Deepwater Wind South Fork, LLC

South Fork Export Cable

Exhibit 3

Alternatives

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EXHIBIT 3: ALTERNATIVES

3.1 Introduction

Deepwater Wind South Fork, LLC (DWSF or the Applicant) is proposing to construct, operate, and maintain the South Fork Wind Farm (SFWF) and the South Fork Export Cable (SFEC).

- SFWF: includes up to 15 wind turbine generators (WTGs, turbines) with a nameplate capacity of 6 to 12 megawatts (MW) per turbine, submarine cables between the WTGs (inter-array cables), and an offshore substation (OSS), all of which will be located within federal waters on the Outer Continental Shelf (OCS), specifically in Bureau of Ocean Energy Management (BOEM) Renewable Energy Lease Area OCS-A 0486 (Lease Area), approximately 19 miles (30.6 kilometers [km], 16.6 nautical miles [nm]) southeast of Block Island, Rhode Island, and 35 miles (56.3 km, 30.4 nm) east of Montauk Point, New York. The SFWF also includes an O&M facility that will be located onshore at Montauk in East Hampton, New York.
- SFEC: an alternating current (AC) electric cable (138 kilovolts [kV]) that will connect the SFWF to the existing mainland electric grid in East Hampton, New York. The SFEC includes both offshore and onshore segments.
  - SFEC-OCS: the submarine segment of the export cable buried beneath the seabed within federal waters on the OCS from the OSS to the boundary of New York State territorial waters.
  - SFEC-New York State (NYS): the submarine segment of the export cable buried beneath the seabed within state territorial waters from the boundary of New York State waters (three nm offshore) to a sea-to-shore transition vault located in the Town of East Hampton on Long Island, Suffolk County, New York. The SFEC-NYS includes the sea-to-shore transition.
  - SFEC-Onshore: the terrestrial underground segment of the export cable from the sea-to-shore transition vault to the SFEC-Interconnection Facility where the SFEC will interconnect with the Long Island Power Authority (LIPA) electric transmission and distribution system in the Town of East Hampton, New York.

– SFEC-Interconnection Facility: a new onshore facility, primarily consisting of a transformer and a 69 kV interconnection cable that will connect to the 69 kV bus in the existing LIPA East Hampton Substation in the Town of East Hampton, New York.

The SFEC-NYS, SFEC-Onshore, and SFEC-Interconnection Facility are subject to Article VII review and will hereafter be referred to as "the Project".

This Exhibit addresses the requirements of Title 16 of the New York Codes, Rules, and Regulations (NYCRR) § 86.4: Alternatives.

3.2 Summary of the Alternatives Analysis

A comprehensive review of alternatives was performed for the Project. The alternatives analysis supported the selection of a preferred offshore SFEC-NYS route and onshore landing site, SFEC-Interconnection Facility site and interconnection cable route, and SFEC-Onshore route. The analysis also supported the selection of a viable alternative landing site and associated route. In addition, a no action alternative was reviewed.

Various options to connect the SFWF to the existing LIPA transmission grid were considered, including different locations for: (1) SFEC-NYS routing in New York State territorial waters; (2) the onshore landing site; (3) the SFEC-Interconnection Facility site and routing of the interconnection cable to the existing East Hampton Substation; and (4) the SFEC-Onshore route, between the onshore landing site and the SFEC-Interconnection Facility. Figure 3.2-1– Alternatives Overview shows the location of all options considered during the Project's siting history. The greyed-out options in Figure 3.2-1 represent those that were found to be non-viable.

Initially, routing of the SFEC-NYS within the limits of New York State territorial waters (three nm off the coast) was considered. Once offshore route options were identified, potential locations for cable landing sites (where the SFEC-NYS transitions to the SFEC-Onshore) were investigated.

This process ultimately resulted in a preferred offshore route that approaches the southern coast of Long Island. Potential landing sites were analyzed and compared, resulting in the selection of the Beach Lane landing site as the preferred alternative and the Hither Hills site as a viable alternative landing site. Selection of the Beach Lane landing site is contingent on the Applicant

obtaining the necessary property rights from the Town of East Hampton and the Trustees of East Hampton. Figure 3.2-2 - Alternatives Overview on National Oceanic and Atmospheric Administration (NOAA) Mapping shows the location of all cable landing sites and offshore SFEC-NYS approaches and corridors overlaid on a NOAA nautical chart.

Potential SFEC-Interconnection Facility sites and routes for the interconnection cable from the new facility to the existing East Hampton Substation were analyzed. This ultimately resulted in the selection of the preferred Cove Hollow Road SFEC-Interconnection Facility location and Substation Interconnection Cable - Route A.

The routing of the SFEC-Onshore between the onshore landing sites and the SFEC-Interconnection Facility site was evaluated. This analysis resulted in the selection of Beach Lane - Route A as the preferred route for the SFEC-Onshore, and the selection of Hither Hills - Route B as a viable alternative route. Selection of Beach Lane - Route A is contingent on the Applicant obtaining the necessary property rights from the Town of East Hampton and the Trustees of East Hampton.

Table 3.2.1 – Summary of Analyses below summarizes the final subset of alternatives analyzed to determine a preferred Project location and viable alternative.

Table 3.2-1 Summary of Analyses

Analysis	Site Name	Outcome
SFEC-NYS Routes	Southern Shore Route	Preferred
	Northern Shore Route	Non-Viable
Landing Sites	Beach Lane	Preferred
	Hither Hills	Viable Alternative
	Napeague Lane	Non-Viable
Interconnection Facilities and Substation Interconnection Routes	Cove Hollow Road Facility	Preferred
	Airport West Facility	Non-Viable
	Airport East Facility	Non-Viable
	Substation Interconnection Cable - Route A	Preferred
	Substation Interconnection Cable - Route B	Viable Alternative
SFEC-Onshore Routes	Beach Lane - Route A	Preferred
	Beach Lane - Route B	Non-viable
	Beach Lane - Route C	Non-Viable
	Beach Lane - Route D	Non-Viable

	Hither Hills - Route A	Non-Viable
	Hither Hills - Route B	Viable Alternative
	Hither Hills - Route C	Non-Viable

Detailed information in support of the preferred Project location is presented in the other Exhibits of this Application, including mitigation measures for potential impacts to the environment, design considerations, economic effects, local ordinances and permitting, capital costs, engineering justifications, and effects on communications and transportation. Further mapping and environmental data in support of the viable alternative (Hither Hills) is included in Appendix T – Hither Hills Alternative Mapping and Environmental Data.

The following sections present the purpose and need of the project, discussion of a no action alternative, detailed descriptions of each alternatives analysis, and discussion of alternative technologies reviewed.

