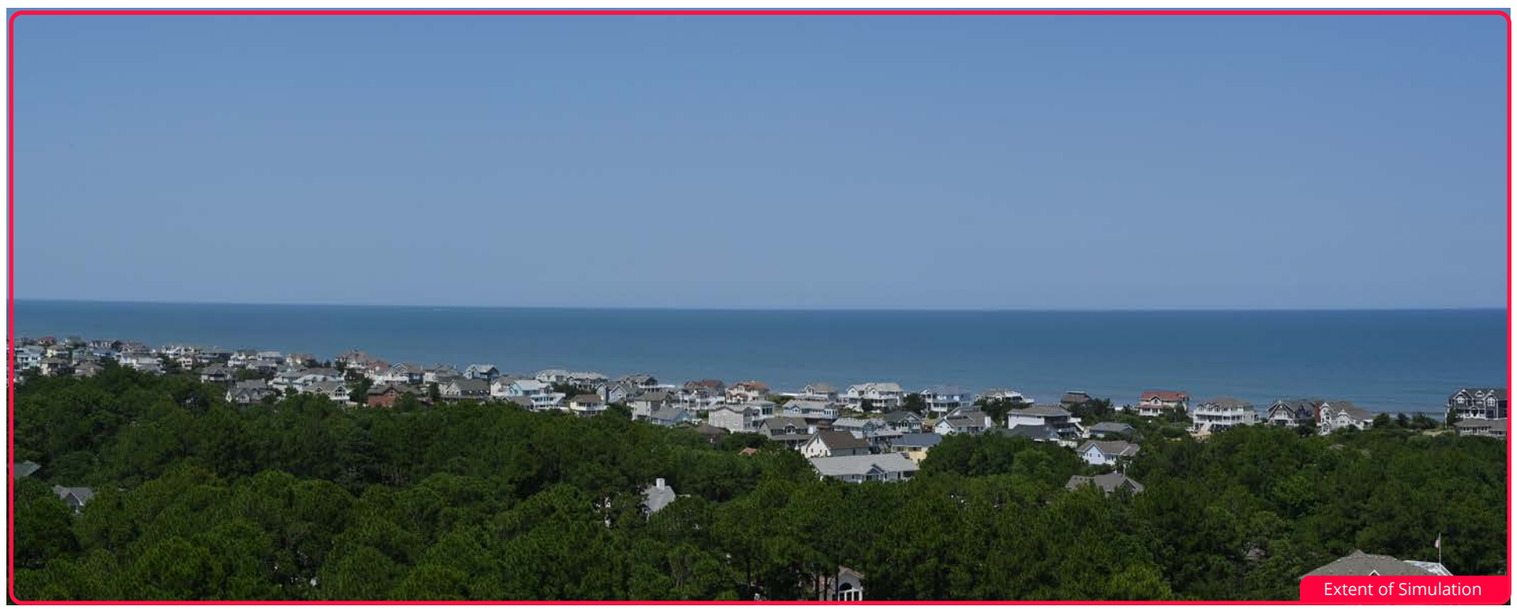
KOP 48: Currituck Beach Lighthouse

Corolla, NC



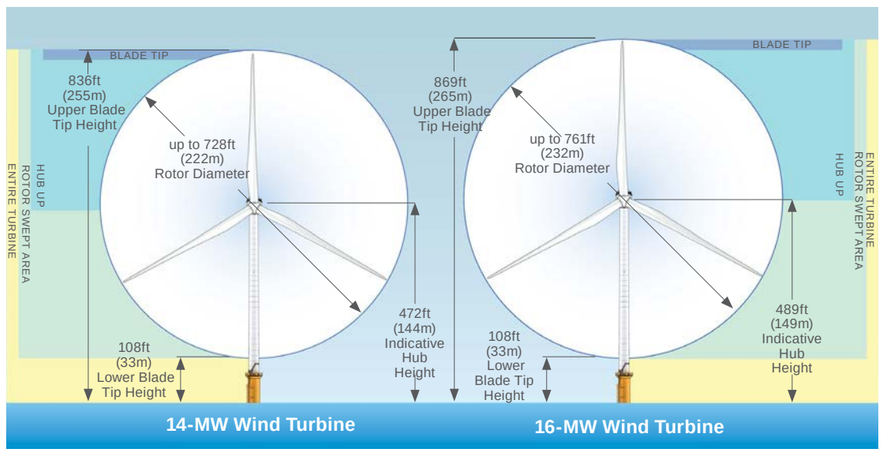
Vicinity Map

- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

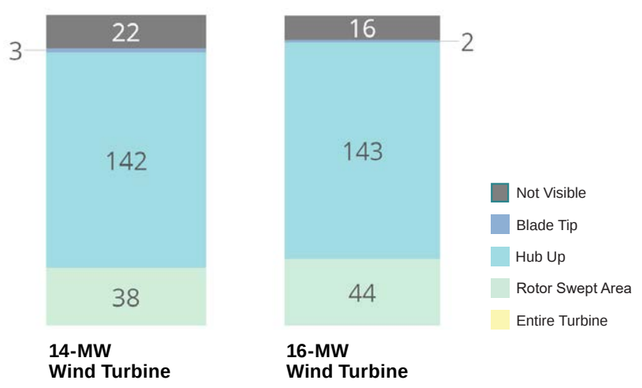


Existing Panoramic View

Located on the Currituck Beach Lighthouse observation deck.



Turbine Dimensions



Turbine Visibility

FIELD ID # 48

PHOTO INFORMATION	
Date	7/7/2021
Time	2:40 PM
Latitude	36.376709°
Longitude	-75.830790°
Direction of View	NE
Elevation	155’
Horizontal Field of View Represented in Simulated Image	40°

PROJECT INFRASTRUCTURE	
Turbines	205
Offshore Substations	3

ENVIRONMENTAL	
Temperature	93° F
Humidity	38%
Wind Direction	S
Wind Speed	14 mph
Weather Condition	Clear

PROJECT VIEW	
Distance to Nearest Turbine	36.8 miles
Horizontal Area Occupied by Visible Turbines	22°
Area Occupied by Visible Turbines as a Percent of the FOV	55.0%

Image Data

KOP 48: Currituck Beach Lighthouse

Corolla, NC

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 48: Currituck Beach Lighthouse

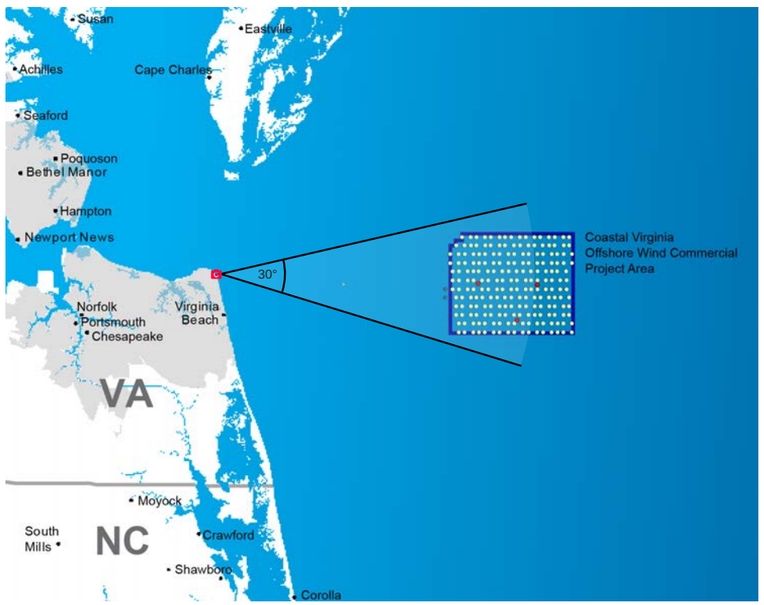
Corolla, NC

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 15a: Beach Residential 1

Virginia Beach, VA

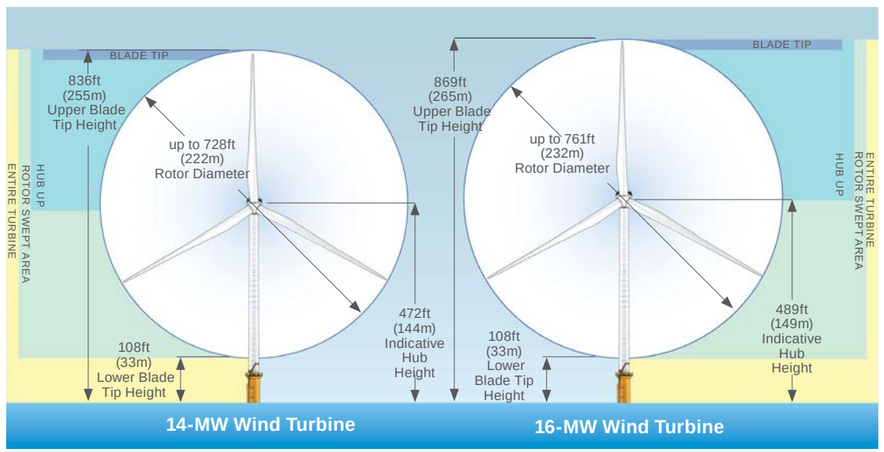


Vicinity Map

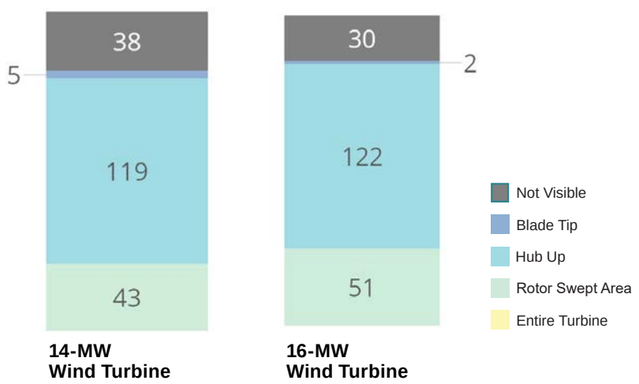
- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

Existing Panoramic View

Located on North End Beaches, near 70th St.



Turbine Dimensions



Turbine Visibility

FIELD ID # 15a

PHOTO INFORMATION

Date	7/9/2021
Time	10:00 AM
Latitude	36.898335°
Longitude	-75.986696°
Direction of View	E
Elevation	15’
Horizontal Field of View Represented in Simulated Image	30°

PROJECT INFRASTRUCTURE

Turbines	205
Offshore Substations	3

ENVIRONMENTAL

Temperature	83° F
Humidity	69%
Wind Direction	WSW
Wind Speed	6 mph
Weather Condition	Fair

PROJECT VIEW

Distance to Nearest Turbine	28.1 miles
Horizontal Area Occupied by Visible Turbines	22°
Area Occupied by Visible Turbines as a Percent of the FOV	73.3%

Image Data

KOP 15a: Beach Residential 1

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 15a: Beach Residential 1

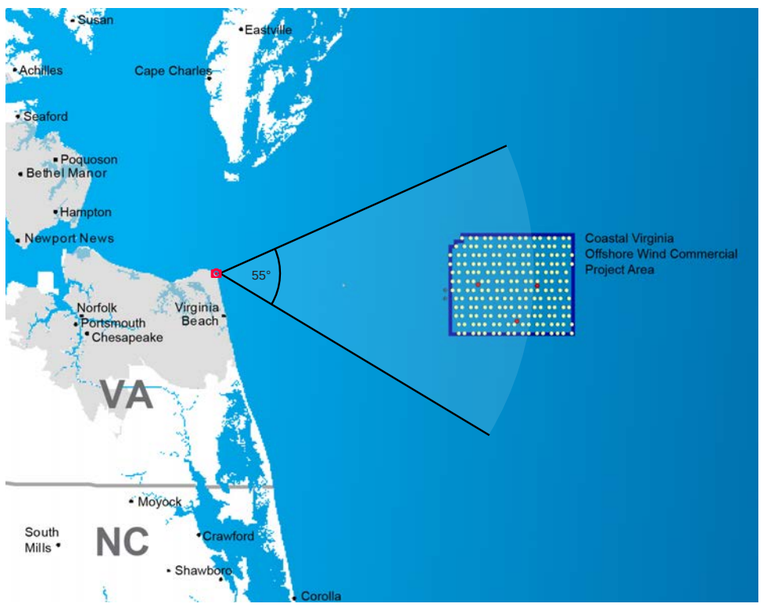
Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

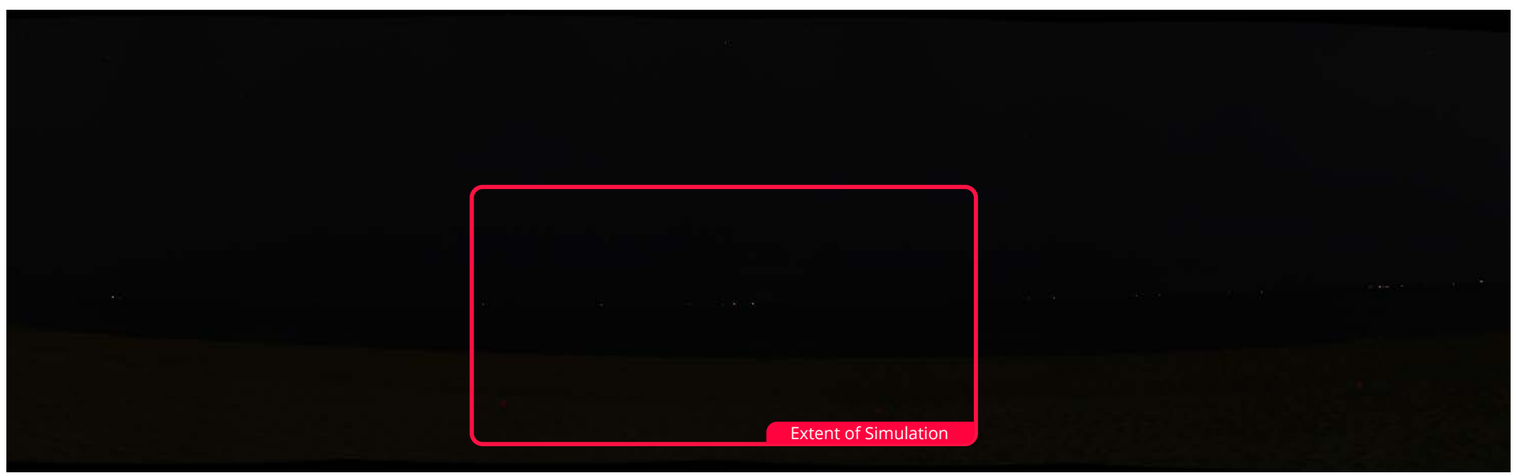
KOP 15b: Beach Residential 1 - Nighttime

Virginia Beach, VA



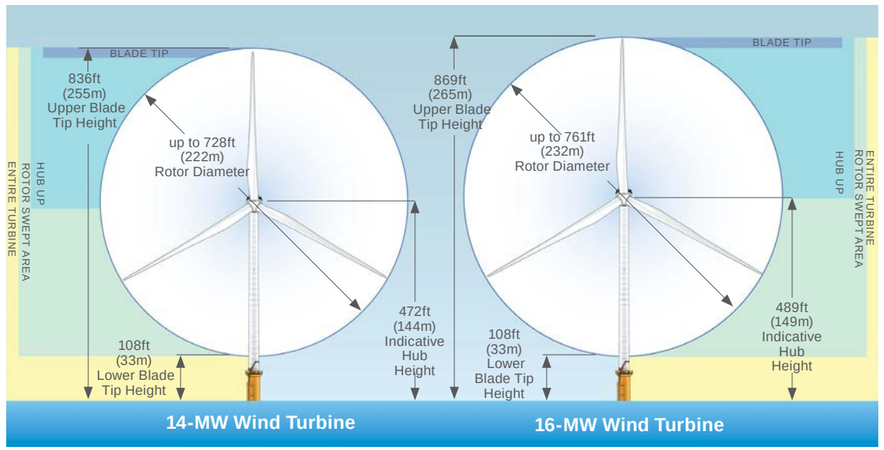
Vicinity Map

- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

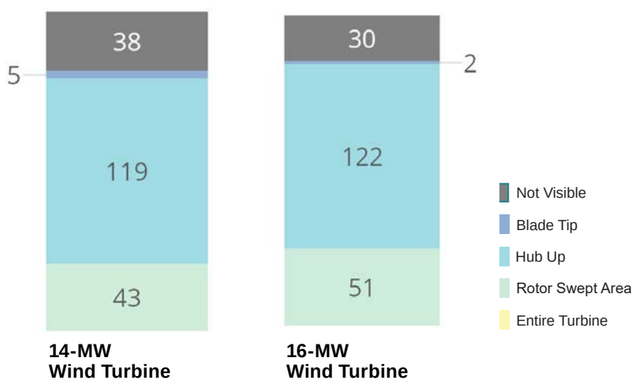


Existing Panoramic View

Located on North End Beaches, near 70th St.



Turbine Dimensions



Turbine Visibility

FIELD ID # 15b

PHOTO INFORMATION

Date	7/10/2021
Time	10:27pm
Latitude	36.898335°
Longitude	-75.986696°
Direction of View	E
Elevation	15’
Horizontal Field of View Represented in Simulated Image	55°

PROJECT INFRASTRUCTURE

Turbines	205
Offshore Substations	3

ENVIRONMENTAL

Temperature	78° F
Humidity	64%
Wind Direction	SSE
Wind Speed	6 mph
Weather Condition	Fair

PROJECT VIEW

Distance to Nearest Turbine	28.1 miles
Horizontal Area Occupied by Visible Turbines	23°
Area Occupied by Visible Turbines as a Percent of the FOV	41.8%

Image Data

KOP 15b: Beach Residential 1 - Nighttime

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 15b: Beach Residential 1 - Nighttime

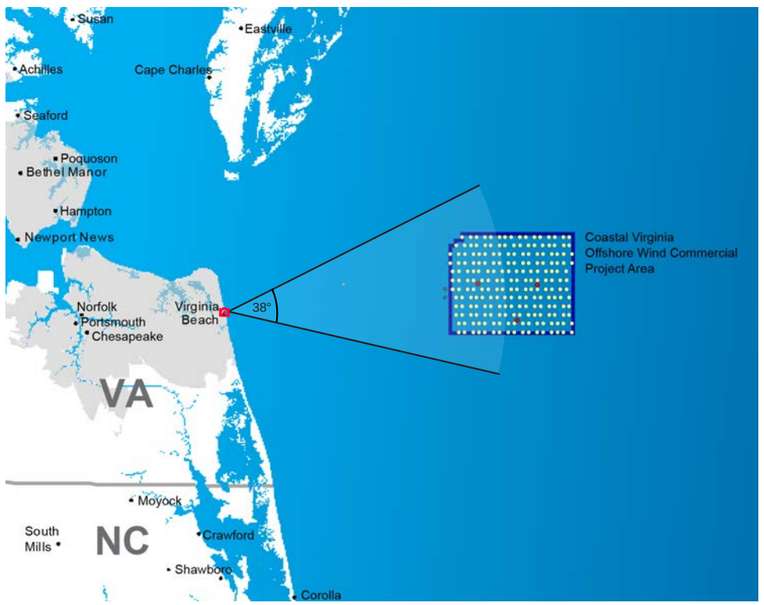
Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 24a: Virginia Beach Boardwalk - 17th St Park

Virginia Beach, VA

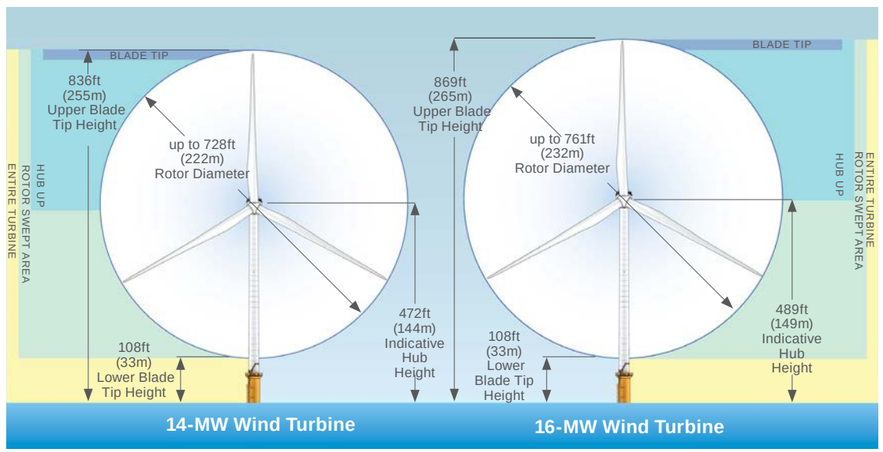


Vicinity Map

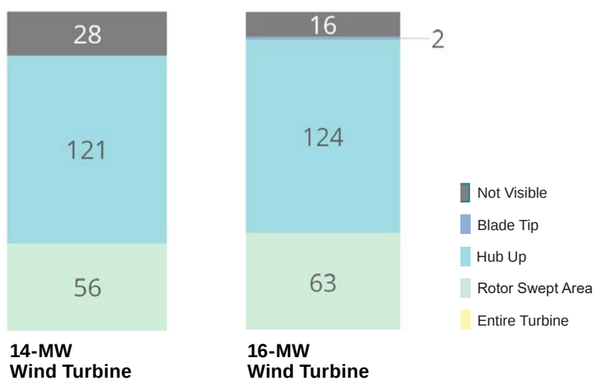
- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

Existing Panoramic View

Located on Virginia Beach Boardwalk, near 17th St Park



Turbine Dimensions



14-MW Wind Turbine

16-MW Wind Turbine

Turbine Visibility

FIELD ID # 24a

PHOTO INFORMATION

Date	7/9/2021
Time	1:33 pm
Latitude	36.845523°
Longitude	-75.973333°
Direction of View	E
Elevation	18’
Horizontal Field of View Represented in Simulated Image	38°

PROJECT INFRASTRUCTURE

Turbines	205
Offshore Substations	3

ENVIRONMENTAL

Temperature	91° F
Humidity	53%
Wind Direction	WSW
Wind Speed	5 mph
Weather Condition	Partly Cloudy

PROJECT VIEW

Distance to Nearest Turbine	27.8 miles
Horizontal Area Occupied by Visible Turbines	23°
Area Occupied by Visible Turbines as a Percent of the FOV	60.5%

Image Data

KOP 24a: Virginia Beach Boardwalk - 17th St Park

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 24a: Virginia Beach Boardwalk - 17th St Park

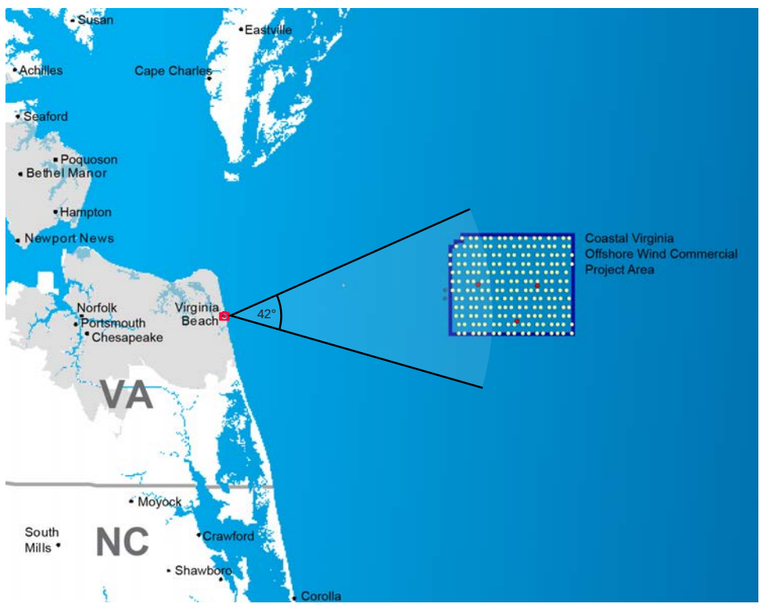
Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 24b: Virginia Beach Boardwalk - 16th St Entrance - Nighttime

Virginia Beach, VA

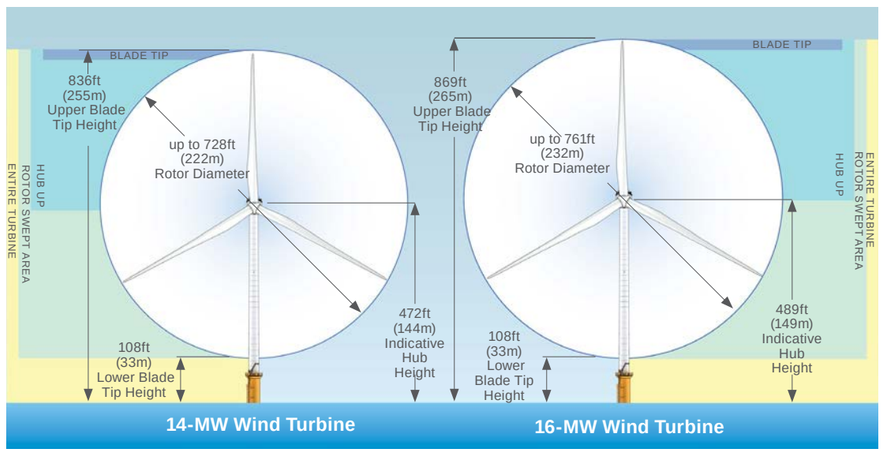


Vicinity Map

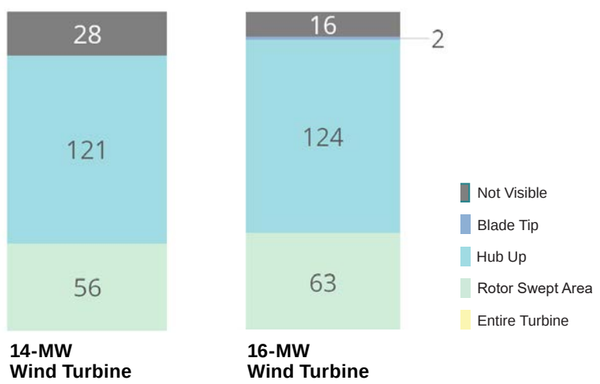
Pilot Project Turbine · Turbine Location · Photo Point
Chesapeake Light Tower · Offshore Substation · Lease Area

Existing Panoramic View

Located on Virginia Beach Boardwalk, near 16th St Entrance



Turbine Dimensions



Turbine Visibility

Image Data

FIELD ID # 24b

PHOTO INFORMATION	
Date	7/10/2021
Time	9:54 pm
Latitude	36.844775°
Longitude	-75.973125°
Direction of View	E
Elevation	18’
Horizontal Field of View Represented in Simulated Image	42°

PROJECT INFRASTRUCTURE	
Turbines	205
Offshore Substations	3

ENVIRONMENTAL	
Temperature	78° F
Humidity	68%
Wind Direction	SSE
Wind Speed	6 mph
Weather Condition	Fair

PROJECT VIEW	
Distance to Nearest Turbine	27.7 miles
Horizontal Area Occupied by Visible Turbines	23°
Area Occupied by Visible Turbines as a Percent of the FOV	54.8%

KOP 24b: Virginia Beach Boardwalk - 16th St Entrance - Nighttime

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 24b: Virginia Beach Boardwalk - 16th St Entrance - Nighttime

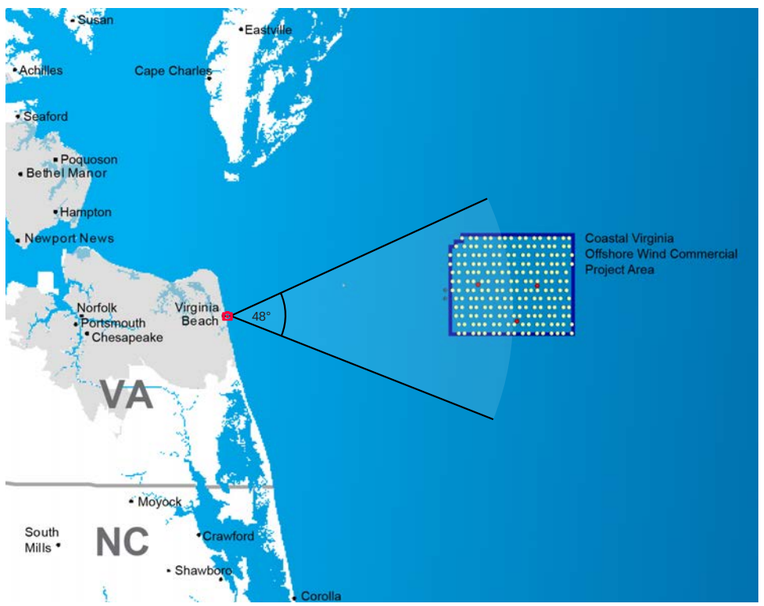
Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 24d: Virginia Beach Boardwalk - Fishing Pier

Virginia Beach, VA

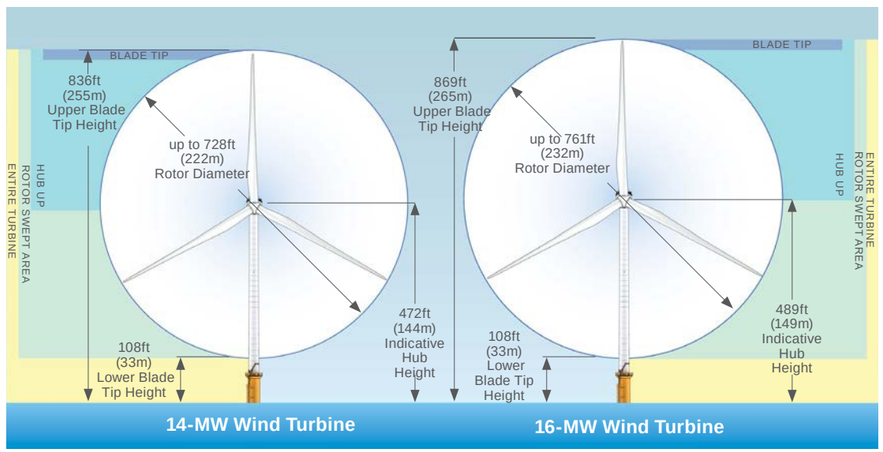


Vicinity Map

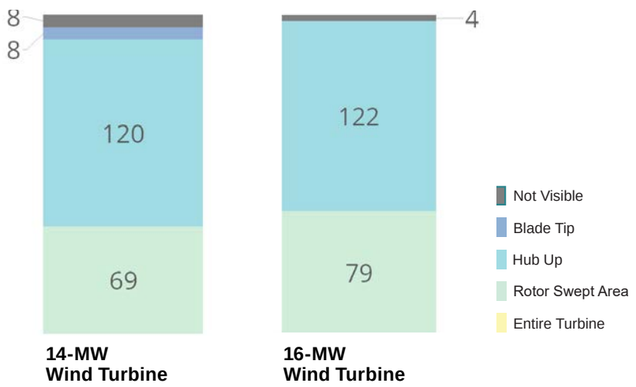
- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

Existing Panoramic View

Located on Virginia Beach Boardwalk Fishing Pier



Turbine Dimensions



Turbine Visibility

FIELD ID # 24d

PHOTO INFORMATION

Date	7/9/2021
Time	1:50 pm
Latitude	36.843709°
Longitude	-75.969876°
Direction of View	E
Elevation	25’
Horizontal Field of View Represented in Simulated Image	48°

