VINEYARD OFFSHORE

SUBMISSION FOR PURCHASE OF OFFSHORE WIND RENEWABLE ENERGY CERTIFICATES

ORECRFP24-1

PUBLIC

SEPTEMBER 9, 2024

Confidentiality Statement

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Section 7.0 Interconnection and Deliverability Plan

Response to New York State Energy Research and Development Authority Request for Proposals ORECRFP24-1

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SECTION 7
INTERCONNECTION AND DELIVERABILITY PLAN

7.1 OVERVIEW

Excelsior Wind (the "Project") includes a 1,350 megawatt (MW) Offshore Wind Generation Facility (OWF) that will be installed in Lease Area OCS-A 0544 (the "Lease Area"). [redacted]. The Project also includes either a high voltage alternating current (HVAC) or a high voltage direct current (HVDC) transmission system and a Delivery Point in either Uniondale or Melville, New York.

Table 7.1-1 provides a summary of the Required Proposals (i.e., EW-A and EW-B) and Alternate Proposals (i.e., EW-C, EW-D, and EW-E). All these Proposals include radial export cable routes to the respective Delivery Points.

In this section, the Uniondale Delivery Point refers to the proposed expansion of the existing 138/345 kilovolt (kV) substation in Uniondale, referred to by NYISO as the East Garden City 138/345 kV substation. After extensive community engagement, we have learned about the painful history and ongoing frustration community members have with the current designation. Vineyard Offshore advocates for the renaming of the substation and has adopted the Uniondale name in this bid. Furthermore, Vineyard Offshore has prepared a letter for submission to the president of the Long Island Power Authority (LIPA) advocating this name change.

Table 7.1-1 Required and Alternate Proposals

Proposal ID	[redacted]					
Required Proposals						
EW-A	[redacted]					
EW-B	[redacted]					
Alternate Proposals						
EW-C	[redacted]					
EW-D	[redacted]					
EW-E	[redacted]					3

Note:
1. COD is defined as the date on which Excelsior Wind is fully operational.

7.2 DELIVERY POINT AND CABLE ROUTES

The following subsections provide information on the selection of the Delivery Point, onshore substation/onshore converter station sites, onshore export cable route, landfall site, and offshore export cable corridor (OECC). This information will ultimately form the basis of an application to the New York State Public Service Commission (NYSPSC) pursuant to Article VII of the New York State Public Service Law. The Project's permitting plan is discussed in Section 6.2.

The selection of the Delivery Point, onshore substation/onshore converter station sites, onshore export cable route, landfall site, and OECC described herein were identified through a comprehensive study process. The siting and routing analysis were further revised and refined with engineering analyses of the overall transmission approach, trenchless crossing locations, duct bank, splice vault designs, and onshore substation site layouts.

This approach of combining the siting and routing analysis, critical engineering design, and constructability reviews ensures that the OECC and onshore export cable routes to the Delivery Point, along with the onshore substation/onshore converter station, can be permitted and built within the rights-of-way (ROWs), within the property boundaries, and cognizant of existing local infrastructure.

Figures 7.2-1 through 7.2-4, 7.2-6, 7.3-1 and 7.3-2, which are presented in the following sections, are also included in larger format in Attachment 7.2-1.

7.2.1 Delivery Point

The Project's Delivery Point was selected through a process of identifying strategic, viable, and cost-effective locations in New York Control Area (NYCA) Zones J and K.

In advancing the study of Delivery Points for Excelsior Wind, Vineyard Offshore has engaged leading consultants in the fields of grid and transmission infrastructure, environmental permitting and management, subsea cable engineering, and energy analytics to evaluate options against the following factors:

[redacted]

In June 2023, NYISO selected Propel NY Energy's T051 Alternative 5 Project (the "Propel NY Energy project") to address the Long Island Offshore Wind Export Public Policy Transmission Need (LI OSW PPTN). The Propel NY Energy project comprises a series of major components, including three new 345 kV Long Island tie lines: two between Shore Road and Sprain Brook and one between Uniondale and Tremont. It also involves upgrades to the existing Uniondale 138/345 kV[1] and Ruland Road 138 kV substations. The addition of this 345 kV backbone to the Long Island transmission system not only facilitates the delivery of offshore wind power, but also will effectuate the efficient transfer of power in the future. The required in-service date for the Propel NY Energy project is May 2030.

