# Appendix C. Additional Analysis for Alternatives Dismissed

BOEM considered alternatives to the Proposed Action that were identified through coordination with cooperating and participating agencies and through public comments received during the public scoping period for the EIS. BOEM evaluated the alternatives and excluded from further consideration alternatives that did not meet the purpose and need, did not meet the screening criteria, or both. The screening criteria are presented below in Section C.1, *Alternatives Screening Criteria*. Alternatives that were considered and carried forward for detailed analysis are presented in Section 2.1, *Alternatives Analyzed in Detail*, of this Final EIS, and alternatives excluded from further consideration are presented in Section 2.1.7, *Alternatives Considered but not Analyzed in Detail*.

For several alternatives considered but not analyzed in detail, additional analysis was necessary to identify economic and technical feasibility concerns and resource impacts and determine whether those concerns and impacts were unacceptable. Section C.2, *Supplemental Information*, provides the analysis conducted to support the rationale for dismissal for the associated alternative.

## C.1. Alternatives Screening Criteria

An alternative was considered but not analyzed in detail if it met any of the following criteria:

- It is outside the jurisdiction of the Lead Agency,[1] including resulting in activities that are not allowed under the lease (e.g., requiring locating part or all of the wind energy facility outside of the Lease Area, or constructing and operating a facility for another form of energy).
- It would not respond to the purpose and need of BOEM's action, including not furthering the United States' policy to make OCS energy resources available for expeditious and orderly development, subject to environmental safeguards.[2]
- It would require a major change to an existing law, regulation, or policy.
- It would not be responsive to the Applicant's goals, lease constraints, and obligations, such as alternatives that would:
    - Partially or completely relocate the Project outside of the defined geographic area where it was proposed; or
    - Result in the development of a Project that would not allow the developer to satisfy contractual obligations (e.g., resulting in a Project with a nameplate capacity that is less than what is required under a Power Purchase Agreement; result in significant implementation delays that would prevent the Project from initiating commercial operations by the contractually required date in the Power Purchase Agreement).
- It is technically infeasible, meaning implementation of the alternative is unlikely given past and current practice, technology (e.g., experimental turbine design or foundation type), or site conditions (e.g., presence of boulders) as determined by BOEM's technical experts.
- It is economically infeasible, meaning implementation of the alternative is unlikely due to unreasonable costs as determined by BOEM's technical experts; while this does not require cost-benefit analysis or speculation about an applicant's costs and profits, there must be a reasonable basis.

[1] "Include reasonable alternatives not within the jurisdiction of the lead agency" was removed with CEQ's updated NEPA-implementing regulations. See 43304 *Federal Register* 85, July 16, 2020.
[2] 43 USC 1332(3)

- It cannot be analyzed because its implementation is remote or speculative, or it is too conceptual in that it lacks sufficient detail to meaningfully analyze impacts.
- It is substantially similar in design to an alternative that is or will be analyzed in detail.
- It is environmentally infeasible, meaning implementation of the alternative would not be allowed by another agency from which a permit or approval is required, or implementation results in an obvious and substantial increase in impacts on the human environment.[3]
- It does not address a specific environmental or socioeconomic concern or issue.

## C.2. Supplemental Information

### C.2.1 Wind Turbine Array Layout Spacing

Commenters suggested that BOEM should analyze an alternative wind turbine layout using a 2-nm by 2-nm wind turbine layout to provide safe access for fishing vessels. BOEM evaluated the number of turbine positions that could be within the Lease Area using this spacing and found that a 2-nm by 2-nm wind turbine layout would only provide for 30 wind turbine positions in the Lease Area. Figure C-1 illustrates the wind turbine layout on a 2-nm grid. A 2-nm by 2-nm layout would significantly reduce annual energy production, resulting in failure to meet the required 1,100 MW of wind energy. Use of a 12-MW or 14-MW WTG for the 30 WTGs would result in a Project nameplate capacity of 360 and 420 MW, respectively. The reduced nameplate capacity and annual energy production would fail to fulfill BPU's solicitation award for 1,100 MW of offshore wind and would not meet the purpose of and need for action. Therefore, this alternative was dismissed from further consideration.

[3] "Human environment means comprehensively the natural and physical environment and the relationship of present and future generations of Americans with that environment" (40 CFR 1508.1(m)).