PROJECT INFRASTRUCTURE

Turbines	205
Offshore Substations	3

ENVIRONMENTAL

Temperature	91° F
Humidity	53%
Wind Direction	WSW
Wind Speed	5 mph
Weather Condition	Partly Cloudy

PROJECT VIEW

Distance to Nearest Turbine	27.6 miles
Horizontal Area Occupied by Visible Turbines	23°
Area Occupied by Visible Turbines as a Percent of the FOV	47.9%

Image Data

KOP 24d: Virginia Beach Boardwalk - Fishing Pier

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 24d: Virginia Beach Boardwalk - Fishing Pier

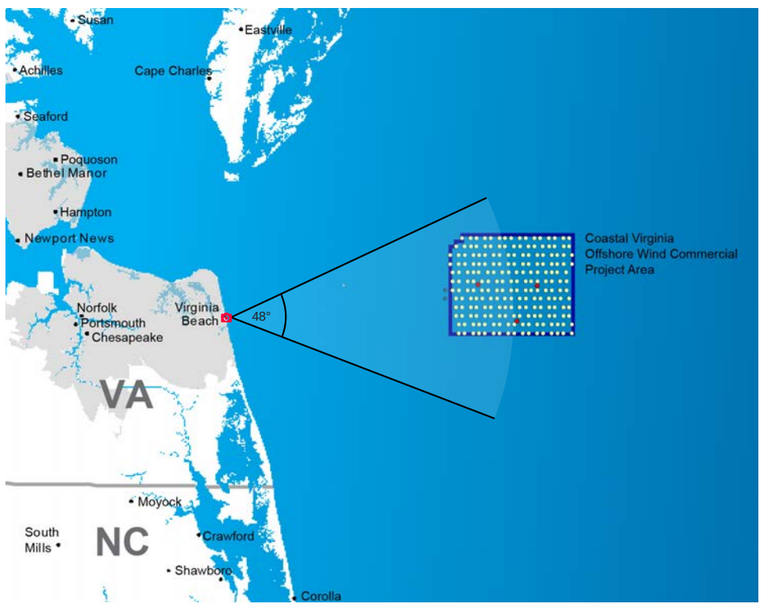
Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

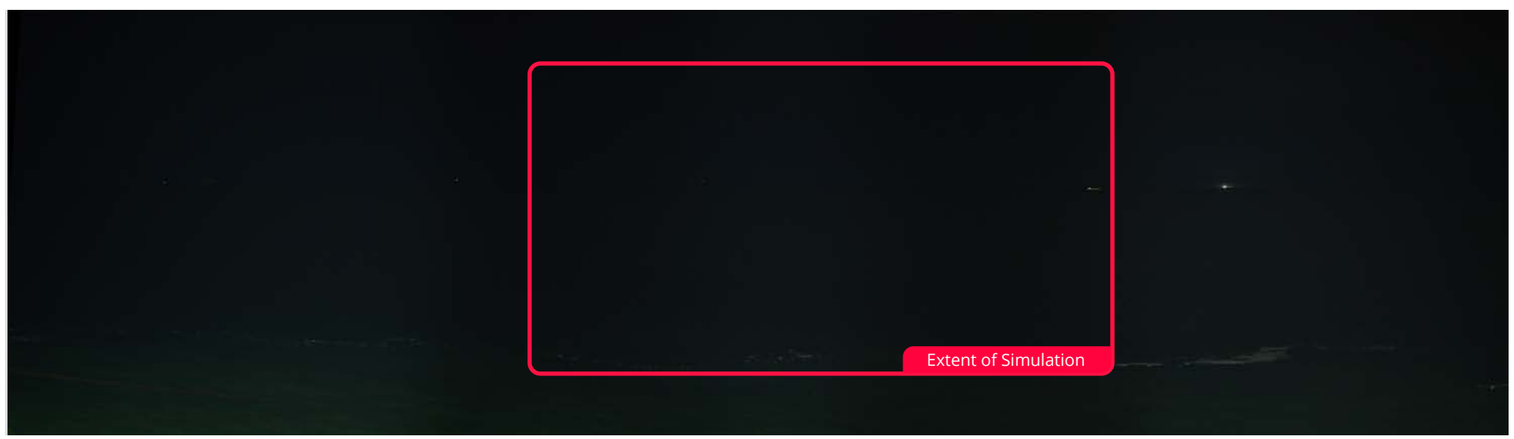
KOP 24d: Virginia Beach Boardwalk - Fishing Pier Nighttime

Virginia Beach, VA



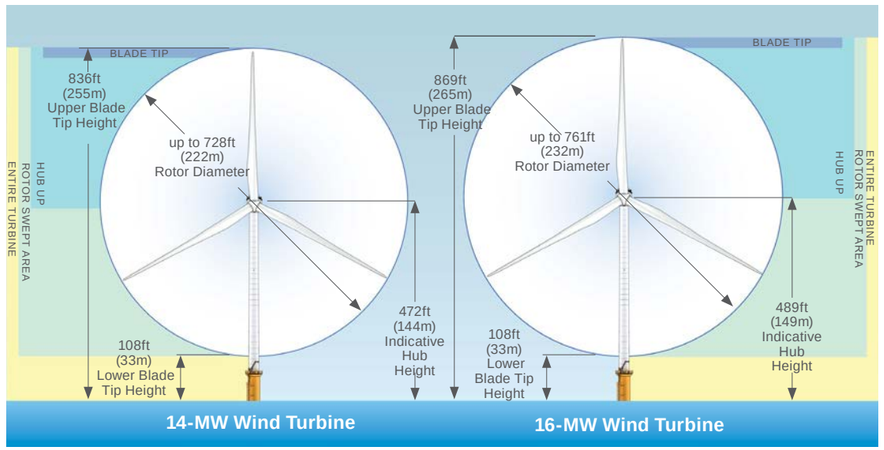
Vicinity Map

- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

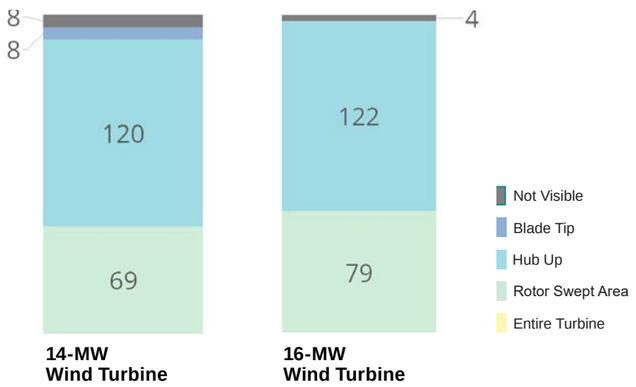


Existing Panoramic View

Located on Virginia Beach Boardwalk Fishing Pier



Turbine Dimensions



Turbine Visibility

FIELD ID # 24d

PHOTO INFORMATION

Date	7/10/2021
Time	9:37 pm
Latitude	36.843709°
Longitude	-75.969876°
Direction of View	E
Elevation	25'
Horizontal Field of View Represented in Simulated Image	48°

PROJECT INFRASTRUCTURE

Turbines	205
Offshore Substations	3

ENVIRONMENTAL

Temperature	78° F
Humidity	6%
Wind Direction	SSE
Wind Speed	6 mph
Weather Condition	Fair

PROJECT VIEW

Distance to Nearest Turbine	27.6 miles
Horizontal Area Occupied by Visible Turbines	23°
Area Occupied by Visible Turbines as a Percent of the FOV	47.9%

Image Data

KOP 24d: Virginia Beach Boardwalk - Fishing Pier Nighttime

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 24d: Virginia Beach Boardwalk - Fishing Pier Nighttime

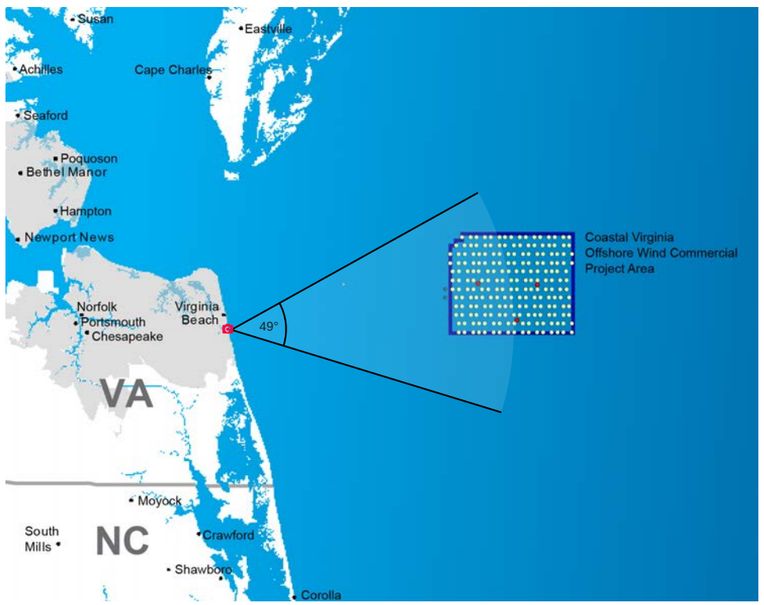
Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 30a: Croatan Beach A - North

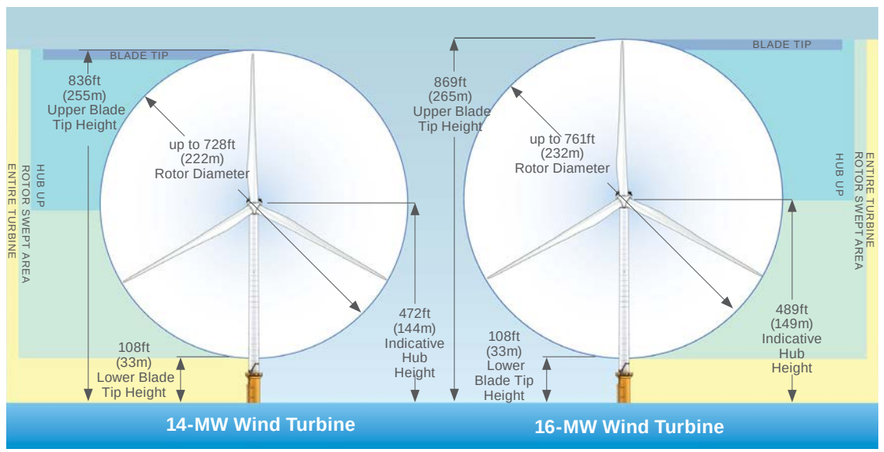
Virginia Beach, VA



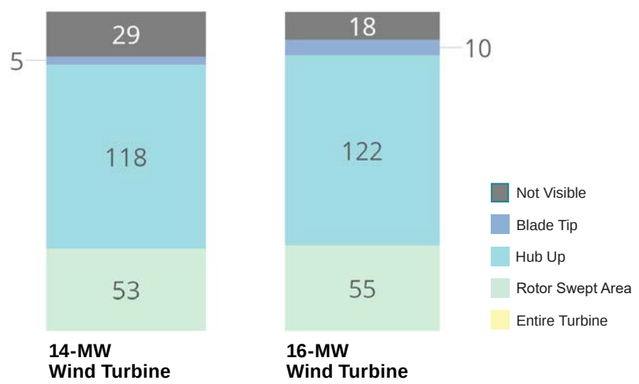
Vicinity Map

Existing Panoramic View

Located on Croatan Beach



Turbine Dimensions



14-MW Wind Turbine

16-MW Wind Turbine

Turbine Visibility

FIELD ID # 30a

PHOTO INFORMATION

Date	7/8/2021
Time	11:00 AM
Latitude	36.827570°
Longitude	-75.968610°
Direction of View	ENE
Elevation	15’
Horizontal Field of View Represented in Simulated Image	49°

PROJECT INFRASTRUCTURE

Turbines	205
Offshore Substations	3

ENVIRONMENTAL

Temperature	84° F
Humidity	72%
Wind Direction	SSW
Wind Speed	15 mph
Weather Condition	Overcast

PROJECT VIEW

Distance to Nearest Turbine	27.6 miles
Horizontal Area Occupied by Visible Turbines	22.5°
Area Occupied by Visible Turbines as a Percent of the FOV	45.9%

Image Data

KOP 30a: Croatan Beach A - North

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 30a: Croatan Beach A - North

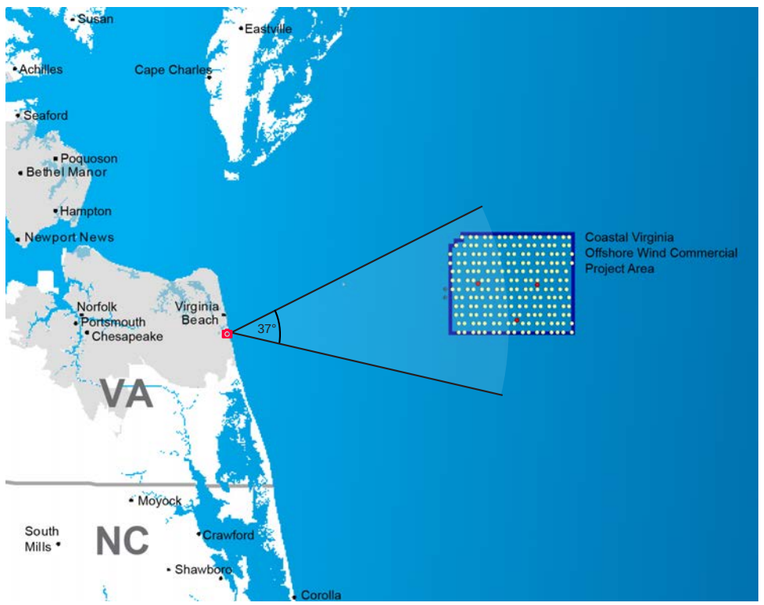
Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 30c: Croatan Beach C - South

Virginia Beach, VA

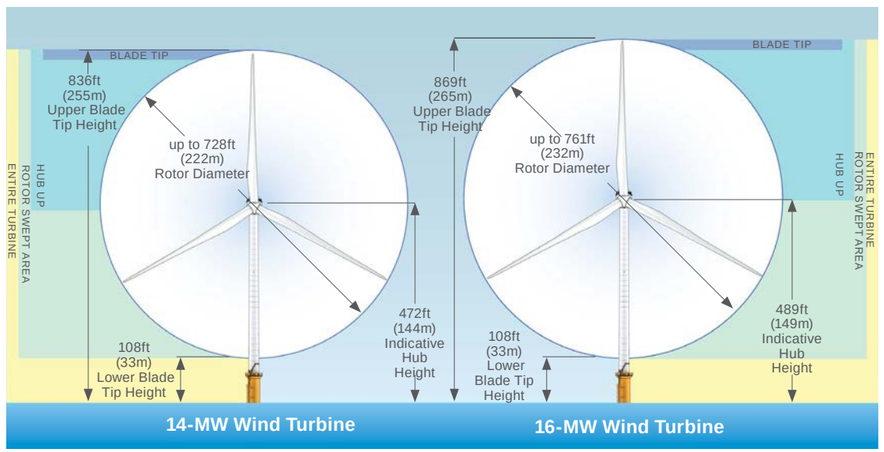


Vicinity Map

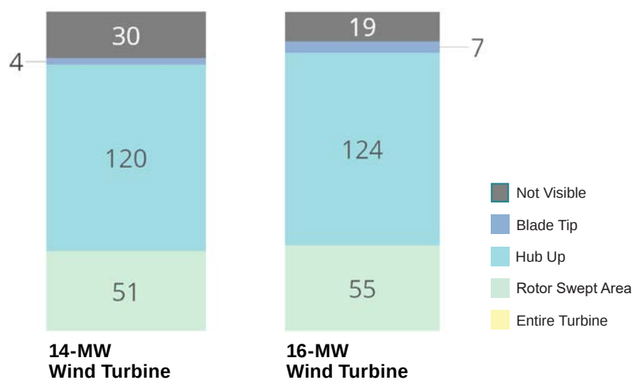
- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

Existing Panoramic View

Located on Croatan Beach



Turbine Dimensions



Turbine Visibility

FIELD ID # 30c

PHOTO INFORMATION

Date	7/8/2021
Time	11:18 am
Latitude	36.823557°
Longitude	-75.968028°
Direction of View	NE
Elevation	15’
Horizontal Field of View Represented in Simulated Image	37°

PROJECT INFRASTRUCTURE

Turbines	205
Offshore Substations	3

ENVIRONMENTAL

Temperature	84° F
Humidity	72%
Wind Direction	SSW
Wind Speed	15 mph
Weather Condition	Mostly Cloudy

PROJECT VIEW

Distance to Nearest Turbine	27.6 miles
Horizontal Area Occupied by Visible Turbines	22.5°
Area Occupied by Visible Turbines as a Percent of the FOV	60.8%

Image Data

KOP 30c: Croatan Beach C - South

Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 30c: Croatan Beach C - South

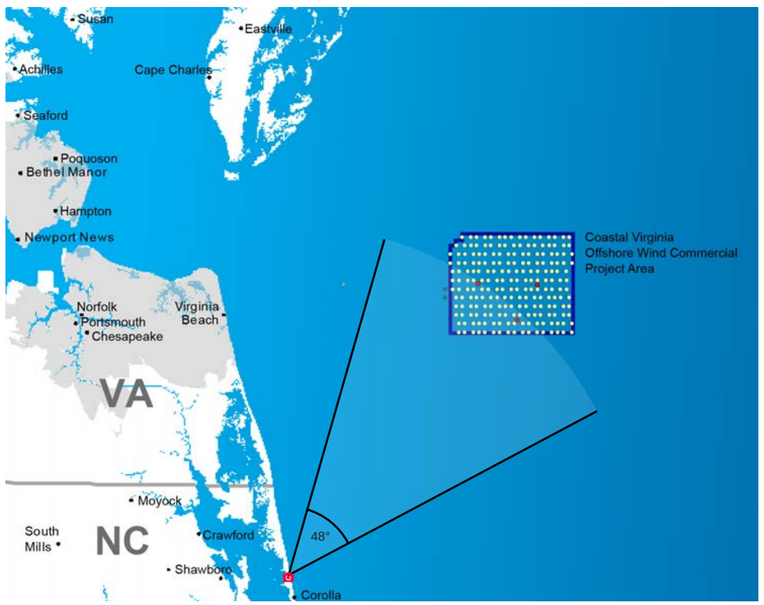
Virginia Beach, VA

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 49a: Whale Head Bay - Residential

Corolla, NC

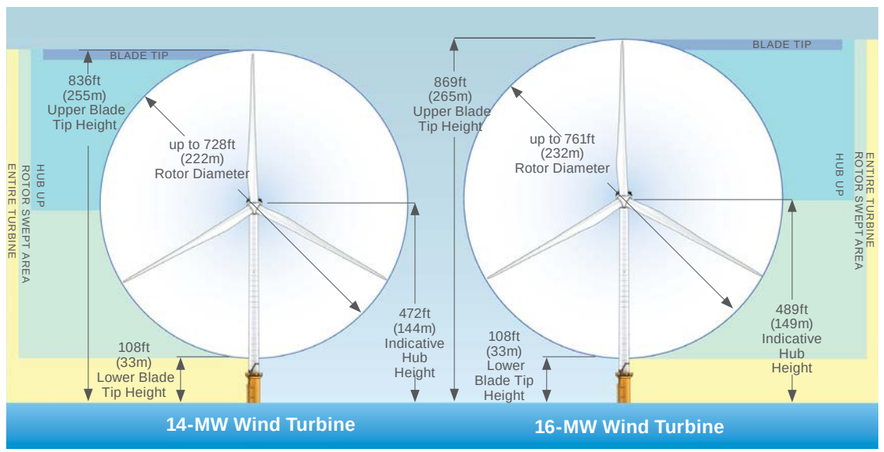


Vicinity Map

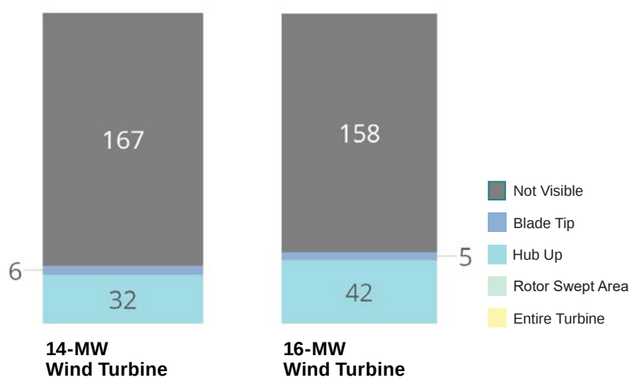
- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

Existing Panoramic View

Located on Corolla Beach, near Corolla Beach Rd.



Turbine Dimensions



14-MW Wind Turbine

16-MW Wind Turbine

Turbine Visibility

FIELD ID # 49a

PHOTO INFORMATION	
Date	7/7/2021
Time	12:20 PM
Latitude	36.377628°
Longitude	-75.824152°
Direction of View	NE
Elevation	25'
Horizontal Field of View Represented in Simulated Image	48°

PROJECT INFRASTRUCTURE	
Turbines	205
Offshore Substations	3

ENVIRONMENTAL	
Temperature	91° F
Humidity	48%
Wind Direction	SW
Wind Speed	13 mph
Weather Condition	Fair

PROJECT VIEW	
Distance to Nearest Turbine	36.6 miles
Horizontal Area Occupied by Visible Turbines	14.5°
Area Occupied by Visible Turbines as a Percent of the FOV	30.2%

Image Data

KOP 49a: Whale Head Bay - Residential

Corolla, NC

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 49a: Whale Head Bay - Residential

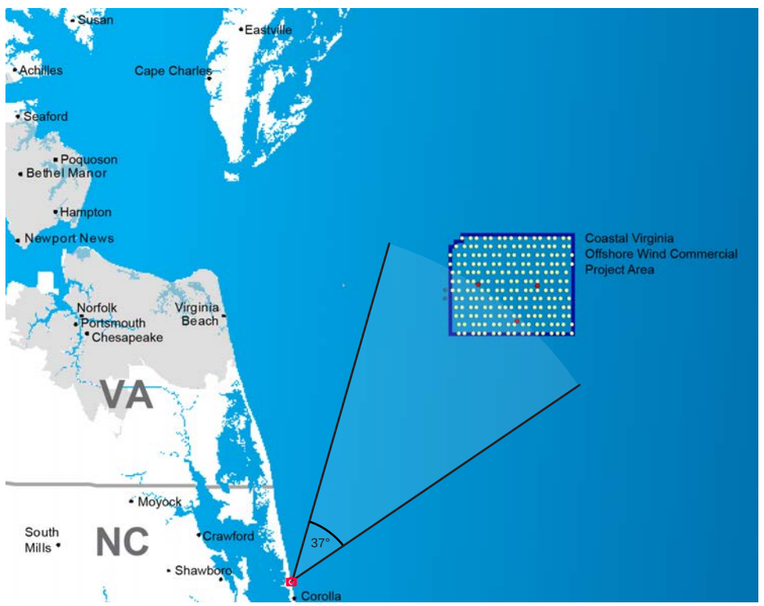
Corolla, NC

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

KOP 49g: Whale Head Bay - Albacore St Entrance

Corolla, NC

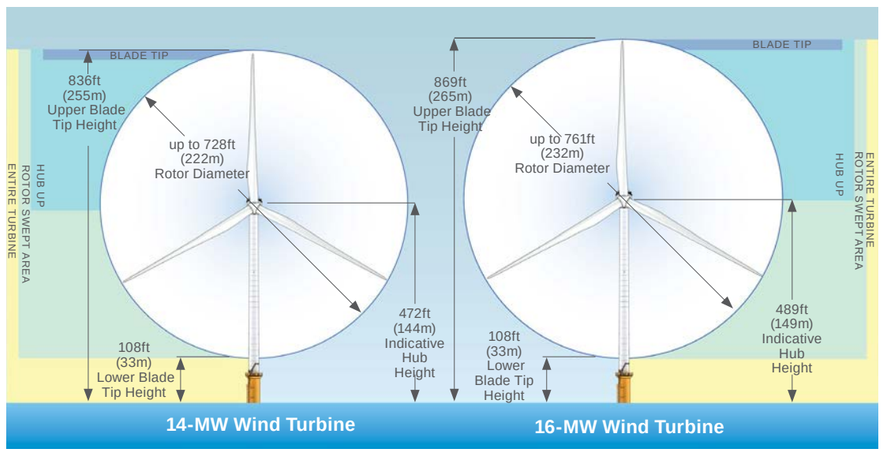


Vicinity Map

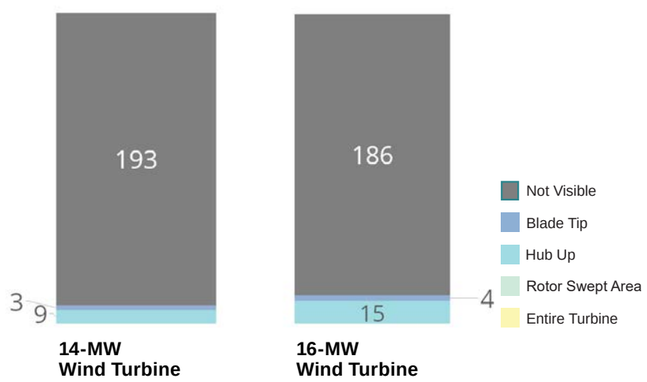
- Pilot Project Turbine
- Chesapeake Light Tower
- Turbine Location
- Offshore Substation
- Photo Point
- Lease Area

Existing Panoramic View

Located on Corolla Beach, near Corolla Beach Rd.



Turbine Dimensions



Turbine Visibility

FIELD ID # 49g

PHOTO INFORMATION	
Date	7/7/2021
Time	12:20 PM
Latitude	36.328344°
Longitude	-75.810450°
Direction of View	NE
Elevation	25'
Horizontal Field of View Represented in Simulated Image	37°

PROJECT INFRASTRUCTURE	
Turbines	205
Offshore Substations	3

ENVIRONMENTAL	
Temperature	93° F
Humidity	42%
Wind Direction	S
Wind Speed	12 mph
Weather Condition	Fair

PROJECT VIEW	
Distance to Nearest Turbine	39.1 miles
Horizontal Area Occupied by Visible Turbines	9°
Area Occupied by Visible Turbines as a Percent of the FOV	24.3%

Image Data

KOP 49g: Whale Head Bay - Albacore St Entrance

Corolla, NC

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 14-MW Wind Turbine

KOP 49g: Whale Head Bay - Albacore St Entrance

Corolla, NC

Print Guide / Image Notes:
This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Visual Simulation: 16-MW Wind Turbine

Appendix N. BOEM's Responses to Public Comments on the Draft Environmental Impact Statement

[This Appendix will be populated in the Final Environmental Impact Statement]

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Appendix O Finding of Adverse Effect for the Coastal Virginia Offshore Wind Construction and Operations Plan

The Bureau of Ocean Energy Management (BOEM) has made a Finding of Adverse Effect under Section 106 of the National Historic Preservation Act (NHPA) pursuant to 36 Code of Federal Regulations (CFR) 800.5 for the Coastal Virginia Offshore Wind Commercial Project (CVOW-C or Project) Construction and Operations Plan (COP) (Dominion Energy 2022). BOEM finds that the undertaking would adversely affect the following historic properties:

- 31 marine archaeological resources (Table O-5; Section O.3.1.1.1, *Marine Archaeological Resources*)
- 5 ancient submerged landform features (ASLFs) with potential archaeological or traditional cultural property (TCP) significance (Table O-6; Section O.3.1.1.2, *Ancient Submerged Landform Features*)
- 13 terrestrial archaeological resources (Table O-7; Section O.3.1.2.1, *Terrestrial Archaeological Resources*)
- 25 historic aboveground resources, including the First Cape Henry Lighthouse National Historic Landmark (NHL) (Table O-8; Sections O.3.1.2.3, *Historic Aboveground Resources,* and O.3.1.3, *Assessment of Effects on Historic Properties in the Visual APE*).

The Project is considered to have the potential to have adverse effects on these cultural resources, which are historic properties presently listed or potentially eligible for listing in the National Register of Historic Places (NRHP). The adverse effects would occur as a result of either physical effects or the visual effects of introducing changes to the setting of historic properties whose importance is partially derived from having a maritime setting.

Construction of the Project would cause physical adverse effects on historic properties that are marine cultural (i.e., marine archaeological resources and ASLFs), terrestrial archaeological, and historic aboveground resources as Project components and associated work zones are proposed for locations within the defined areas of these resources (COP, Appendices F, G, and H; Dominion Energy 2022). A total of 31 marine archaeological resources and 5 ASLFs in the marine portion of the area of potential effects (APE) cannot be avoided by the Proposed Action. Physical adverse effects are also anticipated for 13 terrestrial archaeological resources. However, terrestrial archaeological investigations are incomplete, and additional terrestrial archaeological resources subject to adverse effects may be identified during Dominion Energy's process of phased identification and evaluation of historic properties as defined in 36 CFR 800.4(b)(2) (COP, Appendix DD; Dominion Energy 2022; Section O.6, *Phased Identification and Evaluation*). Physical adverse effects are also anticipated for one historic aboveground resource that is a historic property listed in the NRHP: the Camp Pendleton/State Military Reservation Historic District, which is also one of 25 historic aboveground resources located within the visual APE for Offshore Project components anticipated to be adversely affected by the undertaking. This historic district would experience adverse effects due to the demolition of two contributing structures (Buildings 59 and 410) and removal of vegetation.

The Project would also cause visual and contribute to cumulative effects from Offshore Project component visibility on 25 historic aboveground resources, including one NHL, the First Cape Henry Lighthouse, for which ocean views are a character-defining feature that contributes to their NRHP eligibility. For compliance with NHPA Section 110(f) at 36 CFR 800.10, which applies specifically to NHLs, BOEM has determined the First Cape Henry Lighthouse NHL would be adversely affected by the

undertaking and that the one other NHL located within the APE (i.e., Eyre Hall) would not be adversely affected by the undertaking (COP, Appendix H-1; Dominion Energy 2022). BOEM will, to the maximum extent possible, undertake planning and actions as may be necessary to minimize harm to the First Cape Henry Lighthouse NHL.

BOEM elected to use the National Environmental Policy Act (NEPA) substitution process for Section 106 purposes, as described in 36 CFR 800.8(c), during its review. The regulations at 36 CFR 800.8(c) provide for use of the NEPA process to fulfill a federal agency's NHPA Section 106 review obligations in lieu of the procedures set forth in 36 CFR 800.3 through 800.6. NEPA substitution is described at http://www.achp.gov/integrating_nepa_106. Both NEPA and Section 106 allow participation of consulting parties. Consistent with use of the NEPA substitution process to fulfill Section 106 requirements, BOEM has decided to codify the resolution of adverse effects through a Memorandum of Agreement (MOA) pursuant to 36 CFR 800.6(c).