With regard to the outcomes of Vineyard Offshore's evaluation process and the progression of the Propel NY Energy project, Vineyard Offshore has identified a Delivery Point for the Project at Uniondale 345 kV substation in Uniondale, located in NYCA Zone K, as shown on Figure 7.2-1.

[1] Vineyard Offshore recognizes that the Propel NY Energy project includes both new facilities and upgrades to existing transmission facilities owned by incumbent transmission owners, and components of the Propel NY Energy project have been identified accordingly as Designated Public Policy Projects (DPPPs), which would be delivered by these transmission owners. The expansion of Uniondale 345 kV substation is a DPPP that will be undertaken by the New York Power Authority (NYPA), rather than the Propel NY Energy consortium. For simplicity, however, the upgrades to Uniondale are referred to as part of the Propel NY Energy project, as the improvements were similarly identified and approved through the LI OSW PPTN process.

[redacted]

[redacted] This Delivery Point affords the Project with the highest upside, while minimizing various risks, and has a number of distinct advantages:

- The Delivery Point is accessible via a relatively short and direct route from the landfall site, minimizing disruption to local communities (including Tribal Nations and DACs) and reducing transmission costs.
- The interconnection cost upgrades are comparatively well-understood and significantly mitigated by the implementation of the Propel NY Energy project, thereby minimizing incremental costs to ratepayers for interconnection upgrades.
- The Delivery Point is accessible from property that Vineyard Offshore has identified as feasible for an onshore substation or onshore converter station.
- A suitable landfall site can be accessed without routing export cables through a Constrained Area, as defined in Section 2.1.6 of ORECRFP24-1.

[redacted]

7.2.2 Onshore Substation/Onshore Converter Station Sites

[redacted]

[3] See: Notice 2024-30.

[redacted]

[redacted]

