RESPONSE TO THE REQUEST FOR PROPOSALS FOR LONG-TERM CONTRACTS FOR AN OFFSHORE WIND ENERGY PROJECT

Prepared for

The Narragansett Electric Company d/b/a Rhode Island Energy

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Submitted by

Avangrid

Avangrid Renewables
2701 NW Vaughn Street, Suite 300
Portland, OR 97210

Confidentiality Statement

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1. Certification, Project, and Pricing Data (CPPD Form)

The Certification, Project, and Pricing Data (CPPD) document is a Microsoft Excel workbook that is provided on the website at https://ricleanenergyrfp.com/2023-osw-rfp/.

Bidders are required to provide firm pricing for 240 days from the date of bid submission. The bidder must also sign the certification form found in Appendix A verifying that the prices, terms, and conditions of the proposal are valid for at least 240 days. An officer or duly authorized representative of the bidder is required to sign the Proposal Certification Form.

At the bidder's option the CPPD form submitted as part of the public version may be a PDF instead of a working Excel file so long as the bidder submits the un-redacted CPPD form as a working Excel file with the confidential version of the proposal.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

2. Executive Summary

The bidder is required to provide an executive summary of the project proposal that includes a complete description of the proposed generation bid, the proposed contract term and pricing schedule, interconnection plan, the overall project schedule and other factors the bidder deems to be important. A table summarizing proposal(s) including details such as generation project location, interconnection location(s), capacity (MW), commercial operation date, pricing ($/MWh), etc. is encouraged.

[redacted]

[redacted]

[redacted]

3. Operational Parameters

New England Wind 1 and New England Wind 2 have been designed to reliably generate and deliver clean energy to the New England electrical grid. Avangrid is well-prepared to operate and maintain the Projects and will have several years of experience operating and maintaining Vineyard Wind 1[1] by the time New England Wind 1 and New England Wind 2 achieve commercial operation. Vineyard Wind 1, New England Wind 1, and New England Wind 2 will be located adjacent to one another and share a similar design, including a common offshore export cable corridor and landfall sites located in the Town of Barnstable. Such similarities will allow for highly relevant operational lessons learned to be shared and applied.

Key design components that will ensure reliable generation and delivery of energy from New England Wind 1 and New England Wind 2 include the following:

- Employing well-known, highly reliable, and commercially available technologies that reduce the risk of equipment failures of key components.
- An industry-leading operations and maintenance (O&M) plan based on regular and comprehensive scheduled maintenance combined with a preventative maintenance strategy. This strategy is informed by the approach for Vineyard Wind 1, which Avangrid has been selected to operate and maintain once the project achieves commercial operation later this year.
- The use of remote monitoring systems to ensure the longevity and reliability of equipment components over the course of the operational lives of the Projects.
- A logistics plan based on a service operation vessel that will maximize the time available for technicians to conduct maintenance and repairs, allow for safe operation in severe weather conditions, and ultimately ensure high reliability and a quick response to unscheduled outages.

In addition to the operational lessons learned from Vineyard Wind 1, New England Wind 1 and New England Wind 2 will also employ the significant experience gained from Avangrid's global affiliates' more than 4,900 MW of offshore wind capacity currently in operation or under construction.

3.1. Maintenance Outage Requirements

Maintenance Outage Requirements – Specify partial and complete planned outage requirements in weeks or days for all major equipment and associated facilities required for the delivery of energy from the generation facilities to the delivery point. Also, list the number of months required for any outage cycle(s) to repeat (e.g., list time interval of minor and major overhauls, and the duration of overhauls).

Maintenance outage requirements for the major offshore and onshore components of the Projects are shown in **Table 3.1-1**. These components include:

[1] Vineyard Wind 1 is a 50/50 joint venture of Avangrid Renewables, LLC (Avangrid) and Copenhagen Infrastructure Partners P/S (CIP). Once commercial operation of Vineyard Wind 1 begins, Avangrid will assume responsibility for the O&M of the project, following an agreement reached with CIP for this purpose.

- Wind turbine generators (WTGs);
- Inter-array cables;
- Offshore export cables;
- Electrical service platform (ESPs); and
- Onshore substations.

[redacted] Scheduled maintenance for the Projects is expected to occur during periods of low production to reduce the likelihood of impacts from any necessary outages. ISO New England (ISO-NE) will be informed of planned maintenance campaigns well in advance to minimize the system impacts of any outages, and Avangrid will be aligned with the availability and outage compliance requirements identified in the power purchase agreement(s) (PPAs).

Unscheduled maintenance, which includes unscheduled repairs and the replacement of damaged components, can be planned to a limited degree, but may take place at any time throughout the year. To avoid occurrences of unscheduled maintenance and ensure high production reliability, selected components will be designed with condition monitoring systems so potential faults can be addressed before unexpected failures occur, such as distributed temperature sensing (DTS) equipment on the export cables and ice formation sensors on the WTG blades.

The preventative maintenance measures described in this section will reduce the need for corrective intervention and support the optimal operation of the Projects.

Table 3.1-1 Outage Requirements

Major Project Component	Approximate Yearly Outage Period Due to Scheduled Maintenance		Capacity Out of Service During Maintenance
	May–September	October–April	
WTGs	[redacted]	[redacted]	[redacted]
Inter-array Cables	[redacted]	[redacted]	[redacted]
Offshore Export Cables	[redacted]	[redacted]	[redacted]
ESP	[redacted]	[redacted]	[redacted]
Onshore Substation	[redacted]	[redacted]	[redacted]

3.1.1 Major Project Components

Maintenance outage requirements for the Project's main components of New England Wind 1 and New England Wind 2 are described herein.

3.1.1.1 WTGs

Once every 12 months, WTGs will undergo scheduled maintenance with a required outage [redacted] Such maintenance activities are likely to occur within the summer months to minimize the effect of weather-induced downtime and the resulting loss of productivity (i.e., boat access is prohibited by rough seas). Care will also be taken to schedule maintenance during off-peak times in the summer months by utilizing advanced weather modeling and historical data.

[redacted] The WTGs not undergoing maintenance will remain online and operational, enabling New England Wind 1 and New England Wind 2 to continue meeting peak demand while maintenance activities are completed.

3.1.1.2 Inter-array Cables and Offshore Export Cables

Cables are inactive assets, and as such, do not need maintenance. They will have sensing equipment installed, such as a DTS system on the export cables, which will be monitored at the Offshore Control Center (OCC) [redacted] More details on the OCC can be found in **Section 11**. Scheduled inspections will be carried out periodically using remotely operated underwater vehicles to verify cable condition and burial state. Avangrid will also perform routine checks, to ensure termination points are secure without the need for an outage.