O.1. Project Overview

On June 29, 2021, BOEM received a COP from Dominion Energy proposing an offshore wind energy project within Lease Area OCS-A-0483 offshore Virginia. In addition, Dominion Energy submitted updates to the COP on October 29, 2021, December 3, 2021, and May 6, 2022. In its COP, Dominion Energy proposes the construction, operation, and eventual decommissioning of an up-to 3,000 MW wind energy project consisting of offshore wind turbine generators (WTGs) and their foundations, offshore substations (OSSs) and their foundations, scour protection for foundations, inter-array cables linking the individual turbines to the OSSs, substation interconnector cables linking the substations to each other, offshore export cables, and an onshore export cable system, onshore substations, and connections to the existing electrical grid in Virginia. At their nearest point, WTG and OSS components of the Project would be approximately 23.75 nautical miles (27 statute miles) east of Virginia Beach, Virginia. Offshore Project elements would be on the Outer Continental Shelf (OCS), with the exception of a portion of the offshore export cables within state waters. Dominion Energy is utilizing a Project Design Envelope (PDE) in its COP, which represents a reasonable range of design parameters that may be used for the Project. In reviewing the PDE, BOEM is analyzing the maximum-case scenario that could occur from any combination of the contemplated parameters. This includes any Project areas that may require phased identification of historic properties (see Section O.6, *Phased Identification and Evaluation*). BOEM's analysis and review of the PDE may result in the approval of a project that is constructed within that range or a subset of design parameters within the proposed range. The Proposed Action is based on Dominion Energy's maximum-case design parameters, which are described in the COP and summarized in Appendix E, *Project Design Envelope and Maximum-Case Scenario*.

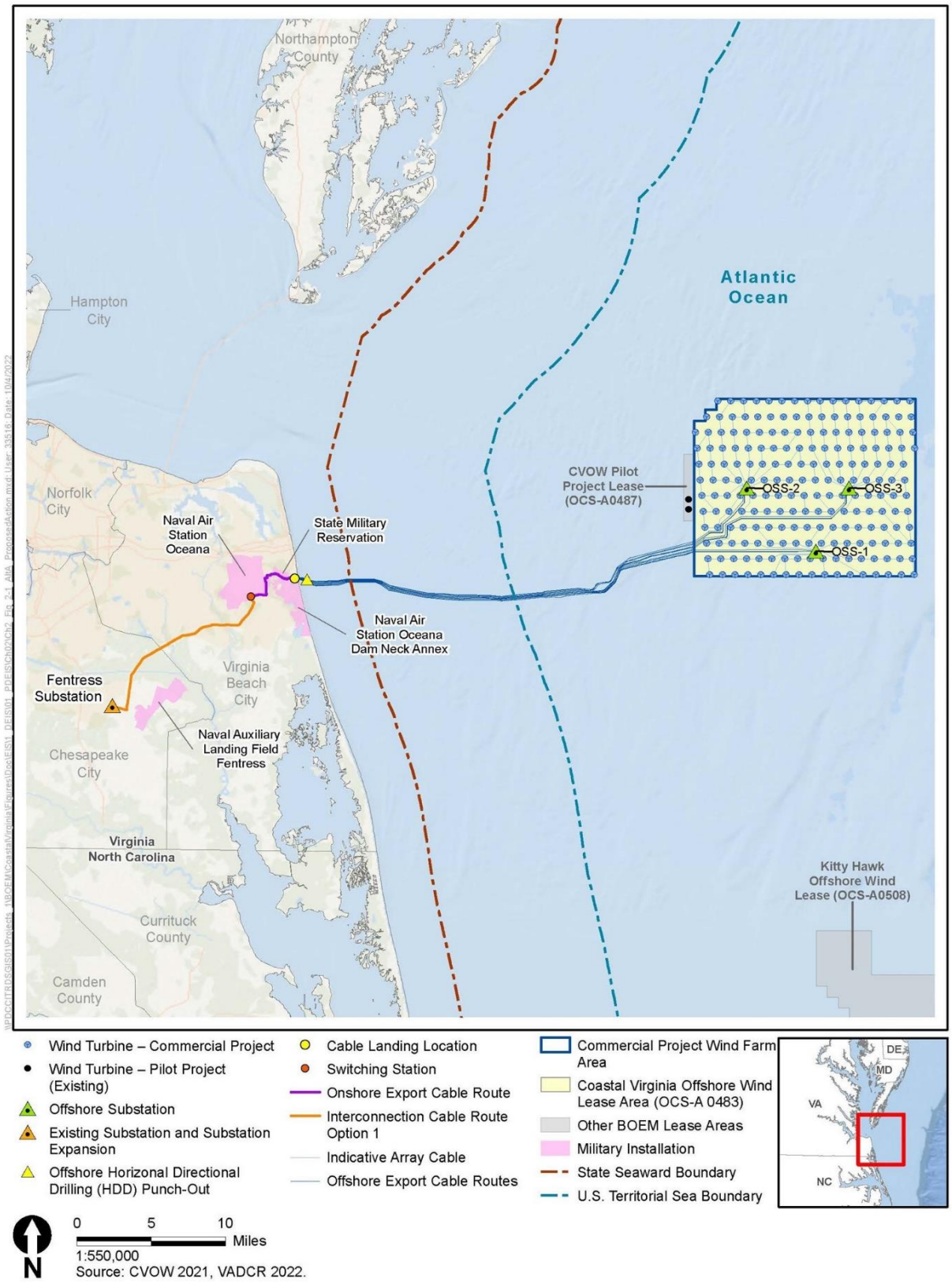

Figure O-1 CVOW-C Proposed Action

If approved by BOEM and other agencies with authority to approve Project components outside BOEM's jurisdiction, Dominion Energy would be allowed to construct and operate WTGs, export cables to shore, and associated facilities, including those outside BOEM's jurisdiction, for a specified term. BOEM is now conducting its environmental and technical reviews of the COP and has published a Draft Environmental Impact Statement (EIS) under NEPA for its decision regarding approval of the plan (BOEM 2022). A detailed description of the proposed Project can be found in Chapter 2 of the Draft EIS. The Draft EIS considers reasonably foreseeable impacts of the Project, including impacts on cultural resources, which include historic properties.

O.1.1 Background

The Project is within a commercial lease area that has received previous Section 106 review by BOEM regarding the issuance of the commercial lease and approval of site assessment activities and is subject to one prior Programmatic Agreement. In 2014, BOEM executed a Programmatic Agreement among the State Historic Preservation Office (SHPO) of North Carolina and the Advisory Council on Historic Preservation (ACHP) to consider renewable energy activities offshore North Carolina (refer to https://www.boem.gov/sites/default/files/renewable-energy-program/State-Activities/HP/offshore-windfarm-development.pdf).

On February 3, 2012, BOEM also published in the *Federal Register* a Notice of Availability for the final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for commercial wind lease issuance and site assessment activities on the Atlantic OCS offshore New Jersey, Delaware, Maryland, and Virginia. The commercial lease sale for Virginia was held on September 4, 2013. At the conclusion of the sale, BOEM announced that Virginia Electric and Power Company (Dominion Energy) was the provisional winner. On November 1, 2013, the commercial wind energy lease with Dominion Energy went into effect. On October 12, 2017, BOEM approved the Site Assessment Plan (SAP) for Lease OCS-A 0483.

Dominion Energy's COP (2022) proposed installing a maximum of 205 WTGs extending up to 869 feet (276 meters) above mean sea level (MSL). Dominion Energy would mount the WTGs on monopile foundations. The proposed facility includes up to three OSS, which would be built on pile jacket foundations. Where required, scour protection would be placed around foundations to stabilize the seabed near the foundations as well as the foundations themselves. Inter-array cables would transfer electrical energy generated by the WTGs to the OSSs. The OSSs would include transformers and other electrical equipment needed to connect the inter-array cables to the offshore export cables. The offshore export cables would be buried under the seabed floor within the offshore export cable route corridor (ECRC) to connect the proposed wind energy facility to the onshore electrical grid. The offshore export cables would make landfall at and deliver electrical power to the cable landing location, which is the proposed parking lot located west of the firing range associated with Camp Pendleton/State Military Reservation to the north of Rifle Rand Road in Virginia Beach, Virginia.

The onshore export cables would transfer the electricity from the cable landing location to a common location north of Harpers Road and be installed underground within the onshore ECRC. The switching station, proposed to be constructed north of Harpers Road (Harpers Switching Station), would collect power and convert an underground cable configuration to an overhead configuration. The interconnection cable would be constructed from a common location north of Harpers Road along an interconnection cable route corridor to the expanded/upgraded onshore substation at Fentress. The interconnection cable would be installed as all overhead transmission facilities. Dominion Energy evaluated five overhead interconnection cable route alternatives (i.e., Route Options 1–5) and one hybrid interconnection cable route alternative (i.e., Option 6) from Harpers Road to the onshore substation, at the Point of Interconnection (POI). However, Route Options 2–6 have since been eliminated from the PDE. The

onshore substation is the existing Fentress Substation located northwest of the intersection at Centerville Turnpike and Etheridge Manor Boulevard in Chesapeake, Virginia. The onshore substation would be expanded and upgraded and serve as the final POI for power distribution to the Pennsylvania-New Jersey-Maryland Interconnection (PJM) grid.

Dominion Energy intends on leasing a portion of an existing facility to act as the operations and maintenance (O&M) facility. Dominion Energy is evaluating leasing options in Virginia Port Authority's (VPA's) Portsmouth Marine Terminal and Newport News Marine Terminal in the Hampton Roads area of Virginia. Generally, offshore O&M activities would include inspections of Offshore Project components, including WTG and offshore substation electrical components and equipment, for signs of corrosion, quality of coatings, and structural integrity of the WTG components; surveys of the offshore export cables and inter-array cables routes to confirm the cables have not become exposed or that any cable protection measures have not worn away; sampling and testing (including of lubricating oils, etc.); replacement of consumable items; repair or replacement of worn, failed, or defective systems; updating or improving systems; and disposal of waste materials and parts. Dominion Energy would need to use vessels, vehicles, and aircraft during O&M activities described above.

The switching station and the onshore substation would be equipped with monitoring equipment. Onshore O&M activities would include regular inspections and routine maintenance activities, including the replacement of or update to electrical components and equipment. The onshore export cables and interconnection cables would require periodic testing, with readings taken from access chambers, but should not require maintenance, though occasional repair activities may be required should there be a fault or damage caused by a third party or unanticipated events. Overhead lines would be inspected prior to each line being energized and then inspected every 3 years after. Overhead lines would also be inspected following localized storm events. Right-of-way (ROW) vegetation management crews would inspect the overhead easement every 3 years for woody vegetation and hazard trees.

Although the proposed Project is anticipated to have an operational life of 33 years, it is possible that some installations and components may remain fit for continued service after this time. Dominion Energy would be required to remove or decommission all Project infrastructure and clear the seabed of all obstructions following termination of Project operational activities and the Lease. All Project components would be removed to 15 feet (4.6 meters) below the mudline (30 CFR 585.910(a)), unless other methods are deemed suitable through consultation with the regulatory authorities, including BOEM. Unless otherwise authorized by BOEM, Dominion Energy would complete decommissioning within 2 years of termination of the Lease and either reuse, recycle, or responsibly dispose of all materials removed. Offshore export cables and inter-array cables would be retired in place or removed in accordance with a decommissioning plan; Dominion Energy would need to obtain separate and subsequent approval from BOEM to retire any portion of the Project in place. Section 106 review would be conducted at the decommissioning stage.

O.1.2 Undertaking

BOEM has determined that the Project constitutes an undertaking subject to Section 106 of the NHPA as amended (54 USC 306108) and its implementing regulations (36 CFR 800), and the Project activities proposed under the COP have the potential to affect historic properties. Confidential appendices to the COP referenced in this document were sent electronically or by mail depending on expressed preference to all consulting parties on November 11, 2022. The COP, as well as its public and confidential appendices, is hereby incorporated by reference.

The undertaking for this Section 106 review is the Proposed Action. As described in Chapter 2, Section 2.1.1 of the Draft EIS, the Proposed Action would include the construction, O&M, and eventual

decommissioning of a 2,500 MW to 3,000 MW wind energy facility on the OCS offshore Virginia, occurring within the range of design parameters outlined in the CVOW-C COP (Dominion Energy 2022), subject to applicable mitigation measures.

O.1.3 Area of Potential Effect

Per 36 CFR 800.16(d), the APE is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." BOEM defines the APE for the undertaking to include the following geographic areas:

- The depth and breadth of the seabed potentially impacted by any bottom-disturbing activities, constituting the marine portion of the APE.
- The depth and breadth of terrestrial areas potentially impacted by any ground-disturbing activities, constituting the terrestrial portion of the APE.
- The viewshed from which renewable energy structures, whether offshore or onshore, would be visible, constituting the visual portion of the APE.
- Any temporary or permanent construction or staging areas, both onshore and offshore, which may fall into any of the above portions of the APE.

These are described below in greater detail with respect to the proposed activities, consistent with BOEM's *Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR Part 585* (BOEM 2020). Effects are assessed on only historic properties in the APE for the Project. This includes reasonably foreseeable effects caused by the Project that may occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5[a][1]). An overview map of the Project APE is presented in Attachment A, Figure O.A-1.

On November 11, 2022, BOEM released a technical memorandum delineating the APE and demonstrating how the Preliminary APE (PAPE) developed in the CVOW-C technical studies sufficiently encompasses the scope and boundaries of the undertaking (ICF 2022).

O.1.3.1 Marine Portion of the APE

The marine portion of the APE (hereafter referred to as the *marine APE*) for the Project is the depth and breadth of the seabed potentially affected by any bottom-disturbing activities and temporary or permanent offshore construction or staging areas (Attachment A, Figure O.A-2). It includes a conservative PDE that can accommodate a number of potential designs. The marine APE encompasses activities within the Lease Area (Attachment A, Figure O.A-3) and offshore ECRC (Attachment A, Figure O.A-4).

The Lease Area encompasses 112,799 acres (45,658 hectares) within which Dominion Energy proposes up to 205 WTGs, 3 OSSs, and inter-array cables within the extent of the PDE. In the maximum design scenario, the offshore ECRC would measure approximately 49.01 miles (79 kilometers) in length and would range in width from 1,970 feet (600 meters) to 9,400 feet (2,865 meters).

The approximate maximum horizontal area and vertical depth of seabed disturbance associated with the construction or installation of each of these aforementioned Offshore Project components and composing the marine APE are provided in Table O-1.

Table O-1 Approximate Maximum Horizontal and Vertical Extents of Seabed Disturbance for Construction of Offshore Project Components Composing the Marine APE

Project Component	Seabed Disturbance	
	Maximum Horizontal Area	Maximum Vertical Depth
Per WTG (monopile foundation)	984.3 ft (300.0 m) radius	197 ft (60 m)
Per OSS	497,092 sq ft (46,181 sq m)	69 ft (82 m)
Inter-array cables	48 ac (19 ha)	11.5 ft (3.5 m)
Offshore Export Cable Route Corridor	15,886 ac (6,429 ha)	18.5 ft (5.5 m)

Source: COP, Tables 3.3-3, 3.3-7, 3.4-1, 3.4-2; Dominion Energy 2022.
ac = acres; ft = feet; ha = hectares; m = meters; OSS = offshore substation; sq = square; WTG = wind turbine generator.

O.1.3.2 Terrestrial Portion of the APE

The terrestrial portion of the APE (hereafter referred to as the *terrestrial APE*) includes the depth and breadth of terrestrial areas potentially affected by any ground-disturbing activities and temporary or permanent onshore construction or staging areas (Attachment A, Figures O.A-5 to O.A-7). In the May 2022 COP, Dominion Energy's conservative PDE included the proposed cable landing location, nearshore trenchless installation area, switching station, upgrades at the onshore substation, onshore export cable route, six interconnection cable route options, and affiliated temporary workspace. However, on August 5, 2022, Dominion Energy received approval from the Virginia State Corporation Commission (SCC) for use of the portion of the offshore export cable from 3 miles (4.8 kilometers) offshore landward and other preferred Onshore Project components (i.e., Interconnection Cable Route Option 1) in the Commonwealth of Virginia. As such, the terrestrial PAPE, as presented in the Phased Identification Plan (PIP), reflects the Onshore Project components approved by Virginia SCC (COP, Appendix DD; Dominion Energy 2022); the now-eliminated Project components previously proposed within the PDE are not included in the delineation of the terrestrial APE. The depth and breadth of potential ground-disturbing activities are described below for each location composing the terrestrial PAPE.

The PDE in the May 2022 COP includes the sea-to-shore transition cable landing location at the proposed parking lot west of the firing range at the State Military Reservation (SMR) in Virginia Beach, Virginia. The cable landing location would utilize trenchless installation within the nearshore trenchless installation area. From the cable landing location, the onshore export cable would be installed underground in vaults and duct banks within the onshore ECRC. The switching station, proposed for the Harpers Switching Station location, would be required to consolidate the energy of the onshore export cables and transition an underground cable configuration to an overhead configuration. The proposed Chicory Switching Station location would not be carried forward in the PDE per Virginia SCC approval of Interconnection Cable Route Option 1. Construction of the switching station would involve site clearing and grading, foundation and equipment construction, and site mitigation and restoration. From the common location north of Harpers Road, the interconnection cable had been proposed for installation either overhead or through a hybrid of overhead and underground cabling to connect to the onshore substation. Of the six potential interconnection cable route options considered (i.e., Route Options 1–6) in the PDE, Route Option 1 is the route that would be carried forward per Virginia SCC approval. The interconnection cable route would transfer electricity to the onshore substation (the existing Fentress Substation and POI). Expansion or upgrading of the onshore substation would involve site clearing and grading, foundation and equipment installation, and site restoration.

The approximate maximum horizontal area and vertical depth of ground disturbance associated with the construction or installation each of these aforementioned Onshore Project components and composing the

terrestrial APE are provided in Table O-2. The maximum area of potential ground disturbance associated with construction of the interconnection cable route option carried forward in the PDE (i.e., Route Option 1), as well as the considered but now-eliminated options (i.e., Route Options 2–6), is outlined in Table O-3.

Table O-2 Approximate Maximum Horizontal and Vertical Extents of Ground Disturbance for Construction of Onshore Project Components Composing the Terrestrial APE

Project Component	Ground Disturbance	
	Maximum Horizontal Area	Maximum Vertical Depth
Cable Landing Location	2.8 ac (1.1 ha)	125 ft (38 m)
Nearshore Trenchless Installation Area	8.8 ac (3.6 ha)	
Onshore Export Cable Route Corridor	4.41 mi (7.10 km) x 250 ft (76.0 m)	8 ft (2.4 m)
Switching Station	27.5 ac (11.1 ha)	Static pole structures: 30 ft (9 m) Backbone structures: 50 ft (15 m)
Interconnection Cable	See Table O-3	See Table O-3
Onshore Substation	21.4 ac (8.7 ha)	50 ft (15 m)

Source: COP, Tables 1.2-1 and 3.4-6, and Appendix DD, Table DD-3; Dominion Energy 2022.
ac = acres; ft = feet; ha = hectares; km = kilometers; m = meters; mi = miles.

Table O-3 Approximate Maximum Horizontal and Vertical Extents of Ground Disturbance for Interconnection Cable Route Options

Route Option	Interconnection Route Type	Ground Disturbance	
		Maximum Horizontal Area	Maximum Vertical Depth
Included in Terrestrial APE (selected PDE route option)			
1	Overhead	254.4 ac (103.0 ha)	Single-circuit monopole structures: 60 ft (18 m)
Excluded from Terrestrial APE (eliminated PDE route options)			
2	Overhead	271.9 ac (110.0 ha)	Single-circuit monopole structures: 60 ft (18 m) Double-circuit monopole structures: 80 ft (24 m)
3		277.9 ac (112.5 ha)	
4		292.2 ac (118.2 ha)	
5		405.5 ac (164.1 ha)	
6	Hybrid	286.1 ac (115.8 ha)	Single-circuit monopole structures: 60 ft (18 m) Double-circuit monopole structures: 80 ft (24 m) Open trench interconnect duct bank: 13 ft (4 m)

Source: COP, Table 3.4-6, and Appendix DD, Table DD-3; Dominion Energy 2022.
Notes: Route Option 1 is the route that would be carried forward among those in the PDE per Virginia SCC approval. The potential effects of other route options (Route Options 2–6) are provided for reference purposes.
ac = acres; ft = feet; ha = hectares; m = meters.

O.1.3.3 Visual Portion of the APE

The visual portion of the APE (hereafter referred to as the *visual APE*) includes the viewshed from which renewable energy structures—whether offshore or onshore—would be visible (Attachment A, Figure O.A-8).

For the visual APE for Offshore Project components, geographic information system analysis was used to delineate the APE methodically through a series of steps, beginning with the maximum theoretical distance WTGs could be visible. This was determined by first considering the visibility of a WTG from the water level to the tip of an upright rotor blade at a height of 869 feet. The analysis then accounted for how distance and Earth curvature impede visibility as the distance increases between the viewer and WTGs (i.e., with a 40-mile [64 kilometer] distance, even blade tips would be below the sea-level horizon line). This area was refined through computer modeling with the addition of a land cover vegetation layer to account for large areas of tall vegetation that limit projected visibility to the Project. Data layers for building footprints and building heights were then added to account for existing development projected to screen views to the Project (COP, Appendices H-1 and I-1; Dominion Energy 2022). Areas with unobstructed views of Offshore Project elements then constituted the APE.

For the visual APE for Onshore Project components, the APE includes the following components: the cable landing location at the Virginia SMR; the underground transmission line connecting it to a point north of Harpers Road in Virginia Beach, known as the Cable Landing to Harpers (CLH) Route; Fentress Substation; proposed Chicory Switching Station for the Hybrid Route; and five potential overhead transmission line routes and one underground/overhead hybrid transmission route, known as Interconnection Cable Route Options 1–6. For these routes, the APE was defined in accordance with the nature of the proposed construction for specific segments, as follows:

- For portions of the proposed routes to be constructed within the existing ROW where no new vegetation would be cleared outside of the maintained ROW and where there would be no substantial increase in tower height, the APE consists of resources adjacent to the ROW.
- For portions of the proposed routes to be constructed within the existing ROW and where there would be areas of new vegetation clearance, the APE consists of 0.5 mile on either side of the existing ROW.
- For portions of the routes to be constructed in the proposed new ROW where there is no existing ROW, the APE consists of 0.5 mile on either side of the proposed new ROW (see Attachment A, Figure O.A-7) (COP, Appendix H-3, page 11; Dominion Energy 2022).

In consideration of ongoing developments in Project design and Dominion Energy's refinement of the PDE, BOEM has determined that the visual APE for Onshore Project components sufficiently encompasses the undertaking as currently proposed.

O.2. Steps Taken to Identify Historic Properties

O.2.1 Technical Studies and Reports

To support the identification of historic properties within the APE, Dominion Energy provided survey reports detailing the results of cultural resource investigations in the marine, terrestrial, and visual portions of a PAPE. Table O-4 provides a summary of these efforts to identify historic properties, including results and key findings of each investigation. Collectively, BOEM finds that these reports represent a good-faith effort to identify historic properties in portions of the Project APE that are not subject to the phased identification process. Because of Dominion Energy's process of phased

identification and evaluation of historic properties, the PIP has been shared with consulting parties in lieu of the Terrestrial Archaeological Resources Assessment (TARA) (COP, Appendix DD; Dominion Energy 2022; Section O.6, *Phased Identification and Evaluation*). BOEM anticipates sharing the TARA with consulting parties in March or April of 2023. All other documents summarized in Table O-4 have been shared with consulting parties and are hereby incorporated by reference.

Table O-4 Cultural Resources Studies or Plans to Be Performed by Dominion Energy in the Project APE

Portion of APE	Report	Description	Key Findings/Recommendations
Marine	*Marine Archaeological Resources Assessment for the Coastal Virginia Offshore Wind Commercial Project Located on the Outer Continental Shelf Offshore Virginia* (COP, Appendix F; Dominion Energy 2022)	MARA. Prepared by Tetra Tech, Inc. Assessment of the high-resolution geophysical survey data collected during non-intrusive survey campaigns and the geotechnical assessment in the marine PAPE representing the extent of anticipated seabed effects associated with the Project.	Tetra Tech identified 31 potential marine archaeological resources, 18 within or near the Lease Area and 13 within or near the offshore ECRC. For each marine archaeological resource, a resource-specific avoidance zone, entailing a minimum distance of 50 meters from the resource, was recommended. In addition, 5 ASLFs were identified within the Lease Area. One additional landform was identified outside of but near the Lease Area and considered for potential effects from the Proposed Action due to its proximity. No ASLFs were identified within the offshore ECRC. For each of the ASLFs, a resource-specific minimum area of avoidance was recommended.
Marine	*Marine Archaeological Resources Assessment for the Coastal Virginia Offshore Wind Commercial Project Located on the Outer Continental Shelf Offshore Virginia: Amendment I* (COP, Appendix F; Dominion Energy 2022)	Amendment to MARA. Prepared by RCG&A.	Dominion Energy submitted this amendment to advance development of the Project. RCG&A, under subcontract to Tetra Tech and on behalf of Dominion Energy, conducted this archaeological assessment of marine HRG data and evaluated the marine PAPE for the presence of submerged cultural resources along the offshore ECRC affected by OEC alignment changes and some missing data. The additional data coverage has not altered previous interpretations presented in the MARA (COP, Appendix F; Dominion Energy 2022).

Portion of APE	Report	Description	Key Findings/Recommendations
Terrestrial	*Terrestrial Archaeological Resources Assessment* (COP, Appendix G; Dominion Energy 2022)[1]	TARA. Prepared by Tetra Tech, Inc. Background research, examination of historical maps, assessment of primary documents available at the VDHR, field reconnaissance of the proposed Onshore Project component locations, archaeological sensitivity assessment, preliminary findings from Phase IB cultural resource survey efforts, and proposed methodology for further cultural resources work.	Terrestrial archaeological background research and survey encompassed areas proposed for Onshore Project components. Investigations completed as of the May 2022 COP identified 25 terrestrial archaeological resources and one mid-twentieth century cemetery, with one grave in or near the terrestrial PAPE and Project components originally proposed within the PDE. Portions of the terrestrial APE were unsurveyed as of May 2022. In consultation with BOEM and the relevant SHPO, Dominion Energy will be using a process of phased identification and evaluation of historic properties, as defined in 36 CFR 800.4(b)(2), for the remaining unsurveyed areas of the terrestrial APE.
Terrestrial	*Section 106 Phased Identification Plan* (COP, Appendix DD; Dominion Energy 2022)	PIP. Prepared by Tetra Tech, Inc. Overview of Project and PAPE. Plan for completion of phased historic property identification and completion of the TARA.	Dominion Energy will be using a process of phased identification and evaluation of historic properties to complete the TARA. Preparation of the TARA is ongoing because of the lack of private property access permission for the entirety of the Onshore Project components under consideration. This document details the steps Dominion Energy will take to complete the required cultural resources surveys following Virginia SCC's approval and issuance of the CPCN. Dominion Energy anticipates completion of the remainder of the TARA will be required for parcels where access was not previously gained.

Portion of APE	Report	Description	Key Findings/Recommendations
Visual/ Terrestrial	*Phase I Historic Architectural Survey of Alternative Routes, Coastal Virginia Offshore Wind Commercial Project, City of Virginia Beach and City of Chesapeake, Virginia* (COP, Appendix H-3; Dominion Energy 2022)	HRVEA for Onshore Project components. Desktop and field identification of previously recorded as well as newly identified aboveground historic resources within the PAPE for the electric transmission line alternative routes, extending from the cable landing location in Virginia Beach to the existing Fentress Substation in the city of Chesapeake.	A total of 322 resources were identified within the PAPE (see Table H-3.4.1-1), including 153 previously identified and 169 newly identified resources. All 169 newly recorded resources were recommended ineligible for the NRHP. Of the 153 previously recorded resources, 47 are no longer extant, 93 were recommended not eligible, 7 were recommended eligible, 4 are listed on the NRHP, and 2 are locally significant. This report also identified one archaeological resource (44VB0388) for consideration by the Project. A total of 13 aboveground historic resources were assessed for potential effects. The report found that one historic property, the Camp Pendleton/State Military Reservation Historic District, would be adversely affected by the Cable Landfall to Harpers Route. Five additional historic properties could be adversely affected, depending on the Harpers to Fentress (HF) cable route chosen for construction. Among the alternative HF routes, HF Routes 2, 3, 4, and 5 would have adverse effects on historic properties—four in the case of HF Route 5, three in the case of HF Routes 2 or 3, and two in the case of HF Route 4. Final assessments of Project effects will be dependent on the review of the survey results by BOEM, VDHR, and other consulting parties.
Visual	*Offshore Project Components Historic Properties Effects Analysis* (COP, Appendix H-1; Dominion Energy 2022)	HRVEA for Offshore Project components. A study evaluating visual effects of Offshore Project components on historic properties.	This report identified 712 properties (see Attachment H-1-7 of the HRVEA) within the portion of the visual PAPE for Offshore Project components. The report assessed the maritime setting and important character-defining ocean views for each property. According to the report, 25 historic properties would be adversely affected, including the First Cape Henry Lighthouse National Historic Landmark and the Camp Pendleton/State Military Reservation Historic District (see Table O-8, below).

Sources: COP, Appendices DD, F, G, H-1, and H-3; Dominion Energy 2022.

[1] Because of Dominion Energy's process of phased identification and evaluation of historic properties, the PIP has been shared with consulting parties in lieu of the TARA (COP, Appendix DD; Dominion Energy 2022; Section O.5, *Phased Identification and Evaluation*). BOEM anticipates sharing the TARA with consulting parties in March or April of 2023.

CPCN = Certificate of Public Convenience and Necessity; HRG = high-resolution geophysical; HRVEA = Historic Resource Visual Effects Assessment; MARA = Marine Archaeological Resources Assessment; PIP = Phased Identification Plan; SCC = (Virginia) State Corporation Commission; TARA = Terrestrial Archaeological Resources Assessment; VDHR = Virginia Department of Historic Resources.

BOEM has reviewed the reports summarized in Table O-4 and reached the following conclusions:

- The marine cultural resource investigations include surveys of areas of potential seafloor disturbance, following BOEM's guidelines (BOEM 2020). BOEM has reviewed the final Marine Archaeological Resources Assessment (MARA) and determined that the data are sufficient for identifying historic properties in the marine APE.
- BOEM has reviewed the TARA and PIP and determined that the completed and planned investigations summarized in the documents will be sufficient for identifying historic properties in the terrestrial APE. Efforts conducted for the TARA thus far are sufficient for determining effects on previously identified historic properties, but private property access limitations have delayed full identification of unknown historic properties. Dominion Energy will therefore be using phased identification of historic properties, as defined in 36 CFR 800.4(b)(2), for completion of archaeological investigations in the terrestrial APE, a process specifically provided for in the MOA that will be issued pursuant to 36 CFR 800.8(c)(4)(i)(A). See Section O.6, *Phased Identification and Evaluation*, for additional details on the phased process.
- The aboveground historic resource investigations included an assessment of visual effects on historic properties within the entire PDE. Effects assessments also considered visual simulations prepared as part of the Visual Impact Analysis (VIA) (COP, Appendix I-1; Dominion Energy 2022). BOEM has reviewed the Historic Resource Visual Effects Assessment (HRVEA) and determined that the completed investigations summarized in the documents are sufficient for identifying and assessing effects on historic properties in the visual APE. BOEM finds that the APE for potential visual effects is appropriate for the scale and scope of the undertaking.