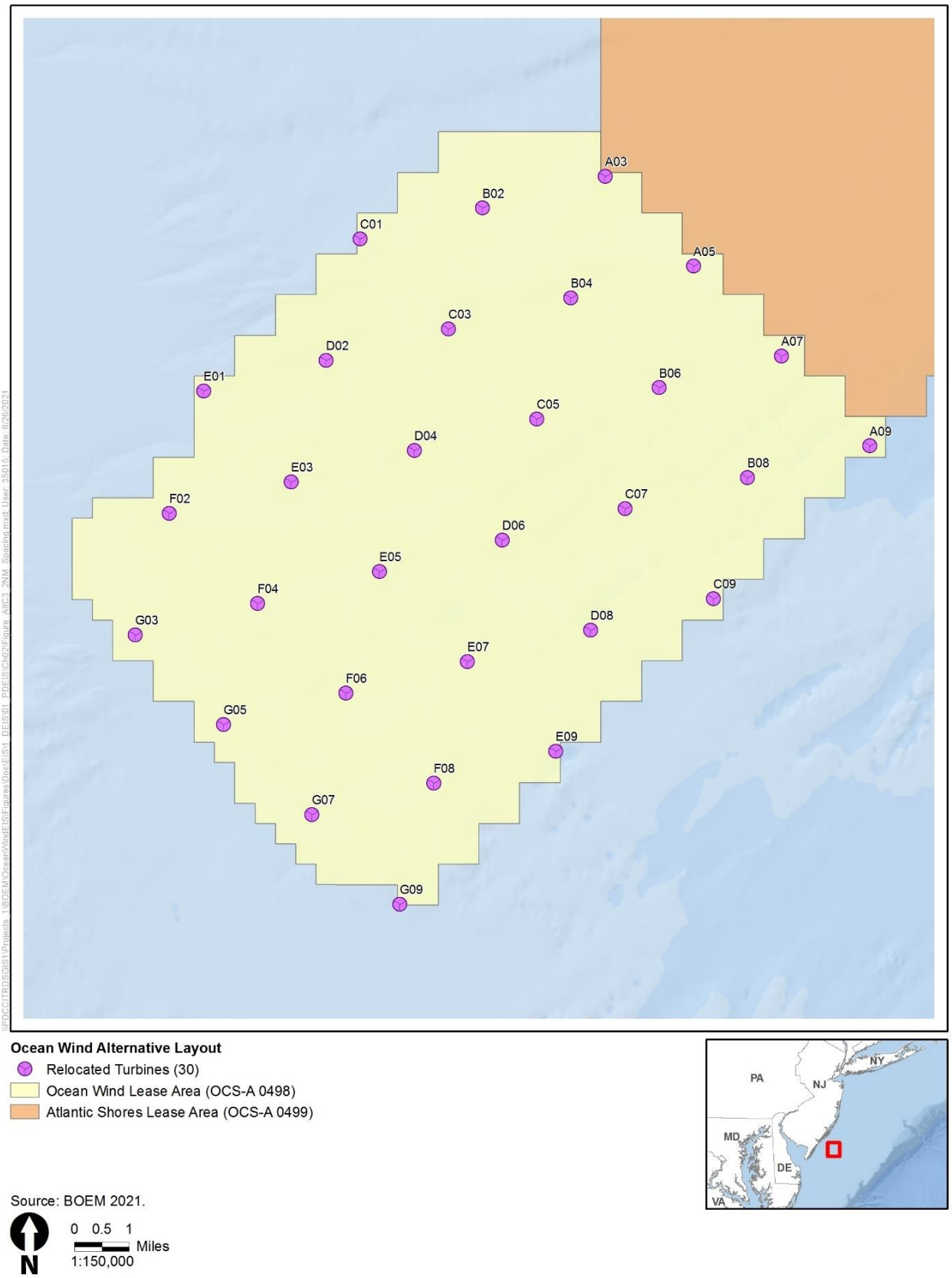


**Figure C-1 Wind Turbine Layout on 2-Nautical Mile Grid**

### C.2.2 SAV Avoidance Alternative E-2

Under Alternative E-2, the construction, O&M, and eventual decommissioning of an 1,100-MW wind energy facility on the OCS offshore New Jersey would occur within the range of the design parameters outlined in the Ocean Wind 1 COP, subject to applicable mitigation measures. However, modifications would be made to the Oyster Creek export cable route to minimize impacts on SAV in Barnegat Bay. Figure C-2 illustrates Alternative E-2 as well as Alternative E-1, which was also dismissed from further consideration as described in Section 2.1.7, *Alternatives Considered but not Analyzed in Detail*. The export cable route would make landfall on Island State Beach Park within an auxiliary parking lot of Swimming Area #2 and then follow Central Avenue/Shore Road north approximately 2.7 miles before entering Barnegat Bay at an existing tidal pond. Alternative E-2 would increase the export cable route by approximately 4.3 miles, which would likely require installation of a reactive compensation station approximately 3 to 5 miles offshore of Island Beach State Park due to energy dissipation and consequent limits in the distance that active power can be carried.

Table C-1 presents impacts of Alternative E-2 on SAV in comparison to the Proposed Action and Alternative E. The Proposed Action and Alternative E are carried forward for detailed analysis in the Final EIS.

**Table C-1 SAV Impacts of Alternative E-2 Compared to the Proposed Action and Alternative E**

| Data | Proposed Action (Acres) | Alternative E (Acres) | Alternative E-2 (Acres) |
|---|---|---|---|
| 1979 Data | 16.78 | 0.07 | 0.71 |
| 1985–1987 Data | 14.66 | 1.18 | -- |
| 2009 Data | 13.01 | 0.03 | -- |
| Ocean Wind Survey Data | 15.38 | 0.69 | N/A |

A reactive compensation station would be similar in appearance to the OSS that would be installed within the Lease Area, and it would include structural components similar to that of an OSS. Installation methodology would also be similar to that for the OSS. First, foundation (monopile or jacket) would be piled into the seabed, and then the topside would be installed with the help of a heavy-lift vessel. An example of a reactive compensation station installed at a previous Ørsted project is shown on Figure C-3.