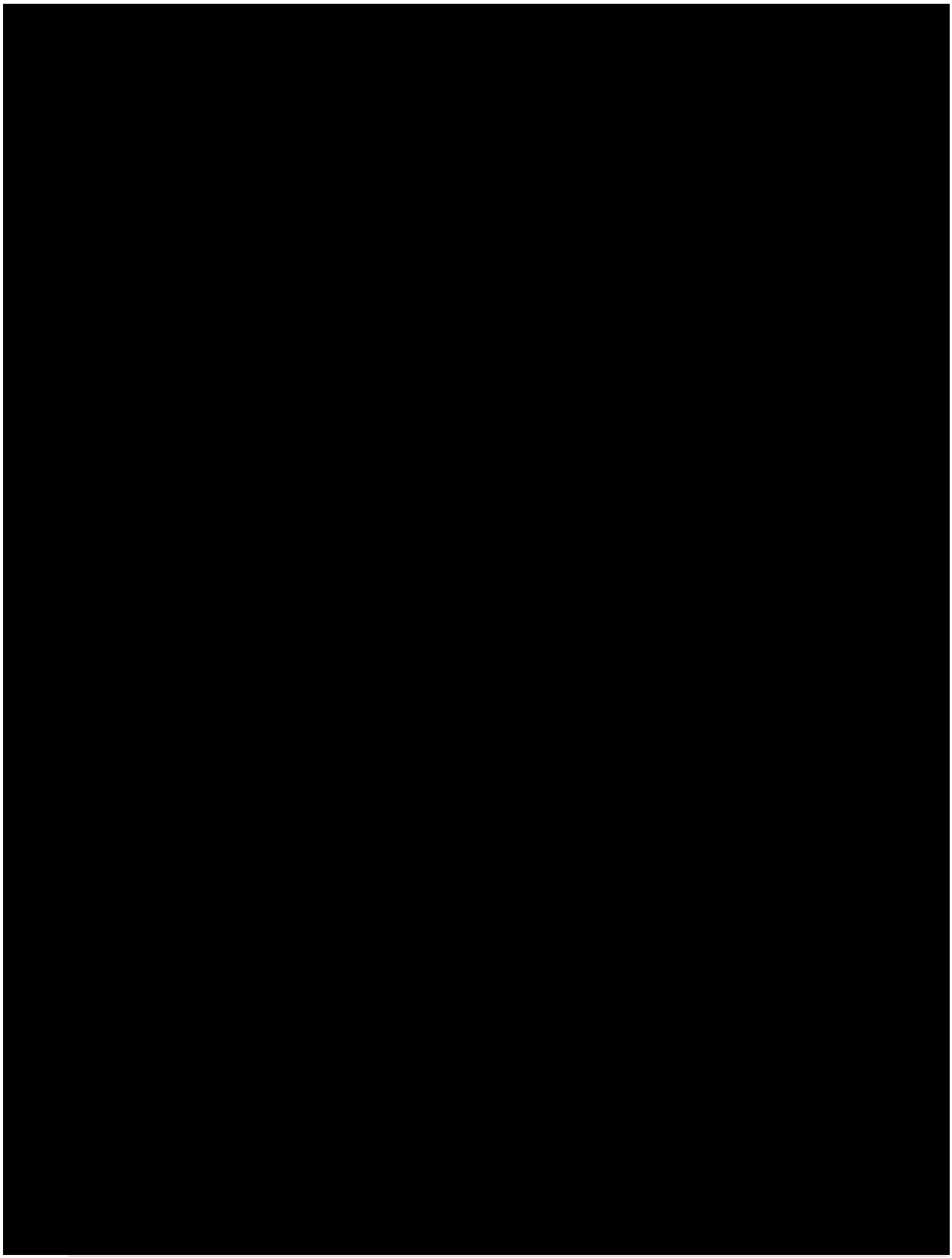
7.2.3 Onshore Export Cable Route

The onshore export cable route selection process was guided by several factors, including potential environmental impacts, likelihood of ROW acquisition, technical risk and constructability, community concerns, and cost. The specific criteria used to determine the onshore export cable routes include the following:

- [redacted]
- [redacted]
- [redacted]

[redacted]

The Project's final onshore export cable route is subject to refinement and change resulting from engineering progress, further due diligence, host community consultations, and permitting.



7.2.4 Landfall Site

[redacted]

Through this rigorous process, Vineyard Offshore identified Jones Beach State Park, New York, as the Project's landfall site, as shown on Figure 7.2-4. The Jones Beach landfall site is located in a paved parking area (Field 1) near the intersection of the Meadowbrook State Parkway and Ocean Parkway within Jones Beach State Park. Jones Beach State Park is a 2,400-acre park in the Town of Hempstead that is owned and operated by the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP). Surrounding land uses include the boardwalk, beach, bike path, and open space.

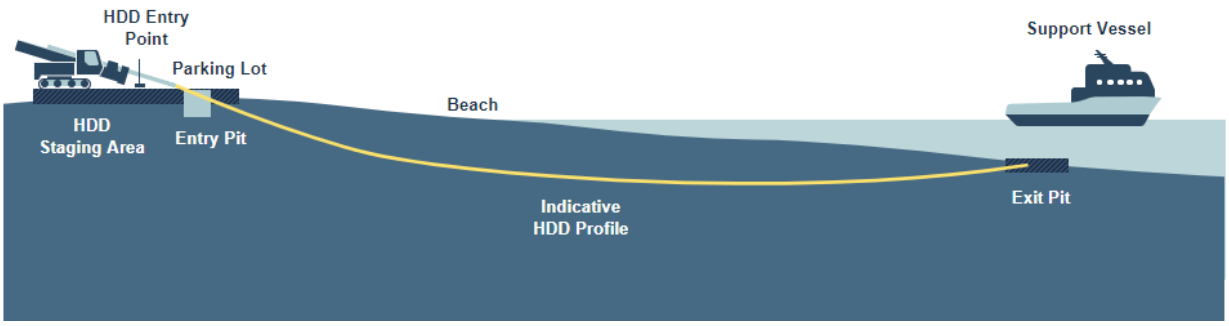
Vineyard Offshore held multiple meetings with NYSOPRHP officials regarding landfall sites on Jones Beach. Alternative landfall sites in the eastern portion of Jones Beach were ruled out based on concerns from NYSOPRHP officials regarding operational and community impacts, like the Jones Beach Amphitheater and Wild Play Park. The selected landfall site minimizes operational concerns and avoids the Jones Beach Park Preservation Area on the western end of the park and community uses closer to Field 4, which were key priorities for NYSOPRHP officials.