In addition to the conclusions summarized above, BOEM has found that the assessment of effects on historic properties in the marine, terrestrial, and visual APEs contained within the reports is sufficient for applying the criteria of adverse effects and continuing consultation with consulting parties to resolve adverse effects on historic properties.

Consequent to the reports prepared for the COP submittal, ICF prepared a technical report for BOEM to support BOEM's cumulative effects analysis, the *Cumulative Historic Resources Visual Effects Assessment for Coastal Virginia Offshore Wind Commercial Project* (BOEM 2022). The Cumulative Historic Resources Visual Effects Assessment (CHRVEA) presents the analysis of cumulative visual effects in which BOEM, in review of the HRVEA (COP, Appendices H-1, H-2, H-3, and H-4; Dominion Energy 2022), determined that Offshore Project components would cause adverse visual effects on historic properties. The effects of other reasonably foreseeable wind energy development activities are additive to those adverse effects from the Project, resulting in cumulative effects. Twenty-five aboveground historic properties within the viewshed of WTGs for the Project and other reasonably foreseeable offshore wind energy development activities would be adversely affected by cumulative visual effects (offshore Virginia Beach, Virginia) (BOEM 2022).

O.2.2 Consultation and Coordination with the Parties and Public

O.2.2.1 Early Coordination

Since 2009, BOEM has coordinated OCS renewable energy activities offshore Virginia with its federal, state, local, and tribal government partners through its Intergovernmental Renewable Energy Task Force. BOEM has met regularly with federally recognized tribes that may be affected by renewable energy activities in the area since 2009, specifically during planning for the issuance of leases and review of site assessment activities. BOEM also hosts public information meetings to help keep interested stakeholders updated on major renewable energy milestones. Information pertaining to BOEM's Intergovernmental

Renewable Energy Task Force meetings for offshore Virginia is available at https://www.boem.gov/renewable-energy/state-activities/virginia-task-force-meetings-0, and information pertaining to BOEM's stakeholder engagement efforts in Virginia is available at https://www.boem.gov/renewable-energy/state-activities/virginia-activities.

O.2.2.2 NEPA Scoping and Public Hearings

On July 2, 2021, BOEM announced its Notice of Intent (NOI) to prepare an EIS for the COP. This purpose of the NOI was to solicit input on issues and potential alternatives for consideration in the EIS. Throughout the scoping process, federal agencies; state, tribal, and local governments; and the general public had the opportunity to help BOEM determine significant resources and issues, IPFs, reasonable alternatives, and potential mitigation measures to be analyzed in the EIS, as well as provide additional information. BOEM also used the NEPA commenting process to allow for public involvement in the NHPA Section 106 consultation process (54 USC 300101 et seq.), as permitted by 36 CFR 800.2(d)(3). Through this notice, BOEM announced its intention to inform its NHPA Section 106 consultation using the NEPA commenting process and invited public comment and input regarding the identification of historic properties or potential effects on historic properties from activities associated with approval of the COP. In addition, BOEM held virtual public scoping meetings, which included specific opportunities for engaging on issues relative to NHPA Section 106 for the COP, on July 12, 14, and 20, 2021. Virtual public scoping meeting materials and records are available at https://www.boem.gov/CVOW-C-Scoping-Virtual-Meetings.

Through this NEPA scoping process, BOEM received comments related to cultural, historic, archaeological, or tribal resources. These are presented in BOEM's EIS Scoping Report (BOEM 2021) and are summarized as follows:

- Commenters asked that BOEM ensure compliance with Section 106 of the NHPA including ensuring adequate consultation with SHPOs, tribes, and other stakeholders throughout the EIS process.
- Commenters stated that BOEM should recognize tribes' sovereign status and provide adequate government-to-government consultation with tribal governments throughout the EIS process.
- Commenters provided information sources from which BOEM could find data related to cultural, historical, and archaeological resources including the Virginia Department of Historic Resources data sharing system and the Virginia Department of Conservation and Recreation natural heritage search in Virginia.
- Commenters recommended that BOEM perform offshore and onshore archaeological and architectural surveys to identify historic properties that may be affected by the Project and coordinate these surveys with appropriate groups including SHPOs and tribes. Commenters noted that they expect adverse effects on historic properties to be addressed through the development of appropriate avoidance, minimization, and mitigation measures with these groups.
- Commenters noted that pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, a permit would likely be required from the U.S. Army Corps of Engineers (USACE) for the Project, and USACE has designated BOEM as the lead federal agency to fulfill federal responsibilities under NHPA Section 106.
- Commenters felt that the COP VIA was not adequate and expressed concern over viewshed or visual impacts on historic properties from the proposed Project, including lighting in general and at specific locations such as the Bunder Overlook, Assateague Lighthouse, Colonial National Historic Park, the Cape Henry Memorial, as well as NHLs such as the First Cape Henry Lighthouse. These commenters asked that these areas be included within the APE.

- Commenters asked that the cultural reports associated with the Project be provided to consulting parties and tribes as soon as they are available.
- Commenters expressed concern over the methods presented in the COP for marine archaeological surveys in that the methods did not include significant reports related to Mid-Atlantic coastal shelf archaeology in the past decade. These commenters also requested that BOEM request and receive expert input from the State Underwater Archaeologist at the Virginia Department of Historic Resources during the scoping process.
- Commenters expressed concern over the methods presented in the COP for terrestrial archaeological surveys in that the methods did not include an evaluation of historic properties that might have associations with tribal families. Commenters stated that the methods should include a review of literature from Frank Speck and James Mooney's visits with specific tribes in the late nineteenth and early twentieth centuries. They also provided names of authors who recently published accounts focused on specific tribes.
- Commenters asked that the EIS include public and stakeholder review of the methods for examining and evaluating cultural landscapes.
- Commenters asked for more information regarding the location of underground cable paths coming onshore as historical archaeological material from habitats of African American and Native American people.

On August 2, 2021, additional comments from the Nansemond Indian Nation (the Nation) were submitted by Cultural Heritage Partners (CHP) on behalf of the Nation to BOEM and the Virginia SCC. The comments are summarized below:

- The letter indicates concern that methods for identification were not clearly defined; that the federally recognized tribes should be invited to discuss the methods and preliminary survey and modeling data so that the Nation can provide meaningful input into Project scoping as well as avoidance, minimization, and mitigation measures.
- The letter inquired whether the scale of involvement by the Nation reaches the ACHP's threshold in the *Guidance on Assistance to Consulting Parties* in the Section 106 Review Process for providing compensation for tribal expertise and consultant services.
- The letter requested that cultural resources reports associated with the [Site Assessment Plan] be provided to the Nation as soon as they are available to assist with their review of this Project.
- The letter noted that the methods for marine archaeological survey appear to predominantly cite scholarship based on other areas of the United States, even though BOEM itself has produced several significant reports related to Mid-Atlantic coastal shelf archaeology and requested that BOEM base the marine archaeology approach for this Project on previous work in the Mid-Atlantic region.
- The letter requested that evaluation of historic properties include an evaluation of whether properties might have associations with Nansemond families and that it include review of certain literature.
- The letter expressed a concern for consideration of cultural landscapes and traditional communities along the transmission line and within the underwater portion of the Project in keeping with BOEM's 2015 *Guidance Document for Characterizing Tribal Cultural Landscapes*.
- The letter suggested that BOEM should reach out to existing stakeholder groups, such as the Great Dismal Swamp Stakeholders Collaborative, to identify any other communities that may identify the Project area as traditional cultural properties.

- The letter expressed that the Nation is particularly concerned about protection of wildlife, marine life, and water quality in rivers and streams in southeastern Virginia because of the tremendous environmental degradation of Nansemond traditional territory.
- The letter expressed concerns about the adequacy of visual effects analysis, with a request that additional vantage points should include all historic districts, and should also include multiple assessments for the entirety of the Nation's ancestral lands, including areas planned to route cables over waterways. These areas include without limitation the Nation's historic hunting and fishing grounds throughout the Back Bay area, as well as the Nansemond River and Princess Anne County.
- The letter expressed concern about potential lighting impacts on the dark night sky both during and after construction, and urges BOEM to mandate Automatic Detection Lighting Systems (ADLS).

Following receipt of the Notice of Participation from the Nation, in March 2022, Dominion Energy corresponded with CHP to discuss the Nation's comments. Dominion Energy will continue to coordinate with CHP and the Nation as the Project continues.

On December 16, 2022, BOEM published a Notice of Availability for the Draft EIS. As part of this process, BOEM held virtual public hearings on January 25, January 31, and February 2, 2023. The public comment periods closed on February 14, 2023. The input received via this process was used to inform preparation of the Final EIS.

O.2.2.3 NHPA Section 106 Consultations

On June 28, 2021, BOEM contacted ACHP, Virginia Department of Historic Resources (VDHR [the Virginia SHPO]), and North Carolina SHPO to provide Project information, notify of BOEM's intention to use the NEPA process to fulfill Section 106 obligations in lieu of the procedures set forth in 36 CFR 800.3 through 800.6, and to invite these organizations to be consulting parties.

On June 28, 2021, BOEM corresponded with 59 points of contact from governments and organizations by mail and email, including information about the Project, an invitation to be a consulting party to the NHPA Section 106 review of the COP, and the NOI to prepare an EIS. BOEM also used this correspondence to notify of its intention to use the NEPA process for Section 106 purposes, as described in 36 CFR 800.8(c), during its review. To aid those consulting parties not familiar with the NEPA substitution process, BOEM developed a *National Environmental Policy Act (NEPA) Substitution for Section 106 Consulting Party Guide* (available at https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/NEPA-Substitution-Consulting-Party-Guide.pdf), which it attached to this correspondence.

On July 2, 2021, BOEM contacted the Eastern Shawnee Tribe of Oklahoma, Shawnee Tribe, Cherokee Nation, Eastern Band of Cherokee Indians, United Keetoowah Band of Cherokee Indians in Oklahoma, Absentee-Shawnee Tribe of Indians of Oklahoma, The Delaware Nation, Delaware Tribe of Indians, The Shinnecock Indian Nation, The Narragansett Indian Tribe, Pamunkey Indian Tribe, Chickahominy Indian Tribe, Chickahominy Indian Tribe – Eastern Division, Upper Mattaponi Indian Tribe, Rappahannock Tribe, Nansemond Indian Nation, Tuscarora Nation, and the Monacan Indian Nation by email and mail with information about the Project, an invitation to be a consulting party to the NHPA Section 106 review of the COP, and the NOI to prepare an EIS. BOEM also used this correspondence to notify of its intention to use the NEPA process for Section 106 purposes, as described in 36 CFR 800.8(c), during its review.

During the period of July 12–19, 2021, outreach was conducted by phone to confirm receipt of correspondence among the governments and organizations that had not responded to the invitation to consult. The list of the governments and organizations contacted is included in Attachment B. Entities

that responded to BOEM's invitation or were subsequently made known to BOEM and added as consulting parties are listed in Attachment C.

On August 13, 2021, BOEM invited the Nansemond Indian Nation, Catawba Indian Nation, and Delaware Tribe of Indians to participate in a government-to-government consultation meeting during the week of September 6–10, 2021.

On September 27, 2021, BOEM hosted a single government-to-government consultation meeting for both the CVOW-C and Kitty Hawk Wind projects in accordance with a request for CHP on behalf of the Nansemond Indian Nation; the meeting was held with the Rappahannock Indian Tribe, Pamunkey Indian Tribe, Nansemond Indian Nation, Chickahominy Indian Tribe, Upper Mattaponi Indian Tribe, Monacan Indian Nation, Delaware Nation, Delaware Tribe of Indians, Mashpee Wampanoag Tribe, Eastern Band Cherokee Indians, Passamaquoddy Tribe, Mashantucket (Western) Pequot Tribal Nation, and Cultural Heritage Partners. During the meeting, BOEM presented information about both the CVOW-C and Kitty Hawk Wind projects and discussed scoping comments received from a Federally Recognized Tribe for both projects.

On September 9, 2022, BOEM held virtual NHPA Section 106 Consultation Meeting #1. The presentation included a brief Project overview, review of NEPA substitution for the NHPA Section 106 process, overview of Section 106 consultation opportunities for the Project, NHPA Section 110(f) compliance requirements, and a question-and-answer session with discussion.

BOEM held virtual NHPA Section 106 Consultation Meeting #2 on December 15, 2022. The presentation included a discussion of the documents distributed for consulting party review and a question-and-answer session with discussion.

On December 16, 2022, BOEM distributed a Notice of Availability to notify the consulting parties that the Draft EIS was available for public review and comment until February 14, 2023.

BOEM plans to hold consultation meetings to consult on the finding of effect and the resolution of adverse effects, receive additional input regarding the Draft EIS analysis, and consult on an MOA prior to issuing the Record of Decision (ROD). Additional consultation meetings may be scheduled during the period between the Draft EIS and issuance of the ROD if further consultation is needed to resolve adverse effects through an MOA. Additional consultation would occur if any alternatives that required phased identification are selected for the final Project design (see Section O.6, *Phased Identification and Evaluation*).

The list of the governments and organizations invited to participate as consulting parties is included in Attachment B. Entities that responded to BOEM's invitation or were subsequently made known to BOEM and added as consulting parties are listed in Attachment C.

O.3. Application of the Criteria of Adverse Effect

The Criteria of Adverse Effect under NHPA Section 106 (36 CFR 800.5(a)(1)) states that an undertaking has an adverse effect on a historic property if the following occurs:

> when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association…Adverse Effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

According to regulation, adverse effects on historic properties include, but are not limited to (36 CFR 800.5(a)(2)):

i. Physical destruction of or damage to all or part of the property;

ii. Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary of the Interior's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines;

iii. Removal of the property from its historic location;

iv. Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;

v. Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;

vi. Neglect of a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

vii. Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

O.3.1 Assessment of Effects on Historic Properties

This section documents assessment of effects for the affected historic properties in the marine APE, terrestrial APE, and visual APE.

O.3.1.1 Assessment of Effects on Historic Properties in the Marine APE

This section assesses effects on marine cultural resources (i.e., marine archaeological resources and ASLFs) in the marine APE. The extent of marine cultural investigations performed for the Proposed Action does not enable conclusive determinations of eligibility for listing identified resources in the NRHP; as such, all identified marine archaeological resources and ASLFs are considered eligible and, therefore, historic properties at this time. Based on the information presented below, BOEM finds historic properties would be adversely affected in the marine APE.

O.3.1.1.1 Marine Archaeological Resources

Marine geophysical archaeological surveys performed for the Proposed Action identified 42 potential marine archaeological resources (Table O-5; COP, Appendix F; Dominion Energy 2022): 29 within or near the proposed offshore Lease Area and 13 within or near the offshore ECRC (COP, Appendix F; Dominion Energy 2022). Of the 29 marine archaeological resources within the northern border of the Lease Area, 11 consist of large scuttled World War II–era ships, tires, cable spools, and other materials intentionally deposited since the 1970s to facilitate development of the Triangle Reef Fish Haven (COP, Sections 2.1.1 and 4.2.4.2; Dominion Energy 2022). As such, BOEM has determined these 11 resources are not historic properties eligible for listing in the NRHP. Because the ages and NRHP eligibility of the other 31 marine archaeological resources cannot be confirmed through the current marine cultural investigations, these resources are all assumed to be archaeological and potentially eligible for listing in the NRHP; as such, they are considered historic properties. Additional archaeological surveys or analyses,

if completed, may enable more refined assessments of integrity, significance, and eligibility for listing these resources in the NRHP. The majority of the potential marine archaeological resources likely relate to recent debris, industrial objects, and non-cultural geological features, although many may represent known and potential shipwrecks and related debris fields from the post-Contact period (COP, Appendix F; Dominion Energy 2022). Of the 31 marine archaeological resources considered historic properties eligible for listing in the NRHP, a total of 27 marine archaeological resources were located in the marine APE (i.e., Targets 1, 2, 4–13, 15–18, 21–31): 16 within the Lease Area and another 11 within the offshore ECRC. An additional 4 marine archaeological resources (i.e., Targets 3, 14, 19, and 20) are located outside of but near the marine APE and have been considered for potential effects from the Proposed Action due to their proximity.

Table O-5 Marine Archaeological Resources In or Near the Marine APE

Resource ID	Potential Source	Location Within the Marine APE	Finding of Effect[1]
WN 002a	Intentionally sunk *USNS Garrison*	Lease Area (TRFH)	N/A
WN 002b	Intentionally sunk *USNS Webster*	Lease Area (TRFH)	N/A
WN 003a	Intentionally sunk *USNS Haviland*	Lease Area (TRFH)	N/A
WN 003b	Intentionally sunk *USNS Clark*	Lease Area (TRFH)	N/A
WN 007	Intentionally sunk *USNS John Morgan*	Lease Area (TRFH)	N/A
WN 009	Unknown	Lease Area (TRFH)	N/A
WN 010	Intentionally sunk *Lillian Luckenback*	Lease Area (TRFH)	N/A
WN 011	Intentionally sunk *Kurn*	Lease Area (TRFH)	N/A
WN 013	Intentionally sunk *Tripca*	Lease Area (TRFH)	N/A
WN 014	Unknown	Lease Area (TRFH)	N/A
WN 015	Unknown	Lease Area (TRFH)	N/A
Target 1	Unknown	Lease Area	Adverse effect
Target 2	Unknown	Lease Area	Adverse effect
Target 3	Unknown	Adjacent to Lease Area	Adverse effect
Target 4	Unknown	Lease Area	Adverse effect
Target 5	Unknown	Lease Area	Adverse effect
Target 6	Unknown	Lease Area	Adverse effect
Target 7	Disintegrated section of an unknown shipwreck	Lease Area	Adverse effect
Target 8	Unknown	Lease Area	Adverse effect
Target 9	Unknown debris	Lease Area	Adverse effect
Target 10	Known shipwrecks *Cuyahoga*, *Middle Ground*, or charted NOAA #15064	Lease Area	Adverse effect
Target 11	Unknown debris	Lease Area	Adverse effect
Target 12	Unknown	Lease Area	Adverse effect
Target 13	Unknown	Lease Area	Adverse effect
Target 14	Known shipwreck *Francis E. Powell*	Adjacent to Lease Area	Adverse effect
Target 15	Unknown shipwreck and debris	Lease Area	Adverse effect
Target 16	Unknown	Lease Area	Adverse effect
Target 17	Unknown	Lease Area	Adverse effect

Resource ID	Potential Source	Location Within the Marine APE	Finding of Effect[1]
Target 18	Unknown	Lease Area	Adverse effect
Target 19	Unknown debris	Adjacent to Offshore ECRC	Adverse effect
Target 20	Unknown debris	Adjacent to Offshore ECRC	Adverse effect
Target 21	Unknown debris	Offshore ECRC	Adverse effect
Target 22	Unknown	Offshore ECRC	Adverse effect
Target 23	Unknown	Offshore ECRC	Adverse effect
Target 24	Charted debris NOAA #14936	Offshore ECRC	Adverse effect
Target 25	Unknown	Offshore ECRC	Adverse effect
Target 26	Unknown	Offshore ECRC	Adverse effect
Target 27	Unknown debris	Offshore ECRC	Adverse effect
Target 28	Unknown debris	Offshore ECRC	Adverse effect
Target 29	Unknown object	Offshore ECRC	Adverse effect
Target 30	Unknown object or debris	Offshore ECRC	Adverse effect
Target 31	Unknown debris	Offshore ECRC	Adverse effect

Source: COP, Appendix F, Table VI-2; Dominion Energy 2022.
[1] BOEM anticipates that all adverse effects have the potential to be alleviated through the adoption of Avoidance, Minimization, and Mitigation (AMM) measures. BOEM anticipates that the number of adversely affected marine archaeological resources may be refined through ongoing Section 106 consultations.
APE = area of potential effect; ECRC = Export Cable Route Corridor; ID = identification; NOAA = National Oceanic and Atmospheric Administration; TRFH = Triangle Reef Fish Haven; WN = Wreck Number.

The severity of Project effects would depend on the extent to which integral or significant components of the affected marine archaeological resource are disturbed, damaged, or destroyed, resulting in the loss of contributing elements to the historic property's eligibility for listing in the NRHP. Avoidance of 31 historic properties has been recommended, as indicated in Table O-5. The avoidance buffers for the historic properties were determined using several factors in a process developed by Dominion Energy's Qualified Marine Archaeologist (QMA) (COP, Appendix F; Dominion Energy 2022). Avoidance of Targets 1–7, 9, 12, 13, 16–21, and 23–31 was recommended by a minimum distance of 164 feet (50 meters) from the center point of the resource. Avoidance of Targets 8, 10, 11, 14, 15, and 22 was recommended by a minimum distance of 164 feet (50 meters) from the visible extent of the resource. Avoidance buffers recommended for each resource may contain contributing elements to the NRHP eligibility of the resources. Modifications to the recommended avoidance buffers of these resources may be made through ongoing analysis and consultation.

Dominion Energy has not presently committed to avoiding these resources or their associated avoidance buffers. Furthermore, the marine cultural investigations do not enable a definitive delineation of marine archaeological resource boundaries. Avoidance buffers recommended for each resource may contain contributing elements to the NRHP eligibility of the resources; as a result, the Project's encroachment on the recommended avoidance buffers for the four marine archaeological resources outside of but adjacent to the marine APE is presently assumed to result in adverse effects on these resources. Therefore, BOEM finds that the 31 marine archaeological resources that are historic properties would be subject to adverse effects from the undertaking. Adverse effects on these resources may potentially be avoided, minimized, or mitigated in the final Project design. BOEM anticipates that the number of adversely affected marine archaeological historic properties may be refined through ongoing Section 106 consultations.

O.3.1.1.2 Ancient Submerged Landform Features

ASLFs may be individually eligible for listing in the NRHP or considered contributing elements to a TCP eligible for listing in the NRHP. ASLFs in the marine APE are considered archaeologically sensitive. Although the marine geophysical remote-sensing studies performed to identify historic properties did not find direct evidence of pre-Contact Native American cultural materials, they do represent a good-faith effort to identify submerged historic properties within the APE potentially affected by the undertaking, as defined at 36 CFR 800.4. If undiscovered archaeological resources are present within the identified ASLFs and they retain sufficient integrity, these resources could be eligible for listing in the NRHP under Criterion D. Furthermore, ASLFs are considered by Native American tribes in the region to be culturally significant resources as the lands where their ancestors lived and as locations where events described in tribal histories occurred prior to inundation. In addition, BOEM recognizes these landforms are similar to features previously determined to be TCPs and that are presumed to be eligible for listing in the NRHP under Criterion A.

Dominion Energy's marine geophysical archaeological surveys identified a total of six geomorphic features, representing potential ASLFs (Table O-6). Five of these landforms are located within the Lease Area portion of the marine APE. No ASLFs were identified within the offshore ECRC. A sixth ASLF (i.e., Target P-01) is located outside of but near the Lease Area; this resource has been considered for potential effects from the Proposed Action due to its proximity but is not anticipated to experience an effect from the Project. The extent of marine cultural investigations performed for the Proposed Action does not enable conclusive determinations of eligibility for listing identified resources in the NRHP; as such, all identified ASLFs are considered eligible for the purposes of this assessment and, therefore, historic properties. Additional archaeological surveys or analyses, if completed, may enable more refined assessments of integrity, significance, and eligibility for listing these resources in the NRHP.

Table O-6 ASLFs In or Near the Marine APE

Landform ID	Location Within Marine APE	Finding of Effect[1]
P-01	Adjacent to Lease Area	No effect
P-02	Lease Area	Adverse effect
P-03	Lease Area	Adverse effect
P-04-A	Lease Area	Adverse effect
P-04-B	Lease Area	Adverse effect
P-05	Lease Area	Adverse effect

Source: COP, Appendix F, Table V-4; Dominion Energy 2022.
[1] BOEM anticipates that all adverse effects have the potential to be alleviated through the adoption of Avoidance, Minimization, and Mitigation (AMM) measures. BOEM anticipates that the number of adversely affected ASLFs may be refined through ongoing Section 106 consultations.
APE = area of potential effect; ID = identification.

An archaeological geotechnical analysis of ASLFs assessed a total of 31 borehole samples in the Lease Area in an attempt to verify the high-resolution geophysical (HRG) data and develop a temporal framework across the APE. Dominion Energy collected 31 borehole samples in the Lease Area for geoarchaeological analysis; 21 of those 31 cores contained evidence of preserved paleosols. Of those 21 cores, 4 predated both the Last Glacial Maximum (LGM) and the arrival of humans in the Western Hemisphere. Three samples dated approximately 18,300–17,800 calibrated years before present (cal BP) during the Oldest Dryas climate episode, and 14 samples dated approximately 14,000–12,000 cal BP after initiation of human presence in the Western Hemisphere. Thirteen of those samples dated from the Paleoindian period, and one dated from the Archaic period.

The severity of effects would depend on the extent to which integral or significant components of the affected ASLF are disturbed, damaged, or destroyed, resulting in the loss of contributing elements to the historic property's eligibility for listing in the NRHP. Resource-specific minimum avoidance areas for each of the six identified ASLFs within and near the marine APE were recommended (COP, Appendix F; Dominion Energy 2022). The avoidance areas were developed based on a 164-foot (50-meter) buffer around the mapped extent of each landform. Avoidance measures could include micro-siting facilities and work zones away from features and avoidance buffers and/or adjusting burial depth of cabling across features. Though the Project may encroach on the avoidance buffer of the seventh landform outside of but near the marine APE, the entire landform is contained within the avoidance buffer; as such, the undertaking is anticipated to have no effect on this resource. However, development of the final Project design is ongoing, and it is currently unclear whether Dominion Energy would be able to avoid effects on the identified ASLFs in the marine APE. As such, the undertaking is anticipated to have adverse effects on the five ASLFs identified in the marine APE. Adverse effects on these resources may be avoided, minimized, or mitigated in the final Project design. BOEM anticipates that the number of adversely affected ASLFs may be refined through ongoing Section 106 consultations.

O.3.1.2 Assessment of Effects on Historic Properties in the Terrestrial APE

Cultural resource investigations completed for the Proposed Action have identified historic properties in the terrestrial APE (COP, Appendices G and H-3; Dominion Energy 2022). Based on the information presented below, BOEM finds historic properties would be adversely affected in the terrestrial APE.

O.3.1.2.1 Terrestrial Archaeological Resources

As discussed in Section O.1.3.2, *Terrestrial Portion of the APE*, Dominion Energy has eliminated certain Project components previously proposed in the May 2022 COP within the PDE (i.e., Interconnection Cable Route Options 2–6, including the proposed use of the Chicory Switching Station location under Route Option 6). These now-eliminated Project components previously proposed within the PDE are not included in the delineation of the terrestrial APE. BOEM has included resources identified within these eliminated areas for the purposes of facilitating Section 106 consultations but anticipates the undertaking to have no effect on these resources.

As of September 2022, Dominion Energy's investigations have identified a total of 25 terrestrial archaeological resources in or near the terrestrial APE or in areas that had been previously proposed for ground-disturbing activities but have since been eliminated from the PDE (Table O-7). Terrestrial archaeological investigations have not been fully completed within the terrestrial APE. As such, potential, presently undiscovered terrestrial archaeological resources may be present in the terrestrial APE and subject to adverse effects from the Proposed Action; these may be identified during Dominion Energy's process of phased identification and evaluation of historic properties (COP, Appendix DD; Dominion Energy 2022; Section O.6, *Phased Identification and Evaluation*). Twenty-two of the 25 resources were identified in Dominion Energy's terrestrial archaeological background research and survey efforts (COP, Appendices G and H-3; Dominion Energy 2022). Six resources bearing cultural or religious significance to the Nansemond Indian Nation were identified through Dominion Energy's correspondence with CHP: three of the same resources identified in Dominion Energy's investigations and three additional resources.

The extent of investigations performed for the Proposed Action as of May 2022 does not enable conclusive determinations of eligibility for listing 19 of the 25 identified terrestrial archaeological resources in the NRHP; as such, BOEM assumes these are eligible for listing in the NRHP under Criteria A, B, C, and/or D and, therefore, historic properties. Otherwise, sufficient data from Dominion Energy's investigations have enabled BOEM to determine that the six other resources are isolated finds without sufficient integrity or significance for NRHP eligibility (i.e., 26-21, 26-234, 28-08, 31-46, 33-08, and

34-02). One cemetery and one historic aboveground resource were identified in the terrestrial APE, which may or may not contain contributing archaeological elements that could be affected by the undertaking; further discussion of these resources is provided in the *Cemeteries* and *Historic Aboveground Resources* sections below. BOEM anticipates that the number of identified terrestrial archaeological resources and historic properties in the terrestrial APE may be refined through the phased identification process and ongoing Section 106 consultations.

Table O-7 Terrestrial Archaeological Resources In or Near the Terrestrial APE or PDE

Resource ID	Cultural Component	Location	NRHP Status	Finding of Effect
44CS0250	Pre-Contact	Interconnection CRC	Potentially eligible	Adverse effect
44VB0162	Pre- and Post-Contact	Interconnection CRC	Potentially eligible	Adverse effect
44VB0204	Post-Contact	Onshore Export CRC	Potentially eligible	No adverse effect
44VB0274	Pre-Contact	Interconnection CRC	Potentially eligible	Adverse effect
44VB0306	Post-Contact	Interconnection CRC	Potentially eligible	Adverse effect
44VB0314	Post-Contact	Interconnection CRC	Potentially eligible	Adverse effect
44VB0319	Post-Contact	Interconnection CRC	Potentially eligible	Adverse effect
44VB0361	Post-Contact	Onshore Export CRC	Potentially eligible	Adverse effect
44VB0388	Post-Contact	Near Onshore ECRC	Potentially eligible	No effect
44VB0389	Pre- and Post-Contact	Onshore Export CRC	Potentially eligible	Adverse effect
44VB0395	Pre- and Post-Contact	Onshore Export CRC	Potentially eligible	Adverse effect
44VB0396	Post-Contact	Onshore Export CRC	Potentially eligible	Adverse effect
26-A	Post-Contact	Interconnection CRC	Potentially eligible	Adverse effect
35-A	Post-Contact	Onshore Export CRC	Potentially eligible	Adverse effect
Unassigned	Post-Contact	Onshore Export CRC	Potentially eligible	Adverse effect
26-21 (IF)	Post-Contact	Interconnection CRC	Not eligible	N/A
26-234 (IF)	Post-Contact	Interconnection CRC	Not eligible	N/A
28-08 (IF)	Post-Contact	Interconnection CRC	Not eligible	N/A
31-46 (IF)	Post-Contact	Onshore Export CRC	Not eligible	N/A
33-08 (IF)	Post-Contact	Onshore Export CRC	Not eligible	N/A
34-02 (IF)	Post-Contact	Onshore Export CRC	Not eligible	N/A
44CS0016	*Pre-Contact*	*Eliminated Interconnection CRC, Route Option 5*	*Potentially eligible*	*No effect*
44CS0156	*Post-Contact*	*Eliminated Interconnection CRC, Route Option 5*	*Potentially eligible*	*No effect*
44VB0175	*Contact and Post-Contact*	*Eliminated Chicory Switching Station*	*Potentially eligible*	*No effect*
44VB0290	*Unknown*	*Eliminated Interconnection CRC, Route Option 2*	*Potentially eligible*	*No effect*

Sources: COP, Appendices G and H-3; Dominion Energy 2022.
[1] Smithsonian trinomial identifiers have not been assigned for resources 26-A, 35-A, 26-21, 26-234, 28-08, 31-46, 33-08, 34-02, and "unassigned."
[2] BOEM anticipates that all adverse effects have the potential to be alleviated through the adoption of Avoidance, Minimization, and Mitigation (AMM) measures. BOEM anticipates that the number of adversely affected terrestrial archaeological resources may be refined through ongoing Section 106 consultations.
Notes: Italicization indicates those resources that are located within now-eliminated areas of the PDE.
APE = area of potential effect; CRC = cable route corridor; ID = identification; IF = isolated find.