3.3 Purpose and Need

The purpose of the Project is to transmit electricity generated by the SFWF to the existing East Hampton Substation. The Project, in conjunction with the SFWF, addresses the need identified by the LIPA for new sources of power generation that can cost-effectively and reliably supply the South Fork of Suffolk County, Long Island, as an alternative to constructing new transmission facilities. The SFWF and the Project will also help LIPA achieve its renewable energy goals and will enable DWSF to fulfill its contractual commitments to LIPA pursuant to a Power Purchase Agreement (PPA) executed in 2017 resulting from LIPA's technology-neutral competitive bidding process.

3.4 No Action Alternative

The no action alternative is not considered a viable option to the Project. In its Utility 2.0 Long Range Plan, 2015 Annual Update,[1] Public Service Enterprise Group (PSEG) Long Island, on behalf of LIPA stated that:

[1] [1] The South Fork Request for Proposal, its supporting documents, and a chronology of the review and selection process is available online at: https://www.psegliny.com/aboutpseglongisland/proposalsandbids/2015southforkrfp

> The T&D System on the South Fork of Long Island is a semi-isolated load pocket with highly constrained transmission connections with the remainder of the T&D System. This area comprises: (a) the loads served East of the Canal substation; (b) the loads served by the substations east of Buell, including the East Hampton, Buell, and Amagansett substations; and (c) the area comprised of the loads east of Amagansett, that are served by the Culloden Point, Hero, Hither Hills, and Montauk substations.[2]

PSEG Long Island established the "South Fork Supply and Load Relief project" to defer new transmission needed on the South Fork until the year 2022 and to defer transmission needed east of the Buell substation until 2030. It developed the South Fork Request for Proposal to:

- Acquire additional local power production and/or load reduction resources in the South Fork to meet projected load growth and thereby defer the need for new transmission infrastructure;
- Support load demand to avoid overload of existing transmission assets during transmission outages that limit transmission capacity to the South Fork load area; and
- Support system voltage to avoid voltage collapse during a transmission outage.[3]

The SFWF, along with other proposals, was selected because it most cost-effectively meets these needs as established by PSEG Long Island. In the absence of the Project, PSEG would be forced to implement more expensive alternatives to meet the area's energy supply needs. Therefore, refraining from constructing the Project is not being considered as a viable option.

3.5 SFEC-NYS Submarine Cable Route Alternatives

The SFEC-NYS is located from New York State territorial waters, three nm off the coast, to the preferred Beach Lane landing site or the viable Hither Hills landing site alternative. The SFEC outside of New York State territorial waters connecting to the SFWF will be reviewed and approved separately within the SFWF Construction and Operations Plan (COP) by the BOEM.

[2] *Id*., at 6.
[3] *Id*.

3.5.1 Description of Submarine Cable Route Alternatives

The submarine cable corridor alternatives included routes on the north and south shores of the South Fork of Long Island (see Figures 3.2-1 and 3.2-2). The northern submarine cable route (Northern Shore Route) runs west from the SFWF, passing north of Montauk Point and into Napeague Bay. Depicted on Figures 3.2-1 and 3.2-2 is the area in which the Northern Shore Route would approach the landing sites. The southern submarine cable route (preferred, Southern Shore Route) runs west from the SFWF, passes to the south of Montauk Point in the federal waters of the Atlantic Ocean, and approaches East Hampton's southern shore.

3.5.2 Siting the Preferred Submarine Cable Route

During the initial phases of the siting process, the Applicant reviewed publicly available information on oceanographic, geologic, shallow hazards, archeological, and environmental resources. Bottom conditions, bathymetry, as well as environmental constraints were mapped and investigated.

The Applicant initially identified the Northern Shore Route. The Applicant met with local, state, and federal agencies, tribes, and stakeholders (commercial and recreational fishing, environmental non-governmental organizations) to discuss the locations of the SFEC-NYS route. Stakeholders identified concerns with the Northern Shore Route into Napeague Bay. Both the commercial fishing community and the Town of East Hampton voiced strong concerns and requested that the Applicant consider landing the SFEC at a location on the south shore of the South Fork. Therefore, the Applicant started investigating potential landing sites on the south shore and developed the Southern Shore Route.

Initial geophysical field surveys during the 2017 COP survey were conducted for both the Northern and Southern Shore Routes to obtain more detailed site-specific information (see Appendix G – Geotechnical and Geophysical Reports). Based on the preliminary results of these surveys and through continued agency and stakeholder consultation, the Applicant determined that the Northern Shore Route would have limited viability due to engineering constraints and environmental considerations including commercial fisheries interests. Several engineering constraints were identified, such as significant portions of shallow water in Napeague and Gardiners Bays and areas near Endeavor Shoals, east of Montauk Point, where large dynamic

sand waves exist. Environmental constraints were identified along the Northern Shore Route including heavily utilized fishing grounds (e.g. fixed gear areas to the east and north of Montauk), nearby shellfish and eelgrass beds, and the presence of municipal aquaculture lease areas in Napeague Bay. Napeague Bay, as a more sheltered coastal embayment, has high ecological sensitivity and supports significant populations of finfish and shellfish.

The south shore of Long Island is an open ocean environment as compared to the lower energy Napeague Bay. The Southern Shore Route presented fewer engineering and environmental constraints as compared to the Northern Shore Route. Although there is commercial fishing activity along the Southern Shore Route including fixed and mobile gear, there are no known aquaculture lease areas. The subtidal coastal habitat along the south shore is subjected to higher wave action and, thus, has coarser sandy deposits. The benthic community along the south shore will recover faster from any potential impacts caused by the Project as compared to Napeague Bay. Given these results as well as agency and stakeholder preference, the Applicant selected the Southern Shore Route as the preferred route and categorized the Northern Shore Route as non-viable.

Tidal wetlands are also present along the Southern Shore Route, as shown in Exhibit 4: Environmental Impact and Appendix T. However, impacts to intertidal wetlands will be avoided, since this portion will be crossed using horizontal direction drilling (HDD). Therefore, no quantitative analysis of wetlands along the Southern Shore Route, including the sea-to-shore transition, is presented within this Exhibit.

3.6 Landing Site Alternatives

The landing site is the location where the cable will transition from sea-to-shore. Various landing sites in the Town of East Hampton were considered, and a subset were further analyzed. This alternative analysis established a preferred landing site, Beach Lane, and a viable alternative, Hither Hills. A description of the alternative landing site locations and the methodology of analysis is included below.

3.6.1 Considerations for Selection of Landing Site Alternatives

In order to initially screen potential landing sites, existing mapping and aerial photography were utilized and reconnaissance field visits were conducted. Minimization of community disruption

and environmental impacts, engineering constraints, site ownership and control, and land uses were qualitatively considered during initial screening.

Overall, a total of seven locations were reviewed (at various points during the Project siting process) as potential landing sites:

> **Northern Shore Route**: (1) a parcel within Napeague State Park (Promised Land), and (2) a parking lot adjacent to Dennistown Bell Park (Fresh Pond)
>
> **Southern Shore Route**: (1) Beach Lane, (2) Napeague Lane, (3) Town Line Road (Wainscott Beach), and (4 and 5) the campground at Hither Hills State Park (Hither Hills and Hither Hills - West).