[redacted]

[redacted]

At the landfall site, the offshore export cable is expected to transition onshore using HDD. HDD is a trenchless method of installing a conduit underground in an arc along a prescribed bore path by using a surface-launched drilling rig (Figure 7.2-5).

Figure 7.2-5 Landfall Site Horizontal Directional Drilling Installation Concept

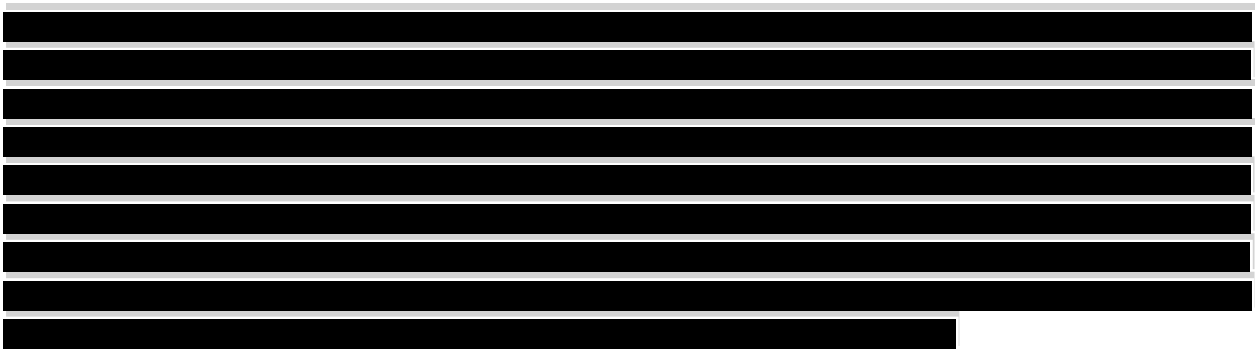


The landfall installation would be contained within an approximately 6.67-acre paved area of the parking area identified as Field 1. Although the landfall site would be subject to future subsurface utility survey, no significant subsurface infrastructure or utility conflicts have been identified at the landfall site at this time. The size of the landfall site is adequate to support the

staging of equipment and vehicles necessary for the landfall installation and egress to accommodate the transition to onshore cables. The landfall site would be contained entirely within a previously disturbed, unvegetated, and impervious surface area. The landfall site would be readily accessible for construction and maintenance crews, and no creation of access roads would be required to access the landfall site.

The landfall installation via HDD would avoid disturbance to the beach, intertidal zone, and nearshore areas, and no disruption to sensitive habitat is expected to occur as a result of the landfall operation. No impacts to the boardwalk running parallel to the beach would occur.

Vineyard Offshore would minimize disruption at Jones Beach State Park by seeking to seasonally restrict landfall installation activities during beach season (installation to occur between mid-September and Memorial Day), thereby avoiding operational conflicts at Jones Beach State Park primarily centered around beach visitation. There are no sensitive land uses in the immediate vicinity of Field 1, so seasonal landfall installation at this location would limit noise and traffic disruption to residences, businesses, and community facilities.



The proposed landfall site for the Empire Wind 2 project is in the City of Long Beach (see New York State Department Public Service [NYSDPS] Case No. 22-T-0346). The City of Long Beach strongly opposed the granting of a Certificate of Environmental Compatibility and Public Need ("Article VII Certificate") for the Empire Wind 2 project based on stated concerns for adverse impacts to the city, its residents, and its businesses associated with construction-phase impacts related to noise, dust, traffic, and related disruptions within densely developed and populated areas of the city.

A Long Beach landfall site would require the city to grant an easement to cross the Long Beach public beach, which would trigger a municipal parkland alienation process that first requires municipal approval, followed by both houses of the New York State Legislature passing an alienation bill, and then the bill being signed into law by the governor. The municipality must pass a home rule resolution by at least a two-thirds vote of the members on the municipal governing body or by a simple majority with the concurrence of the chief executive officer of the municipality. The municipality then fills out a State Parks Parkland Alienation Form and a Municipal Home Rule Request. The form provides state parks with the necessary information to begin their review for the legislative approval and coordination, if necessary, with the National Park Service (NPS). The request is required under the rules of the New York State Legislature

for alienation bill legislation. The request is accompanied by the proposed terms of the alienation bill.