3.1.1.3 ESPs and Onshore Substations

Scheduled maintenance of the ESPs and onshore substations will occur once every 12 months, per the selected manufacturer's recommendations. Scheduled maintenance will be coordinated with ISO-NE and, to the extent possible, will be scheduled outside the peak load months of December, January, and February. A full outage of the Offshore Wind Energy Generation facility will be required once every 12 months, [redacted] This is necessary to conduct scheduled maintenance and inspection of the high voltage alternating current (HVAC) transmission system.

A longer outage [redacted] may be required once every five years (60 months) to perform additional, in-depth scheduled maintenance and testing of the HVAC transmission system. [redacted] Such in-depth maintenance could include high-voltage protection functional testing, switchgear tests, and/or detailed transformer inspections, and is necessary to ensure safe and reliable operation while maintaining asset integrity. Measures will be taken to optimize the timing of this work, such as aligning it with other outages (e.g., onshore substation outage), to reduce the overall production loss. [redacted]

3.1.2 Preventative Maintenance

Preventative maintenance will be performed to reduce the need for corrective intervention. Avangrid and its global affiliates have employed preventative maintenance approaches that have proven successful on other offshore wind projects in Europe. For example, Iberdrola is leading an industry consortium of 12 recognized and experienced key players on the ROMEO project.[2] This initiative, backed by the European Commission through the Horizon 2020 Program, intends to optimize operating costs, achieve maximum efficiency, and drive renewable energy production. The initiative is being rolled out in three locations: Teesside (UK), East Anglia ONE (UK), and Wikinger (Germany). Avangrid will employ any lessons learned from these approaches as well as experience gained operating Vineyard Wind 1 to support preventative maintenance efforts for the Projects.

Remote monitoring is a key element for preventative maintenance as it allows continuous assessment of the technical state of a project. The Projects will be monitored around the clock from a state-of-the-art OCC [redacted] The sophisticated OCC will monitor real-time data from condition monitoring sensors that will be continuously analyzed to enable Avangrid to predict potential issues or failures and respond quickly to minimize any impacts on production. The data gathered at the OCC via remote monitoring will also allow technicians to improve maintenance plans and identify potential future problems when conducting maintenance on WTGs. If an alarm is raised in the remote monitoring system, the technical teams will be notified immediately, and a plan of action will be created. Based on the type of notice, either a remote or an on-site intervention can be planned.

The two main systems available for remote monitoring of offshore wind projects are:

- **WTG Condition Monitoring**: WTG condition monitoring systems measure vibration and acceleration in specific WTG components, typically the main hub bearing, main shaft, gearbox (if applicable), generator, and tower. The vibrations and accelerations are measured and sent to a centralized computer system in the OCC, and when defined levels are exceeded, an alarm is issued. If necessary, the WTG will automatically initiate a forced shutdown until the root cause has been identified and mitigating actions have been completed.
- **Supervisory Control and Data Acquisition (SCADA)**: SCADA is a computer system that gathers and analyzes real-time data. The system connects individual WTGs, substations, and meteorological stations to a central computer system and gathers information such as active/reactive power (megawatts/megavolt-amperes reactive), voltage, temperature, pressure, and positions. Gathered data is continuously analyzed by software tools and trained technicians at the OCC to establish monitoring routines and evaluate project components for early indications of wear and tear or potential breakdown. In the event a breakdown occurs, SCADA data can be analyzed to identify its root cause.

Both remote monitoring systems are managed by local experts at the OCC [redacted] and in shared monitoring centers located at Avangrid technical centers in the US and Europe.

[2] ROMEO stands for Reliable OM decision tools and strategies for high levelized cost of electricity reduction in offshore wind. More information can be found at https://www.romeoproject.eu/the-project/.

3.2. Operating Constraints

Specify all the expected operating constraints and operational restrictions for the project (i.e., limits on the number of hours a unit may be operated per year or unit of time), differentiating those that may be variable or situational in nature.

Operating constraints for New England Wind 1 and New England Wind 2 are largely determined by the technical parameters of the Offshore Wind Energy Generation facility and transmission system components. Importantly, offshore WTGs and related structures are designed to withstand the harsh offshore climate and ensure a long operational life. Avangrid has also taken steps to maximize the operational availability of the Projects with sufficient buffer using a 30-year hindcast of metocean conditions based on historic data. New England Wind 1 and New England Wind 2 have been designed to operate under the most severe wind and wave conditions modeled for a 10,000-year storm event and consistent with expected future conditions due to climate change. The Projects have followed all recognized design standards for offshore WTGs, foundations, and cables.

3.2.1 Weather-Related Conditions

Operational constraints for the WTGs are dictated by temperature, wind speed, and sea state. These operational constraints have been accounted for in the WTG availability calculation.

3.2.1.1 Temperature

During normal operations, WTGs can withstand one-hour mean temperatures between approximately 21 to 80 degrees Fahrenheit (°F). Outside of this range, the WTGs will take various measures to preserve the system and potentially ramp down power production, depending on the WTG model and the manufacturer's chosen approach. Once more extreme temperatures are reached—in the range of 90 to 100 °F (extreme heat) and 0 to -10 °F (extreme cold)—the WTGs will stop operating altogether, in accordance with the normal standards for offshore wind WTGs as stipulated in International Electrotechnical Commission (IEC) Standard 61400-3. It should be noted that temperatures in the offshore environment are generally more stable than onshore due to the slower heating of water as compared to land; these cold and hot extremes are rare at sea. The WTG temperature boundaries have been assessed with historic offshore weather data in the availability calculation, and these losses have been accounted for in the annual production estimates for the Projects.

3.2.1.2 Wind Speed

[redacted] During a hurricane, the WTG will remain idle but will yaw the rotor perpendicular to the wind and feather the WTG blades to allow for minimum loads on the WTG structure.

3.2.1.3 Sea States

Avangrid will monitor weather forecasts and real-time data on wave conditions to control the safe transfer of personnel between a vessel and a WTG. The safest technology—a service operation vessel with a walk-to-work system—will be deployed to enable smooth transfers in wave heights of up to eight feet. [redacted] The weather limits for safe transfer have been assessed with historic offshore weather data in the availability calculation and have been accounted for in the annual production estimates for the Projects.

3.3. System Reliability, Safety, and Security

Describe how the proposal would provide enhanced electricity reliability to Rhode Island, including its impact on transmission constraints. Describe if your proposal contains any specialized equipment to improve reliability during cold weather conditions, and how that may impact overall generator output.