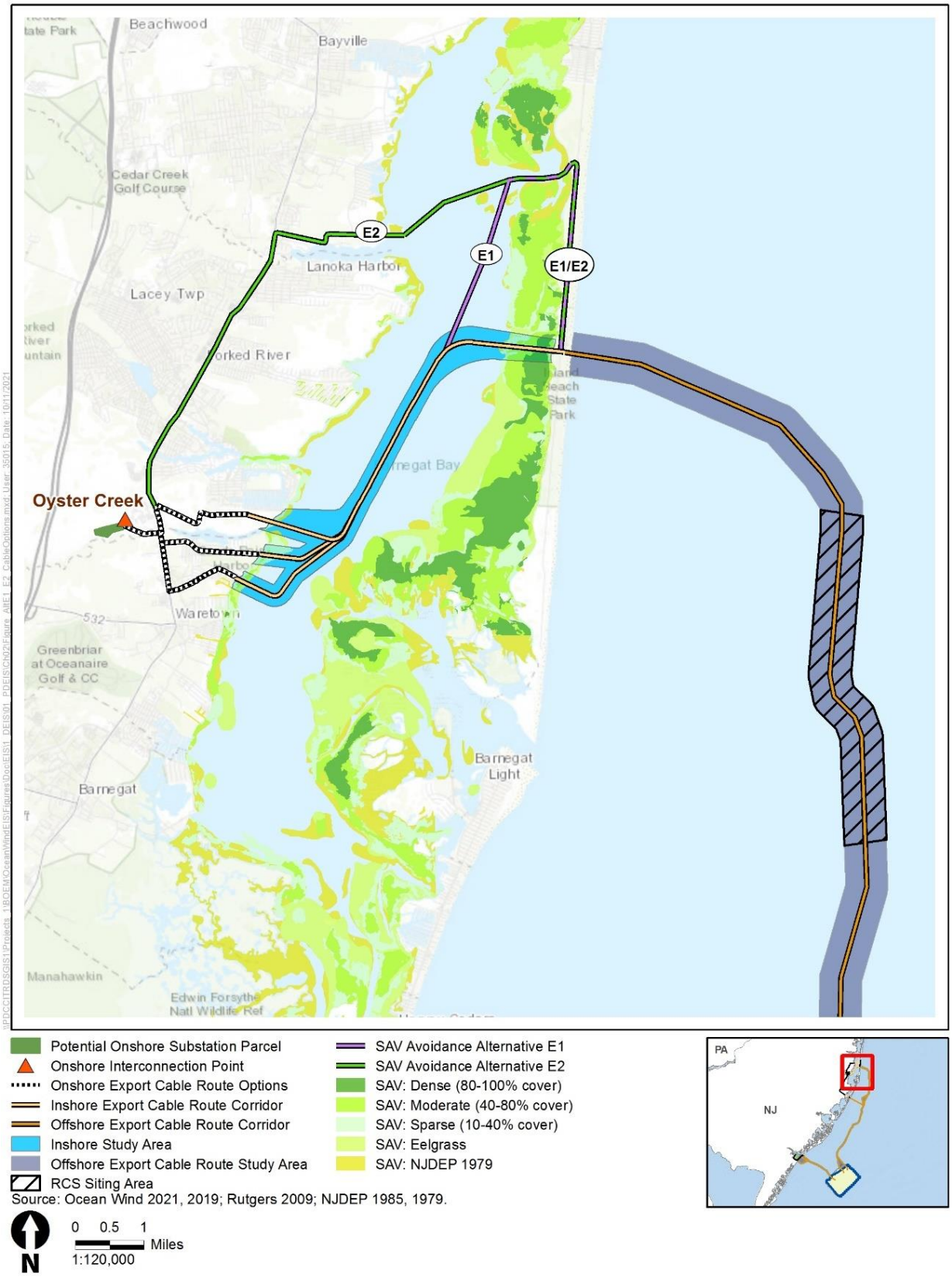


**Figure C-2 Alternatives E-1 and E-2: Submerged Aquatic Vegetation Avoidance Alternative (Northern Route)**


**Figure C-3 Example of a Reactive Compensation Station (Hornsea I)**

### C.2.2.1. Feasibility Analysis and Environmental Consequences

Alternative E-2 would result in 0.71 acre of SAV impacts, substantially less than the Proposed Action. However, the increased export cable length and associated installation of a reactive compensation station would result in substantial adverse impacts on other resources, most notably through the presence of an above-water physical structure much closer to shore within the navigation approaches to New York Harbor, in an area of higher vessel transit than the Lease Area (navigation and vessel traffic, scenic and visual resources); additional foundation installations (benthic resources, marine mammals, sea turtles); and approximately 4.5 kilometers of new offshore and 4.4 kilometers of new onshore export cable route on Island Beach State Park and 10.6 kilometers of new onshore export cable route in Berkeley Township (land use and coastal infrastructure).

A portion of new offshore cable route would be in an unmapped area, so the potential presence of MEC and UXO, marine archaeological resources, and other unmapped obstacles in this portion of the route is unknown. Obtaining the required G&G, benthic, socioeconomic, and biological survey data to determine the technical feasibility of Alternative E-2 could take up to 2 years, which would result in delays to the anticipated commencement of commercial operations.

**Benthic Resources:** Under Alternative E-2, the export cable route would be aligned to avoid impacts on mapped SAV. Because export cables need to be spaced at 50 meters apart, the HDD would exit within the mapped SAV, which could result in up to 2 acres of SAV impacts. The reactive compensation station

foundation would result in additional permanent conversion of up to 1 acre of sand and muddy sand-mobile or coarse sediment-mobile benthic habitat.

**Marine Mammals, Sea Turtles:** The decreased impact on SAV would potentially affect marine mammal prey species. The reduced acreage of SAV affected by cable emplacement within Barnegat Bay would reduce potential impacts on adult green sea turtles, as they are the only sea turtles that forage exclusively on aquatic vegetation such as eelgrass. While the number of green sea turtles that would potentially benefit is not quantifiable, the species regularly occurs in Barnegat Bay (Excelon Generation 2012); therefore, minimizing impacts on SAV in Barnegat Bay would avoid the destruction of important foraging habitat. The reactive compensation station would in essence be another OSS, causing additional temporary and permanent impacts on marine mammals and sea turtles.

**Commercial Fishing:** Alternative E-2 may result in slightly greater impacts on commercial fisheries and for-hire recreational fishing during construction due to avoidance of the area for nearshore fisheries due to the extended length of the export cable in Barnegat Bay. The acreage of SAV affected by cable emplacement and maintenance would be reduced and would slightly benefit the fisheries because SAV provides nursery habitat for targeted fishery species, thus possibly enhancing potential recruitment to the fishery, although any enhancement would be minimal. Alternative E-2 would likely require a reactive compensation station, which would require additional pre-construction surveys and installation of additional foundations; however, the incremental contribution of these activities would be minor in relation to the overall impacts of Alternative E-2.

**Cultural Resources:** Alternative E-2 would expand the APE to locations that have not been surveyed for the presence of onshore archaeological sites or ancient submerged landforms; therefore, there would be an increased potential for adverse impacts on cultural resources. Ground-disturbing construction activities could disturb or destroy undiscovered archaeological sites and TCPs, if present. However, state and federal requirements to identify cultural resources, assess Project impacts, and develop treatment plans to avoid, minimize, or mitigate adverse impacts would limit the extent, scale, and magnitude of impacts on individual cultural resources. The reactive compensation station approximately 3 to 5 miles offshore of Island Beach State Park would expand the visual study area. The reactive compensation station would likely be visible from historic properties and result in impacts on the historic properties.