During initial screening, the beach at the end of Town Line Road (Wainscott Beach) was removed from consideration due to its close proximity to the Town of East Hampton/Town of Southampton border. Hither Hills - West was also removed from consideration due to overlap with existing campsites and space constraints associated with the installation of the sea-to-shore transition vault (e.g. narrowness of the campground road). In addition, Hither Hills - West is located within a mapped Designated Coastal Barrier Resource Area, and is within 100 feet of a Unique Habitat (Significant Natural Community) identified by the New York Natural Heritage Program (NYNHP). Based on this screening, the landing site options were reduced to five potential locations.

As described in Section 3.5.2, *Siting the Preferred Submarine Cable Route*, the Northern Shore Route was eventually categorized as non-viable, and therefore Fresh Pond and Promised Land were also dropped from the analysis.

The remaining three sites on the south shore were analyzed in further detail in order to ultimately select preferred and viable alternatives.

3.6.2 Description of Landing Site Alternatives

Beach Lane, Hither Hills, and Napeague Lane were analyzed as landing site alternatives. Figure 3.6-1 – Alternative Landing Site Locations depicts each of the alternative landing sites:

Beach Lane (Preferred Alternative) – The Beach Lane landing site is located at the south end of Beach Lane. The Beach Lane landing site includes paved roadway and the adjacent road shoulders.

Hither Hills (Viable Alternative) – The Hither Hills landing site is located within the Hither Hills State Park campground, south of Old Montauk Highway, specifically within the parking lot at the eastern most entrance.

Napeague Lane (Non-Viable Alternative) – The Napeague Lane landing site is located at the end of Napeague Lane, south of Marine Boulevard. The Napeague Lane landing site is comprised of approximately 20 marked parking spots.

3.6.3 Evaluation of Landing Site Alternatives

An evaluation of the three Southern Shore Route alternative landing sites was conducted utilizing available geographic information systems (GIS) data and data from site specific field surveys to analyze critical issues. Factors such as site control, development, and engineering constraints were also considered in the analysis.

Analysis of GIS Data

In order to evaluate the three alternative landing sites, a matrix table was created in which site selection criteria and potential constructability constraints could be compared utilizing available geographic GIS data. Constraints considered within the matrix included potential impacts to mapped land use, environmental (wetlands, habitat, etc.), and cultural resources. The detailed results of the analysis are presented in Table 3.6-1 – Summary of Alternative Landing Sites. Table 3.6-1 does not include field survey results.

Table 3.6-1 Summary of Alternative Landing Sites

CATEGORY	CONSIDERATIONS	BEACH LANE	HITHER HILLS	NAPEAGUE LANE
LAND USE	**Site Summary:**			
	Landing Site Publicly Owned (Y/N)	Y	Y	Y
	Conflicting Non-Residential Structures within Landing Site (Number)	0	1	0
	Existing Vehicle Access to Beach Landing Site (Y/N)	Y	Y	Y
	Parks and Recreation Lands:			
	Landing Site within Public Park or Conservation Lands (Y/N)	N	Y	N
	Public Park or Conservation Lands within one mile of the Landing Site (Number)	3	1	3
	Residential Uses:			
	Dwellings within 500 feet of Landing Site (Number) [a]	18	0	28
	Agricultural Uses:			
	Landing Site Property within or adjacent to NYS Ag & Mkts-Certified Agricultural District Lands* (Y/N)	Y	N	N
	Landing Site within or adjacent to Active Farm Field (Y/N)	Y	N	N
	Landing Site within or adjacent to an Organic Farm? (Y/N) per USDA Organic Integrity Database*	N	N	N
	Other:			
	Landing Site within or adjacent to Tribal Lands (Number)	0	0	0
ENVIRONMENTAL/CULTURAL	**Mapped Water Resources:**			
	USFWS NWI Estuarine Wetlands* (Acres)	0	0	0
	USFWS NWI Freshwater Wetlands* (Acres)	0	0	0
	NYSDEC-Regulated Freshwater Wetlands* (Acres)	0	0	0
	NYSDEC-Regulated Freshwater Wetlands 100 foot Adjacent Areas* (Acres)	0	0.13	0
	NYSDEC-Regulated Tidal Wetlands* (Acres)	0	0	0
	NYSDEC-Regulated Tidal Wetlands 300 foot Adjacent Areas* (Acres)	0	0	0.14
	Landing Site includes Protected Stream Crossing (Y/N)	N	N	N
	Landing Site within FEMA 100-Year Floodplains* (Acres)	0.67	0	0.18
	Landing Site within FEMA 500-Year Floodplains* (Acres)	0	0	0
	General Environmental Considerations:			
	Potential Rare, Threatened, or Endangered Species at Landing Site as indicated by the NYNHP* (Y/N)	Y	Y	Y
	Potential Rare, Threatened, or Endangered Species within 100 feet of Landing Site as indicated by the NYNHP* (Y/N)	Y	Y	Y
	Unique Habitat (Significant Natural Communities) at Landing Site as indicated by the NYNHP* (Y/N)	N	N	N
	Unique Habitat (Significant Natural Communities) within 100 feet of Landing Site as indicated by the NYNHP* (Y/N)	N	N	N
	Fisheries:			
	Landing Site within an Essential Fish Habitat (Y/N)	N	N	N
	Atlantic Salmon Habitats Impacted (Number or Acres)	0	0	0
	Coastal Resources:			
	Landing Site within the Coastal Area Boundary (Y/N)	Y	Y	Y
	Landing Site within a Significant Coastal Fish and Wildlife Habitat (Y/N)	N	N	N
	Landing Site within a Designated Coastal Barrier Resource Area (Y/N)	N	N	N
	Cultural Resources:			
	Located within an Archaeologically Sensitive Area? (Y/N)	N	N	Y
	National Register-Listed Sites within Landing Site (Y/N)	N	N	N
	National Register-Listed Sites within 100 feet of the Landing Site (Number)	0	0	0

*NYS Ag & Mkts = New York State Department of Agriculture and Markets, USDA = United States Department of Agriculture, USFWS = United States Fish and Wildlife Service, NWI = National Wetlands Inventory, NYSDEC = New York State Department of Environmental Conservation, FEMA = Federal Emergency Management Agency, NYNHP = New York Natural Heritage Program

[a] Dwellings within 500 feet of landing site were calculated by desktop delineation of all dwellings within 500 feet of the landing site footprint.

Ownership

Within the landing sites located at Napeague Lane and Beach Lane, the locations for the transition vault are within East Hampton Town-owned road right-of-way (ROW). The Hither Hills landing site is under the jurisdiction of the New York State Office of Parks Recreation and Historic Preservation (NYSOPRHP).

Structures

Eighteen dwellings are within 500 feet of the Beach Lane landing site and 28 dwellings are within 500 feet of the Napeague Lane site. The Hither Hills landing site has no dwellings within 500 feet but is within 115 feet of a campground building. Additionally, Hither Hills has one non-residential structure within the landing site, a toll booth.