3.3.1 Electricity Reliability

The injection of emission-free, reliable offshore wind power into the New England electricity grid provided by New England Wind 1 and New England Wind 2 will enhance the overall reliability of the New England electricity system by enhancing resource adequacy, diversifying generator fuel mix, and reducing fuel risk. The Projects will also support regional system security by adding generation capacity that is resilient to changes in market structures, complementing the generation profiles of distributed solar and onshore wind resource resources, injecting power in the transmission-constrained Southeast Massachusetts (SEMA) load zone, [redacted] The Projects can stabilize prices in the peak winter months and reduce the region's dependence on imported natural gas.[3]

3.3.1.1 Addressing Resource Adequacy

The retirement of coal, oil, and nuclear power generation facilities has increased the region's reliance on natural gas generation resources and strained the pipeline infrastructure that delivers fuel into the region. Heavy reliance on natural gas puts the reliability of the New England electricity system at risk, particularly in the winter months during extreme weather events. It also increases price volatility in wholesale markets and increases costs to ratepayers. In addition to the recent retirements of Brayton Point Power Station (Somerset, Massachusetts) in 2017 and Pilgrim Nuclear Power Station (Plymouth, Massachusetts) in 2019, ISO-NE estimates that another 5,000 MW of oil- and coal-fired generation capacity may be at risk of retirement in the coming years.[4]

The expected retirement of existing capacity further exacerbates the twin threats of limited fuel diversity and overdependency on natural gas. In periods of extremely cold weather, natural gas supply constraints have led to shortages in the electricity sector and resulted in oil-fired generation becoming the price-setting fuel in the wholesale electricity market. Oil-fired generation is significantly more expensive and polluting than natural gas-fired generation.

[3] https://www.sciencedirect.com/science/article/abs/pii/S0360544222007897

[4] https://www.iso-ne.com/about/what-we-do/in-depth/power-plant-retirements

A key benefit of offshore wind is that it does not require fuel to operate; thus, it is not vulnerable to supply constraints or delivery failures that can interrupt supply or create grid reliability issues. Furthermore, offshore wind energy projects produce the most power in the winter months. The two Projects will therefore deliver low-cost energy at a high-capacity factor that directly mitigates the factors that drive power prices and pollution higher during these months. This will bolster the region's resource adequacy, protect ratepayers from electricity price spikes, and avoid emissions that result from oil-fired generation during extreme weather events.

See **Section 14** for additional information regarding energy market benefits modeled by [redacted]

3.3.1.2 Resilient to Changes in Market Structures

The PPA(s) awarded under this solicitation will provide long-term revenue certainty to the Project(s). This certainty insulates the Project(s) from changes in existing market structures, providing an additional form of resource resiliency. Generation from New England Wind 1 and New England Wind 2 will therefore remain firmly in place over the PPA term. This will further mitigate the potential impacts of generation capacity retirements in the region and allow for better long-term system resource adequacy planning by ISO-NE.

3.3.1.3 Reducing the Risk of Power Loss

New England Wind 1 and New England Wind 2 will deliver power to the New England electricity grid through an underground transmission system, which increases the resiliency of the Projects relative to other generation assets that include aboveground cabling. New England Wind 1 will deliver power to shore via two offshore HVAC export cables and New England Wind 2 will deliver power to shore using three HVAC export cables. HVAC transmission systems for offshore wind are proven and highly reliable, as further described in **Section 6** and **Section 8**. [redacted]

3.3.2 System Safety

Avangrid has developed a safety design architecture to ensure the reliable and redundant operation of New England Wind 1 and New England Wind 2.

3.3.2.1 Physical Security and Cybersecurity

Avangrid places a strong emphasis on physical security and cybersecurity in full alignment with North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection (CIP) standards and global best management practices, guided by directives from Avangrid's dedicated corporate security teams. Once PPAs are secured for New England Wind 1 and New England Wind 2, Avangrid plans to supplement its existing team of specialized personnel dedicated to ensuring cybersecurity and NERC compliance with additional individuals to further safeguard the security and compliance of the Projects.

Avangrid's commitment to safety and cybersecurity is also evidenced by its procurement and vendor selection processes, in which the cybersecurity practices of potential suppliers are carefully analyzed as part of the evaluation process. Cybersecurity practices and metrics serve as part of the selection criterion and suppliers' commitments relative to cybersecurity are later formalized in all contracts through the inclusion of a comprehensive cybersecurity clause, underscoring the importance of the secure practices throughout the life cycles of the Projects.

Additionally, Avangrid employs cutting-edge and resilient solutions within its network supervision framework. Avangrid's networking leverages proven and trusted technologies and is continuously evaluated for further upgrades as new threats arise.

3.3.2.2 Electrical and Control Systems Security

New England Wind 1 and New England Wind 2 have been rigorously designed to ensure system safety across both plants. [redacted]

Avangrid utilizes state-of-the-art technologies for monitoring electrical and control systems for network anomalies and vulnerabilities. In addition to automated monitoring, Avangrid's physical and cybersecurity teams employ their expertise and contextualize data to ensure a nuanced understanding of the evolving cybersecurity landscape. At all physical locations, Avangrid ensures compliance with NERC CIP requirements relative to physical personnel access control and supervision and conducts regular security audits and assessments to assure effectiveness of Avangrid's practices.

3.3.2.3 Protection, Control, and Metering (PCM)

PCM systems utilized for the Projects will implement fully redundant primary and backup systems. Redundant design increases the dependability of an overall protection system as the failure of one protection system would not affect the operation of the other. The protection system is designed to meet the specific requirements of power systems elements, ensuring fault isolation within a predefined clearing time. This is essential for preserving system stability and meeting the load-stringent services requirements of offshore wind projects. PCM philosophy requires that a single failure of the system shall not prevent automatic clearance of the fault in any part of the electrical system.

The PCM systems for the Projects are engineered to embody the highest standards of reliability and resilience and include fully redundant primary and backup systems. In the event of a failure, the back-up/redundant systems take over seamlessly in order to maintain operational integrity. Additionally, fail-safe mechanisms are required to ensure that, in event of fault or failure, the PCM system defaults to safe state. [redacted]

PCM systems are also deployed under the strict cybersecurity protocols described in this section under NERC CIP compliances, including firewalls, network configuration optimization, regular security audits and continuous monitoring. This ensures the integrity and confidentiality of sensitive data.

The PCM systems are equipped with remote monitoring capabilities, enabling real-time surveillance of performance and allowing for identification of anomalies or deviations from normal operations. Remote diagnostics facilitate quick response and preventive actions, minimizing risks. Integrated emergency shutdown systems are accounted for in order to shut down critical components rapidly and safely in the event of imminent threat or malfunction.