**Land Use and Coastal Infrastructure:** Under Alternative E-2, the presence of a reactive compensation station would affect recreation and tourism as well as property values if visitors decide to visit different coastal locations and potential residents choose to select different residences. Construction of the Oyster Creek cable corridor under Alternative E-2 would result in up to 50 acres of temporary disturbance, an increase of 38 acres compared to the Proposed Action. Alternative E-2 would have a longer cable and would cause land disturbance in both Island Beach State Park and Lacey Township. Alternative E-2 would increase the onshore portion of the Oyster Creek export cable route by approximately 2.7 miles on Island Beach State Park. An additional approximately 3 acres of workspace and associated clearing would be needed to accommodate the turning radius for the cable from the road to the HDD workspace. The workspace would affect the undeveloped shrub/scrub and dune habitat adjacent to Tidal Pond Bird Blind Observation Trail. An additional approximately 6 acres of clearing would be needed adjacent to Central Avenue/Shore Road to accommodate the vaults for the cables once installed in the road (allowing for a 15-foot spacing between the two).

Trenching and installation activities to bury the cable would temporarily disturb beaches, wetlands, and vegetation on the barrier island and potentially interfere with recreational activities in the state park. The additional alignment, running the export cable north along Central Avenue/Shore Road before exiting west into Barnegat Bay, would likely require full road closure, partial road closure with specific construction sequencing, and traffic attenuation. Should full closure of the road be necessary, the park would likely require closing all public recreational access south of the ongoing construction. After

construction, the right-of-way would be restored to pre-disturbance conditions. Future maintenance or emergency repairs may occur during times of heavy park visitation, and may result in intermittent impacts on Island Beach State Park and park users.

**Navigation and Vessel Traffic:** The reactive compensation station installed under Alternative E-2 would create a potential navigational hazard in an area of high fishing and recreational vessel activity, as there is substantial vessel movement along the coast and at the mouth of Barnegat Inlet (Figure C-4). Deep-draft vessel traffic would be 4 to 6 miles to the east of the potential substation location, resulting in no impacts on deep-draft vessel traffic. Tug traffic is likely to follow the informal fairway route that currently delineates the typical tug routes. Alternative E-2 would slightly increase risk of an allision by a fishing or pleasure vessel due to the presence of an additional fixed structure within near-shore waters.

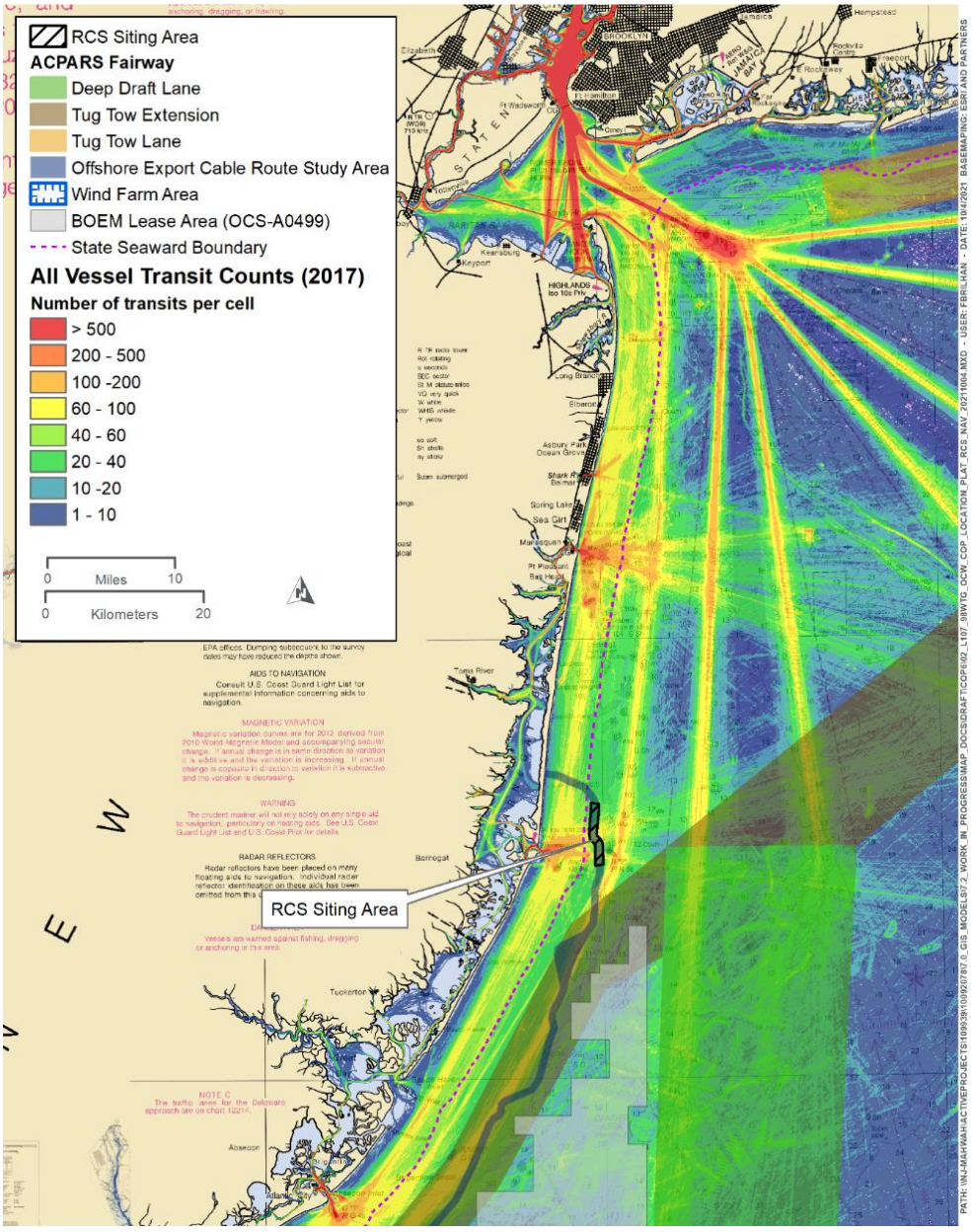


**Figure C-4 Navigation and Vessel Traffic in the Vicinity of a Reactive Compensation Station**

**Scenic and Visual Resources:** Alternative E-2 would increase the export cable route and would likely require installation of a reactive compensation station offshore of Island Beach State Park. As shown on Figure C-3, a reactive compensation station would be similar in appearance to the OSS that would be installed within the Lease Area. The reactive compensation station would be visually prominent from viewpoints on Long Beach given its proximity (see Figure C-5 for a visual simulation of the reactive compensation station as viewed from Long Beach). As shown on Figure C-6, the reactive compensation station would also expand the geographic extent of noticeable elements associated with the Proposed Action, with visual impacts extending farther north compared to the Proposed Action.