Agriculture

The Beach Lane landing site is located adjacent to farm fields observed to be fallow that are within a New York State Ag & Mkts Certified Agricultural District. The other two alternative landing sites are not within or adjacent to an agricultural district.

Water and Coastal Resources

Based on publicly available GIS data, the Hither Hills landing site is located in the 100 foot adjacent area for mapped NYSDEC freshwater wetlands. The Napeague Lane landing site is located in the regulated 300 foot adjacent area for mapped NYSDEC tidal wetlands. Beach Lane and Napeague Lane landing sites are also located entirely within a FEMA 100-Year floodplain.

Cultural Resources

The Napeague Lane site is the only potential landing site located within an area identified by the State Historic Preservation Office (SHPO) as archaeologically sensitive.

Siting Development

Engineering, site control, and development factors were considered while assessing landing site options. During alternative site development, the Napeague Lane landing site was removed from consideration as a viable landing site alternative due to its location in an area identified by the SHPO as archaeologically sensitive. In addition, like Beach Lane, access to the site would require obtaining property rights from the Town of East Hampton and East Hampton Trustees.

The topographic conditions at Beach Lane and Hither Hills were found to be suitable for HDD operations and conduit installation. Although Beach Lane is within a narrow road ROW, it can accommodate the landing site construction. The Hither Hills landing site would be located within a parking lot in Hither Hills State Park, with adequate work space to accommodate construction.

Field Surveys

The Beach Lane and Hither Hills landing sites were investigated in the field to delineate the presence of terrestrial vegetation and wildlife habitats, rare/protected species (including threatened and endangered species), significant natural communities, wetlands and surface waters, and historical and cultural resources.

Wetlands and Coastal Resources

Although publicly available GIS data indicated potential presence of wetlands at the Hither Hills landing site, both the Beach Lane and Hither Hills landing sites are located within paved roadways, and no freshwater or tidal wetlands were delineated during field surveys for the proposed location of the transition vault and associated work area. However, along the beaches, the Mean High Water Line (MHWL) was delineated as the tidal wetland edge. The tidal wetlands correspond to the NYSDEC Tidal Wetland Type "Littoral Zone" and NWI Wetland Type "Marine, Subtidal, Unconsolidated Bottom, Subtidal" and "Marine, Intertidal, Unconsolidated Shore, Sand, Irregularly Flooded" for the Beach Lane landing site and the Hither Hills landing site, respectively.

Field surveys determined that no Significant Natural Communities were identified at either the Beach Lane or Hither Hills landing sites.

Vegetation

The Beach Lane landing site location consists of paved roadway. There are no vegetated habitats located at the Beach Lane landing site, but Marine Intertidal Gravel/Sand Beach and Marine Beach communities are adjacent to and within the vicinity (as described in Ecological Communities of New York State, Edinger et. al, 2014). The Hither Hills landing site location consists of paved parking lot with no vegetation. Ecological communities adjacent to and within the vicinity of the Hither Hills landing site include Marine Intertidal Gravel/Sand Beach, Marine

Beach, Maritime Dune, Marine Shrubland, Coastal Oak-Heath Forest, Mowed Roadside/Pathway, Unpaved Road/Path, Mowed Lawn, and Paved Road/Path.

Wildlife

Field observed wildlife at the Beach Lane and Hither Hills landing sites and within the vicinity of the landing sites were mainly shoreline avian species. No rare, threatened, or endangered species were identified at the Beach Lane or Hither Hills landing sites. A piping plover (*Charadrius melodus*) and least tern (*Sternula antillarum*) nesting area was identified to the southwest of the Beach Lane landing site, demarcated by the Town of East Hampton Natural Resource Department with fencing and signage. Neither of these two birds was observed at the Beach Lane landing site during field surveys. Common terns (*Sterna hirundo*) were observed foraging along the shoreline at Beach Lane, outside of the Beach Lane landing site location. Two adult least tern were also observed foraging along the beach wrack line, southwest of the Hither Hills landing site. The piping plover, least tern and common tern are listed as threatened within New York State and piping plover is also federally-listed as threatened.

Cultural Resources

Preliminary shovel testing at the Beach Lane and Hither Hills landing sites resulted in no archaeological findings. Additionally, there were no cultural resources observed within the vicinity of the landing sites.

Selection of the Preferred Landing Site

After analyzing the land use, environmental (wetlands, habitat, etc.), and cultural resource GIS data, reviewing results of field surveys, and considering issues relating to site control, development, and engineering, the Applicant selected Beach Lane as the preferred landing site. Beach Lane will have a minimal impact on the environment, non-residential structures, and historic properties. However, the Applicant has not yet obtained the property rights associated with the Beach Lane landing site. If the Applicant is unable to obtain the necessary property rights for the Beach Lane landing site, Hither Hills presents a viable alternative landing site, with minimal environmental and historical property impact located on New York State-owned property.

3.7 Alternative SFEC-Interconnection Facility Locations and Interconnection Route Alternatives

To connect the Project to the existing LIPA transmission grid, a preferred SFEC-Interconnection Facility location and interconnection cable (69 kV) route to the existing East Hampton Substation was established by the Applicant. The SFEC-Interconnection facility location and interconnection routing alternative analysis established the Cove Hollow Road Interconnection Facility as the preferred location (see Figure 3.7-1 – Alternative Interconnection Facility Sites) and Substation Interconnection Cable - Route A (see Figure 3.7-2 – Alternative Interconnection Facility Routes) as the preferred interconnection route. Substation Interconnection Cable - Route B was determined to be a viable substation interconnection route alternative. Further details of the alternative interconnection facilities and interconnection cable route are described below.

3.7.1 Considerations for Selection of Interconnection Facility Location Alternatives

Alternative locations for the SFEC-Interconnection Facility were initially identified by utilizing existing mapping and aerial photography. Considerations included proximity to the existing East Hampton Substation, minimum parcel size requirements, zoning compatibility, neighborhood fit, site control, engineering constraints, and environmental, cultural, and visual impacts. Three alternative interconnection facility locations were identified, analyzed, and compared. Figure 3.7-1 depicts each of the SFEC-Interconnection Facility locations considered.

3.7.2 Description of SFEC-Interconnection Facility Location Alternatives

Three potential Interconnection Facility locations are described below:

Cove Hollow Road Interconnection Facility Site (Preferred Alternative) – The Cove Hollow Road Interconnection Facility site is located in the western portion of an approximately 18 acre parcel that contains the existing East Hampton Substation on Cove Hollow Road. The parcel is currently owned by National Grid. The undisturbed areas of the parcel are comprised of a forested and successional habitat complex.

Airport West Interconnection Facility Site (Non-Viable Alternative) – The Airport West Interconnection Facility site is located on property owned by Town of East Hampton and leased to the East Hampton Airport. The site is located at the southeastern

corner of Industrial Road and Town Line Road on two wooded parcels, totaling approximately 4.0 acres.