On October 20, 2023, Governor Hochul vetoed a parkland alienation bill that would have allowed the Empire Wind 2 project transmission lines to cross Long Beach public beaches to interconnect to the grid. The alienation of this parkland had passed both houses of the New York State Legislature, but local opposition grew concerning lost tourism revenue while the beaches were closed during construction and the environmental concerns referenced previously. The Long Beach City council had approved a municipal parkland alienation resolution in March 2023 and then sent a letter to the governor in October 2023 stating their unanimous opposition to the Empire Wind 2 project which led to the veto.

[redacted]

7.2.5 Offshore Export Cable Corridor

[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

The OECC does not pass through Constrained or Prohibited Areas (as described in Section 2.1.6 of ORECRFP24-1); please refer to Section 4.3.4 for a graphic illustration of these areas relatively to the Project.

[redacted]

[redacted]

7.3 ALTERNATE PROPOSALS

The following subsections describe Alternate Proposals EW-C, EW-D, and EW-E, which are included in this bid submission.

7.3.1 Proposal EW-C

[redacted]

[redacted]

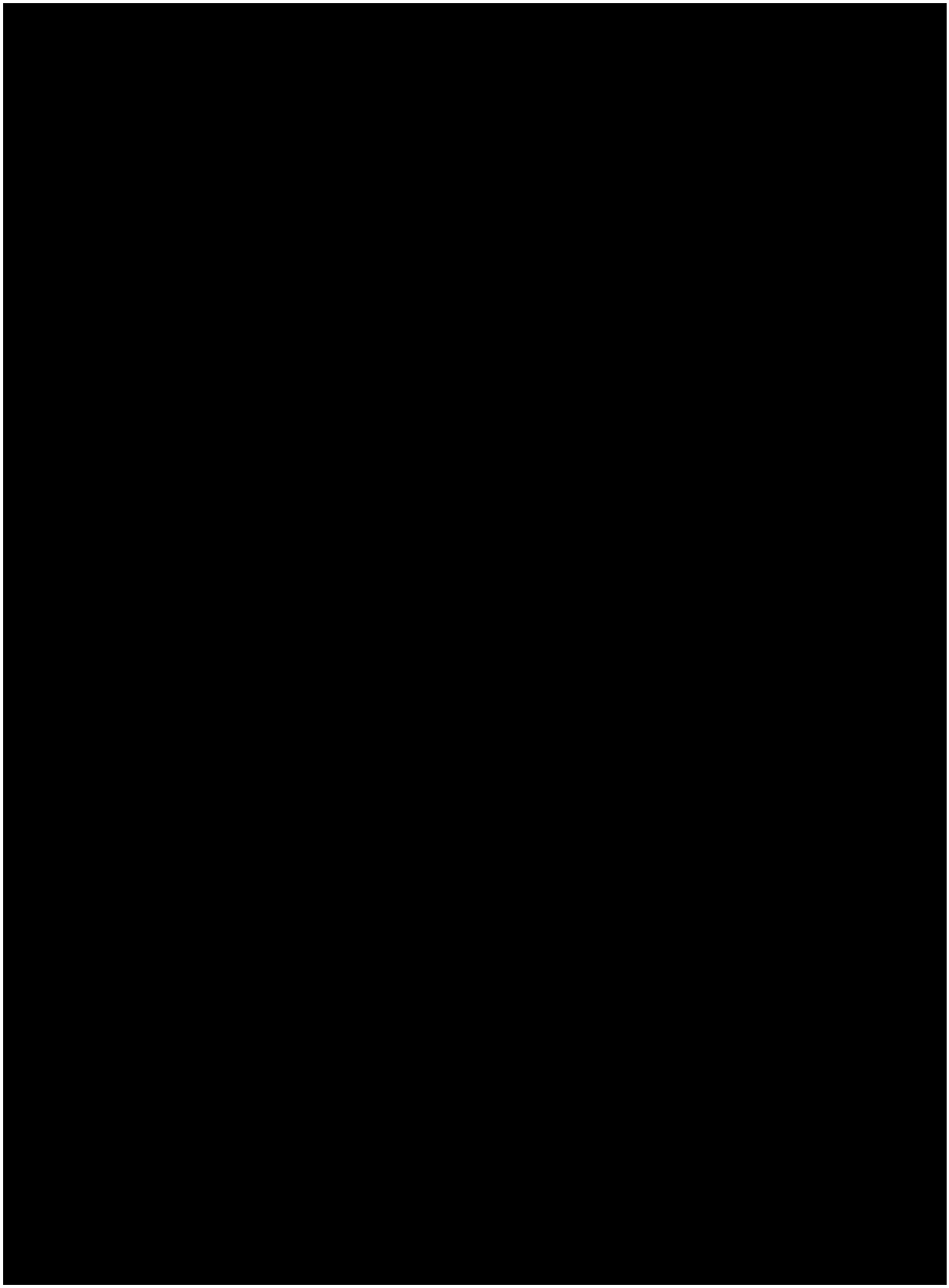
[redacted]