Due to distance, extensive FOVs, strong contrasts, large scale of change, level 6 prominence, and heretofore undeveloped ocean views, Alternative E-2 would have major effects on the open ocean character unit and viewer boating and cruise ship experiences. Effects of Alternative E-2 on high- and moderate-sensitivity seascape character units and landscape character units would also be major due to view distances, moderate FOVs, moderate and weak visual contrasts, clear-day conditions, and nighttime ADLS activation. The daytime presence of offshore WTGs, OSS, and the reactive compensation station as well as their nighttime lighting would change viewers' perception of ocean scenes from natural and undeveloped to a developed energy environment characterized by WTGs and OSS. In clear weather, the WTGs, OSS, and reactive compensation station would be unavoidable presences in views from the coastline, with moderate effects on landscape character.

**Figure C-5 Visual Prominence of the Reactive Compensation Station, Given Its Size and Location Offshore**

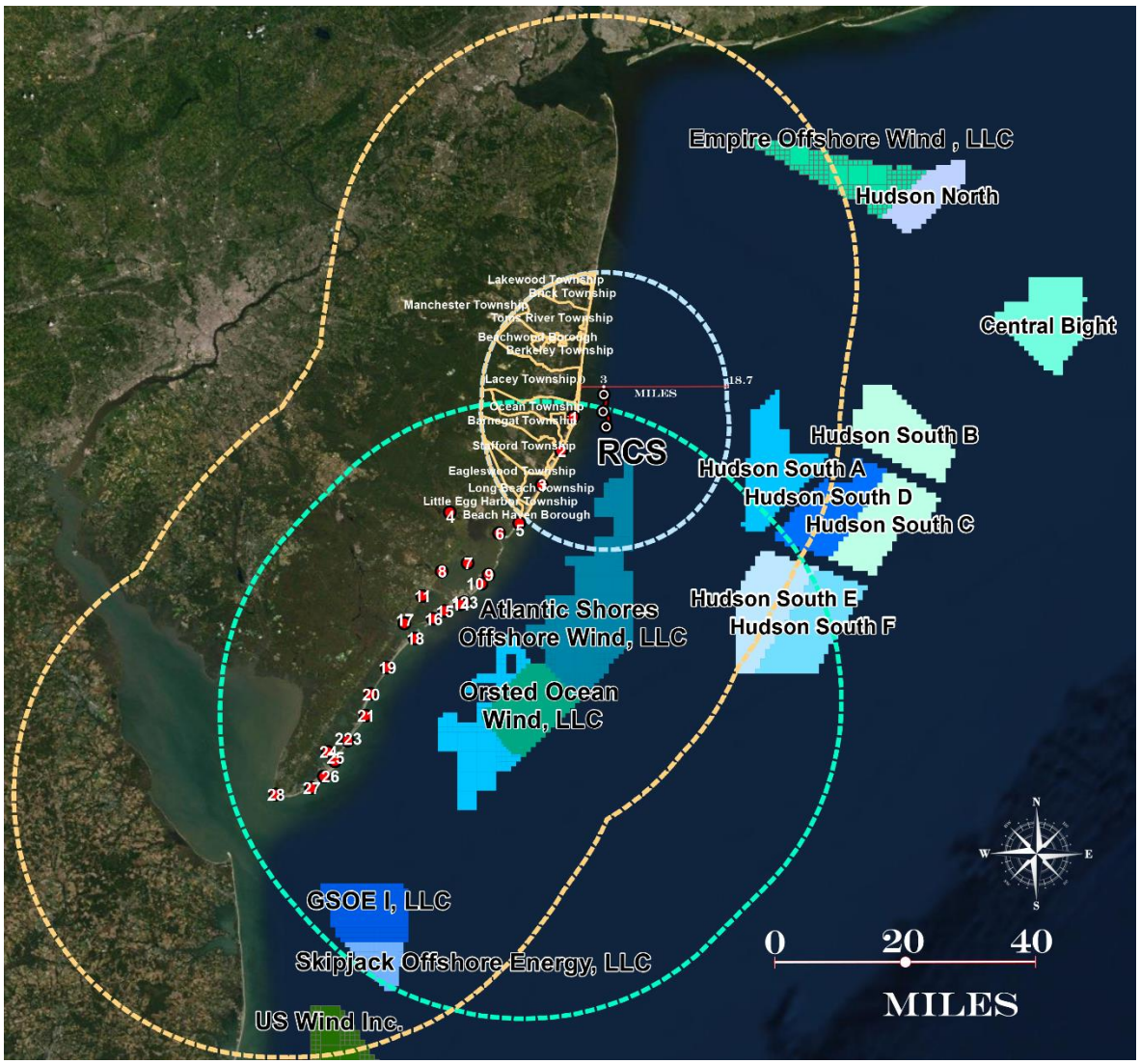


**Figure C-6 Reactive Compensation Station Siting Location and Associated Visual Resource Impacts: Extension of the Visual Study Area**

**Wetlands:** Alternative E-2 would result in increased temporary impacts compared to the Proposed Action. The onshore cable route to Oyster Creek would be longer than under the Proposed Action and would traverse more wetland areas. Table C-2 provides a comparison of the wetland impacts of Alternative E-2 in comparison to the Proposed Action and Alternative E. The Proposed Action and Alternative E are carried forward for detailed analysis in the Final EIS.