The severity of Project effects on terrestrial archaeological resources that are historic properties would depend on the extent to which integral or significant components of the affected resource are disturbed, damaged, or destroyed, resulting in the loss of contributing elements to the historic property's eligibility for listing in the NRHP. Based on Dominion Energy's terrestrial archaeological investigations as of September 2022, BOEM is able to conclude the following about the Proposed Action and 19 identified terrestrial archaeological resources that are historic properties:

- The Proposed Action would have adverse effects on 13 resources (i.e., 44CS0250, 44VB0162, 44VB0274, 44VB0306, 44VB0314, 44VB0319, 44VB0361, 44VB0389, 44VB0395, 44VB0396, 26-A, 35-A, and "unassigned").
- The Proposed Action would have no adverse effects on one resource (i.e., 44VB0204). Though the defined boundary of this resource partially overlaps the terrestrial APE, no integral or significant components potentially contributing to this resource's NRHP eligibility were identified in this area.
- The Proposed Action would have no effect on:
    - One resource (i.e., 44VB0388) outside of but adjacent to the terrestrial APE. As of September 2022, there is no evidence that resource 44VB0388 extends into the terrestrial APE; however, terrestrial archaeological investigations of the terrestrial APE adjacent to this resource have not yet been completed. BOEM has included resource 44VB0388 in its assessment of effects but presently anticipates no effect on this resource. Additional terrestrial archaeological investigations completed through the phased identification and evaluation process will determine whether resource 44VB0388 extends into the terrestrial APE and is subject to effects of the Project.
    - Four resources (i.e., 44CS0016, 44CS0156, 44VB0175, and 44VB0290) located in areas that would have been affected by proposed Project components now eliminated from the PDE.

As detailed in the Section 106 PIP (COP, Appendix DD; Dominion Energy 2022), Dominion Energy will assess avoidance, minimization, and mitigation measures appropriate for terrestrial archaeological resources following completion of the survey and analysis. Dominion Energy is committed to minimizing impacts on cultural resources through the siting, routing, and design process of the Onshore Project components to the extent practicable.

However, development of the final Project design is ongoing, and it is currently unclear whether Dominion Energy would be able to avoid effects on terrestrial archaeological resources. In addition, Dominion Energy will be using a process of phased identification and evaluation of historic properties, as defined in 36 CFR 800.4(b)(2), for the unsurveyed areas of the terrestrial APE. Completion of Phase IB archaeological surveys during the phased process may lead to the identification of archaeological resources in the terrestrial APE. As such, BOEM anticipates the undertaking as currently proposed would have adverse effects on a total of 13 known terrestrial archaeological resources that are historic properties assumed eligible for listing in the NRHP (see Table O-7). Adverse effects on these resources may be avoided, minimized, or mitigated in the final Project design. BOEM also anticipates that the number of

adversely affected terrestrial archaeological resources may be refined through the phased identification process and ongoing Section 106 consultations, which may involve refining the assessments of integrity, significance, and eligibility for listing identified resources in the NRHP. BOEM will use an MOA to establish commitments for reviewing the sufficiency of any supplemental terrestrial archaeological investigations as phased identification; assessing effects on historic properties; and implementing measures to avoid, minimize, or mitigate effects in these areas prior to construction. See COP, Appendix DD (Dominion Energy 2022), and Section O.6, *Phased Identification and Evaluation,* for additional details.

O.3.1.2.2 Cemeteries

One cemetery—an approximately mid-twentieth century cemetery with one known grave—was identified outside of but near the terrestrial APE and has been considered for potential effects from the Proposed Action due to its proximity to the proposed Harpers Switching Station (COP, Appendix G; Dominion Energy 2022).

The severity of Project effects would depend on the extent to which the cemetery is disturbed, damaged, or destroyed. Avoidance, minimization, and mitigation measures appropriate for this resource are still under development. Although avoidance of this resource has been recommended (COP, Appendix G; Dominion Energy 2022), the extent of cultural resource investigations performed for the Proposed Action does not enable a definitive delineation of the extent of potential graves that may be present beyond the one identified grave. If additional cultural resource investigations enable definitive delineation of the cemetery, development and implementation of an avoidance buffer surrounding the defined perimeter of the resource location would result in no effect on this resource. BOEM may also require archaeological monitoring during construction activities that are proposed for areas near this resource; this process would likely avoid adverse effects on this resource.

At this time, BOEM anticipates avoidance, minimization, or mitigation procedures under development for this resource would result in the Project having no adverse effect on this resource. BOEM would use an MOA to establish commitments for assessing effects and implementing measures to avoid, minimize, or mitigate effects on this resource prior to construction.

O.3.1.2.3 Historic Aboveground Resources

The Camp Pendleton/State Military Reservation Historic District, a historic aboveground resource in Virginia Beach, Virginia, is listed in the NRHP and identified in the terrestrial APE. The resource would be subject to adverse effects from the undertaking (COP, Appendix H-3; Dominion Energy 2022). Two structures are contributing elements to the historic district and in the terrestrial APE: Buildings 59 and 410. Building 59 is a mess hall dating to 1939 and one of nine nearly identical buildings. Building 410 was constructed between 1940 and 1942 as a firehouse during expansion of the site. It has a more unique architectural design compared with other structures in the historic district.

The Project effects under the PDE would constitute physical destruction of Buildings 59 and 410 for the installation of the underground transmission lines associated with the cable landing location and onshore export cable route to the Harpers Switching Station. Demolition of these contributing elements to the Camp Pendleton/State Military Reservation Historic District would physically alter components of this historic property; as such, the undertaking is anticipated to have an adverse effect on the Camp Pendleton/State Military Reservation Historic District. For additional discussion of visual effects on this historic property, see Section O.3.1.3, *Assessment of Effects on Historic Properties in the Visual APE*, below.

BOEM would use an MOA to establish commitments for implementing measures to avoid, minimize, or mitigate effects on historic properties prior to construction. Minimization and mitigation treatment options may include detailed site documentation, historic research, and historic preservation studies; preparation of digital media or museum-type exhibits for public interpretation; installation of historic markers or signs; installation of vegetative screening; or contributions to historical preservation organizations or specific preservation projects. Additional mitigation options could be identified through consultation with BOEM, VDHR, and consulting parties.

O.3.1.3 Assessment of Effects on Historic Properties in the Visual APE

Cultural resource investigations completed for the Proposed Action have identified historic properties in the visual APE (COP, Appendices H-1, H-2, and H-3; Dominion Energy 2022). Based on the information presented below, BOEM finds historic properties would be adversely affected in the visual APE.

As discussed in Section O.1.3.3, *Visual Portion of the APE*, Dominion Energy has eliminated certain Onshore Project components previously proposed in the May 2022 COP within the PDE. These now-eliminated Project components had been included in the delineation of the visual PAPE for Onshore Project components, and therefore, Dominion Energy's cultural resource investigations included historic property identification efforts in areas no longer located within the visual APE for the undertaking as currently proposed. However, BOEM has included resources identified within these eliminated areas for the purposes of facilitating Section 106 consultations but anticipates the undertaking to have no effect on these resources.

Dominion Energy's review of the visual APE for Offshore Project components identified 712 aboveground historic properties, including two NHLs (COP, Appendix H-1; Dominion Energy 2022). The properties were assessed to identify those with maritime settings and character-defining ocean views. Of the properties, 25 would be adversely affected by visual effects of the proposed Offshore Project components, including the First Cape Henry Lighthouse NHL (Table O-8). These 25 adversely affected historic properties retain a maritime setting that contributes to the properties' eligibility for listing in the NRHP. Each property continues to offer significant ocean views that support the integrity of its maritime setting. The seaward views include vantage points with the potential for an open view toward the Offshore Project components.

Where BOEM found adverse visual effects on the historic properties from Offshore Project components, BOEM determined that the undertaking would also cause cumulative visual effects (BOEM 2022). Cumulative effects are additive effects; where BOEM has determined adverse effects would occur from Project actions on historic properties, BOEM assessed whether those effects would add to the potential adverse effects of other reasonably foreseeable actions and thereby result in cumulative effects. The cumulative effects descriptions are included for each aboveground historic property in the following sections.

Dominion Energy's review of the visual APE for Onshore Project components identified 322 historic aboveground resources (COP, Appendices H-2 and H-3; Dominion Energy 2022). Although consultation with VDHR is ongoing, 13 of the resources have been determined to be historic properties that are listed or eligible for listing in the NRHP. BOEM has determined the undertaking would have an adverse effect on 1 of the 13 properties: the Camp Pendleton/State Military Reservation Historic District in Virginia Beach, Virginia, which is also within the visual APE for Offshore Project components (see Table O-8). With elimination of certain Onshore Project components from the PDE (i.e., Interconnection Cable Route Options 2–6, including the Chicory Switching Station location under Route Option 6), BOEM finds that the undertaking would have no effect on 5 of the 13 properties that would have otherwise been subject to visual adverse effects. The 5 historic properties are the Albemarle & Chesapeake Canal Historic District

in Chesapeake, Virginia; Albemarle & Chesapeake Canal in Chesapeake, Virginia; a worker's house associated with Murray Farms in Chesapeake, Virginia; a residence at 2773 Salem Road in Virginia Beach, Virginia; and the Centreville-Fentress Historic District in Chesapeake, Virginia.

Table O-8 Adversely Affected Aboveground Historic Properties in the Visual APE[1]

Resource Name or Description	Resource ID	Location	Portion of Visual APE	Distance to Nearest WTG[2]	NRHP Status
Atlantic Wildfowl Heritage Cottage/de Witt Cottage	134-0066	Virginia Beach, VA	Offshore Project Components	27.80 miles	Listed (also VLR Listed)
Camp Pendleton/State Military Reservation Historic District	134-0413	Virginia Beach, VA	Onshore and Offshore Project Components	27.70 miles	Listed
Cavalier Hotel and Beach Club	134-0503	Virginia Beach, VA	Offshore Project Components	28.80 miles	Listed (also VLR Listed)
Cavalier Shores Historic District	134-5379	Virginia Beach, VA	Offshore Project Components	28.05 miles	Listed (also VLR Listed)
Chesapeake Bay Bridge-Tunnel	065-0167	Northampton, VA	Offshore Project Components	29.20 miles	Eligible
Chesapeake Light Tower	134-5301	Virginia Beach, VA	Offshore Project Components	13.03 miles	Potentially Eligible
Currituck Beach Lighthouse	CK0106	Currituck, NC	Offshore Project Components	36.86 miles	Listed
Cutty Sark Motel Efficiencies	134-5866	Virginia Beach, VA	Offshore Project Components	28.00 miles	Potentially Eligible
Dam Neck Annex	134-5046	Virginia Beach, VA	Offshore Project Components	27.40 miles	Potentially Eligible
Econo Lodge/Empress Motel	134-5869	Virginia Beach, VA	Offshore Project Components	27.92 miles	Potentially Eligible
First Cape Henry Lighthouse	134-0007/ 134-0660	Fort Story, VA	Offshore Project Components	29.20 miles	Listed and NHL
Fort Story Historic District	134-0660	Virginia Beach, VA	Offshore Project Components	29.20 miles	Listed (also VLR Listed)
Hilton Washington Inn/Quality Inn and Suites	134-5863	Virginia Beach, VA	Offshore Project Components	27.70 miles	Potentially Eligible

Resource Name or Description	Resource ID	Location	Portion of Visual APE	Distance to Nearest WTG[2]	NRHP Status
House (100 54th Street)	134-5660	Virginia Beach, VA	Offshore Project Components	28.15 miles	Potentially Eligible
House (4910 Ocean Front Avenue)	134-5399	Virginia Beach, VA	Offshore Project Components	28.10 miles	Potentially Eligible
House (5302 Ocean Front Avenue)	134-5665	Virginia Beach, VA	Offshore Project Components	28.17 miles	Potentially Eligible
House (7900 Ocean Front Avenue)	134-0587	Virginia Beach, VA	Offshore Project Components	28.30 miles	Potentially Eligible
House (8304–8306 Ocean Front Avenue)	134-5089	Virginia Beach, VA	Offshore Project Components	28.37 miles	Eligible
House (8600 Ocean Front Avenue)	134-5493	Virginia Beach, VA	Offshore Project Components	28.52 miles	Potentially Eligible
Oceans II Condominiums/Aeolus Motel	134-5872	Virginia Beach, VA	Offshore Project Components	28.00 miles	Potentially Eligible
Sandbridge Historic District	Unassigned	Virginia Beach, VA	Offshore Project Components	26.90 miles	Potentially Eligible
Seahawk Motel	134-5857	Virginia Beach, VA	Offshore Project Components	27.97 miles	Potentially Eligible
Seatack Lifesaving Station/U.S. Coast Guard Station	134-0047	Virginia Beach, VA	Offshore Project Components	27.80 miles	Listed (also VLR Listed)
Second Cape Henry Lighthouse	134-0079/114-5250/134-0660	Virginia Beach, VA	Offshore Project Components	29.08 miles	Listed
Virginia House	134-5865	Virginia Beach, VA	Offshore Project Components	27.92 miles	Potentially Eligible

Source: COP, Appendices H-1, H-2, and H-3; Dominion Energy 2022.
[1] BOEM anticipates that all adverse effects have the potential to be alleviated through the adoption of AMM measures. BOEM anticipates that the number of adversely affected historic properties may be refined through ongoing Section 106 consultations.
[2] For the Proposed Action.
APE = area of potential effect; FOE = finding of effect; ID = identification; NHL = National Historic Landmark; NRHP = National Register of Historic Places; VDHR = Virginia Department of Historic Resources; VLR = Virginia Landmarks Register; WTG = Wind turbine generator.

O.3.1.3.1 Atlantic Wildfowl Heritage Museum/de Witt Cottage, Virginia Beach, Virginia

The Atlantic Wildfowl Heritage Museum/de Witt Cottage (DHR ID: 134-0066) is located within an urban setting on the waterfront on a 0.36-acre (0.15-hectare) lot in Virginia Beach, Virginia. The Atlantic Wildfowl Heritage Museum is housed within the de Witt Cottage. The property was listed in the NRHP under Criteria A and C as an example of resort development architecture (COP, Appendix H-1; Dominion Energy 2022). The de Witt Cottage is the sole surviving example of an oceanfront dwelling constructed during the first development period in Virginia Beach from the late nineteenth to early twentieth century. The property was built near the ocean at a location where views would be clear and open and where beach access would be easy for visitors. Because it was designed as a resort for use by prosperous city-dwellers, the property's maritime setting and ocean views are character-defining and contribute to its significance (Newbill 1988).

The property, which is oriented toward the west and Atlantic Avenue, has unobstructed ocean views, particularly from the east elevation. The nearby Virginia Beach Boardwalk—Fishing Pier Key Observation Point (KOP) (KOP Field ID 24d in COP, Appendix I-1; Dominion Energy 2022) represents views to the nearest Project component, located 27.6 miles (44.4 kilometers) east of the property. From the pier, views toward the Project would be unobstructed. The introduction of modern elements into the setting would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the property's integrity of setting, feeling, and association would be diminished. The integrity of location, workmanship, design, and materials would not be affected. The unobstructed ocean views and maritime setting are character-defining features of the property that contribute to its historic significance. Historically, the property relied on these features to provide a beachside resort atmosphere and experience to guests; thus, they were integral considerations in the placement, design, and historic use of the property. The introduction of modern elements would interfere with the historically and currently unadulterated ocean viewscape. Therefore, the Project would result in an adverse effect on the Atlantic Wildfowl Heritage Museum/de Witt Cottage.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 27.8 miles (44.7 kilometers) from the nearest WTG associated with the Project and 44.3 miles (71.3 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 221; 205 theoretically visible WTGs (92.8 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.2 Camp Pendleton/State Military Reservation Historic District, Virginia Beach, Virginia

The Camp Pendleton/State Military Reservation Historic District (DHR ID: 134-0413) occupies 343 acres (139 hectares) of land along the coast of the Atlantic Ocean in Virginia Beach, Virginia. It was established in 1911 and consists of 130 contributing resources. The district is eligible for the NRHP under Criterion A as a military facility developed in response to the need for a dedicated range and training facility for all National Guard units in Virginia. It is also eligible under Criterion C due to its substantial and intact concentration of temporary World War II buildings. It includes examples of early twentieth century residential and military buildings dating from the 1910s through the 1930s, and it is

representative of the evolution of a military post serving state and federal needs during peacetime and wartime (COP, Appendix H-3; Dominion Energy 2022).

The Project would result in the removal of vegetation from the western edge of the district to north of the main entrance and demolition of two contributing structures—Buildings 59 and 410—for the installation of the underground transmission lines associated with the cable landing location and onshore export cable route to the Harpers Switching Station. Building 59 is a 1939 Mess Hall and is one of nine nearly identical buildings. Building 410 was a fire house constructed between 1940 and 1942 during the expansion of the site during World War II and has a more unique architectural design. The Project would also entail tree clearing within a workspace near the ruins of the YMCA, which is recorded as archaeological site 44VB0388 and a potential historic resource. Although tree clearing within the workspace would alter the current viewshed of the YMCA ruins, those woodlands are not integral to the site's historical significance. Furthermore, after work is completed in the proposed workspace at the Rifle Range, the area would be restored to pre-construction condition (COP, Appendix H-3; Dominion Energy 2022). See Section O.3.1.2.3, *Historic Aboveground Resources*, for additional details on the physical adverse effects the undertaking would have on the Camp Pendleton/State Military Reservation Historic District.

The boundary of the historic district stretches to the beach, which has a picnic area and open views of the ocean. The district has character-defining ocean views from this beach. The Croatan Beach C KOP (KOP Field ID 30c in COP, Appendix I-1; Dominion Energy 2022) represents views to the nearest Project component, which is 27.7 miles (44.6 kilometers) east of the property. Although there is vegetation at the ground level near the shoreline of the district, views toward the Project would be unobstructed, particularly from the beach area. The introduction of modern elements into the setting of the district would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

The Project effects would constitute physical destruction of contributing elements of the historic district as well as the introduction of visual elements that affect the setting. The Project would diminish the design, materials, and workmanship of the district. However, because these buildings represent only a small percentage of the contributing features within the historic district, these Project effects would not render the district ineligible for the NRHP. The Project would also diminish the integrity of location, feeling, and association due to the introduction of modern elements. The introduction of the WTGs to the east would interfere with the historically and currently unadulterated ocean viewscape visible from the beach areas within the district.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 27.7 miles (44.6 kilometers) from the nearest WTG associated with the Project and 43.2 miles (69.5 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 216; 205 theoretically visible WTGs (94.9 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.3 Cavalier Hotel and Beach Club, Virginia Beach, Virginia

The Cavalier Hotel (DHR ID: 134-0503) is listed in the NRHP under Criterion C for Architecture as a 1920s hotel exhibiting Jeffersonian-inspired Classical Revival style. The hotel is also listed under Criterion A in the areas of Recreation and Social History for its associations with development of Virginia Beach into a beach resort destination town; it was also the last pre–World War II hotel built in the city.

The seven-story hotel has a maritime setting and overlooks the town and ocean from its elevated location on a hill the rises above Atlantic Avenue/Pacific Avenue. Its unique Y form maximizes the views of the ocean from individual rooms and, according to the NRHP nomination (Pollard 2013), "[e]very possible aspect of the design was chosen to reflect the relationship of the hotel to the ocean including views of the ocean from many public areas."

From the ground level in front of the hotel, views of the ocean are partially obscured by the tall Marriott to the northeast and Embassy Suites hotels to the southeast. However, the Cavalier Beach Club situated on the east side of Atlantic Avenue/Pacific Avenue offers views from the beach and club directly toward the ocean and Project. Additionally, the hotel itself rests atop a hill and the elevated stories would have views of the ocean and some of the WTGs associated with the Project. The Marriott Virginia Beach Oceanfront Hotel KOP (KOP Field ID 26 in COP, Appendix I-1; Dominion Energy 2022) represents views from the approximate location of the Cavalier Hotel to the nearest Project component, 28 miles (45 kilometers) to the east. From here, views toward the Project would be unobstructed. The introduction of these modern elements into the setting would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

The Project would not affect the integrity of location, workmanship, design, and materials of the resource. However, the integrity of setting, feeling, and association of the Cavalier Hotel would be diminished. Unobstructed ocean views and a beachside or maritime setting are character-defining features of the hotel that contribute to its significance because they were integral considerations in the placement and design of the property. The introduction of modern elements would interfere with how visitors experience the historically and currently unadulterated ocean viewscape visible from the beach and from the public and private areas in the hotel. Therefore, the Project would result in an adverse effect on the Cavalier Hotel.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 28.2 miles (45.4 kilometers) from the nearest WTG associated with the Project and 45.9 miles (73.9 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 224; 205 theoretically visible WTGs (91.5 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.4 Cavalier Shores Historic District, Virginia Beach, Virginia

The Cavalier Shores Historic District (DHR ID: 134-5379) is a suburban historic district occupying 31.5 acres (12.8 hectares) within a rectilinear street grid at the north end of Virginia Beach, along the oceanfront immediately north of the Cavalier Hotel to which the neighborhood is connected. The historic district was listed in the NRHP in 2019 under Criteria A and C in the areas of Community Planning and Development, Landscape Architecture, and Architecture. The district includes a line of oceanfront properties on the east side of Ocean Front Avenue. These properties were sold at higher prices initially due to their views of the ocean and immediate beach access. According to the NRHP nomination, "Cavalier Shores began the trend of oceanfront private residence construction that would continue up the north shore of the beach over the ensuing decades" (Taylor 2018).

The district has a maritime setting. Its ocean views are a character-defining feature, particularly for the eastern properties, but views of the ocean from elevated points farther inland are also possible. The King Neptune Statue/Boardwalk KOP (KOP Field ID 22 in COP, Appendix I-1; Dominion Energy 2022) represents unobstructed views to the nearest Project component, which is 27.9 miles (44.9 kilometers)

east of the property. Another representative KOP is the North End Beach—Residential Beach 1 KOP (KOP Field ID 15a and 15b in COP, Appendix I-1; Dominion Energy 2022), which represents views from a similar residential area to the nearest Project component, located 28.1 miles (45.2 kilometers) east of the KOP. From both of these KOPs, views toward the Project would be unobstructed. The introduction of these modern elements into the setting would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the district's integrity of setting, feeling, and association would be diminished. The integrity of location, workmanship, design, and materials would not be affected. The unobstructed ocean views and maritime setting are character-defining features of the district. They contribute to its significance because they were integral considerations in the community and landscape designs of the district. Specifically, for the oceanfront properties in the district, the unobstructed views toward the ocean and access to the beach immediately adjacent to the rear of the properties are significant parts of their design. This view increased their historic value. The introduction of modern elements would interfere with the historically and currently unadulterated ocean viewscape visible from the eastern edge of the district. Therefore, the Project would result in an adverse effect on the Cavalier Shores Historic District.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 28.1 miles (45.2 kilometers) from the nearest WTG associated with the Project and 27.2 miles (43.8 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 149; 147 theoretically visible WTGs (98.7 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.5 Chesapeake Bay Bridge-Tunnel, Northampton, Virginia

The Chesapeake Bay Bridge-Tunnel (DHR ID: 065-0167) spans 17.6 miles (28.3 kilometers) across Chesapeake Bay, from Cape Charles to Virginia Beach. The bridge includes 12 miles (19 kilometers) with a low-level trestle, two tunnels, two bridges, causeways, and four human-made islands. The bridge is eligible for listing in the NRHP under Criteria A and C for significance in the areas of Transportation and Engineering (COP, Appendix H-1; Dominion Energy 2022). By nature of its purpose and function, the Chesapeake Bay Bridge-Tunnel has a maritime setting and ocean views along much of the bridge. The ocean views create a scenic crossing, with the bridge as a tourist attraction. A scenic overlook on the north end of the structure faces toward the bay, but the open ocean surrounds the bridge and is part of its setting.

For the majority of the bridge crossing, ocean views are unobscured. The bridge landfall and tunnel access areas have more restricted views due to the presence of vegetation and structures, and the curve of land of Virginia Beach obstructs eastern ocean views at the southern end of the bridge. The Cape Henry Lighthouse/Fort Story Military Base KOP (KOP Field ID 13 in COP, Appendix I-1; Dominion Energy 2022) represents views to the nearest Project component, which is 29.1 miles (46.8 kilometers) east of the property. This KOP represents a view from the southern portion of the bridge to the area northwest of the KOP, with more limited views of Offshore Project components due to the presence of land. The taller central sections of the bridge would have more expansive views toward the Project because there would be no intervening land masses. The introduction of modern elements into the setting of the bridge would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the bridge's integrity of setting, feeling, and association would be diminished. The integrity of location, workmanship, design, and materials would not be affected. Wide ocean views from much of the bridge and a maritime setting are character-defining features of the bridge. The bridge, by design and purpose, requires a maritime setting and takes advantage of the views along the crossing to provide a unique scenic experience for those crossing and visiting. The introduction of modern elements would interfere with the historically and currently unadulterated ocean viewscape visible from the bridge. Therefore, the Project would result in an adverse effect on the Chesapeake Bay Bridge-Tunnel.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 29.2 miles (47.0 kilometers) from the nearest WTG associated with the Project and 56.5 miles (90.9 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 207; 205 theoretically visible WTGs (99.0 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.6 Chesapeake Light Tower, Virginia Beach, Virginia

The Chesapeake Light Tower (DHR ID: 134-5301) is considered eligible for listing in the NRHP by the VDHR under Criterion C as an example of a Texas Tower, a prefabricated light station utilized in open ocean conditions in water greater than 30 feet (9 meters). Because the Light Tower is situated offshore, it has clear views of the ocean in all directions. It is inexorably linked to its ocean setting and ocean views due to its historic function as a navigational aid associated with maritime and offshore transportation practices (COP, Appendix H-1; Dominion Energy 2022).

Although there are no KOPs in the VIA that represent the views from the Light Tower toward the Project, the location of the property in open water would mean that views toward the Project would be unobstructed from sea-level and elevated viewpoints on the tower. The introduction of modern elements into the ocean setting, only 13 miles (21 kilometers) from the property, would draw the attention of viewers due to size of the WTGs at that distance, the movement of the blades, and the contrast of the WTGs along the horizon (COP, Appendix I-1; Dominion Energy 2022).

The Project would not affect the integrity of location, workmanship, design, and materials. However, the integrity of setting, feeling, and association of the Chesapeake Light Tower would be diminished. The unobstructed 360-degree views of open ocean water are character-defining features of the property that contribute to its significance because they were integral to the placement, design, and function. The introduction of modern elements would interfere with the historically and currently unadulterated ocean viewscape surrounding the property. Therefore, the Project would result in an adverse effect on the Chesapeake Light Tower.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 13 miles (21 kilometers) from the nearest WTG associated with the Project and 37.2 miles (59.9 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 274; 205 theoretically visible WTGs (74.8 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.7 Currituck Beach Lighthouse, Corolla, North Carolina

The Currituck Beach Lighthouse and Lighthouse Complex (North Carolina SHPO ID: CK0001, CK0106) is listed in the NRHP in the areas of Commerce, Transportation, and Architecture (COP, Appendix H-1; Dominion Energy 2022). The lighthouse was constructed between the Atlantic Ocean and Currituck Sound, and provided guidance for ships navigating the region to prevent shipwrecks. Unobstructed ocean views within a maritime setting were required for the lighthouse's historic function. The lighthouse is reliant on its maritime setting and views to the ocean for its historic significance.

Although ground-level ocean views are obstructed by vegetation, the lighthouse has clear, wide views of the ocean from the top of the 162-foot (49-meter) tower. The Currituck Beach Lighthouse KOP (KOP Field ID 48 in COP, Appendix I-1; Dominion Energy 2022) represents views to the nearest Project component, which is 36.8 miles (59.2 kilometers) northeast of the property. From this KOP, views toward the Project would be unobstructed from elevated viewpoints. The introduction of modern elements into the setting of the lighthouse would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the lighthouse's integrity of setting, feeling, and association would be diminished. The integrity of location, workmanship, design, and materials would not be affected. The unobstructed ocean views and maritime setting are character-defining features of the property that contribute to its significance because they were integral considerations in the placement, design, and historic function of the lighthouse. The introduction of modern elements would interfere with the historically and currently unobstructed ocean viewscape. Therefore, the Project would result in an adverse effect on the Currituck Beach Lighthouse.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 36.86 miles (59.32 kilometers) from the nearest WTG associated with the Project and 28.34 miles (45.61 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 264; 192 theoretically visible WTGs (72.7 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.8 Cutty Sark Motel Efficiencies, Virginia Beach, Virginia

During the post–World War II period of economic growth and development, the hotel and resort business grew to meet demand from increasing numbers of middle-class tourists. The boom altered the Atlantic shoreline in Virginia Beach as new hotels and motels were constructed during the mid-twentieth century. As documented in the *National Register of Historic Places Multiple Property Listing: Virginia Beach Oceanfront Resort Motels and Hotels* (McClane and Kirchen 2020), many of these new hotels reflected streamlined modern architecture. These were constructed within a period of significance from 1955 to 1970. Virginia Beach has approximately 3.5 miles (5.6 kilometers) of resort ocean frontage; buildings were constructed close to the ocean and beach to take advantage of the views, beach access, and Virginia Beach Boardwalk. Therefore, the maritime setting was of primary consideration for these types of properties. Unobstructed ocean views were also character-defining features, particularly from the rooms facing east. Many hotels and motels were designed to take advantage of and maximize these views (McClane and Kirchen 2020). The Cutty Sark Motel Efficiencies property (DHR ID: 134-5866) is an example of one such property. It is oriented to the east, toward Atlantic Avenue, with private balconies that offered direct ocean views for visitors. In 1970, the hotel faced an empty lot between it and the beach, meaning it had direct ocean views during the period of significance (Nationwide Environmental Title

Research [NETR] 1970). It is considered NRHP eligible as an example of a small family-operated motel from this period. It still retains many of its character-defining features, including massing, Modern-inspired architectural details, and private balconies (COP, Appendix H-1; Dominion Energy 2022).