The PCM design includes corrosion resistance and protective panels and enclosures to withstand hard environmental conditions associated with coastal or offshore locations.

Personnel are extensively trained in emergency responses protocols specific to PCM systems, including simulated scenarios to ensure preparedness in case of emergencies.

3.3.2.4 Communications and SCADA Security

Numerous measures aimed at ensuring the robust performance, reliability, and security of SCADA and telecommunications infrastructure will be implemented for the Projects. SCADA and telecommunications systems are designed with redundant communication connections to ensure data flow. [redacted]

Further, encryption and multifactor authentication mechanisms are integrated into the telecommunications and SCADA systems to protect data integrity, prevent unauthorized access, and thwart cyber threats and malicious activities. [redacted]

Routine audits and vulnerability assessments are conducted to identify potential weaknesses and proactive measures are taken to mitigate vulnerabilities and adhere to the latest cybersecurity standards.

Like the PCM system, the telecommunication and SCADA elements incorporate remote monitoring capabilities, allowing for quick detection of anomalies and ensuring prompt responses to maintain systems integrity. Lastly, recognizing the offshore environments challenges, the telecommunications and SCADA systems are selected for specific harsh environment ratings, as are the panels and enclosures in which they are installed.

3.3.3 Energy Security

Offshore wind will enhance New England's energy security by diversifying the fuel mix especially during the extended periods of cold weather when New England's gas supply can be constrained and demands for heating and power generation peak.

The production profiles of the Projects are positively correlated with the region's demand profile and will generate significant power in the winter months when natural gas is in high demand and the region's infrastructure is highly stressed. The generation profile will also differ from that of distributed solar and onshore wind resources on a daily and seasonal basis, complementing these intermittent resources' contributions to a decarbonized electricity system.

[redacted]

Additionally, the Projects will inject high-capacity factor power into the SEMA load zone, which is close to Greater Boston, New England's largest load center. The proximity of the grid interconnection to a large load center also minimizes associated line losses on the grid transmission system.

3.4. Moderation of System Peak Load

Describe how the proposal would contribute to moderating system peak load requirements and provide the following information:

1. Estimated average output for each summer period (June- September) from 3:00 - 7:00 pm
2. Estimated average output for each winter period (October-May) from 4:00 – 9:00 pm.

The energy outputs and generation profiles of New England Wind 1 and New England Wind 2 will moderate system peak load requirements by delivering a substantial amount of energy production during seasonal reliability hours, as defined in the Forward Capacity Market pursuant to the applicable ISO-NE tariff. [redacted]

Power and heating sector demand for natural gas is at its highest during this peak production period, and constrained pipeline capacity often results in high electricity prices, as previously discussed. The Projects will alleviate power sector demand for natural gas during these peak periods and reduce electricity price volatility and mitigate price spikes. The Projects will also directly contribute to the seasonal supply of peak capacity, as further described in **Section 4**, given that the daily peak of the production from New England Wind 1 and New England Wind 2 aligns well with daily peak load hours in the summer and winter months.

Finally, the Projects will play a role in moderating peak load requirements by interconnecting to the electricity grid in West Barnstable. The West Barnstable Substation, which will be the common point of interconnection for both Projects, is at the edge of the region's 345-kilovolt system, so the Projects will reduce energy losses from centralized generation units along long transmission lines.

3.4.1 Estimated Average Output

[redacted]

Table 3.4-1 [redacted]

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]

[redacted]

4. Energy Resource Plan

The wind resource and energy yield assessments for New England Wind 1 and New England Wind 2 are based on site-specific offshore wind data measured on location using joint venture project Vineyard Wind 1's Floating Light Detection and Ranging (FLiDAR) system (FLS), which was deployed for a two-year period between May 2018 and June 2020. The system was deployed for a two-year period data from the currently deployed FLiDAR in the vicinity of the New England Wind FLS (**Figure 4.1-1**), deployed in April 2023. This site-specific data, combined with trusted mesoscale modeling techniques from onshore and nearshore data sources, provides the most robust dataset ever used to assess an offshore wind project in the US. Using the wind speed data collected from two FLiDAR measurement campaigns, in combination with regional measurements and a high-resolution mesoscale wind model simulation, a robust wind resource assessment for Lease Area OCS-A 0534 can readily be performed. Overall, the duration and quality of the available wind data are sufficient to provide an energy resource plan with minimal uncertainties. From the experience of developing Vineyard Wind 1, Avangrid is highly confident in the annual energy production estimates included in this section as well as the ability to secure financing for the Projects on this basis.

Figure 4.1-1 New England Wind FLiDAR Buoy

4.1. Wind Resource Details

Provide a summary of all collected wind data for the proposed site. Identify when and how (e.g., meteorological mast or LiDAR – for "Light Detection and Ranging") the data was collected and by whom.

Indicate where the data was collected and its proximity to the proposed site. Include an identification of the location and height for the anemometers and/or "range gate" heights for sensing by LiDAR that were used to arrive at an assessment of the site generation capability.

Describe any additional wind collection efforts that are planned or ongoing.

Provide (a) at least one year of hourly wind resource data. Real Data collected from the site is preferred, though projected data is permissible. Methodology must also be included. And (b) a wind resource assessment report for the proposed facility from a qualified unaffiliated third-party wind resource assessment firm. Include an analysis of the available wind data which addresses the relationship between wind conditions and electrical output. Provide a projection of net hourly energy production and net annual energy production based on the 2012 wind resource data. Also, bidders shall provide the net annual energy production at both the P50 and P90 levels.

Provide a site-adjusted power curve. Each curve should list the elevation, temperature and air density used.

Identify the assumptions for losses in the calculation of projected annual energy production, including each element in the calculation of losses.

4.1.1 Wind Data Collection Summary

Avangrid has completed three comprehensive wind resource assessments to-date—one each in 2021, 2023, and 2024. This updated assessment, provided as **Attachment 4.1-1**, builds on site-specific FLiDAR measurements and previous findings for the projects in Lease Areas OCS-A 0501 and OCS-A 0534. The final report includes an updated wind resource assessment utilizing the new FLiDAR measurements from the ongoing measurement campaign. The key datasets used for the assessment are summarized in **Table 4.1-1**.