Airport East Interconnection Facility Site (Non-Viable Alternative) – The Airport East Interconnection Facility site is located property owned by Town of East Hampton and leased to the East Hampton Airport. The site is located at the northwest corner of Industrial Road and Daniels Hole Road on two wooded parcels, totaling approximately 4.9 acres.

3.7.3 Evaluation of SFEC-Interconnection Facility Alternative Locations

The Cove Hollow Road Interconnection Facility was selected as the preferred SFEC-Interconnection Facility location due to its proximity to the existing East Hampton Substation and its compatibility with existing zoning. Additionally, the site is adjacent to existing utility infrastructure, thereby avoiding the potential introduction of utility-related visual elements in areas where such facilities are not currently part of the landscape. The Applicant's contractual agreement with LIPA requires that the Project interconnect at the existing East Hampton Substation. The Cove Hollow Road Interconnection Facility location minimizes the distance of the interconnection cable route from the new SFEC-Interconnection Facility to the existing East Hampton Substation.

The Airport West and Airport East Interconnection Facility sites were determined to be non-viable and were removed from consideration due to issues relating to site control and other potential development constraints based on proximity to the East Hampton Airport.

3.7.4 Evaluation of Interconnection Cable Route Alternatives

Two 69 kV interconnection cable route variants were evaluated for the preferred Cove Hollow Road Interconnection Facility. The 69 kV interconnection cable will connect the SFEC-Interconnection Facility to the existing East Hampton Substation. Substation interconnection cable alternatives were developed utilizing existing mapping and aerial photography. Potential environmental, cultural, and visual impacts, as well as site control and engineering constraints, were minimized.

Two alternative substation interconnection cable routes were identified, analyzed, and compared. Figure 3.7-2 depicts each of the routes considered. Two potential substation interconnection cable routes are described below:

Substation Interconnection Cable - Route A (Preferred Route) – From the eastern extent of the SFEC-Interconnection Facility location, Substation Interconnection Cable - Route A travels in a northeasterly direction through the south side of the National Grid property along the southern edge of the Battery Storage Facility and the fence line of the existing East Hampton Substation. Substation Interconnection Cable - Route A then connects into the southern extent of the existing East Hampton Substation.

Substation Interconnection Cable - Route B (Viable Alternative) – From the northern extent of the preferred Cove Hollow Road Interconnection Facility, Substation Interconnection Cable - Route B travels east, along the south side of the Long Island Railroad (LIRR) ROW. Substation Interconnection Cable - Route B then travels south, connecting into the existing East Hampton Substation. This substation interconnection cable alternative does not require crossing under the LIRR tracks.

The Substation Interconnection Cable - Route A is the preferred interconnection cable route due to sufficient work and installation space. Substation Interconnection Cable - Route B is adjacent to the LIRR and is considered by the Applicant to be a viable alternative, however it is anticipated that this corridor may be narrower than Substation Interconnection Cable - Route A and will have less space to install the cable.

3.8 SFEC-Onshore Cable Route Alternatives

Potential SFEC-Onshore routes were considered once the preferred landing site and SFEC-Interconnection Facility Site were selected. The SFEC-Onshore refers to the onshore portion of the 138 kV export cable that runs between the sea-to-shore transition vault at the landing site and the SFEC-Interconnection Facility.

Alternative routing for the SFEC-Onshore was studied using a corridor approach, rather than along a specific centerline. The corridors primarily consisted of the extents of public roadway ROWs and construction space within the LIRR ROW set back a distance from the railroad centerline. Further siting of the SFEC-Onshore route within the corridors will be specified within

the Project Environmental Management and Construction Plan (EM&CP). However, construction of the SFEC-Onshore is planned to occur primarily within the existing pavement along the roadway ROWs.

This alternative analysis resulted in the selection of Beach Lane - Route A as the preferred SFEC-Onshore route (corresponding to the preferred landing site at Beach Lane) and Hither Hills - Route B as the viable alternative (corresponding to the viable alternative landing site at Hither Hills) (see Figure 3.8-1 – Alternative Land Cable Routes). Selection of Beach Lane - Route A is contingent on the Applicant obtaining the necessary property rights from the Town of East Hampton and the Trustees of East Hampton.

A detailed description of the alternative SFEC-Onshore routes and methodology for the analysis is included below.

3.8.1 Considerations for Selection of SFEC-Onshore Cable Route Alternatives

Existing mapping, aerial photography, and stakeholder engagement were utilized to identify routing opportunities, including existing roadway and railroad ROWs that could be followed. Factors considered while developing the alternative SFEC-Onshore routes included route length, ROW ownership, number of properties potentially affected, agricultural and environmental impacts, cultural and historical resource impacts, and traffic impacts.

Four potential land cable routes were identified, analyzed, and compared between the preferred Cove Hollow Road Interconnection Facility and the preferred Beach Lane landing site. Additionally, three potential land cable routes were compared between the preferred Cove Hollow Road Interconnection Facility and the viable Hither Hills landing site alternative. Land cable routes from Fresh Pond and Napeague State Park, as shown in Figures 3.2-1 and 3.2-2, were not analyzed because the landing sites were removed from consideration.

3.8.2 Description of SFEC-Onshore Cable Route Alternatives

Seven SFEC-Onshore cable routes were analyzed in total. Four of the route variants were associated with the preferred Beach Lane landing site, and three with the viable Hither Hills landing site. Figure 3.8-2 – Alternative Land Cable Routes Overview depicts the locations of the seven alternative SFEC-Onshore routes on New York State Department of Transportation (NYSDOT) mapping.

Beach Lane - Route A (Preferred Alternative) - Beach Lane - Route A is approximately 4.1 miles long and primarily follows Town of East Hampton road and LIRR ROWs. Beginning at the Beach Lane landing site, Beach Lane - Route A travels northwest along Beach Lane to Wainscott Main Street. Beach Lane - Route A then routes northeast on Wainscott Main Street and subsequently northwest onto Sayre's Path. Beach Lane - Route A continues to the north onto Wainscott Stone Road and then northwest on Wainscott Northwest Road, crossing Montauk Highway/State Route 27 (State-owned), to get to the LIRR. Beach Lane - Route A then routes east along the LIRR to its terminus at the preferred Cove Hollow Road Interconnection Facility.

Beach Lane - Route B (Non-Viable Alternative) - Beach Lane - Route B is approximately 3.8 miles long and primarily follows Town of East Hampton road and LIRR ROWs. Beginning at the Beach Lane landing site, Beach Lane - Route B travels northwest along Beach Lane to Wainscott Main Street. Beach Lane - Route B then routes northeast on Wainscott Main Street and subsequently northwest onto Sayre's Path. Beach Lane - Route B then continues to the north onto Wainscott Stone Road, crossing Montauk Highway/State Route 27 (State-owned), to get to Old Montauk Highway. Beach Lane - Route B continues to the southwest on Old Montauk Highway and then routes northwest, following Hedges Lane (privately-owned) to Daniels Hole Road. Beach Lane - Route B travels north on Daniels Hole Road and then routes east along the LIRR to its terminus at the preferred Cove Hollow Road Interconnection Facility.