**Table C-2 Temporary Wetland Impacts Along Oyster Creek Onshore Export Cable Route**

| Wetland Community | Proposed Action (Acres) | Alternative E (Acres) | Alternative E-2 (Acres) |
|---|---|---|---|
| Atlantic White Cedar Wetlands | -- | -- | 0.50 |
| Coniferous Scrub/Shrub Wetlands | -- | -- | 0.23 |
| Deciduous Scrub/Shrub Wetlands | 1.06 | 1.06 | 0.07 |
| Deciduous Wooded Wetlands | 0.96 | 0.96 | -- |

| Wetland Community | Proposed Action (Acres) | Alternative E (Acres) | Alternative E-2 (Acres) |
|---|---|---|---|
| Herbaceous Wetlands | 0.06 | 0.06 | -- |
| Mixed Scrub/Shrub Wetlands (Coniferous Dominant) | 0.81 | 0.81 | 0.08 |
| Mixed Scrub/Shrub Wetlands (Deciduous Dominant) | 0.99 | 1.32 | 2.63 |
| Mixed Wooded Wetlands (Coniferous Dominant) | -- | -- | 0.68 |
| Mixed Wooded Wetlands (Deciduous Dominant) | -- | -- | 0.01 |
| Phragmites Dominate Coastal Wetlands | 0.08 | 0.08 | 0.16 |
| Saline Marsh (High Marsh) | 1.14 | 1.14 | 0.20 |
| Saline Marsh (Low Marsh) | -- | -- | -- |
| **Total: Oyster Creek** | **5.10** | **5.43** | **4.55** |

BOEM calculated temporary wetland impacts in geographic information systems for the Proposed Action and alternatives based on the longest Oyster Creek cable route option using a 50-foot corridor width.

### C.2.3 SAV Avoidance Alternative E-3

Under Alternative E-3, the construction, O&M, and eventual decommissioning of an 1,100-MW wind energy facility on the OCS offshore New Jersey would occur within the range of the design parameters outlined in the Ocean Wind 1 COP, subject to applicable mitigation measures. However, modifications would be made to the Oyster Creek export cable route to minimize impacts on SAV in Barnegat Bay and utilize existing corridors, as preferred by NJDEP (Figure C-7). The export cable route would make landfall in an existing parking lot in Ship Bottom, New Jersey, and then follow Route 72 and U.S. Highway 9 to the onshore substation (Figure 2-11). After making landfall the export cable would be constructed as a buried onshore cable route.

Initially, Alternative E-3 proposed attaching the export cables to the Route 72 Bridge; however, through coordination with the New Jersey Department of Transportation, BOEM found that the proposed export cables cannot be attached to the Route 72 Bridge due to issues with weight and integrity. Consequently, the export cables would need to be routed through Manahawkin Bay, along a corridor that was previously disturbed during the recent rehabilitation of the Route 72 Bridge.

Table C-3 presents impacts of Alternative E-3 on SAV in comparison to the Proposed Action and Alternative E. The Proposed Action and Alternative E are carried forward for detailed analysis in the DEIS.

**Table C-3 SAV Impacts of Alternative E-3 Compared to the Proposed Action and Alternative E**

| Data | Proposed Action (Acres) | Alternative E (Acres) | Alternative E-3 (Acres) |
|---|---|---|---|
| 1979 Data | 16.78 | 0.07 | 10.38 |
| 1985–1987 Data | 14.66 | 1.18 | 16.05 |
| 2009 Data | 13.01 | 0.03 | 1.78 |
| Ocean Wind Survey Data | 15.38 | 0.69 | N/A |