Table 4.1-1 Primary Sources Used to Assess Wind Conditions

Name	Data Collection Source Location (Latitude; Longitude)	Timespan	Description & Comments
Onsite Field Measurements			
Vineyard Wind FLS	[41.073; -70.483] Distance to Offshore Wind Energy Generation site center: 17 miles (mi)	2018-05-23 to 2020-05-12	10-minute measurements at 13, 98, 131, 197, 262, 328, 394, 459, 525, 590, 656, 787 feet (ft) above Mean Sea Level (fMSL)

Table 4.1-1 Primary Sources Used to Assess Wind Conditions

Name	Data Collection Source Location (Latitude; Longitude)	Timespan	Description & Comments
New England Wind FLS	[40.733; -70.741] Distance to Offshore Wind Energy Generation site center: 10 mi	2023-04-10 to 2024-04-10 (scheduled)	10-minute measurements at 10, 39, 131, 262, 328, 394, 459, 525, 590, 656, 820, 984 fMSL
		Mesoscale Data	
Vortex SERIES Vineyard Wind VORTEX	[41.073; -70.483] Approximate distance to Offshore Wind Energy Generation facility site center: 10 mi	2000-01-01 to 2024-01-01	Three 1-hour mesoscale time series computed at the Offshore Wind Energy Generation site, using ERA-5, CFSR, and MERRA2 as input
Vortex SERIES New England Wind VORTEX	[41.073; -70.483] Approximate distance to Offshore Wind Energy Generation facility site center: 10 mi	2003-01-01 to 2024-01-01	Three 1-hour mesoscale time series computed at the Offshore Wind Energy Generation site, using ERA-5, CFSR, and MERRA2 as input
		Supplemental Regional Field Measurement Datasets	
WHOI ASIT[1] Tower and LiDAR	[41.000; -70.000] Distance to Offshore Wind Energy Generation site center: 38 mi	2016-11-30 to 2023-10-04	10-minute measurements at 88, 174, 197, 262, 295, 328, 361, 394, 459, 525, 590, 656 fMSL
Nantucket Wind Test Profiler	[41.245; -70.114] Distance to Offshore Wind Energy Generation site center: 40 mi	2021-10-11 to 2022-11-10	10-minute measurements at 141, 174, 197, 262, 295, 328, 361, 394, 459, 525, 590, 656 fMSL

1. Woods Hole Oceanographic Institute Air-Sea Interaction Tower.

Between May 2018 and May 2020, Vineyard Wind 1 completed a two-year deployment of a FLiDAR in Lease Area OCS-A 0501, which formerly encompassed current Lease Areas OCS-A 0501 and OCS-A 0534[1]. The specific location of the FLiDAR yielded a dataset that was fully applicable for use in mesoscale modeling for the entirety of Lease Areas OCS-A 0501 and OCS-A 0534 without the need

[1] Lease Area OCS-A 0534 was part of Lease Area OCS-A 0501, which was segregated into two lease areas by the Bureau of Ocean Energy Management in June 2021. Lease Area OCS-A 0501 is the location for the Vineyard Wind 1 project. Lease Area OCS-A 0534 is the location for the Projects.

for scaling methods. The two-year onsite wind measurement data provide a solid basis for energy production estimates.

In mid-April 2023, a FLiDAR was deployed immediately south of Lease Area OCS-A 0534, and Avangrid has been purchasing this additional data since then. The data collected from this FLiDAR, which is scheduled to be deployed for one full year (through mid-April 2024) will be used to further refine the energy production estimates of the Projects and reduce the already limited uncertainty.

The primary data sources and methods used in the wind resource and energy production estimates are the following:

- Two years of measured FLiDAR wind data from the Vineyard Wind FLS collected by Fugro predefined measurement heights of 30, 40, 60, 80, 100, 120, 140, 160, 180, 200, 240 meters (m) above Mean Sea Level (mMSL) using the onboard LiDAR, as well as near the ocean surface with a sonic anemometer; and
- Seven months of measured FLiDAR wind data from the New England Wind FLS collected by EOLOS with predefined measurement heights of 12, 40, 80, 100, 120, 140, 160, 180, 200, 250, 300 m above mMSL using the onboard LiDAR, as well as near the ocean surface with a sonic anemometer.

Additional regional datasets used for overall wind resource assessment include:

- Vertical profiling LiDAR with predefined measurement heights of 53, 60, 80, 90, 100, 110, 120, 140, 160, 180, 200 mMSL and met mast height of 27 mMSL at the Woods Hole Oceanographic Institution (WHOI) Air-Sea Interaction Tower south of Martha's Vineyard, with data collected by WHOI;
- Vertical profiling LiDAR with predefined measurement heights of 43, 53, 60, 80, 90, 100, 110, 120, 140, 160, 180, 200 mMSL on Nantucket Island, with data collected by WHOI; and
- Long-term (23 years) Vortex mesoscale time series (SERIES), computed at the Vineyard Wind FLS and (20 years) at the New England Wind FLS, using the Climate Forecast System Reanalysis (CFSR), the Modern-Era Retrospective Analysis for Research and Applications, Version 2 (MERRA2), and the European Centre for Medium-Range Weather Forecasts (ERA5) Reanalysis datasets as inputs for long-term correction.

Figure 4.1-2 illustrates the measurement locations of the wind datasets used in Avangrid's analyses as well as the study locations of the extensive wind assessments and production estimates carried for previous site characterization campaigns.