Today, ocean views from the Cutty Sark are largely obscured by the taller Edgewater Condominiums building across from the motel on the west side of Atlantic Avenue. The condominium building is directly between the Cutty Sark and the ocean. Some ocean views may still be possible from the northwest corner balconies and rooms of the motel. The King Neptune Statue/Boardwalk KOP (KOP Field ID 22 in COP, Appendix I-1; Dominion Energy 2022) represents unobstructed views to the nearest Project component, which is 27.9 miles (44.9 kilometers) east of the property. From the statue, which is inside Neptune's Park, views toward the Project would be unobstructed. Therefore, the introduction of modern elements into the setting of the boardwalk would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

Ocean views and a maritime setting are character-defining features of the Cutty Sark Motel Efficiencies that contribute to its significance because they were integral considerations in the placement, design, and historic function of the property. The integrity of location, workmanship, design, and materials for the Cutty Sark would not be affected by the Project. The setting is already somewhat diminished due to the large condominium building that now stands between the motel and ocean; however, quick access to the beach and boardwalk, as well as unobstructed ocean views, is still possible. With the Project, the motel's integrity of setting, feeling, and association would be further diminished due to the introduction of modern elements that would interfere with the historically and currently unobstructed ocean viewscape. Therefore, the Project would result in an adverse effect on the Cutty Sark Motel Efficiencies.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 28.0 miles (45.1 kilometers) from the nearest WTG associated with the Project and 45.12 miles (72.61 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 215; 205 theoretically visible WTGs (95.3 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.9 Dam Neck Annex, Virginia Beach, Virginia

Dam Neck Annex (DHR ID: 134-5046) consists of more than 1,100 acres (445 hectares) of highlands and marshes and more than 3 miles (4.8 kilometers) of coastal beaches. The property is considered eligible for the purposes of the Project under Criterion A as an example of a naval defense facility. The district is sited on an early to mid-twentieth century defense property, and the area is connected to centuries of maritime and military activity (COP, Appendix H-1; Dominion Energy 2022). As a naval defense facility, a maritime setting was imperative for the historic operation and function of the property. Ocean views are character-defining features and contribute to the historic significance of the property.

The long stretch of beach on the eastern edge of the Dam Neck Annex property, which includes picnic areas, offers unobstructed ocean views. Although there are buildings and tall vegetation at the ground level throughout the annex, views toward the Project would be unobstructed from the beach areas and would be possible from elevated points farther inland. Located slightly north of the annex, the Croatan Beach KOP (KOP Field ID 30c in COP, Appendix I-1; Dominion Energy 2022) represents views to the nearest Project component, which is 27.7 miles (45.6 kilometers) east of the property. The introduction of modern elements into the setting of the property would draw the attention of viewers due to the

movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

The unobstructed ocean views and maritime setting are inherent parts of the design and historic function of the property. The introduction of offshore wind components would not affect the integrity of location, workmanship, design, and materials. However, the property's integrity of setting, feeling, and association would be diminished due to alterations in the ocean views and maritime setting. The introduction of modern elements would interfere with the historically and currently unobstructed ocean viewscape. Therefore, the Project would result in an adverse effect on the Dam Neck Annex.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 27.4 miles (44.1 kilometers) from the nearest WTG associated with the Project and 43.4 miles (69.8 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 220; 201 theoretically visible WTGs (91.4 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.10 Econo Lodge/Empress Motel, Virginia Beach, Virginia

As described in the Section O.3.1.3.8, the Econo Lodge/Empress Motel (DHR ID: 134-5869) was constructed within the historic context documented and described in the *National Register of Historic Places Multiple Property Listing: Virginia Beach Oceanfront Resort Motels and Hotels* (McClane and Kirchen 2020). It is considered NRHP eligible as an intact example of a resort motel from the mid-twentieth century (McClane and Kirchen 2020). It retains many of its character-defining features, including massing and oceanfront balconies (COP, Appendix H-1; Dominion Energy 2022). The lodge is oriented to the west, toward Atlantic Avenue, but enjoys unobstructed ocean views from the entire east elevation, which faces the Virginia Beach Boardwalk and ocean beyond.

Today, ocean views from the Econo Lodge/Empress Motel remain unobscured. The lodge has been surrounded by larger, newer hotels and commercial structures on the north, west, and south sides, but the east elevation still faces the ocean. The view from here does not include any modern structures. The King Neptune Statue/Boardwalk KOP (KOP Field ID 22 in COP, Appendix I-1; Dominion Energy 2022) represents unobstructed views to the nearest Project component, which is 27.9 miles (44.9 kilometers) east of the property. From this KOP, views toward the Project would be unobstructed. The introduction of modern elements into the setting of the boardwalk would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

Ocean views and a maritime setting are character-defining features of the Econo Lodge/Empress Motel that contribute to its significance. The lodge was strategically placed and designed to take full advantage of these views within a beachside setting. The integrity of location, workmanship, design, and materials for the lodge would not be affected by the Project. However, the lodge's integrity of setting, feeling, and association would be diminished as a result of the Project due to the introduction of modern elements that would interfere with the historically and currently unobstructed ocean viewscape. Therefore, the Project would result in an adverse effect on the Econo Lodge/Empress Motel.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 27.9 miles (44.9 kilometers) from the nearest WTG associated with the Project and 45.12 miles (72.61 kilometers) from the nearest potential WTG location for other

offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 243; 205 theoretically visible WTGs (84.4 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.11 First Cape Henry Lighthouse (NHL), Fort Story, Virginia

The First Cape Henry Lighthouse NHL (DHR ID: 134-0007/134-0660) was listed as an NHL in 1964, in the NRHP in 1966, and in the Virginia Landmarks Register under Criteria A and C (COP, Appendix H-1; Dominion Energy 2022). The lighthouse was built on a dune directly along the ocean coastline. Unobstructed ocean views were required for the lighthouse's historic function. It is reliant on its maritime setting and views to the ocean for its NRHP and NHL significance.

Currently, the lighthouse has full unobstructed views of the ocean from the top of the 72-foot (22-meter) tower. Ground-level ocean views are obstructed by vegetation that crowds the base of the lighthouse. The Cape Henry Lighthouse/Fort Story Military Base KOP (KOP Field ID 13 in COP, Appendix I-1; Dominion Energy 2022) represents views to the nearest Project component, which is 29.1 miles (46.8 kilometers) east of the property. Although there is vegetation at the ground level along the shoreline of the district, views toward the Project would be unobstructed, particularly from elevated viewpoints. The introduction of modern elements into the setting of the NHL would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the NHL's integrity of setting, feeling, and association would be diminished. The integrity of location, workmanship, design, and materials would not be affected. The unobstructed ocean views and maritime setting are character-defining features of the property that contribute to its significance. They were integral considerations in the placement, design, and historic function of the lighthouse. The introduction of modern elements would interfere with the historically and currently unadulterated ocean viewscape. Therefore, the Project would result in an adverse effect on the First Cape Henry Lighthouse NHL.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 29.12 miles (46.86 kilometers) from the nearest WTG associated with the Project and 49.43 miles (79.55 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 223; 205 theoretically visible WTGs (91.9 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.12 Fort Story Historic District, Virginia Beach, Virginia

The Fort Story Historic District (DHR ID: 134-0660) is eligible for the NRHP under Criteria A and C for its association with Military History and Government as well as Architecture (COP, Appendix H-1; Dominion Energy 2022). The fort was constructed along the ocean coastline, with unobstructed ocean views; it is bounded on the east and north by the Atlantic Ocean and Chesapeake Bay. The maritime setting and ocean views are character-defining features of the district that were part of its historic function and significance.

Currently, there are multiple locations along the coastline within the district that have unobstructed ocean views. The Cape Henry Lighthouse/Fort Story Military Base KOP (KOP Field ID 13 in COP, Appendix I-1; Dominion Energy 2022) represents views to the nearest Project component, which is 29.1 miles (46.8 kilometers) east of the property. Although there is vegetation at the ground level along portions of the district's shoreline, views toward the Project would be unobstructed, particularly from elevated viewpoints throughout the district. The introduction of modern elements into the setting of the district would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the district's integrity of setting, feeling, and association would be diminished. The integrity of location, workmanship, design, and materials would not be affected. The unobstructed ocean views and maritime setting were integral considerations in the placement, design, and historic function of Fort Story. The introduction of modern elements would interfere with the historically and currently unadulterated ocean viewscape. Therefore, the Project would result in an adverse effect on the Fort Story Historic District.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 29.12 miles (46.86 kilometers) from the nearest WTG associated with the Project and 49.43 miles (79.55 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 216; 205 theoretically visible WTGs (94.9 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.13 Hilton Washington Inn/Quality Inn and Suites, Virginia Beach, Virginia

As described in the Section O.3.1.3.8, the Hilton Washington Inn/Quality Inn and Suites (DHR ID: 134-5863) was constructed within the historic context documented and described in the *National Register of Historic Places Multiple Property Listing: Virginia Beach Oceanfront Resort Motels and Hotels* (McClane and Kirchen 2020). It is considered NRHP eligible in the Multiple Property Listing as an intact example of a resort motel from the mid-twentieth century—specifically, it represents the arrival of national hotel chains in Virginia Beach, circa 1970 (McClane and Kirchen 2020). It retains many of its character-defining features, including massing, architectural details, semi-circular oceanfront rooms, and private balconies (COP, Appendix H-1; Dominion Energy 2022). The hotel sits on the west side of Atlantic Avenue. Its semi-circular design allowed rooms and balconies on three sides of the building to have direct ocean views, which are unobscured because the interior-curve of the hotel faces the beach.

Today, ocean views from the Hilton Washington Inn/Quality Inn and Suites remain unobscured. The Marriott Virginia Beach Oceanfront Hotel KOP (KOP Field ID 26 in COP, Appendix I-1; Dominion Energy 2022) represents elevated views to the nearest Project component, which is 28 miles (45 kilometers) to the east. The views may be similar to those from the upper floors of the inn. From the Marriott, views toward the Project would be unobstructed. The Grommet Island Park/Boardwalk KOP (KOP Field ID 29 in COP, Appendix I-1; Dominion Energy 2022) is geographically closer to the inn than the Marriott KOP and represents views to the nearest Project component, which is 27.7 miles (44.6 kilometers) to the east. The introduction of modern elements into the maritime setting of the inn would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

Ocean views and a maritime setting are character-defining features of the Hilton Washington Inn/Quality Inn and Suites that contribute to its significance. The unique design of the inn enhances eastern ocean

views from the private rooms and balconies. The inn was built on a lot where the views would be unobstructed and the beach would be readily accessible. The Project would not affect the integrity of location, workmanship, design, and materials for the inn. However, the integrity of setting, feeling, and association would be diminished due to the introduction of modern elements that would interfere with the historically and currently unobstructed ocean viewscape. Therefore, the Project would result in an adverse effect on the Hilton Washington Inn/Quality Inn and Suites.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 27.7 miles (44.6 kilometers) from the nearest WTG associated with the Project and 44.0 miles (70.8 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 229; 205 theoretically visible WTGs (89.5 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.14 House (100 54th Street), Virginia Beach, Virginia

The house at 100 54th Street in Virginia Beach, Virginia (DHR ID: 134-5660) is potentially eligible for the NRHP under Criterion A as an example of oceanfront urban development in Virginia Beach in the mid-twentieth century (COP, Appendix H-1; Dominion Energy 2022). The property is oriented to the west, toward 54th Street, but has unobstructed ocean views from the rear elevation. The location of the property enables inhabitants to enjoy ocean views and have direct access to the beach; thus, the maritime setting is key to its significance.

Currently, the house has unobstructed views of the ocean from the rear elevation and yard. The North End Beach—Residential Beach 1 KOP (KOP Field ID 15a and 15b in COP, Appendix I-1; Dominion Energy 2022) represents views from the approximate location of this property to the nearest Project component, which is 28.1 miles (45.2 kilometers) east of the KOP. From this KOP, views toward the Project would be unobstructed. The introduction of these modern elements into the setting would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the property's integrity of setting, feeling, and association would be diminished. The integrity of location, workmanship, design, and materials would not be affected. The unobstructed ocean views and the beachside or maritime setting are character-defining features of the property. They contribute to its significance because they were integral considerations in the placement and design of the property. The introduction of modern elements would interfere with the historically and currently unadulterated ocean viewscape visible from the house and the beach. Therefore, the Project would result in an adverse effect on the house at 100 54th Street.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 28.15 miles (45.30 kilometers) from the nearest WTG associated with the Project and 46.46 miles (74.77 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 207; 205 theoretically visible WTGs (99.0 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.15 House (4910 Ocean Front Avenue), Virginia Beach, Virginia

The house at 4910 Ocean Front Avenue in Virginia Beach, Virginia (DHR ID: 134-5399), is potentially eligible for the NRHP under Criterion A as an example of beachfront urban development in Virginia Beach in the early twentieth century. It is also eligible for the NRHP under Criterion C as an example of the Shingle style of architecture (COP, Appendix H-1; Dominion Energy 2022). The property is oriented to the west, toward Ocean Front Avenue, but has unobstructed ocean views from the two-story porch on the rear elevation. The location of the property enables inhabitants to enjoy ocean views and have direct access to the beach; thus, the maritime setting is key to its significance.

Currently, the only obstruction between the house and the ocean is a low fence that borders the property. The North End Beach—Residential Beach 1 KOP (KOP Field ID 15a and 15b in COP, Appendix I-1; Dominion Energy 2022) represents views from the approximate location of this property to the nearest Project component, which is 28.1 miles (45.2 kilometers) east of the KOP. From this KOP, views toward the Project would be unobstructed. The introduction of these modern elements into the setting would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the property's integrity of setting, feeling, and association would be diminished. The integrity of location, workmanship, design, and materials would not be affected. The unobstructed ocean views and maritime setting are character-defining features of the property. They contribute to its significance because they were integral considerations in the placement and design of the property. The introduction of modern elements would interfere with the historically and currently unadulterated ocean viewscape visible from the house and the beach. Therefore, the Project would result in an adverse effect on the house at 4910 Ocean Front Avenue.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 28.1 miles (45.2 kilometers) from the nearest WTG associated with the Project and 46.28 miles (74.48 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 207; 205 theoretically visible WTGs (99.0 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.16 House (5302 Ocean Front Avenue), Virginia Beach, Virginia

The house at 5302 Ocean Front Avenue in Virginia Beach, Virginia (DHR ID: 134-5665), is potentially eligible for the NRHP under Criterion A as an example of early twentieth century oceanfront urban development in Virginia Beach (COP, Appendix H-1; Dominion Energy 2022). The property is oriented to the west, toward Ocean Front Avenue, but has unobstructed ocean views from the rear elevation. The location of the property enables inhabitants to enjoy ocean views and have direct access to the beach; thus, the maritime setting is key to its significance.

Currently, the house has unobstructed views of the ocean from the rear elevation and yard. The North End Beach—Residential Beach 1 KOP (KOP Field ID 15a and 15b in COP, Appendix I-1; Dominion Energy 2022) represents views from the approximate location of this property to the nearest Project component, which is 28.1 miles (45.2 kilometers) east of the KOP. From this KOP, views toward the Project would be unobstructed. The introduction of these modern elements into the setting would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the property's integrity of setting, feeling, and association would be diminished. The integrity of location, workmanship, design, and materials would not be affected. The unobstructed ocean views and maritime setting are character-defining features of the property. They contribute to its significance because they were integral considerations in the placement and design of the property. The introduction of modern elements would interfere with the historically and currently unadulterated ocean viewscape visible from the house and the beach. Therefore, the Project would result in an adverse effect on the house at 5302 Ocean Front Avenue.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 28.17 miles (45.34 kilometers) from the nearest WTG associated with the Project and 46.42 miles (74.71 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 207; 205 theoretically visible WTGs (99.0 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.17 House (7900 Ocean Front Avenue), Virginia Beach, Virginia

The house at 7900 Ocean Front Avenue in Virginia Beach, Virginia (DHR ID: 134-0587), is potentially eligible for the NRHP under Criterion A as an example of early twentieth century oceanfront urban development in Virginia Beach. It is also eligible for the NRHP under Criterion C under Architecture (COP, Appendix H-1; Dominion Energy 2022). The property is oriented to the west, toward Ocean Front Avenue, at the cul-de-sac created by the perpendicular 79th Street. The property is surrounded by tall trees but has ocean views from the rear elevation. A second-story porch allows wide views toward the ocean. The location of the property enables inhabitants to enjoy ocean views and have direct access to the beach; thus, the maritime setting is key to its significance.

Currently, the house has views of the ocean from the rear elevation and yard; the views may be partially obstructed by the tall vegetation that borders the eastern edge of the property. The property is located between the North End Beach—Residential Beach 1 KOP (KOP Field ID 15a and 15b in COP, Appendix I-1; Dominion Energy 2022) and Cape Henry Lighthouse/Fort Story Military Base (KOP Field ID 13 in COP, Appendix I-1; Dominion Energy 2022). The North End Beach KOP represents views to the nearest Project component, which is 28.1 miles (45.2 kilometers) east of the KOP. The Cape Henry Lighthouse/Fort Story Military Base KOP also represents views to the nearest Project component, which is 29.1 miles (46.8 kilometers) east of the KOP. Although there is vegetation at the ground level along the shoreline of the Cape Henry Lighthouse/Fort Story Military Base KOP, from both KOPs, views toward the Project would be unobstructed, particularly from elevated viewpoints, such as the lighthouses. The introduction of modern elements into the setting of this property would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the property's integrity of setting, feeling, and association would be diminished. The integrity of location, workmanship, design, and materials would not be affected. The unobstructed ocean views and maritime setting are character-defining features of the property. They contribute to its significance because they were integral considerations in the placement and design of the property. The introduction of modern elements would interfere with the historically and currently unadulterated ocean viewscape visible from the house. Therefore, the Project would result in an adverse effect on the house at 7900 Ocean Front Avenue.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 28.3 miles (45.5 kilometers) from the nearest WTG associated with the Project and 47.6 miles (76.6 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 207; 205 theoretically visible WTGs (99.0 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.18 House (8304–8306 Ocean Front Avenue), Virginia Beach, Virginia

This property consists of three lots at 8304–8306 Ocean Front Avenue in Virginia Beach, Virginia (DHR ID: 134-5089). The property is also referred to as "Sandswept" in the Virginia Beach Register and eligible for the NRHP under Criterion C as an example of mid-twentieth century International style architecture (COP, Appendix H-1; Dominion Energy 2022). The property is oriented to the west between two cul-de-sacs created by Ocean Front Avenue. The property is surrounded by tall trees but has direct beach access and ocean views from the rear elevations and yard. Elevated porches on the buildings provide views toward the ocean over the sand dune that runs along the east boundary of the property. The location of the property enables inhabitants to enjoy ocean views and have direct access to the beach; thus, the maritime setting is key to its significance.

Currently, the property has views of the ocean from the rear elevation and yard; the views may be partially obstructed by tall vegetation and a low sand dune. The property is located between the North End Beach—Residential Beach 1 KOP (KOP Field ID 15a and 15b in COP, Appendix I-1; Dominion Energy 2022) and Cape Henry Lighthouse/Fort Story Military Base (KOP Field ID 13 in COP, Appendix I-1; Dominion Energy 2022). The North End Beach KOP represents views to the nearest Project component, which is 28.1 miles (45.2 kilometers) east of the KOP. The Cape Henry Lighthouse/Fort Story Military Base KOP also represents views to the nearest Project component, which is 29.1 miles (46.8 kilometers) east of the KOP. Although there is vegetation at the ground level along the shoreline of the Cape Henry Lighthouse/Fort Story Military Base KOP, from both KOPs, views toward the Project would be unobstructed, particularly from elevated viewpoints, such as the lighthouses. The introduction of modern elements into the setting of this property would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the property's integrity of setting, feeling, and association would be diminished. The integrity of location, workmanship, design, and materials would not be affected. The unobstructed ocean views and maritime setting are character-defining features of the property. They contribute to its significance because they were integral considerations in the placement and design of the property. The introduction of modern elements would interfere with the historically and currently unadulterated ocean viewscape visible from the house. Therefore, the Project would result in an adverse effect on the house at 8304–8306 Ocean Front Avenue.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 28.37 miles (45.66 kilometers) from the nearest WTG associated with the Project and 48 miles (77 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 207; 205 theoretically visible WTGs (99.0 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.19 House (8600 Ocean Front Avenue), Virginia Beach, Virginia

The house at 8600 Ocean Front Avenue in Virginia Beach, Virginia (DHR ID: 134-5493), is also referred to as the Faulkner House in the Virginia Beach Register. It is eligible for the NRHP under Criterion A as an example of early twentieth century oceanfront urban development in Virginia Beach (COP, Appendix H-1; Dominion Energy 2022). The property is located at the eastern end of 86th Street but may be oriented toward Ocean Front Avenue; tall trees obscure the south and west elevations. The trees surround the property on all sides. The property has direct beach access and ocean views from the rear elevations and a beach walkway leading from 86th Street to the beach. Elevated views toward the ocean are possible from the rear elevation of the house. The location of the property enables inhabitants to enjoy ocean views and have direct access to the beach; thus, the maritime setting is key to its significance.

Currently, the property has partially obscured views of the ocean from the rear elevation; these views are very likely less obstructed during winter months. The property is located between the North End Beach—Residential Beach 1 KOP (KOP Field ID 15a and 15b in COP, Appendix I-1; Dominion Energy 2022) and Cape Henry Lighthouse/Fort Story Military Base (KOP Field ID 13 in COP, Appendix I-1; Dominion Energy 2022). The North End Beach KOP represents views to the nearest Project component, which is 28.1 miles (45.2 kilometers) east of the KOP. The Cape Henry Lighthouse/Fort Story Military Base KOP also represents views to the nearest Project component, which is 29.1 miles (46.8 kilometers) east of the KOP. Although there is vegetation at the ground level along the shoreline of the Cape Henry Lighthouse/Fort Story Military Base KOP, from both KOPs, views toward the Project would be unobstructed, particularly from elevated viewpoints, such as the lighthouses. The introduction of modern elements into the setting of this property would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the property's integrity of setting, feeling, and association would be diminished. The integrity of location, workmanship, design, and materials would not be affected. The unobstructed ocean views and maritime setting are character-defining features of the property. They contribute to its significance because they were integral considerations in the placement and design of the property. The introduction of modern elements would interfere with the historically and currently unadulterated ocean viewscape visible from the house. Therefore, the Project would result in an adverse effect on the house at 8600 Ocean Front Avenue.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 28.52 miles (45.90 kilometers) from the nearest WTG associated with the Project and 48.15 miles (77.49 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 206; 204 theoretically visible WTGs (99.0 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.20 Oceans II Condominiums/Aeolus Motel, Virginia Beach, Virginia

As described in the Section O.3.1.3.8, the Oceans II Condominiums/Aeolus Motel (DHR ID: 134-5872) was constructed within the historic context documented and described in the *National Register of Historic Places Multiple Property Listing: Virginia Beach Oceanfront Resort Motels and Hotels* (McClane and Kirchen 2020). It is considered NRHP eligible in the Multiple Property Listing as the first Florida-style motel constructed in Virginia Beach in the mid-twentieth century (McClane and Kirchen 2020). It retains many of its character-defining features, including exterior walkways, flat roof, Modern-inspired

architectural detailing, and balconies (COP, Appendix H-1; Dominion Energy 2022). The hotel sits on the west side of Atlantic Avenue. A long row of rooms faces east and toward the ocean; there are no intervening structures to block these views. From the south elevation and pool area, views of the ocean are also available.

Today, ocean views from the Oceans II Condominiums/Aeolus Motel remain unobscured. The Marriott Virginia Beach Oceanfront Hotel KOP (KOP Field ID 26 in COP, Appendix I-1; Dominion Energy 2022) represents elevated views to the nearest Project component, which is 28 miles (45 kilometers) to the east. From the Marriott, views toward the Project would be unobstructed; views from the Oceans II Condominiums/Aeolus Motel would be similar. The introduction of modern elements into the maritime setting of the property would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

Ocean views and a maritime setting are character-defining features of the Oceans II Condominiums/ Aeolus Motel that contribute to its significance. The property was built on a lot where views would be unobstructed and the beach would be readily accessible, taking full advantage of the ocean views that would be available from the private rooms, balconies, and pool area. The Project would not affect the integrity of location, workmanship, design, and materials for the property. However, the integrity of setting, feeling, and association would be diminished due to the introduction of modern elements that would interfere with the historically and currently unobstructed ocean viewscape. Therefore, the Project would result in an adverse effect on the Oceans II Condominiums/Aeolus Motel.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 28 miles (45 kilometers) from the nearest WTG associated with the Project and 45.67 miles (73.49 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 215; 205 theoretically visible WTGs (95.3 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.21 Sandbridge Historic District, Virginia Beach, Virginia

A formal consideration of the district is planned for 2030. However, the proposed Sandbridge Historic District (DHR ID: Unassigned) is considered potentially eligible for the NRHP for the purposes of this Project. Specifically, it is considered eligible as one of Virginia Beach's last planned communities with beachfront access and limited commercial development during the mid-twentieth century. According to the HRVEA, "Sandbridge is a physically isolated seaside residential community distinguished by its beach front and ocean orientation" (COP, Appendix H-1; Dominion Energy 2022). It consists of single-family residential lots developed in a dense grid pattern and approximately 4.5 miles (7.2 kilometers) of oceanfront, according to the proposed delineation for this Project (COP, Appendix H-1; Dominion Energy 2022).

Many of the residential structures associated with the Sandbridge Historic District are oriented toward the beach and ocean. A long stretch of lots on the eastern boundary have direct ocean views and beach access. Ocean views may also be possible from elevated stories on more inland structures. The Back Bay National Wildlife Refuge/Little Island Park (KOP Field ID 44 in COP, Appendix I-1; Dominion Energy 2022) is near or within the southern portion of the district as currently proposed. This KOP represents unobstructed views to the nearest Project component, which is 26.8 miles (43.1 kilometers) to the east. From this KOP, inland views would be partially obscured by structures and vegetation, but views toward the Project from the beach area would be unobstructed. Therefore, the introduction of modern elements

into the setting would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

Ocean views and a maritime setting are character-defining features of the proposed Sandbridge Historic District that contribute to its significance. The community was intentionally designed and located in an area where unobstructed ocean views could be enjoyed by residents. The Project would not affect the integrity of location, workmanship, design, and materials for the property. However, the integrity of setting, feeling, and association would be diminished due to the introduction of modern elements that would interfere with the historically and currently unobstructed ocean viewscape. Therefore, the Project would result in an adverse effect on the proposed Sandbridge Historic District.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 26.9 miles (43.3 kilometers) from the nearest WTG associated with the Project and 36.5 miles (58.7 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 249; 203 theoretically visible WTGs (81.5 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.22 Seahawk Motel, Virginia Beach, Virginia

As described in the Section O.3.1.3.8, the Seahawk Motel (DHR ID: 134-5857) was constructed within the historic context documented and described in the *National Register of Historic Places Multiple Property Listing: Virginia Beach Oceanfront Resort Motels and Hotels* (McClane and Kirchen 2020). It is considered NRHP eligible as a motel constructed in Virginia Beach in the mid-twentieth century (McClane and Kirchen 2020). It retains many of its character-defining features, including oceanfront balconies, window wall, pool, and terrace. The hotel advertised 100 percent oceanfront rooms, confirming that ocean views were a significant amenity that attracted visitors (COP, Appendix H-1; Dominion Energy 2022).

The motel is set on the west side of Atlantic Avenue. There are no intervening structures to block the ocean views from the rooms and balconies on the eastern elevation. The Naval Aviation Monument Park KOP (KOP Field ID 23 in COP, Appendix I-1; Dominion Energy 2022) represents unobstructed views to the nearest Project component, which is 27.9 miles (44.9 kilometers) east of the property. From this KOP, views toward the Project would be unobstructed. Therefore, the introduction of modern elements into the setting here would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

Ocean views and a maritime setting are character-defining features of the Seahawk Motel that contribute to its significance. The property was built on lots where views would be unobstructed and where the beach would be readily accessible. The property takes full advantage of the ocean views from the rooms and balconies. The Project would not affect the integrity of location, workmanship, design, and materials for the property. However, the integrity of setting, feeling, and association would be diminished due to the introduction of modern elements that would interfere with the historically and currently unobstructed ocean viewscape. Therefore, the Project would result in an adverse effect on the Seahawk Motel.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 27.97 miles (45.01 kilometers) from the nearest WTG associated with the Project and 45.0 miles (72.4 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from

this property is 225; 205 theoretically visible WTGs (91.1 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.23 Seatack Lifesaving Station/U.S. Coast Guard Station, Virginia Beach, Virginia

The Seatack Lifesaving Station/U.S. Coast Guard Station (DHR ID: 134-0047) was listed in the NRHP in 1979 under Criteria A and C in the areas of Maritime History and Architecture. As a lifesaving station and, later, a Coast Guard station, the property required a maritime setting for its construction and operation. The property was reliant on views of the ocean to function. Therefore, it is oriented toward the Atlantic Ocean and has unobstructed ocean views, which are enhanced by the height of the tower (COP, Appendix H-1; Dominion Energy 2022).

Currently, the property retains its maritime setting, though this has been diminished by the commercial development surrounding it. It also retains ocean views because there are no structures between the property and beach. The Naval Aviation Monument Park KOP (KOP Field ID 23 in COP, Appendix I-1; Dominion Energy 2022) represents views to the nearest Project component, which is 27.9 miles (44.9 kilometers) east of the property. From the slightly elevated park, views toward the Project would be unobstructed, particularly from elevated viewpoints. The introduction of modern elements into the setting of the lighthouse would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the station's integrity of setting, feeling, and association would be further diminished. The integrity of location, workmanship, design, and materials would not be affected. The unobstructed ocean views and maritime setting are character-defining features of the property and were essential to the placement, design, and historic function of the station. The introduction of modern elements would interfere with the historic ocean viewscape. Therefore, the Project would result in an adverse effect on the Seatack Lifesaving Station/U.S. Coast Guard Station.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 27.8 miles (44.7 kilometers) from the nearest WTG associated with the Project and 44.9 miles (72.3 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 220; 205 theoretically visible WTGs (93.2 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.24 Second Cape Henry Lighthouse, Virginia Beach, Virginia

The Second Cape Henry Lighthouse (DHR ID: 134-0079/114-5250/134-0660) is listed in the NRHP under Criteria A and C in the areas of Maritime History, Transportation, and Architecture (COP, Appendix H-1; Dominion Energy 2022). The lighthouse was built on a hill near the First Cape Henry Lighthouse, directly along the ocean coastline. Unobstructed ocean views were required for the lighthouse's historic function. The lighthouse is reliant on its maritime setting and views of the ocean for its historic significance.