[redacted]

[redacted]

[redacted]

[4] The majority of the site is contained within this Parcel ID.



[redacted]

[redacted]

[redacted]

[redacted]

7.3.2 Proposal EW-D

[redacted]

7.3.3 Proposal EW-E

[redacted]

7.4 INTERCONNECTION STATUS AND TIMELINE

Federal Energy Regulatory Commission (FERC) Order No. 2023, *Improvements to Generator Interconnection Procedures and Agreements*, issued on July 28, 2023,[5] finalized reforms to FERC's standard generator interconnection procedures and agreements for transmission providers, including reforms that modify interconnection study procedures in an attempt to increase the speed of interconnection queue processing. NYISO submitted its compliance filing with FERC on May 1, 2024, with a requested effective date of May 2, 2024.

[5] See: FERC Order No. 2023.

7.4.1 Transitional Cluster Study Process

FERC Order No. 2023 is a significant regulatory action aimed at streamlining the interconnection process for new energy sources to the electric grid. Its primary goal is to reduce backlogs, improve efficiency, and ensure equitable access to the transmission system for renewable energy projects. It requires transmission providers to use a first-ready, first-served cluster study process, under which transmission providers would perform larger interconnection studies encompassing numerous proposed generating facilities, rather than separate studies for each individual Interconnection Request. Transmission providers would perform a single cluster study and cluster restudy each year.

The NYISO Transitional Cluster Study Process in which the Project is participating requires Vineyard Offshore to submit Interconnection Requests for new queue positions, which will then be examined through a phased process.

7.4.1.1 Pre-application Process

To help Project developers, such as Vineyard Offshore, better understand the physical conditions at potential Delivery Points, NYISO opened a rolling pre-application process on May 2, 2024. [redacted]

7.4.1.2 Application Window

NYISO has set the period of August 1, 2024 to October 15, 2024 as the Application Window for projects to apply to participate in the Transitional Cluster Study Process. On August 1, 2024, Vineyard Mid-Atlantic LLC submitted two Interconnection Requests to NYISO for inclusion, as described in Table 7.4-1, and received two new queue positions. Summaries of the Project Interconnection Requests from the NYISO Interconnections Project Portal are included as Attachments 7.4-3 and 7.4-4.

[redacted]

[redacted]

[redacted]

7.4.1.3 *Customer Engagement Window*

The Transition Cluster Study Process encompasses two distinct study phases, preceded by a Physical Infeasibility Screening, which is undertaken during the Customer Engagement Window. The screening will consider the physical ability of the substation at the Delivery Point to accommodate the interconnection of the Project. Factors include available bus positions, ability to expand electrically, adjacent usable land, a viable cable route, and the equipment required to achieve the requisite ratings being commercially available.

[redacted]

[redacted]

[redacted]

Additionally, Vineyard Offshore has commissioned a review of possible cable approaches to the site, in view of the congestion of underground utilities in the locality. [redacted] We will continue to evaluate these options, taking account of other infrastructure proposals in the vicinity, in particular the Propel NY Energy project's underground cable approaches, and will collaborate with the proponents of those projects.