Beach Lane - Route C (Non-Viable Alternative) - Beach Lane - Route C is approximately 4.3 miles long and follows Town of East Hampton, New York State, and Village of East Hampton road ROWs. Beginning at the Beach Lane landing site, Beach Lane - Route C travels northwest along Beach Lane to Wainscott Main Street (both Town-owned). Beach Lane - Route C then routes northeast on Wainscott Main Street and subsequently northwest onto Sayre's Path (Town-owned). Beach Lane - Route C continues to the north onto Wainscott Stone Road (Town-owned) to Montauk Highway/State Route 27 (State-owned), where it then routes in an easterly direction. Upon reaching Buckskill Road (Village-owned), Beach Lane - Route C routes northwest and then north on Cove Hollow Road (Town-owned). Beach Lane - Route C then turns

west, parallel to the existing East Hampton Substation access road, reaching its terminus at the preferred Cove Hollow Road Interconnection Facility.

Beach Lane - Route D (Non-Viable Alternative) - Beach Lane - Route D is approximately 3.5 miles long and follows Town of East Hampton, New York State, and Village of East Hampton road and LIRR ROWs. Beginning at the Beach Lane landing site, Beach Lane - Route D travels northwest along Beach Lane to Wainscott Main Street (both Town–owned). Beach Lane - Route D then routes northeast on Wainscott Main Street and subsequently northwest onto Sayre's Path (Town-owned). Beach Lane - Route D continues to the north onto Wainscott Stone Road (Town-owned) to Montauk Highway/State Route 27 (State-owned), where it then routes in an easterly direction. Once reaching Stephen Hands Path (Village of East Hampton- and Town-owned), Beach Lane - Route D heads north to the LIRR. Beach Lane - Route D then routes east along the LIRR to the terminus at the preferred Cove Hollow Road Interconnection Facility.

Hither Hills - Route A (Non-Viable Alternative) - Hither Hills - Route A is approximately 11.4 miles long and follows Town of East Hampton and New York State road and LIRR ROWs. Beginning at the Hither Hills landing site, Hither Hills - Route A travels northwest to Old Montauk Highway (State-owned) and then routes southwest. Hither Hills - Route A then converges with Montauk Highway/State Route 27 (State-owned) and continues in a southwesterly direction. At Montauk Highway's intersection with Navahoe Lane and Napeague Harbor Road, Hither Hills - Route A heads north along Napeague Harbor Road (Town-owned) and connects into the LIRR. Hither Hills - Route A continues in a westerly direction along the LIRR to its terminus at the preferred Cove Hollow Road Interconnection Facility.

Hither Hills - Route B (Viable Alternative) - Hither Hills - Route B is approximately 11.9 miles long and primarily follows New York State road and LIRR ROWs. Beginning at the Hither Hills landing site, Hither Hills - Route B travels northwest to Old Montauk Highway (State-owned) and then routes southwest. Hither Hills - Route B then converges with Montauk Highway/State Route 27 (State-owned) and continues in a southwesterly direction. At the intersection of Abrahams Path and Cross Highway, Montauk Highway/State Route 27 changes into Pantigo Road (State-owned), which Hither Hills -

Route B continues onto the west until Main Street (State-owned). Hither Hills - Route B routes southwest along Main Street and then west on Buell Lane (State-owned). Hither Hills - Route B continues along Buell Lane to its westerly extent and then travels northwest along the Sag Harbor Turnpike (State-owned) until its intersection with the LIRR. Hither Hills - Route B then routes west along the LIRR to its terminus at the preferred Cove Hollow Road Interconnection Facility.

Hither Hills - Route C (Non-Viable Alternative) - Hither Hills - Route C is approximately 12.8 miles long and follows Town of East Hampton, New York State, and Village of East Hampton road ROWs. Beginning at the Hither Hills landing site, Hither Hills - Route C travels northwest to Old Montauk Highway (State-owned) and then routes southwest. Hither Hills - Route C then converges with Montauk Highway/State Route 27 (State-owned) and continues in a southwesterly direction. At the intersection of Montauk Highway/State Route 27 and Abrahams Landing Road, Hither Hills - Route C turns northeast along Abrahams Landing Road (Town-owned) and then subsequently northwest along Old Stone Highway (Town-owned). Hither Hills - Route C then travels southwest along Town Lane (Town-owned) until its intersection with Accabonac Road (Town- and Village-owned). Hither Hills - Route C continues in a generally southwest direction along Accabonac Road to Pantigo Road (State-owned) and then routes west until Main Street (State-owned). Hither Hills - Route C then travels southwest along Main Street and then subsequently west on Buell Lane (State-owned). Hither Hills - Route C continues along Buell Lane and Buell Lane Extension (Village- and Town-owned) to Cove Hollow Road (Town-owned). Hither Hills - Route C then travels north along Cove Hollow Road and subsequently west, parallel to the existing East Hampton Substation access road, reaching its terminus at the preferred Cove Hollow Road Interconnection Facility.

3.8.3 Evaluation of SFEC-Onshore Cable Route Alternatives

An evaluation of the SFEC-Onshore alternative routes was conducted utilizing available GIS data and data from site specific field surveys to analyze critical issues. Factors such as site control, development, and engineering constraints were also considered in the analysis.

Analysis of GIS and Field Data

In order to evaluate the seven alternative land cable routes, a matrix table was created to quantitatively compare significant constraints utilizing available GIS data within the boundaries of the alternative SFEC-Onshore route corridors. Constraints considered within the matrix included potential impacts to mapped land use, land resources (agriculture, soils, etc.), water resources, and other environmental and cultural resources. The results of the analysis are presented in Table 3.8-1 – Summary of Land Cable Route Alternatives. Table 3.8-1 does not include GIS analysis of the SFEC-NYS route alternatives.

Alternative land cable routes were also investigated in the field to delineate the presence of terrestrial vegetation and wildlife habitats, rare/protected species (including threatened and endangered species), significant natural communities, wetlands and surface waters, invasive species, and historical and cultural resources adjacent to or crossed by the corridors. Table 3.8-1 does not include field survey results, but the results are summarized in the sections below.