Currently, the lighthouse has full, unobstructed views of the ocean from the top of the 163-foot (50-meter) tower. Ground-level ocean views are obstructed by vegetation and buildings. The Cape Henry

Lighthouse/Fort Story Military Base KOP (KOP Field ID 13 in COP, Appendix I-1; Dominion Energy 2022) represents views to the nearest Project component, which is 29.1 miles (46.8 kilometers) east of the property. Although there is vegetation at the ground level along the shoreline of the district, views toward the Project would be unobstructed, particularly from elevated viewpoints. The introduction of modern elements into the setting of the lighthouse property would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

With the Project, the lighthouse's integrity of setting, feeling, and association would be diminished. The integrity of location, workmanship, design, and materials would not be affected. The unobstructed ocean views and maritime setting are character-defining features of the property that contribute to its significance because they were integral considerations in the placement, design, and historic function of the lighthouse. The introduction of modern elements would interfere with the historically and currently unadulterated ocean viewscape. Therefore, the Project would result in an adverse effect on the Second Cape Henry Lighthouse.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 29.08 miles (45.80 kilometers) from the nearest WTG associated with the Project and 49.43 miles (79.55 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 228; 205 theoretically visible WTGs (89.9 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.3.25 Virginia House, Virginia Beach, Virginia

As described in the Section O.3.1.3.8, the Virginia House (DHR ID: 134-5865) was constructed within the historic context documented and described in the *National Register of Historic Places Multiple Property Listing: Virginia Beach Oceanfront Resort Motels and Hotels* (McClane and Kirchen 2020). However, it was not considered NRHP eligible in the Multiple Property Listing because it was not built originally or primarily to accommodate summer tourists (McClane and Kirchen 2020). It is considered potentially eligible for the purposes of this Project as a recreational lodging resource with a historic maritime setting; today the property is used for condominiums (COP, Appendix H-1; Dominion Energy 2022). Virginia House is set on the west side of Atlantic Avenue. Its unique Y-shaped design mirrors that of the nearby Cavalier Hotel, which is only a few blocks to the north. This design maximized ocean views from the private rooms and balconies.

Ground-level and lower-story views toward the ocean from the Virginia House are obscured by the Holiday Inn Virginia Beach. Elevated views are very likely at least partially obscured by the Holiday Inn and the 3800 Oceanfront property, both of which sit on the east side of Atlantic Avenue between the Virginia House and the ocean. The Marriott Virginia Beach Oceanfront Hotel KOP (KOP Field ID 26 in COP, Appendix I-1; Dominion Energy 2022) represents views from the approximate location of the Virginia House to the nearest Project component, which is 28 miles (45 kilometers) to the east. From here, views toward the Project would be unobstructed. The introduction of these modern elements into the setting would draw the attention of viewers due to the movement of the blades and the contrast of the thin white lines along the horizon (COP, Appendix I-1; Dominion Energy 2022).

Ocean views and a maritime setting are character-defining features of the Virginia House that contribute to its significance. They were integral to the design, placement, and historic amenities associated with the property. The property takes full advantage of the ocean views from the rooms and balconies. The Project

would not affect the integrity of location, workmanship, design, and materials for the property. However, the integrity of setting, feeling, and association would be diminished due to the introduction of modern elements that would interfere with the historically and currently unobstructed ocean viewscape. Therefore, the Project would result in an adverse effect on the Virginia House.

As described in the *Cumulative Historic Resources Visual Effects Analysis – Coastal Virginia Offshore Wind Commercial Project,* this property is 27.9 miles (44.9 kilometers) from the nearest WTG associated with the Project and 45.12 miles (72.61 kilometers) from the nearest potential WTG location for other offshore wind energy development activities. The total number of theoretically visible WTGs from this property is 249; 205 theoretically visible WTGs (82.3 percent) would be visible from the proposed Project. As such, BOEM determined the Proposed Action would add to the cumulative visual effects on this property when combined with the effects of other past, present, or reasonably foreseeable future actions (BOEM 2022).

O.3.1.4 Summary of Adversely Affected Historic Properties

O.3.1.4.1 Adverse Effects on Historic Properties in the Marine APE

The Project would have adverse effects on 36 known historic properties in or near the marine APE: 31 marine archaeological resources and 5 ASLFs. Dominion Energy intends to prioritize avoidance of the 31 marine archaeological resources (Targets 01–31) and their associated recommended avoidance buffers. Dominion Energy's preferred method for addressing potential effects on ASLFs is through avoidance. Avoidance of a historic property would result in no effect on the historic property. However, development of the final Project design is ongoing, and it is currently unclear whether Dominion Energy would be able to avoid adverse effects. Therefore, BOEM has determined the undertaking would have adverse effects on historic properties in the marine APE. BOEM anticipates that the number of adversely affected historic properties in the marine APE may be refined through ongoing Section 106 consultations.

O.3.1.4.2 Adverse Effects on Historic Properties in the Terrestrial APE

The Project would have adverse effects on 14 known historic properties in the terrestrial APE: 13 terrestrial archaeological resources and 1 historic aboveground resource. Dominion Energy is committed to minimizing effects on historic properties through the siting, routing, and design process of the Onshore Project components to the extent practicable. Avoidance of a historic property would result in no effect on the historic property. However, development of the final Project design is ongoing, and it is currently unclear whether Dominion Energy would be able to avoid adverse effects. Therefore, BOEM has determined the undertaking would have adverse effects on historic properties in the terrestrial APE.

Additional terrestrial archaeological resources subject to adverse effects from the Project may be identified during Dominion Energy's process of phased identification and evaluation of historic properties as defined in 36 CFR 800.4(b)(2) (Section O.6, *Phased Identification and Evaluation*). As detailed in the Section 106 PIP (COP, Appendix DD; Dominion Energy 2022), avoidance, minimization, and mitigation measures will be determined following the completion of the remaining terrestrial archaeological survey and analysis. BOEM will use an MOA to establish commitments for reviewing the sufficiency of any supplemental terrestrial archaeological investigations as phased identification; assessing effects on historic properties; and implementing measures to avoid, minimize, or mitigate effects in these areas prior to construction. BOEM anticipates that the number of adversely affected historic properties in the terrestrial APE may be refined through the phased process and ongoing Section 106 consultations.

O.3.1.4.3 Adverse Effects on Historic Properties in the Visual APE

Based on the information BOEM has available from the studies conducted to identify historic properties in the visual APE of the Project and the assessment of effects upon those properties determined in consultation with the consulting parties, BOEM has found that the Proposed Action would have direct visual adverse effects on 25 aboveground historic properties, including 1 NHL: the First Cape Henry Lighthouse (see Table O-8). The undertaking would affect the character of the properties' settings that contributes to their historic significance by introducing visual elements that are out of character with the historic setting of the properties. BOEM did, however, determine that, due to the distance and open viewshed, the integrity of the properties would not be so diminished as to disqualify any of them for NRHP eligibility. The adverse effects on the viewshed of the aboveground historic properties would occur for approximately 33 years and would be unavoidable for reasons discussed in Section O.3.1.3, *Assessment of Effects on Historic Properties in the Visual APE*. Both this application of the Criteria of Adverse Effect and the determination that the effects would be direct are based on pertinent NRHP bulletins, subsequent clarification, and guidance from the National Park Service (NPS) and ACHP, along with other documentation, including professionally prepared viewshed assessments and computer-simulated photographs.

Where BOEM found adverse visual effects on historic properties in the visual APE for Offshore Project components (see Table O-8), BOEM also determined that the undertaking would cause cumulative visual effects (BOEM 2022). Cumulative effects are additive effects. Where BOEM has determined adverse effects would occur from Offshore Project actions on historic properties, BOEM then assessed if those effects would add to the potential adverse effects of other reasonably foreseeable actions and thereby result in cumulative effects.

O.4. National Historic Landmarks and the NHPA Section 106 Process

NPS, which administers the NHL program for the Secretary of the Interior, describes NHLs and requirements for NHLs as follows:

> National Historic Landmarks (NHL) are designated by the Secretary under the authority of the Historic Sites Act of 1935, which authorizes the Secretary to identify historic and archaeological sites, buildings, and objects which "possess exceptional value as commemorating or illustrating the history of the United States" Section 110(f) of the NHPA requires that Federal agencies exercise a higher standard of care when considering undertakings that may directly and adversely affect NHLs. The law requires that agencies, "to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to such landmark." In those cases when an agency's undertaking directly and adversely affects an NHL, or when Federal permits, licenses, grants, and other programs and projects under its jurisdiction or carried out by a state or local government pursuant to a Federal delegation or approval so affect an NHL, the agency should consider all prudent and feasible alternatives to avoid an adverse effect on the NHL.

NHPA Section 110(f) applies specifically to NHLs. BOEM is implementing the special set of requirements for protecting NHLs and for compliance with NHPA Section 110(f) at 36 CFR 800.10, which, in summary:

- Requires the agency official, to the maximum extent possible, to undertake such planning and actions as may be necessary to minimize harm to any NHL that may be directly and adversely affected by an undertaking;
- Requires the agency official to request the participation of ACHP in any consultation conducted

under 36 CFR 800.6 to resolve adverse effects on NHLs; and

- Directs the agency to notify the Secretary of the Interior of any consultation involving an NHL and invite the Secretary of the Interior to participate in consultation where there may be an adverse effect.

The HRVEA identified two NHLs in the visual APE for the Project: First Cape Henry Lighthouse and Eyre Hall (COP, Appendix H-1; Dominion Energy 2022). BOEM has determined that only one of the two NHLs in the visual APE, the First Cape Henry Lighthouse, would be adversely affected by the Project.

The First Cape Henry Lighthouse (134-0007/134-0660) is located on a steep sand dune within the Fort Story Historic District in Virginia Beach, Virginia. The octagonal sandstone lighthouse was constructed in 1792. It is the first commissioned public works building in the United States and the first lighthouse authorized, completed, and lit by the federal government. It is also the third-oldest lighthouse in the United States. The tower is 72 feet (22 meters) in height, and the diameter ranges from 26 feet (8 meters) at the base to 16.5 feet (5 meters) at the top. The base walls are 6 feet (1.8 meters) thick, and a glass observation tower is located at the top of the tower. The tower was later lined with brick, and a metal staircase was added to the interior. The lighthouse was listed as an NHL in 1964, in the NRHP in 1966, and in the Virginia Landmarks Register (VLR) in 1969 under Criteria A and C. The property is identified as possessing a significant maritime setting and significant views to the ocean (COP, Appendix H-1; Dominion Energy 2022).

Eyre Hall (065-0008) is located on a 467.3-acre (189.1-hectare) rural lot north of Cheriton in Northampton County, Virginia. The property is defined by a mile-long drive that divides the property and provides access to the different buildings on the complex. The original one-and-one-half-story portion of Eyre Hall was constructed in 1759 by Littleton Eyre. Littleton Eyre's son, Severn, inherited the property in 1773; Severn Eyre was a member of the Virginia House of Burgesses between 1766 and 1773. The house was enlarged to two stories and converted into a wing of the present gambrel roof primary block between 1796 and 1800 by Severn's son John Eyre. Eyre Hall is notable for utilizing a vocabulary typical of less-affluent properties, including wood weatherboard, gambrel roof, and three-room side-hall plan. However, its scale and interior finishes signify the wealth and status of its historic owners. The primary dwelling is a Vernacular-style example of a Colonial-period house in the Chesapeake. Eyre Hall is listed as a NHL under Criterion 4 for its exceptional visual character and preservation of its historic architecture landscape (COP, Appendix H-1; Dominion Energy 2022).

BOEM considered prudent and feasible alternatives to avoid adverse effects on the Cape Henry Lighthouse NHL, applying *The Secretary of the Interior's Standards and Guidelines for Federal Agency Historic Preservation Programs Pursuant to the National Historic Preservation Act* (NPS 2013), which is presented by the NPS Federal Preservation Institute under Standard 4; as such:

> Where such alternatives appear to require undue cost or to compromise the undertaking's goals and objectives, the agency must balance those goals and objectives with the intent of section 110(f). In doing so, the agency should consider:
>
> (1) The magnitude of the undertaking's harm to the historical, archaeological and cultural qualities of the NHL;
>
> (2) The public interest in the NHL and in the undertaking as proposed; and
>
> (3) The effect a mitigation action would have on meeting the goals and objectives of the undertaking.

BOEM considered three alternatives to the Proposed Action. Among these, Alternative B would consider the construction of up to 176 WTGs and 3 OSSs. Alternative C would remove up to 5 WTGs, resulting in up to 172 WTGs and 3 OSSs being constructed. Although both alternatives could lessen the visual effect of the wind farm on First Cape Henry Lighthouse due to a reduced number of WTGs, the overall visual effect of the wind farm would still result in an adverse effect on the NHL.

BOEM is taking action to minimize harm, as required by NHPA Section 110(f) at 36 CFR 800.10, to the First Cape Henry Lighthouse NHL. Descriptions of the actions to minimize or mitigate adverse effects will be discussed in greater detail in an MOA. Actions to minimize the visual adverse effects on First Cape Henry Lighthouse include using non-reflective white and light-gray paint on offshore structures (i.e., WTGs and OSSs) and a navigational lighting system (e.g., ADLS) that minimizes the visibility of the WTGs and OSSs. Implementation of a mitigation measure to resolve the visual adverse effects on First Cape Henry Lighthouse would be compensatory and consistent with the nature, scope, size, and magnitude of visual effects, including cumulative visual effects, caused by the undertaking.

In transmittal of this Finding of Adverse Effect document to NPS, BOEM will specifically request that NPS consulting-party points of contact provide input from NPS's NHL program pursuant to 36 CFR 800.10(c), to which the Secretary of the Interior has delegated consultation authority and will address this request to the NHL program lead for the region.

O.5. Actions to Avoid, Minimize, or Mitigate Adverse Effects

BOEM will consult with federally recognized tribes, SHPOs, the ACHP, and consulting parties to develop measures to avoid, minimize, or mitigate adverse effects for certain historic properties identified in the APE as adversely affected by the Project. Specifically, BOEM's consultation will develop measures to avoid physical effects on known historic properties and minimize visual effects on aboveground historic properties. BOEM will also consult to develop mitigation measures, which would be triggered in cases where avoidance of physical adverse effects on known historic properties is not feasible. The Project's post-review discovery plans will include a consultation process to determine appropriate mitigation in cases where there is unanticipated discovery of a previously unknown marine or archaeological resource that is not currently found to be subject to adverse effects from the Project.

As part of the NRHP Section 106 process, Dominion Energy has identified applicant-proposed measures (APMs) as conditions for approval of issuance of BOEM's permit (COP, Section 4.3; Dominion Energy 2022), including:

1. Dominion Energy will develop an operations plan prior to construction, to ensure that construction activities adhere to the recommended avoidance buffers.
2. Design and construction methods, including micro-siting opportunities, will continue to be evaluated in order to avoid or minimize the extent of seabed disturbance and adverse effects on historic properties.
3. Disturbance to known resources that cannot practicably be avoided would only occur with appropriate consultations (i.e., BOEM, SHPOs, Tribal Historic Preservation Offices) and approvals.
4. Additional archaeological investigation of resources that cannot be avoided may be needed to determine whether they are historic properties and to fully assess Project effects on them.
5. Dominion Energy would develop and implement an Unanticipated Discoveries Plan to avoid and mitigate impacts on 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.
6. Adherence to the QMA recommended avoidance buffers would remain in effect during operations.

7. Dominion Energy is committed to minimizing impacts on cultural resources through the siting, routing, and design process of the Onshore Project components to the extent practicable.
8. Dominion Energy plans to have an Unanticipated Discoveries Plan for Terrestrial Archaeological Resources in place throughout construction, O&M, and decommissioning of the Project.
9. Dominion Energy will explore the use of an ADLS to minimize nighttime effects by only activating the FAA required warning lights when an aircraft is in the vicinity of the Wind Farm Area.
10. Dominion Energy will use non-reflective pure white (RAL Number 9010) or light-gray (RAL Number 7035) paint on offshore infrastructure to minimize daytime visual effects.
11. Dominion Energy plans to limit WTG lighting in number and illumination to meet the requirements for marine and aviation safety. No commercial signage will be included on the WTGs.
12. Dominion Energy would fund mitigation measures, as outlined in the COP (COP Volume 1, Section 4.3.3.5; Dominion Energy 2022), for properties adversely affected by the Project to resolve these adverse effects per 36 CFR 800.6, which may include the following:
    a. Support for preparation of NRHP nominations for Chesapeake Beach, Doyletown, or Queen City, Virginia Beach.
    b. Support for planning and design studies for the rehabilitation of the St. Teresa's Chapel and/or the 1902 Railroad Station.
    c. Support for the preservation of historic properties associated with African American history, including Seatack Elementary School and the Mount Olive Baptist Church.
    d. Support for updating the publication, *50 Most Significant Houses and Structures in Virginia Beach*.
    e. Support for interpretive signs in the Historic Kempsville mini park in Virginia Beach.
    f. Support for preservation planning for 302 22nd Street—the C & P Telephone Building.
    g. Support for the survey and designation of resources associated with underrepresented communities in the region.
    h. Support for a public lecture series on preservation topics to support regional historic preservation planning objectives.
    i. Support for documentation and public outreach on the history of the State Military Reservation (formerly Camp Pendleton).
    j. If determined appropriate through the Section 106 process, Dominion Energy suggests a donation of $50,000 to be made prior to the completion of the Project to a private, non-profit preservation group, such as the United States Lighthouse Society or Preservation Virginia, to support qualified projects in the Chesapeake Bay region for the preservation and rehabilitation of historic lighthouses. It is anticipated that up to four competitive grants may be supported and that the issuing organization will widely publicize the availability of the targeted grant program. Applications might include the current owner of the Chesapeake Light Tower dependent on the provisions of the grant application requirements.
13. Dominion Energy proposes to determine specific treatment options through consultation with BOEM, the Virginia SCC, VDHR, property owners, and consulting parties, as outlined in COP, Appendix H-3, for properties adversely affected by onshore impacts to resolve adverse effects per 36 CFR 800.6, These may include detailed site documentation, historic research, and historic preservation studies; preparation of digital media or museum-type exhibits for public interpretation; installation of

historic markers or signs; installation of vegetative screening; protective fencing for the YMCA building foundations associated with the Camp Pendleton/State Military Reservation Historic District; or contributions to historical preservation organizations or specific preservation projects. Additional mitigation options could be identified through consultation with BOEM, the Virginia SCC, VDHR, the SMR, and other consulting parties. Site-specific plans would be prepared for agency review and approval.

The NHPA Section 106 consultation process is ongoing for the Project and will culminate in an MOA detailing avoidance, minimization, and mitigation measures to resolve adverse effects on historic properties, including cumulative adverse visual effects caused by the Project. BOEM will continue to consult in good faith with VDHR, the North Carolina SHPO, and other consulting parties to resolve adverse effects.

O.6. Phased Identification and Evaluation

In consultation with BOEM and the relevant SHPO, Dominion Energy will be using a process of phased identification and evaluation of historic properties as defined in 36 CFR 800.4(b)(2). This includes any presently unsurveyed areas of the terrestrial APE that would require phased identification of historic properties and any Project alternatives that may require phased identification of historic properties.

Dominion Energy has developed a Section 106 PIP for the process of completing additional required cultural resource investigations (COP, Appendix DD; Dominion Energy 2022). As of September 2022, efforts to identify and evaluate terrestrial archaeological resources in the terrestrial APE have encompassed areas proposed for Onshore Project components in Virginia. However, the identification and evaluation of historic properties for the entire terrestrial APE is incomplete. Additional archaeological surveys conducted during the phased process may lead to the identification of additional archaeological resources and historic properties in the terrestrial APE. In addition, if any Project alternatives are approved, the SCC approves an alignment not currently under consideration, or there are any changes to the current Project design for either Onshore or Offshore Project components that result in Project components falling outside of the previously assessed APE, updated technical studies and reports would be required. Although additional information regarding the identification of historic properties may be obtained after the publication of the Draft EIS and may be presented in the Final EIS, additional information may not be available until after the Final EIS.

BOEM will use an MOA to establish commitments for reviewing the sufficiency of any updated studies and reports as phased identification and evaluation of historic properties in the APE, amending the APE per the final Project design, as necessary, and consulting on the post-ROD finding of effects. Information pertaining to the identification of historic properties for some Project alternatives may not be available until after the ROD is issued and the COP is approved. The approach for phased identification and evaluation will be in accordance with BOEM's existing *Guidelines for Providing Archaeological and Historic Property Information Pursuant to Title 30 Code of Federal Regulations Part 585* and ensure potential historic properties are identified, effects are assessed, and adverse effects are resolved prior to construction.