Figure 4.1-2 Measurement and Study Locations of Primary Data Sources

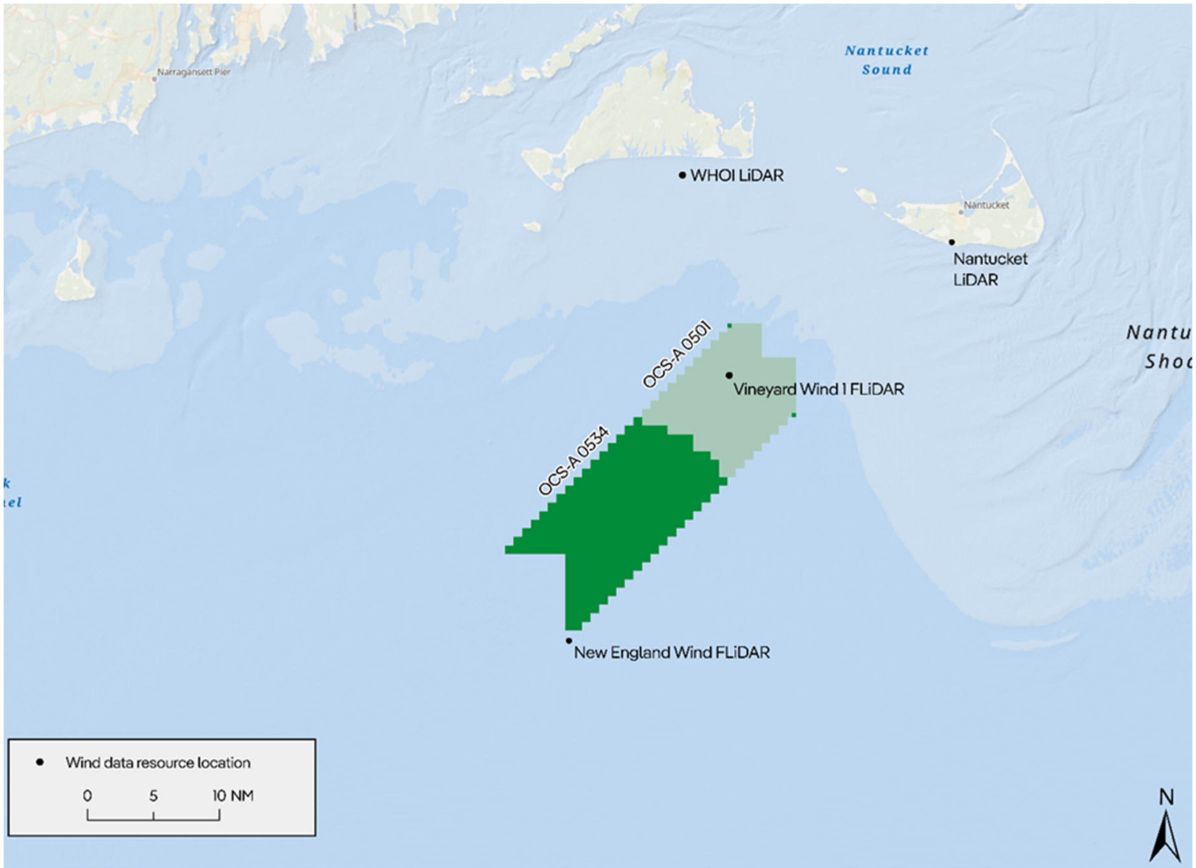
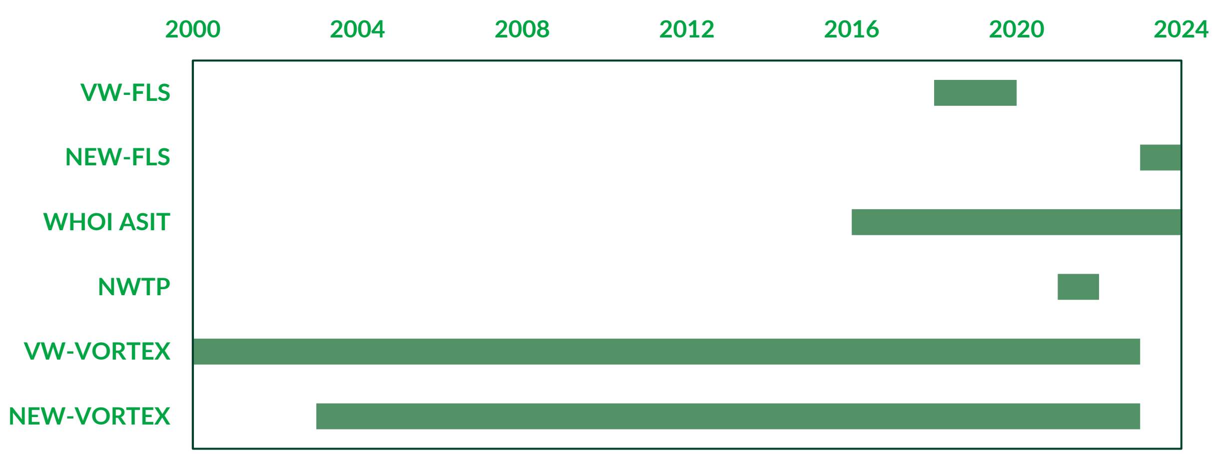


Figure 4.1-3 illustrates the time spans covered by each time series of measurement points from the locations shown in **Figure 4.1-2.**

Figure 4.1-3 Overview of Time Spans for the Sources in Figure 4.1-2



Full detail on the datasets utilized, including descriptions of the individual measurement stations and mesoscale data, is provided in the wind resource assessment report (**Attachment 4.1-1**). Detailed information on the Vineyard Wind FLS data collection campaign and data quality assurance/quality control methodology is provided in **Attachment 4.1-2**, **Attachment 4.1-3**, **Attachment 4.1-4**, and **Attachment 4.1-5.** Raw data collected during the deployment is provided in **Attachment 4.1-6**.

Detailed information on the New England Wind FLS data collection campaign is included in **Attachment 4.1-7** and **Attachment 4.1-8.** Raw data collected during the deployment is provided in **Attachment 4.1-9**. This information was then filtered to perform the assessments in **Attachment 4.1-1**.

4.1.2 Wind Resource Assessment

Avangrid [redacted] with developing a wind resource assessment report and a time-series of representative hourly wind resource for the Projects within Lease Area OCS-A 0534 [redacted] The wind resource assessment report for both Projects is provided as **Attachment 4.1-1**.

4.1.2.1 Methodology

The wind resource assessment report includes a detailed description of the methodology used to produce the assessments with the data sources included in **Table 4.1-1**. The report is therefore based on several datasets and includes both direct measurements (FLiDAR) and models (reanalysis and mesoscale models).

After processing the initial measurements and models [redacted] performed the following steps to produce the final report:

- analysis of the observed wind climates;
- long-term correction;
- spatial extrapolation; and
- derivation of the final wind climate.

The wind resource assessment has been further validated by internal wind assessments performed by Avangrid's wind assessment team, which is supporting an offshore wind development portfolio that includes more than 4,900 MW of offshore wind capacity in operation, including the New England Wind 1 and New England Wind 2 Projects and Vineyard Wind 1. Confirmation of the wind resource assessment by the Avangrid team provides additional confidence in their findings.

4.1.2.2 Summary of Results

[redacted]

[redacted] These wind climates are spatially extrapolated across the Offshore Wind Energy Generation site in Lease Area OCS-A 0534 by using the mesoscale wind models [redacted] (**Attachment 4.1-10**) and the National Renewable Energy Lab's Wind Integration National Dataset (WIND) Toolkit, as summarized below.

[redacted]

This wind resource assessment confirms a wind speed pickup from both the WHOI ASIT LiDAR and the Nantucket Wind Test Profiler to the center of the Offshore Wind Energy Generation site and substantiates the assumptions and final figures of the wind energy resource assessment.