Table 3.8-1 – Summary of Land Cable Route Alternatives

CONSIDERATIONS	BEACH LANE - ROUTES				HITHER HILLS - ROUTES		
	A	B	C	D	A	B	C
Length of the Centerline (miles)	4.1	3.8	4.3	3.5	11.4	11.9	12.8
Land Use (acres)							
Agricultural	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Residential	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recreation & Entertainment	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Community Services (Institutional)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Industrial	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Services (Infrastructure & Utilities)	0.0	0.0	0.9	0.0	3.0	0.0	1.1
Forested, Conservation Lands, & Parks	0.0	0.0	0.0	0.0	4.2	4.2	4.2
Vacant Land (Undeveloped)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other (Roads and Unclassified Parcels)	19.2	18.6	34.4	23.4	38.8	134.2	117.9
Land Resources							
Agricultural Districts Crossed (Y/N)	N	N	N	N	N	N	N
Prime Farmland (acres)	5.8	4.5	6.8	4.5	9.4	44.5	29.7
Farmland of Statewide Importance (acres)	5.5	4.1	9.2	4.5	5.8	15.2	15.3
Number of Organic Farms	0	0	0	0	0	0	0
Conservation Easements (acres)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydric Soils (acres)	0.0	0.0	2.1	3.3	4.5	9.1	9.1
Mapped Water Resources							
NYSDEC-Regulated Freshwater Wetlands (acres)	0.0	0.0	0.2	0.6	0.3	1.0	1.0
NYSDEC-Regulated Freshwater Wetlands 100 foot Adjacent Area (acres)	0.0	0.1	2.9	3.4	9.0	18.0	18.0
NYSDEC-Regulated Tidal Wetlands (acres)	0.0	0.0	0.1	0.0	0.3	0.0	0.0
NYSDEC-Regulated Tidal Wetlands 300 foot Adjacent Area (acres)	0.0	0.4	3.6	3.1	3.5	8.6	8.6
USFWS NWI Wetlands (acres)	0.00	0.00	0.06	0.03	1.43	1.35	1.35
Number of Stream Crossings by the Corridor (Total/Protected)	0/0	0/0	2/0	1/0	0/0	0/0	0/0
FEMA 100-year Floodplains (acres)	0.9	0.9	1.2	2.3	27.4	63.8	63.8
FEMA 500-year Floodplains (acres)	0.7	0.8	3.1	4.4	0.1	1.9	2.3
Other							
Number of Road Crossings by the Centerline	16	16	25	17	23	62	84
Number of National Register Properties within the Corridor	0	0	1	0	0	7	5
Public Lands within the Corridor (acres)	0	0	1	1	2	3	3
Number of Properties Crossed by the Centerline	3	4	1	1	22	4	6
Potential Rare, Threatened, or Endangered Species as indicated by the NYNHP (Y/N)	Y	Y	Y	Y	Y	Y	Y
Critical Environmental Area (CEA) - Special Groundwater Protection Area, LI Reg. Planning Board (acres)	5.2	7.3	21.3	13.0	14.7	4.3	25.4
CEA - Water Recharge Overlay District, Town of East Hampton (acres)	1.9	3.7	0.0	2.6	0.1	0.0	3.6
Unique Habitat (Significant Natural Communities) as indicated by the NYNHP (acres)	1.8	2.6	0.4	0.7	12.9	19.7	19.7

Land and Other Natural Resources

All Beach Lane and Hither Hills route alternatives are characterized primarily as unvegetated, impervious road surfaces or railroad beds, and are adjacent to vegetated and unvegetated cover types.

The Hither Hills alternative routes traverse forests, conservation lands, and parks because the routes are located within the Hither Hills State Park. The Hither Hills alternative routes also traverse a larger extent of mapped prime farmland and farmland of statewide importance. No alternative route corridors cross any agricultural district parcels, however several agricultural district parcels are located within the 500 foot study area adjacent to Beach Lane - Route A and Hither Hills - Route B as shown in Exhibit 4 and Appendix T.

The Beach Lane and Hither Hills alternative routes traverse mapped Critical Environmental Areas. The Beach Lane alternative routes traverse a larger extent of the mapped Water Recharge Overlay District, while the Hither Hills alternative routes traverse a larger extent of the mapped Special Groundwater Protection Area.

All routes investigated have the potential to encounter rare, threatened, and endangered species, as identified by the NYNHP. Additionally, each route traverses a Unique Habitat (Significant Natural Community).

Field observed wildlife along the routes were mainly avian species, mammals, and herpetofauna. No rare, threatened, and endangered species or habitat were identified along Beach Lane - Route A. Two rare, threatened, or endangered species or habitats were identified along or within the vicinity of Beach Lane - Route B: Cooper's hawk (*Accipiter cooperii*) and southern arrowwood (*Viburnum dentatum* var. *venosum*). One rare, threatened, or endangered species or habitat was identified along or within the vicinity of Beach Lane - Route C: southern arrowwood. Five rare, threatened, or endangered species or habitats were also identified along or within the vicinity of Hither Hills - Route B: southern arrowwood, northern blazing star (*Liatris scariosa* var. *novaeangliae*), blunt mountain mint (*Pycnanthemum muticum*), serrate round-leaf boneset (*Eupatorium pubescens*), and Cooper's hawk. Additionally, two adult least tern were also observed foraging along the beach wrack line, southwest of the Hither Hills landing site.

Beach Lane - Route A and Beach Lane - Route B traverse four habitats observed during field surveys which match the description of communities that are sometimes classified by the NYNHP as Significant Natural Communities: Marine Intertidal Gravel/Sand Beach, Pitch Pine-Oak Forest, Coastal-Oak Hickory Forest, and Coastal-Oak Heath Forest. Beach Lane - Route C traverses three Significant Natural Communities: Marine Intertidal Gravel/Sand Beach, Pitch Pine-Oak Forest and Coastal-Oak Hickory Forest. Hither Hills - Route B traverses eight Significant Natural Communities: Maritime Pitch Pine Dune Woodland, Coastal Oak-Heath Forest, Coastal Oak-Hickory Forest, Pitch Pine-Oak Forest, Maritime Heathland, Maritime Grassland, Maritime Shrubland, and Maritime Intertidal Gravel/Sand Beach. Note that the Significant Natural Communities identified in the field have not been confirmed with the NYNHP.

Wetlands and Other Water Resource Areas

Results of the GIS data analysis showed that Beach Lane - Route A does not traverse any mapped wetlands. Beach Lane - Route B traverses a mapped NYSDEC-regulated freshwater wetland's 100 foot adjacent area and a mapped NYSDEC-regulated tidal wetland's 300 foot adjacent area. Beach Lane - Route C traverses mapped NYSDEC-regulated tidal and freshwater wetlands and adjacent areas, and mapped NWI wetlands. Beach Lane - Route D traverses mapped NYSDEC-regulated freshwater wetlands, tidal and freshwater adjacent areas, and mapped NWI wetlands. Hither Hills - Route A traverses mapped NYSDEC-regulated tidal and freshwater wetlands and adjacent areas, and mapped NWI wetlands. Hither Hills - Route B and Hither Hills - Route C both traverse mapped NYSDEC-regulated freshwater wetlands and adjacent areas, NYSDEC-regulated tidal wetland 300 foot adjacent areas, and mapped NWI wetlands. Additionally, Beach Lane - Route C crosses two mapped NYSDEC streams and Beach Lane - Route D crosses one.