O.7. References Cited

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ATTACHMENT A
FIGURES

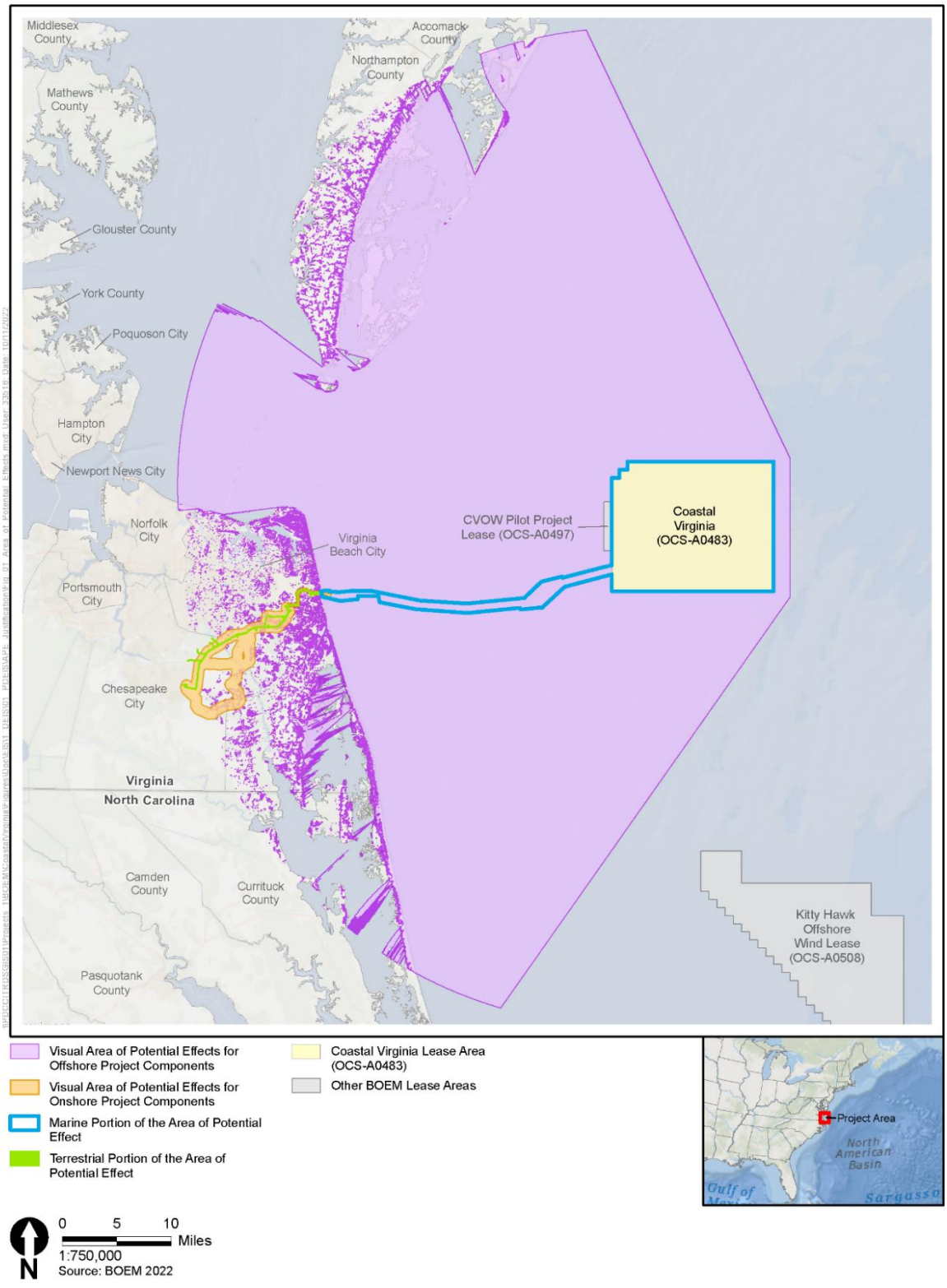

Figure O.A-1 Project APE

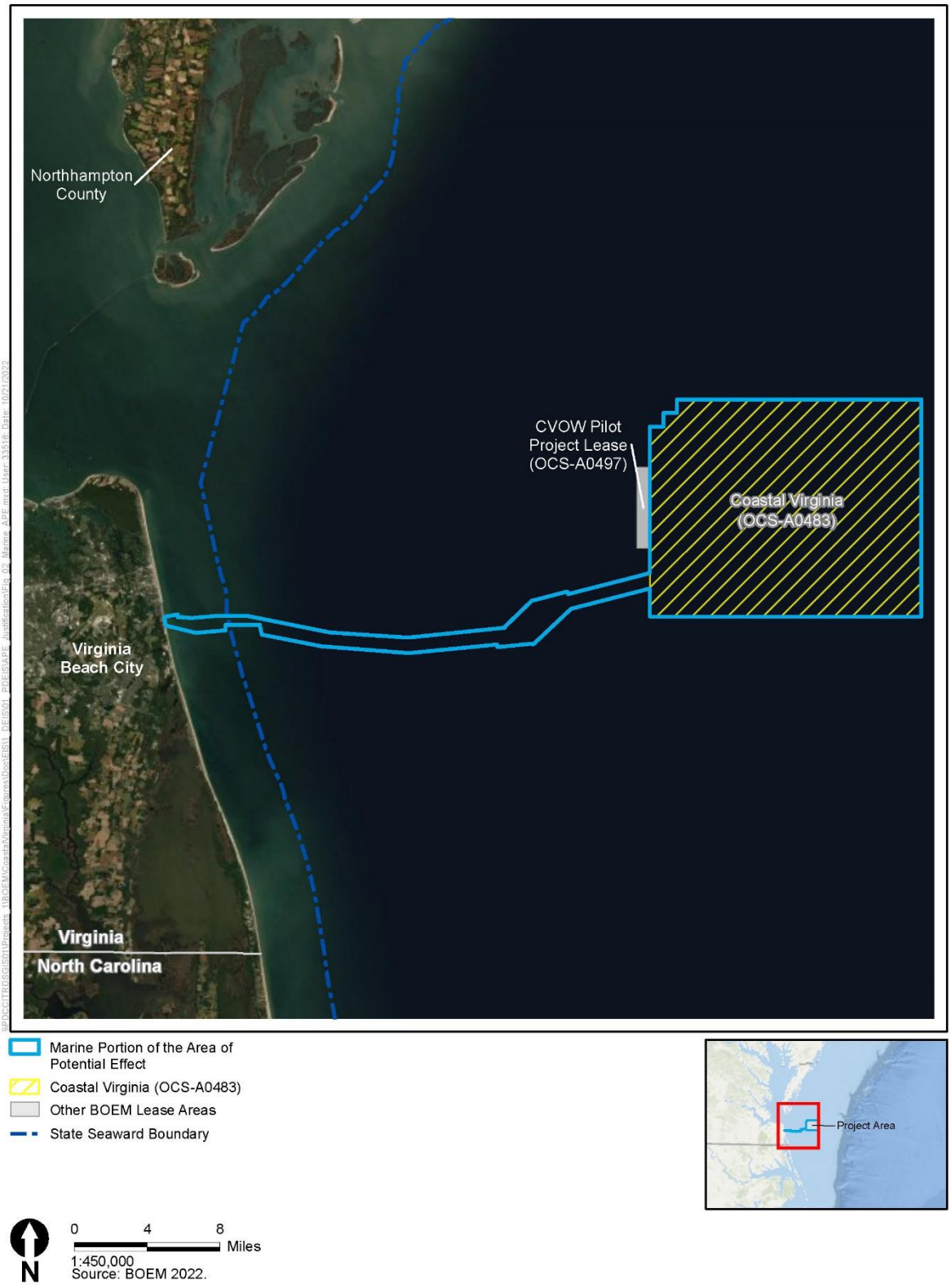

Figure O.A-2 Marine APE

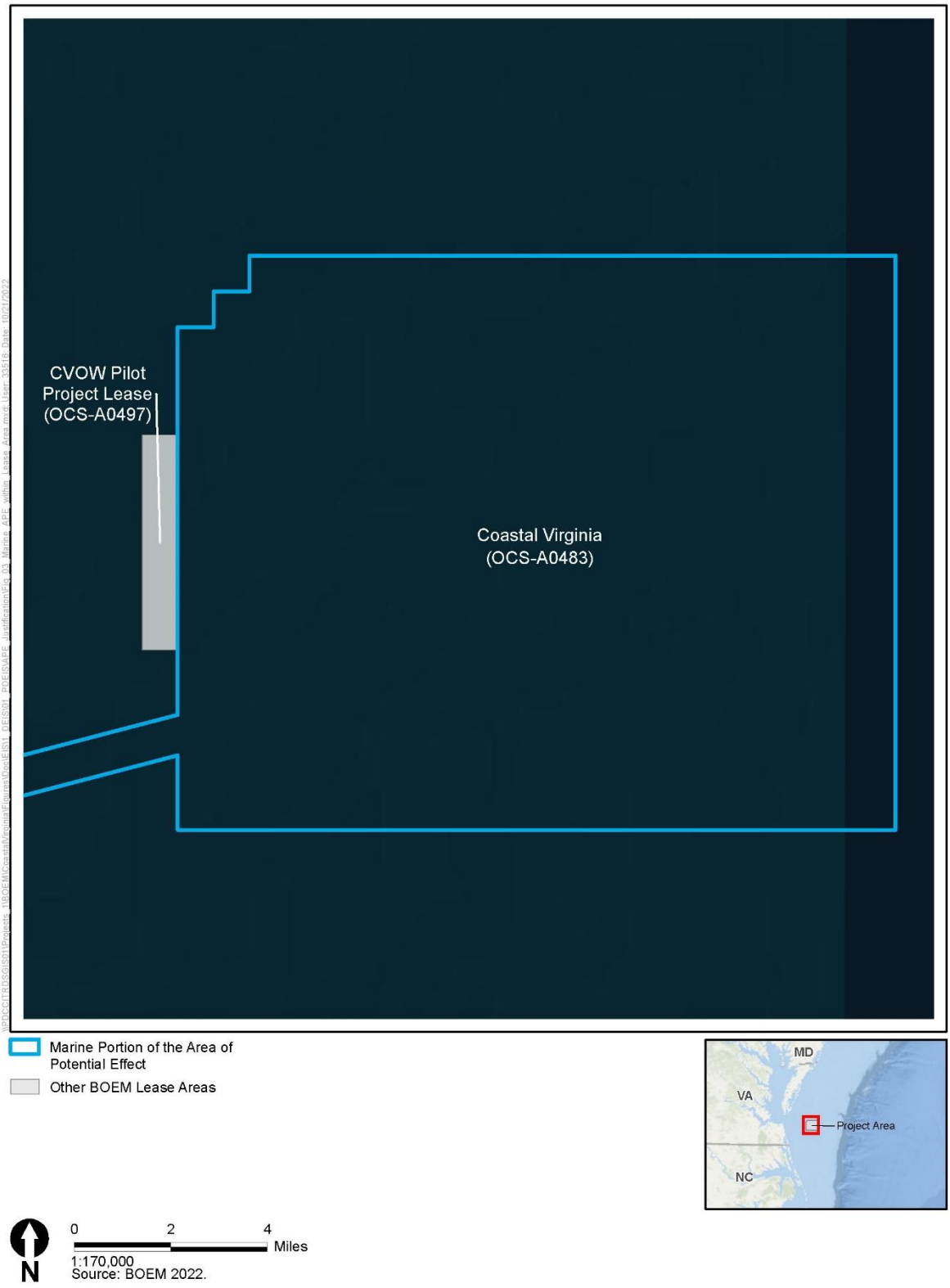

Figure O.A-3 Detail of Marine APE Within the Lease Area

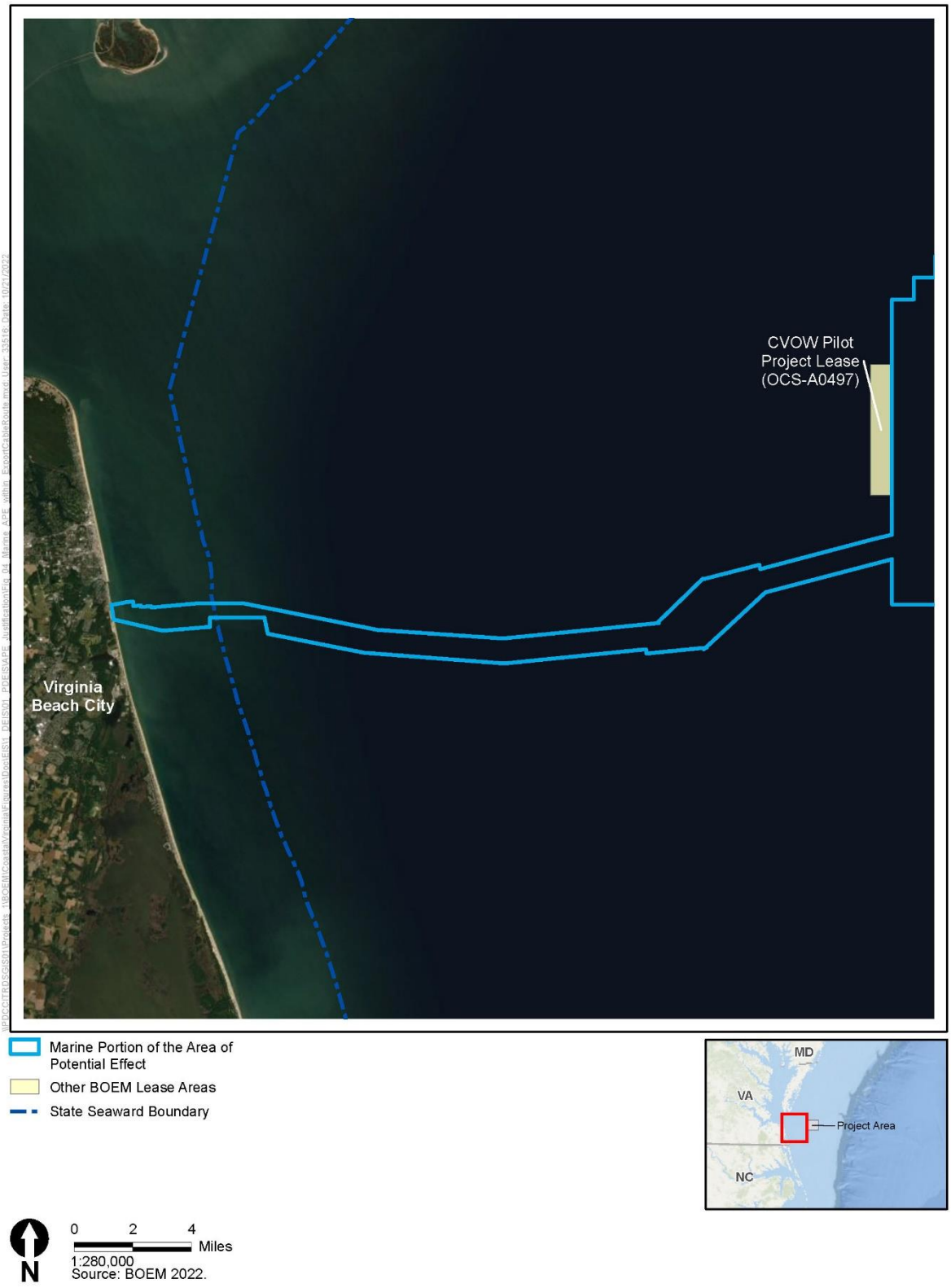

Figure O.A-4 Detail of Marine APE Within Export Cable Route Corridor

Figure O.A-5 Terrestrial APE

Figure O.A-6 Detail of Easternmost Portion of the Terrestrial APE

Figure O.A-7 Detail of Westernmost Portion of the Terrestrial APE

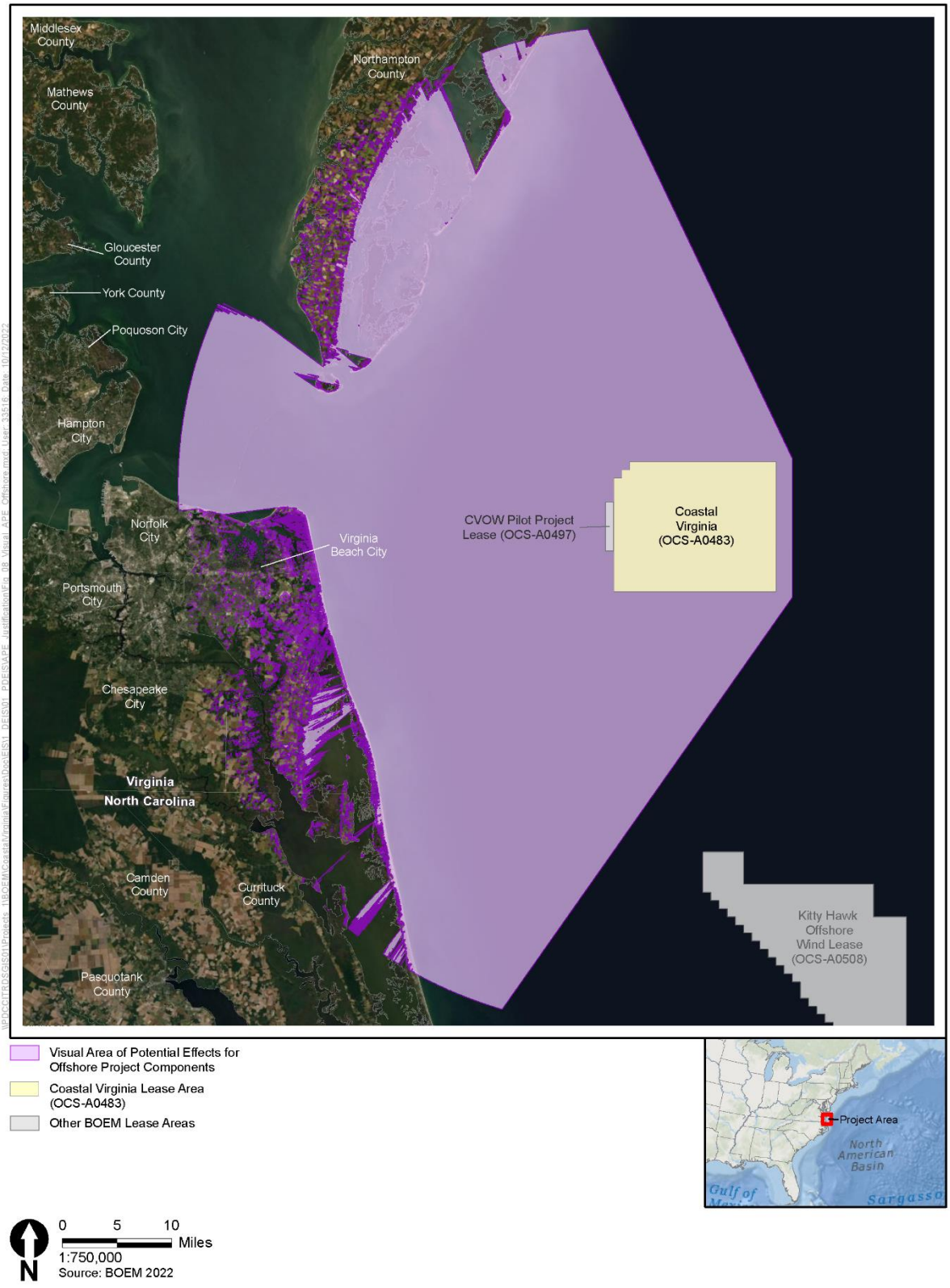

Figure O.A-8 Visual APE for Offshore Project Components

Figure O.A-9 Detail of Northernmost Portion of Visual APE for Offshore Project Components

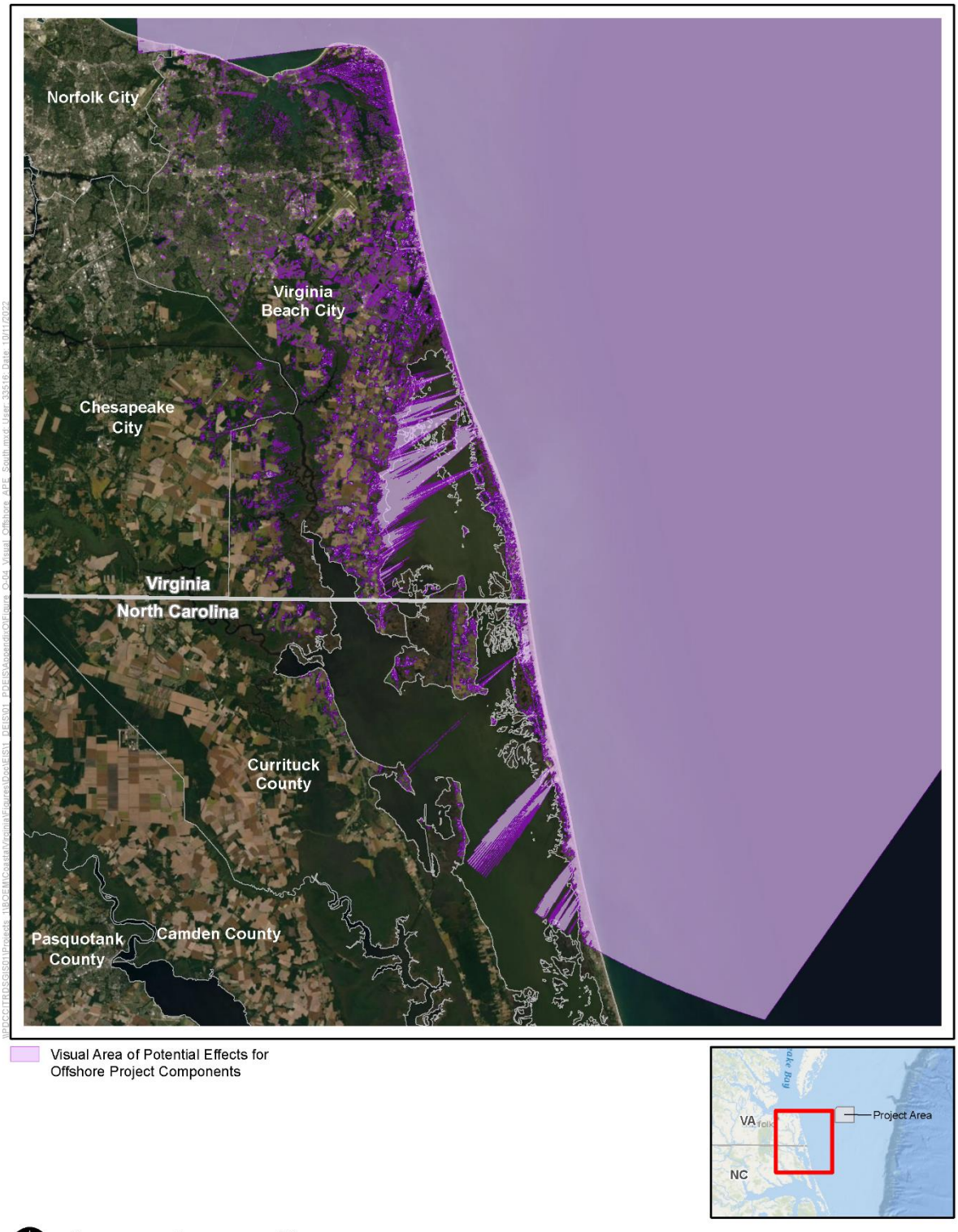

Figure O.A-10 Detail of Southernmost Portion of Visual APE for Offshore Project Components

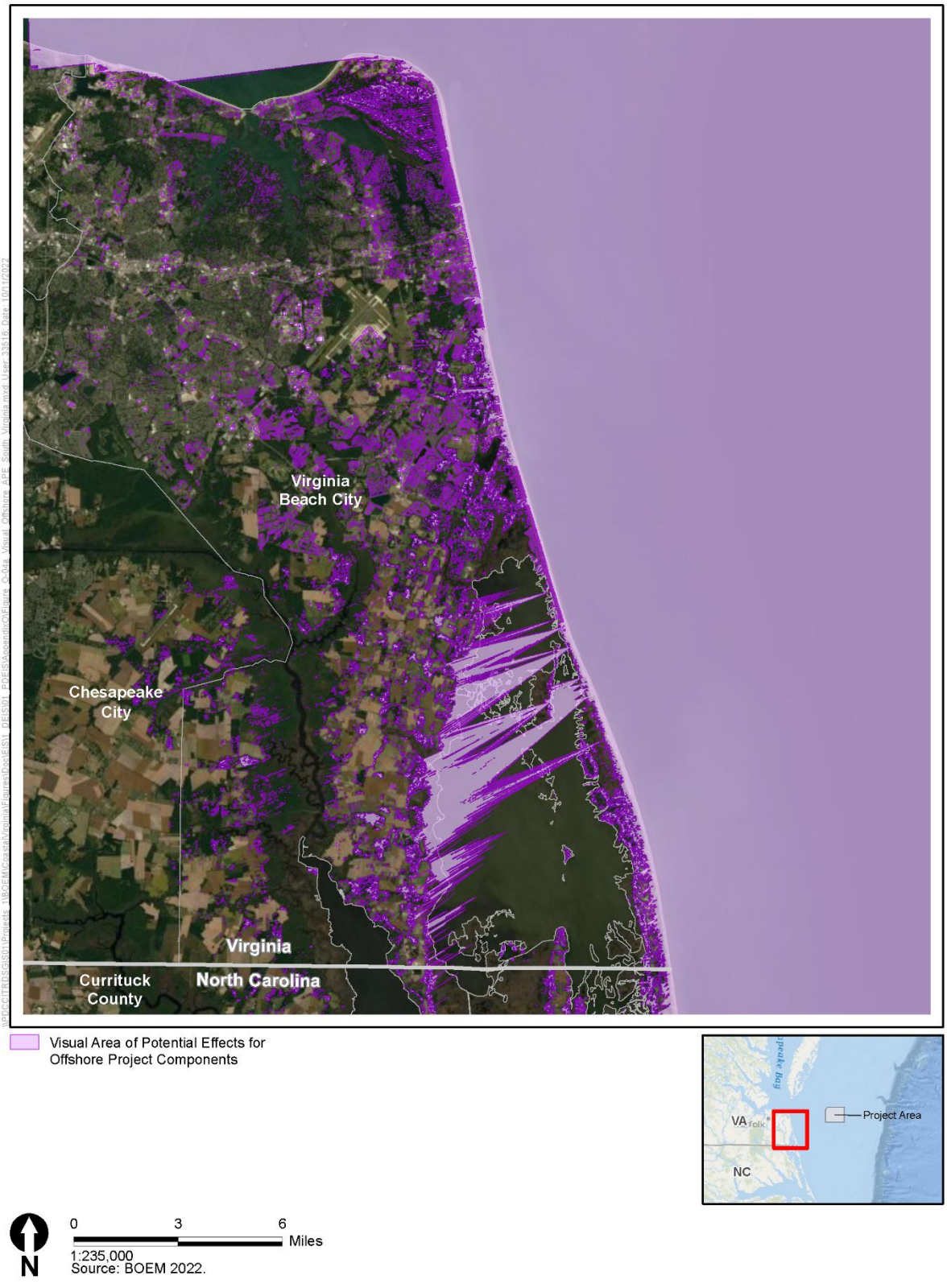

Figure O.A-11 Detail of Visual APE for Offshore Project Components in Chesapeake and Virginia Beach

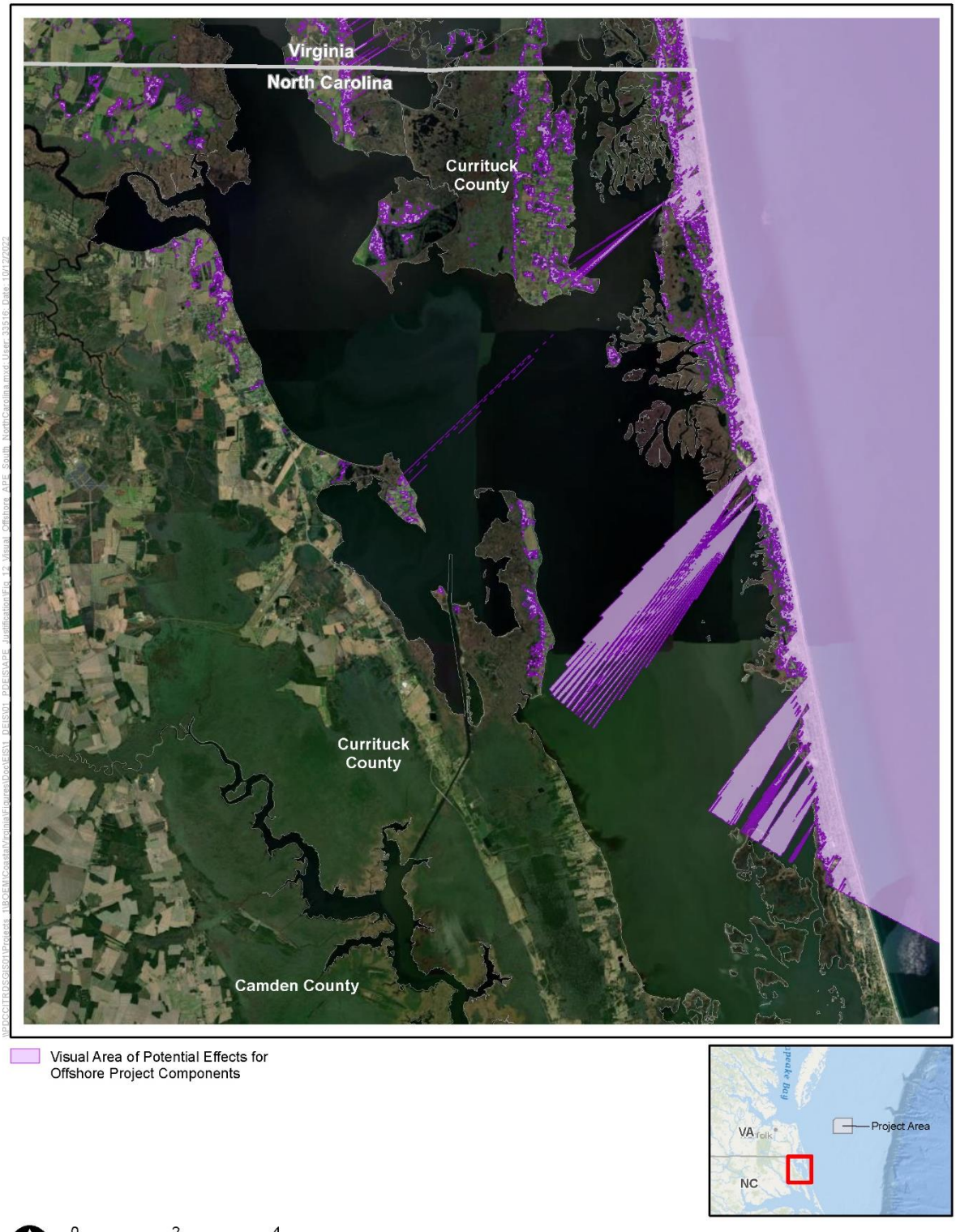

Figure O.A-12 Detail of Visual APE for Offshore Project Components in North Carolina

Figure O.A-13 Visual APE for Onshore Project Components

Figure O.A-14 Detail of Northernmost Portion of Visual APE for Onshore Project Components

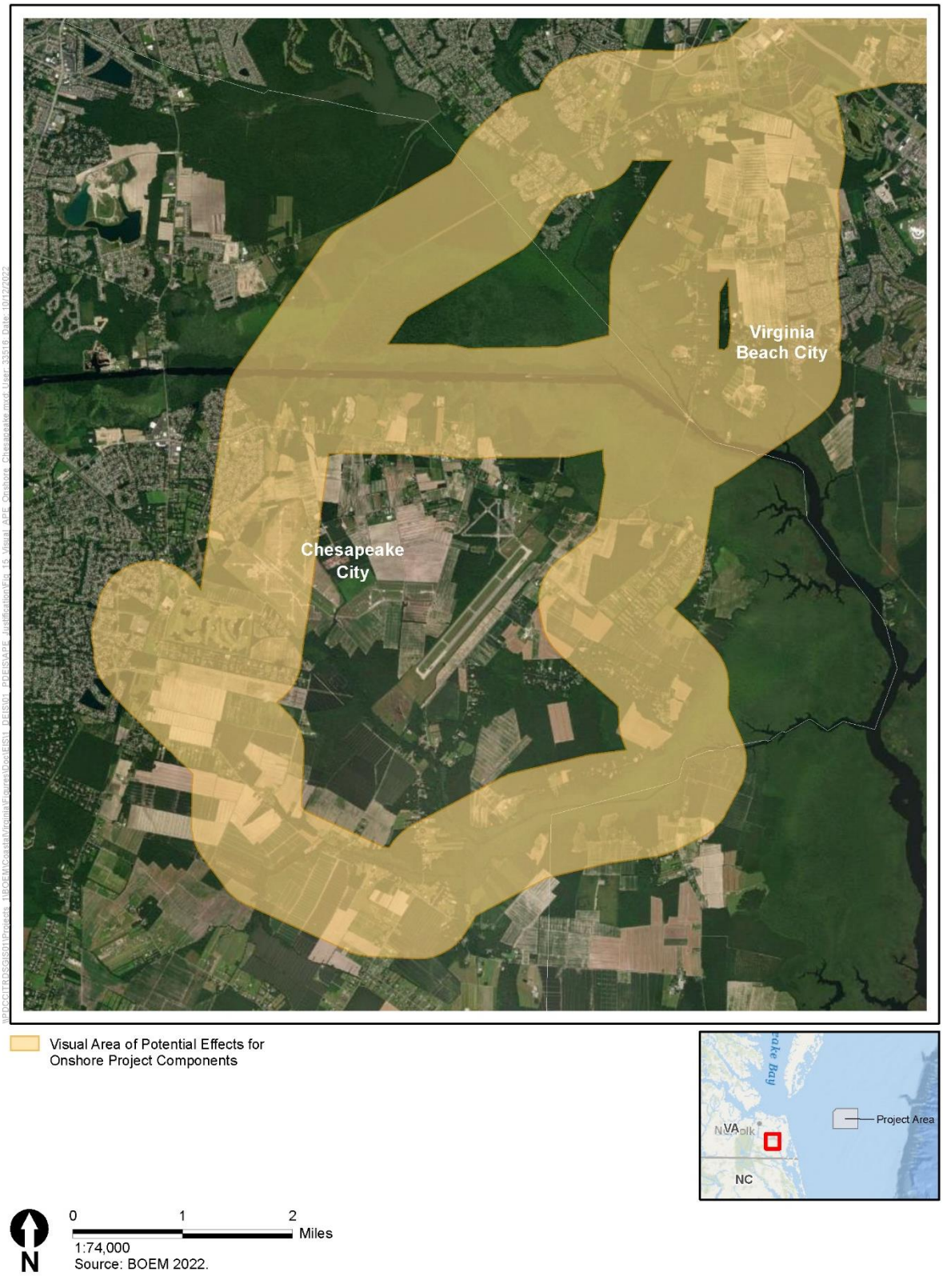

Figure O.A-15 Detail of Southernmost Portion of Visual APE for Onshore Project Components

ATTACHMENT B
ENTITIES INVITED TO BE CONSULTING PARTIES

The following is a list of governments and organizations that BOEM contacted and invited to be a consulting party to the NHPA Section 106 review of the CVOW-C Project, in July and August 2021. During the consultations, additional parties were made known to BOEM and were added as they were identified.

Government or Organization
100 Black Men of Virginia Peninsula
Absentee-Shawnee Tribe of Indians of Oklahoma
Accomack County
Advisory Council on Historic Preservation (ACHP)
African American Heritage Trail
American Battlefield Trust
Assateague Island National Seashore
Cape Charles Historical Society
Captain John Smith Chesapeake National Historic Trail
Cheroenhaka Nottoway Indian Tribe
Cherokee Nation
Chickahominy Indian Tribe
Chickahominy Indian Tribe- Eastern Division
City of Chesapeake
City of Norfolk
City of Virginia Beach
Colonial National Historic Park
Council of Virginia Archaeologists
Cultural Heritage Partners, PLLC
Currituck County
Currituck County Historic Preservation Commission
Currituck County Historical Society
Delaware Tribe of Indians
Downtown Norfolk Council
Eastern Band of Cherokee Indians
Eastern Shawnee Tribe of Oklahoma
Eastern Shore of Virginia Barrier Islands Center
Eastern Shore of Virginia Historical Society
False Cape State Park
First Landing State Park
Fort Monroe Authority
Fort Monroe National Monument

Government or Organization
Haliwa-Saponi Indian Tribe
Hampton Roads Community Action Program
Kiptopeke State Park
Lumbee Tribe of North Carolina
Meherrin Indian Tribe
Monacan Indian Nation
Museum of Chincoteague Island
NAACP Currituck County Branch
Nansemond Indian Nation
Nansemond River Preservation Alliance
NASA Wallops Flight Facility
National Park Service
Naval Air Station Oceana
Naval Facilities Engineering Systems Command, Atlantic
Navy Region Mid-Atlantic
Norfolk County Historical Society of Chesapeake, VA
Norfolk Historical Society
North Carolina Department of Natural and Cultural Resources, Division of Historical Resources
North Carolina Maritime History Council
Northampton County
Northampton County Department of Planning, Permitting & Enforcement
Northampton Historic Preservation Society
Nottoway Indian Tribe of Virginia
Occaneechi Band of the Saponi Nation
Pamunkey Indian Tribe
Patawomeck Indian Tribe of Virginia
Piedmont Environmental Council
Preservation North Carolina
Preservation Virginia
Princess Anne County / Virginia Beach Historical Society
Rappahannock Tribe
Scenic Virginia
Seminole Tribe of Florida
Shawnee Tribe
The Coharie Tribe
The Delaware Nation
The Mattaponi Nation
The Narragansett Indian Tribe
The Sappony
The Shinnecock Indian Nation

Government or Organization
Town of Accomac
Town of Cape Charles
Town of Cheriton
Town of Chincoteague
Town of Eastville
Town of Exmore
Town of Onancock
Town of Onley
Town of Parksley
Town of Saxis
Town of Wachapreague
Tuscarora Nation
U.S. Army Corps of Engineers, Eastern Virginia Regulatory Section
U.S. Army Corps of Engineers, Southern Virginia Regulatory Section
U.S. Coast Guard
U.S. Fish and Wildlife Service
U.S. Fish and Wildlife Service, Back Bay National Wildlife Refuge
U.S. Fish and Wildlife Service, Chincoteague National Wildlife Refuge
U.S. Fish and Wildlife Service, Eastern Shore of Virginia National Wildlife Refuge
U.S. Fish and Wildlife Service, Mackay Island National Wildlife Refuge and Currituck National Wildlife Refuge
U.S. Fleet Forces Command
U.S. Navy Region Mid-Atlantic
United Keetoowah Band of Cherokee Indians in Oklahoma
Upper Mattaponi Indian Tribe
Urban League of Hampton Roads
Virginia African American Cultural Center
Virginia Army National Guard
Virginia Department of Historic Resources (VDHR)
Volgenau Virginia Coast Reserve
Waccamaw Siouan Tribe

ATTACHMENT C
CONSULTING PARTIES TO THE CVOW-C PROJECT

The following is a current list of consulting parties to the NHPA Section 106 review of the CVOW-C Project, as of October 25, 2022.

Government or Organization	Contact Person
Accomack County	G. Christian Guvernator IV
Advisory Council on Historic Preservation	Christopher Daniel
Chickahominy Indian Tribe	Wayne Adkins Dana Adkins Stephen Adkins
Chickahominy Indian Tribe – Eastern Division	Jessica Phillips Doris Austin Gerald A. Stewart
City of Norfolk	Kenneth C. Alexander Susan McBride
City of Virginia Beach	Mark Reed Robert Tajan
Colonial National Historic Park	Kym Hall
Council of Virginia Archaeologists	Eleanor Breen
Cultural Heritage Partners, PLLC	Marion Werkheiser Will Cook Jessica Krauss Claire O'Brien Olga Symeonoglou Peyton Lindley
Eastern Shore of Virginia Historical Society	Hilary Harnett-Wilson
Lumbee Tribe of North Carolina	Karen Bird Tammy Maynor Kevin Melvin
Monacan Indian Nation	Kenneth Branham Kaleigh Pollak Pamela Johns Thompson
Nansemond Indian Nation	Keith Anderson
Nansemond River Preservation Alliance	Elizabeth Taraski
NASA Wallops Flight Facility	Randall Stanley Shari Miller
National Park Service	Mary Krueger Kathryn Schlegel
Nottoway Indian Tribe of Virginia	Lynette Allston
Pamunkey Indian Tribe	Robert Gray Shaleigh Howells

Government or Organization	Contact Person
Patawomeck Indian Tribe of Virginia	Charles Bullock Minnie Lightner
Preservation Virginia	Sonja Ingram Elizabeth Kostelny
Rappahannock Tribe	Anne Richardson Woodie Walker
Seminole Tribe of Florida	David Echeverry
The Coharie Tribe	Greg Jacobs Phillip Bell
The Delaware Nation	Deborah Dotson Carissa Speck Katelyn Lucas
Town of Chincoteague	J. Arthur Leonard Michael T. Tolbert
Town of Eastville	Jim Sturgis
U.S. Army Corps of Engineers, Southern Virginia Regulatory Section	Nicole Woodward Todd Miller
U.S. Coast Guard	Matthew Creelman CDR Stephen West Maureen Kallgren CD Matt Meskun George Detweiler
U.S. Fish and Wildlife Service	Amy Wood
U.S. Fish and Wildlife Service Back Bay National Wildlife Refuge	Kathryn Owens Lauren Mowbray
U.S. Fish and Wildlife Service Chincoteague National Wildlife Refuge	John Kasbohm
U.S. Fish and Wildlife Service Eastern Shore of Virginia National Wildlife Refuge	Meta Griffin
U.S. Fleet Forces Command	James Casey Laura Busch Dan Hurley
U.S. Navy Region Mid-Atlantic	Heather Robbins Clay Swindell Catherine Lantzas-Olson
Upper Mattaponi Indian Tribe	Frank Adams Leigh Mitchell Reggie Tupponce
Virginia African American Cultural Center	Amelia Ross-Hammond Wayne Jones
Virginia Army National Guard	Susan Smead Lisa Jordan

Government or Organization	Contact Person
Virginia Department of Historic Resources	Roger Kirchen Julie Langan Adrienne Birge-Wilson