N/A = not applicable

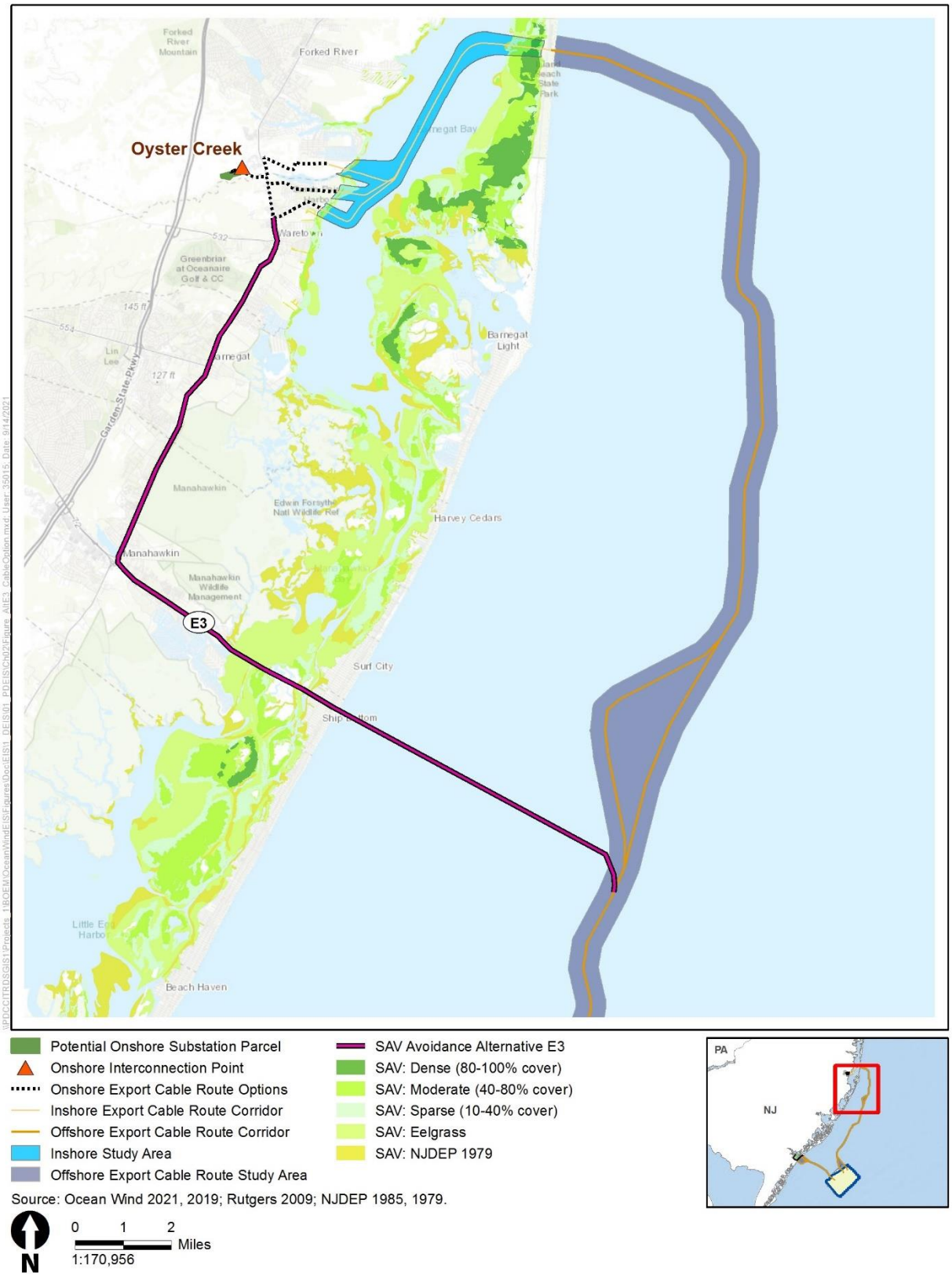


**Figure C-7 Alternative E-3: Submerged Aquatic Vegetation Avoidance Alternative (Southern Route)**

### C.2.3.1. Feasibility Analysis and Environmental Consequences

Alternative E-3 was developed to minimize impacts on SAV. Alternative E-3 would result in substantially less SAV impacts than the Proposed Action according to the 2009 survey data. However, Alternative E-3 would result in substantial adverse impacts on other resources, as described below.

Alternative E-3 would include approximately 11.7 kilometers of new offshore and 22 kilometers of new onshore export cable route. Given the extent of new offshore cable route in an unmapped area, the potential presence of MEC and UXO, marine archaeological resources, and other unmapped obstacles in a substantial portion of the route is unknown. Obtaining the required G&G, benthic, socioeconomic, and biological survey data to determine the technical feasibility of Alternative E-3 could take up to 2 years, which would result in delays to the anticipated commencement of commercial operations and may result in a determination that Alternative E-2 is not feasible or results in unacceptable unavoidable impacts.

**Benthic Resources:** Alternative E-3 would minimize impacts on SAV associated with emplacement of the export cables. Although historic SAV mapping shows SAV throughout Manahawkin Bay, the recent Route 72 Bridge Rehabilitation Project affected SAV along the bridge, which is the same location proposed for the export cable route.

**Marine Mammals, Sea Turtles:** The decreased impact on SAV would potentially beneficial affect marine mammal prey species. The avoidance of impacts on SAV in Barnegat Bay and reduced acreage of SAV affected by cable emplacement within Manahawkin Bay would reduce potential impacts on adult green sea turtles, as they are the only sea turtles that forage exclusively on aquatic vegetation such as eelgrass. While the number of green sea turtles that would potentially benefit is not quantifiable, the species regularly occurs in Barnegat Bay (Excelon Generation 2012); therefore, minimizing impacts on SAV in Barnegat Bay would avoid the destruction of important foraging habitat.

**Commercial Fishing:** Alternative E-3 would lead to the same types of impacts on commercial fisheries and for-hire recreational fishing from construction and installation, O&M, and conceptual decommissioning activities as described for the Proposed Action. The acreage of SAV affected by cable emplacement and maintenance would be reduced and would slightly benefit the fisheries because SAV provides nursery habitat for targeted fishery species, thus possibly enhancing potential recruitment to the fishery, although any enhancement would be minimal.

**Cultural Resources:** Alternative E-3 would expand the APE to locations that have not been surveyed for the presence of onshore archaeological sites or ancient submerged landforms; therefore, there is an increased potential for adverse impacts on cultural resources. Ground-disturbing construction activities could disturb or destroy undiscovered archaeological sites and TCPs, if present. However, state and federal requirements to identify cultural resources, assess Project impacts, and develop treatment plans to avoid, minimize, or mitigate adverse impacts would limit the extent, scale, and magnitude of impacts on individual cultural resources.

**Land Use and Coastal Infrastructure:** Alternative E-3 would increase the onshore export cable route by approximately 9 miles, and would result in up to 57 acres of temporary disturbance, an increase of 45 acres compared to the Proposed Action. Increased onshore cable routing would extend onshore construction duration and increase adverse impacts on local communities from increased noise and traffic. Under Alternative E-3, the export cable route would make landfall in an existing parking lot in Ship Bottom, New Jersey, and then follow Route 72 and U.S. Highway 9 to the onshore substation, constructed as a buried onshore cable route. Landfall siting in Surf City/Ship Bottom would be challenging given the roadway configurations, dense development in these locations, and need for 50 meters of separation between the two cables at landfall. There are only two north-south roads in Ship Bottom and three north-south roads in Surf City. The main roadway, Long Beach Boulevard, is approximately 120 to 130 meters

from the beach, depending on which east-west street is selected. To meet depth requirements below dunes, it is anticipated that the HDD would need to be set back from the beach, which would locate portions of the drill site back to the second block on the barrier island affecting two of the north-south routes. Up to 2 acres is needed to support the drilling activities. However, due to the heavy development, even if this area is available, the orientation of the Project site (several connected two-lane roadways) is not optimal, as the narrowness of the roads would require heavy machinery to operate in very tight conditions. Road closures and temporary detours would affect the communities of Ship Bottom and Surf City.

**Scenic and Visual Resources:** Alternative E-3 would not add new aboveground infrastructure and visual impacts of Alternative E-3 would be the same as those of the Proposed Action for the primary IPFs related to the presence of structures, light, and vessel traffic.

**Wetlands:** Alternative E-3 would result in increased temporary impacts on wetlands compared to the Proposed Action because the longer onshore cable route would traverse more wetland areas. Table C-4 provides a comparison of the wetland impacts of Alternative E-3 in comparison to the Proposed Action and Alternative E. The Proposed Action and Alternative E are carried forward for detailed analysis in the Final EIS.