There were no wetlands delineated in the field along the Beach Lane - Route A or Beach Lane - Route C. However, freshwater wetlands and adjacent areas and tidal wetland adjacent areas were field delineated along Beach Lane - Route C. Freshwater wetlands and adjacent areas were field delineated along both Hither Hills - Route A and Hither Hills - Route B. Tidal wetlands were field delineated only along Hither Hills - Route A, however, tidal wetland adjacent areas were field delineated along both Hither Hills - Route An and Hither Hills - Route B.

Cultural Resource Areas

SHPO-mapped archaeologically sensitive areas were reviewed for the roadway portions of the Beach Lane and Hither Hills routes, which indicated the potential presence of archaeological resources along all routes. No National Register-listed properties were identified along or within the vicinity of Beach Lane - Route A, Beach Lane - Route B, Beach Lane - Route D, and Hither Hills - Route A. One National Register-listed property was identified along Beach Lane - Route C, seven National Register-listed properties were identified along Hither Hills - Route B, and five National Register-listed properties were identified along Hither Hills - Route C.

Visual field surveys to locate potential archaeologically sensitive sites were conducted along the routes. These studies indicated the potential for archaeological resources along the routes. Shovel testing along the certified route will be conducted prior to Project construction to determine the location of archaeological resources and potential mitigation measures.

Selection of Preferred Land Cable Route

After analyzing the land use, environmental (wetlands, habitat, etc.), and cultural resource GIS data, reviewing field surveys, and considering issues relating to development, and engineering factors, including impacts to onshore traffic and heavily traveled roadways, Beach Lane - Route A, provided that the Applicant is able to obtain property rights, was selected as the preferred SFEC-Onshore route. Beach Lane - Route A is 4.1 miles long and located primarily within Town of East Hampton roadways and LIRR ROW, outside of any public parks or conservation lands. Additionally, no Village of East Hampton lands are crossed. The route crosses Montauk Highway/State Route 27 and will be crossed using HDD to minimize traffic disruption on this heavily traveled road. The roadways and LIRR ROW, in which Beach Lane - Route A will be constructed, are primarily adjacent to developed land and forested complexes. Impacts to wetlands, historical and cultural resources from the construction and operation of Beach Lane - Route A are anticipated to be minimal.

Beach Lane - Route B, Beach Lane - Route C, and Beach Lane - Route D were removed from consideration as viable routing alternatives. These routes required obtaining property rights from additional entities such as the Village of East Hampton or private homeowners. In addition, of the four Beach Lane variants investigated, Beach Lane - Route C and Beach Lane - Route D did not minimize impacts to traffic or wetlands.

Hither Hills - Route B is a viable alternative route if property rights for Beach Lane - Route A are not obtained from the Town of East Hampton and Town Trustees. Hither Hills - Route B primarily utilizes State-owned roadways and LIRR ROWs, whereas the other Hither Hills routes investigated utilize Town and Village of East Hampton road ROWs.

3.9 Alternative Methods to Fulfill Energy Requirements

In addition to the comprehensive alternative analysis described above, alternative technologies for the Project were also evaluated.

Interconnection Facility

The Applicant evaluated two different technologies for the SFEC-Interconnection Facility layout and arrangement: an air-insulated substation (AIS) and a gas-insulated substation. The preferred alternative technology for the SFEC-Interconnection Facility is AIS, due to the adjacent existing East Hampton Substation having the same technology. Gas-insulated facilities are typically utilized in space-restricted locations to allow the operation of high voltage systems. The preferred SFEC-Interconnection Facility location has adequate space for the AIS equipment. The Applicant has considered in the design of the SFEC-Interconnection Facility visual and noise impacts of the preferred AIS technology by including an 11 foot, 6 inch perimeter wall comprised of concrete and steel, and by selecting low profile AIS equipment (Further information on the SFEC-Interconnection Facility specifics is included within Exhibit E-2: Other Facilities).

Landing Site

The Applicant considered multiple installation methods for the sea-to-shore transition at the cable landing site. Mechanical/hydro-jet plowing (i.e. trenching via high pressure seawater) could be used to bury the cable in the nearshore zone up to the MHWL on the beach. In this scenario, either an open trench or an HDD (likely with a cofferdam on the beach) would be used to install the cable from the MHWL to the transition vault. These methods are not considered feasible based on impacts to intertidal, beach, and dune habitats during construction.

Instead, the Applicant plans to conduct a longer HDD from the transition vault onshore, boring deep under the dunes and beach, and terminating offshore in deeper water (well past the MHWL). The Applicant recognizes the importance of preserving the coastal habitats along the

south shore of Long Island. This method avoids impacts to intertidal, beach, and coastal habitats and maintains safety for beachgoers.

Land and Submarine Cables

The Applicant evaluated different current types for the SFEC. The SFEC is designed to use AC, rather than direct current (DC) transmission lines due to the considerably lower costs to connect AC into a primarily alternating current LIPA system. DC is a considerably larger investment than AC and is only cost-effective for wind farms with a larger nameplate capacity than planned for the SFWF or for long transmission lines carrying very large power capacities. The transmission distance and power rating of the SFEC makes it suitable for the more cost-effective AC system. Therefore, DC was not selected for the SFEC.

SFEC-NYS Installation Methods

The Applicant considered various options for installation of the SFEC-NYS, including placement on the seabed and burial beneath the seabed. Although placement on the seabed would minimize installation time and cost as well as potential sediment disturbance, the Applicant plans to bury the cable beneath the seabed. Burying the cable is a means of protecting it from potential damage caused by various external forces (e.g. fishing equipment, anchors). Burying the cable also minimizes the need for maintenance and associated potential for seabed disturbance.

The Applicant also considered various installation methods for the SFEC-NYS, including hydraulic plow, mechanical plow, rock-dumping, and mechanical dredging. Due to the variability of surface and subsurface seabed conditions, the Applicant plans to utilize a combination of hydraulic jet and mechanical plow to install the cable at the target burial depth. Both methods create a trench along the seabed in which the cable is simultaneously laid and buried in a single pass.

Mechanical dredging is not considered a feasible installation method because it requires mobilization of a dredge operation for an extended period of time due to the considerable route length and water depths. Mechanical dredging results in both a significant seabed footprint, suspended sediments, and greater potential impacts to marine navigation.

SFEC-Onshore Installation Methods

The Applicant considered various options for installation of the SFEC-Onshore, including use of aboveground structures and burying the cable. Although aboveground installation would minimize construction time and cost, a buried cable increases safety and reliability, particularly during adverse weather conditions, and reduces noise, interference with communications, and visual impact. Therefore, the Applicant plans to bury the cable within existing ROWs.

The Applicant also considered various installation methods for the SFEC-Onshore, including open trenching, HDD and other trenchless technologies (e.g. jack and bore), or conventional boring. The Applicant plans to utilize open trenching for the majority of the route, which allows for a quick and precise installation. Along certain segments of the SFEC-Onshore (e.g. road crossings), the Applicant will also utilize HDD or possibly other trenchless technologies where necessary. HDD is not considered a feasible installation method for the majority of the SFEC-Onshore because of the associated time and cost of installation, increase in road closures during installation, and length limitations.