4.1.3 Net Annual Energy Production

[redacted]

Table 4.1-2 Projected Gross and Net Annual Production (p50 and p90)

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted]

[redacted]

Table 4.1-3 New England Wind 1 Average Seasonal and Diurnal Net Energy Production (p50) in GWh

	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 4.1-4 New England Wind 1 Seasonal and Diurnal Net Energy Production (p90) in GWh

[redacted]

Table 4.1-5 New England Wind 2 Average Seasonal and Diurnal Net Energy Production (p50) in GWh

[redacted]

Table 4.1-6 New England Wind 2 Seasonal and Diurnal Net Energy Production (p90) in GWh

[redacted]

4.1.4 Power Curve

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

4.1.5 Loss Assumptions

[redacted]

[redacted]

4.2. Offshore Wind Energy Generation Delivery Plan

Please provide an energy delivery plan and production/delivery profile for the proposed project, including supporting documentation.

The energy delivery plan and production/delivery profile must provide the expected Offshore Wind Energy Generation to be delivered into the ISO-NE market settlement system and permit the Evaluation Team to determine the reasonableness of the projections for purposes of Sections 2.2.2.3 Eligible Products, 2.2.2.4 Allowable Contract Term, 2.2.2.5 Minimum/Maximum Contract Size and Allowable Alternative Bids, and 2.2.3.4 Interconnection and Delivery Requirements.

Such information should be consistent with the energy resource plan and production/delivery profile provided above and considering any and all constraints to physical delivery into ISONE.

[redacted]

The layout of the Projects will continue to be refined and optimized throughout the development phase but maintain the overall 1 x 1 nautical mile (NM) spacing that Avangrid has committed to for its New England projects. More specifically, Avangrid has agreed to micro-siting allowances on cardinal points to a maximum of 460 ft in cardinal directions (N, S, E, W), and 325 ft on intercardinal directions so that a minimum of 0.6 NM between any two structures is maintained.

[redacted]

4.2.1 Forward Capacity Market

[redacted]

Table 4.2-1 Estimated Output for Peak Periods for New England Wind 1

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Table 4.2-2 Estimated Output for Peak Periods for New England Wind 2

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted]

4.2.2 Energy Output and Generation Profile

The energy output and generation profiles of the Projects will moderate system peak load requirements by delivering a substantial amount of energy during seasonal reliability hours as defined in the FCM pursuant to the applicable ISO-NE tariff. **Figure 4.2-2** and **Figure 4.2-3** illustrate production on a monthly basis for New England Wind 1 and New England Wind 2, respectively, and shows that the majority of the highest overall production will occur during the seasonal winter peak period from October to May.

Power and heating sector demand for natural gas is at its highest during this period, and constrained pipeline capacity often results in volatile and higher electricity prices. As the production of the Projects is greatest during this period, it has the potential to alleviate power sector demand for natural gas and thereby reduce energy price volatility and dramatic price spikes by delivering reliable, fixed price electricity to the grid.

[redacted]

[redacted]

The Projects will also directly contribute to the seasonal supply of peak hourly capacity. The daily variation in the net hourly capacity factor during the summer peak period from June to September, as well during the winter peak period from October to May are depicted for New England Wind 1 in **Figure 4.2-4** and **Figure 4.2-4** and for New England Wind 2 in **Figure 4.2-6** and **4.2-7**. These figures show how the daily peak production of the Projects aligns well with the daily peak load hours in the summer and winter months.

[redacted]

[redacted]

Avangrid will act as the Lead Market Participant and Designated Entity performing all bidding, scheduling, and settlement functions with ISO-NE for the Projects for both energy and renewable energy certificates (RECs). All settlements will use the ISO-NE Settlement Market System. As detailed in **Section 12**, Avangrid is an experienced operator in the New England region.

As detailed in **Section 6**, Avangrid has conducted extensive assessments of the interconnection requirements for the New England transmission system based on all the applicable standards established by the North American Electric Reliability Council, Northeast Power Coordinating Council, and ISO-NE. The results of Avangrid's investigation indicate that upon completion of the requisite studies by ISO-NE, the Projects will meet both the Network Capability Interconnect Standards (NCIS) and the Capacity Capability Interconnection Standards (CCIS) established by ISO-NE.

At the start of commercial operation, the Projects will deliver energy within the terms of any approved PPAs and consistent with ISO-NE rules and procedures.

5. Financial/Legal

Avangrid (the Company) has the experience, qualifications, and competencies required to develop commercial-scale offshore wind projects. This section details the financial plans for New England Wind 1 and New England Wind 2 and outlines Avangrid's experience and organizational structure, as well as legal matters related to the Company, its projects, and its affiliates.

To deliver New England Wind 1 and New England Wind 2, Avangrid will leverage its experience executing a financing plan for projects of similar size and scope, Vineyard Wind 1.[1] Vineyard Wind 1, the nation's first commercial-scale offshore wind project, achieved financial close (FC) in 2021, becoming the first project of such scale in the US to do so. Working with international and US-based banks, Vineyard Wind 1 raised approximately $2.3 billion of senior debt to finance the construction of the project, which is projected to generate affordable, renewable energy for over 400,000 homes and business across the Commonwealth while reducing carbon emissions by over 1.6 million tons per year. Vineyard Wind 1 delivered first power in 2024 and is working diligently to complete construction. Avangrid's invaluable experience serving as the developer, financier, and operator of the first commercial-scale US offshore wind project drives the success and viability of New England Wind 1 and New England Wind 2, which will deliver offshore wind energy to New England in 2029 and 2030, respectively, helping the State achieve its climate goals.

In addition to its experience developing Vineyard Wind 1, Avangrid will leverage the experience and expertise of the Iberdrola Group, a global leader in offshore wind and renewable power development, to develop and finance the Projects. Further information demonstrating Avangrid's financial strength, organization, and financing experience is provided herein.

5.1. Demonstrating Project Financial Viability

Please submit information and documentation that demonstrates that a long-term contract resulting from this RFP Process would either permit the bidder to finance its proposal that would otherwise not be financeable or assist the bidder in obtaining financing of its proposal.

Avangrid's commitment to providing the equity investments needed to finance the Projects is predicated on executing long-term contracts for the energy and renewable energy certificates (RECs) they will generate, which will provide the long-term revenue certainty needed to take Final Investment Decision (FID) on the Projects and reach FC with banks. The requirement to have long-term contracts in place is consistent with the approach taken for Avangrid's existing projects, as well as the Company's prior business practices when financing other large generation projects in the US.