**Table C-4 Temporary Wetland Impacts Along Onshore Export Cable Routes**

| Wetland Community | Proposed Action (Acres) | Alternative E (Acres) | Alternative E-3 (Acres) |
|---|---|---|---|
| Atlantic White Cedar Wetlands | -- | -- | 0.76 |
| Coniferous Scrub/Shrub Wetlands | -- | -- | -- |
| Deciduous Scrub/Shrub Wetlands | 1.06 | 1.06 | 0.58 |
| Deciduous Wooded Wetlands | 0.96 | 0.96 | 1.59 |
| Herbaceous Wetlands | 0.06 | 0.06 | -- |
| Mixed Scrub/Shrub Wetlands (Coniferous Dominant) | 0.81 | 0.81 | 1.58 |
| Mixed Scrub/Shrub Wetlands (Deciduous Dominant) | 0.99 | 1.32 | 0.32 |
| Mixed Wooded Wetlands (Coniferous Dominant) | -- | -- | 1.44 |
| Mixed Wooded Wetlands (Deciduous Dominant) | -- | -- | 4.07 |
| Phragmites Dominate Coastal Wetlands | 0.08 | 0.08 | -- |
| Saline Marsh (High Marsh) | 1.14 | 1.14 | 0.97 |
| Saline Marsh (Low Marsh) | -- | -- | 0.10 |
| **Total: Oyster Creek** | **5.10** | **5.43** | **11.39** |

BOEM calculated temporary wetland impacts in geographic information systems for the Proposed Action and alternatives based on the longest Oyster Creek cable route option using a 50-foot corridor width.

### C.2.4 Great Egg Harbor Inlet Export Cable Route

Ocean Wind considered an export cable route through Great Egg Harbor inlet, the shipping channel, and Great Egg Harbor Bay, which would make landfall near the BL England Substation. Figure C-8 illustrates the Great Egg Harbor inlet export cable route, which was dismissed from further consideration as described in Section 2.1.7, *Alternatives Considered but not Analyzed in Detail*.


**Figure C-8 Great Egg Harbor Inlet Export Cable Route**

### C.2.4.1. Feasibility Analysis

The Great Egg Harbor inlet export cable route was not carried forward into the Ocean Wind 1 COP as a BL England export cable route option because the route was deemed impracticable for the following reasons:

1. Sediments in the Great Egg Harbor inlet are dynamic and are maintained through maintenance dredging; therefore, placing the cable at a permitted depth below the authorized dredge depth for the entire length of the navigation channel places additional risk on the cable and may require additional cable protection such as cable mattresses, placement within an easement, or other mitigation for the export cable route within the inlet and navigation channel. Cable mattresses may also be required where the export cable crosses existing cable areas (i.e., Great Egg Harbor Inlet, from Anchorage Point to the Rainbow Islands, adjacent to the Stainton Memorial Causeway, and adjacent to the Garden State Parkway Bridge). Cable protection would result in additional impacts on natural resources and could cause permanent impacts on the navigation channel.

2. Access to the Great Egg Harbor inlet by other vessels would be restricted during construction, which would result in additional impacts on other marine uses and navigation. The Great Egg Harbor inlet export cable route would cross under three bridges with low clearance and in areas with shallow water depths, making construction challenging due to reduced draft for construction vessels, limited ability to maneuver, and modified cable burial methods.

   Due to the shallower water depths of Great Egg Harbor, the cable installation process (i.e., transporting, laying, and burying the cables) could not be completed by a cable burial vessel in a single operation. Instead, the cable would need to be converted from a single-three-phase cable to three single-core cables that would then be floated and retro-buried or individually buried. These steps are required to reduce vessel drafts to facilitate navigation within the harbor and avoid grounding cable installation vessels. These additional steps would require multiple vessels to operate in concert to store, feed, float, place, and bury the cables. Due to low water depth within Great Egg Harbor, the cables would need to be buried within the limits of the authorized federal and state channel for approximately 4 miles. The width of this channel is approximately 500 feet.

   If the cable were installed in the Great Egg Harbor inlet, a safety zone would be required around the cable-laying vessels while within the inlet and channel. Cable-laying vessels are functionally stationary within the inlet or channel (approximately 3 meters of cable per minute or less than 0.1 mile per hour) while placing submarine cable and disrupt typical vessel traffic. This may force vessels transiting into or out of Great Egg Harbor to transit more slowly, divert into auxiliary channels, or use alternative pathways while transiting the harbor. Due to the overhead clearance of the bridges within Great Egg Harbor, cable-laying procedures would be slower near the existing bridges and may require temporary closures of navigation channels to allow for cable burial and movement of construction equipment. As such, impacts on navigation resulting from the Great Egg Harbor inlet export cable route were anticipated to be significant.

3. There is an existing USACE borrow area at the mouth of the Great Egg Harbor inlet and USACE does not typically authorize crossing of borrow areas or would require mitigation that could not be implemented by the Project, including burial depths of up to 80 feet below the federal project limit.

In contrast, the proposed Oyster Creek export cable route within Barnegat Bay is in a portion of the bay where sediments are less dynamic and therefore largely avoids the need for cable mattress, minimizes co-location within a navigation channel, and does not cross a charted cable area. While the proposed export cable route within Barnegat Bay requires crossing the Intercoastal Waterway, the route minimizes the crossing length and is within a portion of Barnegat Bay that is over 1.5 miles wide. Adequate space would be available for recreational and commercial traffic to navigate safely during cable installation; therefore, impacts on navigation during construction are anticipated to be low. As the proposed export cable within

Barnegat Bay minimized environmental and navigational impacts and avoided the construction feasibility constraints that would affect the Great Egg Harbor inlet export cable route, the Great Egg Harbor inlet export cable route was dismissed from further consideration.

## C.3. References Cited

Excelon Generation. 2012. *Annual sea turtle incidental take report – 2012*. Oyster Creek Nuclear Generating Station report submitted to NMFS. Prepared by M. Browne, K. Voishnis, and J. Kerr. December 2012. Available: https://www.nrc.gov/docs/ML1236/ML12361A025.pdf. Accessed: November 16, 2021.

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