Vineyard Offshore is familiar with the upgrades being proposed to the Ruland Road 345 kV substation through Propel NY Energy's recent Article VII application,[7] an extract of which is shown on Figure 7.4-1. Vineyard Offshore also recognizes that it will need to collaborate with Propel NY Energy in finalizing its onshore export cable route.

[redacted]

[7] See: Propel NY Energy's Article VII application.

[redacted]

[redacted] It is expected that the Physical Infeasibility Screening stage will conclude in mid-January 2025.

7.4.1.4 Phase 1

Following the Physical Infeasibility Screening, the two queue positions will move into Phase 1 of the Transitional Cluster Study.

In Phase 1, attachment facilities, system distribution upgrades (DUs), and local system upgrade facilities (SUFs) to reliably interconnect the Project to the respective Delivery Points will be identified, as well as a cost estimate and preliminary schedule to construct those facilities provided. Phase 1 is expected to take 190 days and conclude in July 2025.

7.4.1.5 Phase 2

In Phase 2 of the Transitional Cluster Study, NYISO will identify the SUFs and DUs to reliably interconnect in compliance with the NYISO Minimum Interconnection Standard and any system deliverability upgrades (SDUs) to interconnect at the requested capacity resource interconnection service in compliance with the NYISO Deliverability Interconnection Standard. Cost estimates and a preliminary schedule will be developed for these upgrades, and any

facility upgrades identified in Phase 1 will also be updated. Phase 2 is anticipated to last 270 days and conclude in May 2026.

[redacted]

7.5 ELECTRICAL ONE-LINE DIAGRAM

[redacted]

7.6 INTERCONNECTION UPGRADES AND COSTS

7.6.1 Uniondale Delivery Point

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

7.6.2 Ruland Road Delivery Point

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

7.7 MULTIPLE OFFSHORE WIND GENERATION FACILITIES SCENARIO

7.7.1 Uniondale Delivery Point

[redacted]

[redacted]

[redacted]

7.7.2 Ruland Road Delivery Point

[redacted]

7.8 TRANSMISSION INFRASTRUCTURE COSTS

Approximate costs for the transmission infrastructure are included in Table 7.8-1.

Table 7.8-1 Transmission Infrastructure Costs

Activity	Cost	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

7.9 INJECTION POINT CAPACITY

Vineyard Offshore has reviewed NYSPSC Utilities' Revised Headroom Calculations, though notes that they do not provide available capacity at Delivery Points that are expected to be upgraded by future transmission solicitations, such as from the LI OSW PPTN.

[redacted]

7.10 MARKET PARTICIPANT

Vineyard Offshore joined NYISO as a Non-Voting Entity as of June 7, 2024. [redacted] Vineyard Offshore's parent company, Copenhagen Infrastructure Partners P/S (CIP) is familiar with the market participation registration process and is a registered market participant in several regions across the US; CIP currently manages over 2 gigawatts (GW) of operating renewable capacity in the Electric Reliability Council of Texas, Midcontinent Independent System Operator, and PJM markets.

[redacted]

[redacted]

7.11 AFFECTED RESOURCE

This is not applicable to the Project.

7.12 MESHED READY COMPONENTS AND DELIVERABLES [redacted]

[redacted]

[redacted]

7.13 CABLE ROUTE GIS FILES

The KMZ files are included in the Proposal.

Section 7.0 Attachments

Response to New York State Energy Research and Development Authority Request for Proposals ORECRFP24-1

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Attachment 7.2-1: [redacted]

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Attachment 7.2-2: [redacted]

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Attachment 7.4-1: [redacted]

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Attachment 7.4-2: [redacted]

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Attachment 7.4-3: [redacted]

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Attachment 7.4-4: [redacted]

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Attachment 7.4-5: [redacted]

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Attachment 7.5-1: [redacted]

Redacted

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Attachment 7.6-1: [redacted]

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Attachment 7.6-2: [redacted]

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Attachment 7.6-3: [redacted]

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Attachment 7.12-1: [redacted]

Redacted

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Attachment 7.12-2: [redacted]

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Attachment 7.12-3: [redacted]

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Attachment 7.12-4: [redacted]

Redacted

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Attachment 7.12-5: [redacted]

Redacted