Long-term contracts in the form of power purchase agreements (PPAs) awarded through this Request for Proposal (RFP) process will allow Avangrid to obtain third-party financing by guaranteeing a purchaser of the energy and RECs generated by the Projects. PPAs will also provide greater price certainty for the energy and environmental attributes over the term of the agreements, eliminating one of the largest economic uncertainties in estimating future revenues and thus lowering the risks to

[1] Vineyard Wind 1 is a 50/50 joint venture with Copenhagen Infrastructure Partners P/S. Vineyard Wind 1 is at an advanced stage of construction and recently delivered first power on January 2, 2024.

investors, lenders, and ratepayers. Commercial-scale renewable energy development on a non-contracted (merchant) basis can be extremely challenging and, in the view of the Company, is not possible for projects of the scale and capital intensity of New England Wind 1 and New England Wind 2. The banks and financial advisors consulting with Avangrid have confirmed the importance of long-term contracts to secure financing for the Projects.

5.2. Business Entity Structure

Please provide a description of the business entity structure of the bidder's organization from a financial and legal perspective, including all general and limited partners, officers, directors, managers, members and shareholders, involvement of any subsidiaries supporting the project, and the providers of equity and debt during project development.

Provide an organization chart showing the relationship between the equity and debt participants and an explanation of the relationships. For jointly owned facilities, identify all owners and their respective interests, and document the bidder's right to submit a binding proposal.

The bidder, Avangrid Renewables, LLC, is an indirect, wholly owned subsidiary of Avangrid, Inc. Avangrid, Inc. is headquartered in Orange, Connecticut and has approximately $44 billion in assets and operations in 24 states concentrated in two primary lines of business, Avangrid Renewables and Avangrid Networks.

Avangrid, Inc. is a part of the Iberdrola Group, which is led by Iberdrola, S.A. (Iberdrola), headquartered in Bilbao, Spain. Iberdrola directly owns 81.6% of the outstanding shares in Avangrid, Inc.[2] Iberdrola is an energy pioneer with one of the largest renewable asset bases of any company in the world, with over 42 gigawatts (GW) of installed renewable energy capacity across a dozen countries. Iberdrola has over 170 years of experience and more than 42,000 employees across nearly 40 countries. The environment and sustainable development remain at the center of its global strategy. No single entity holds or controls 10% or more of the voting or economic interests in Iberdrola.

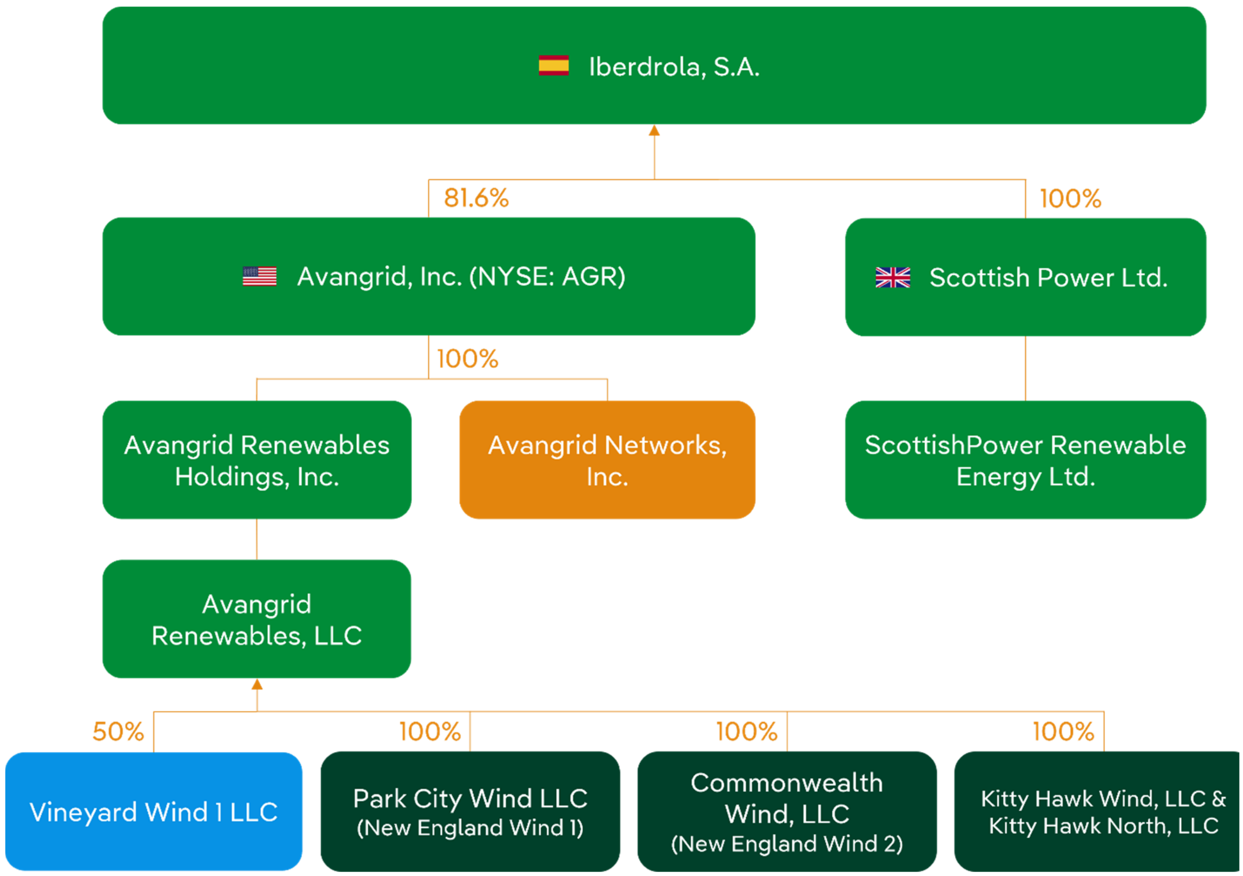
Avangrid Renewables, LLC is an Oregon Limited Liability Company and a direct subsidiary of Avangrid Renewables Holdings, Inc., which is in turn a wholly owned direct subsidiary of Avangrid, Inc. Pioneers in US renewable energy development, Avangrid Renewables, LLC was formed in 1995 and executed its first renewable energy transaction in 1999. The leadership team of Avangrid Renewables, LLC is based in the US and retains the full support of the Iberdrola Group's global network. New England Wind 1 and New England Wind 2 are fully owned by Avangrid Renewables, LLC, and its direct subsidiaries.

Figure 5.2-1 summarizes these relationships and the Avangrid Renewables, LLC corporate ownership structure. Note, any reference in this proposal to New England Wind 1 or New England Wind 2 refers to Park City Wind LLC or Commonwealth Wind, LLC, respectively. Park City Wind LLC and

[2] On March 6, 2024, Avangrid received a non-binding proposal from Iberdrola to acquire all the issued and outstanding shares of common stock of Avangrid not already owned by Iberdrola or its affiliates. The Unaffiliated Committee of the Avangrid Board of Directors, comprised of three independent members of the Avangrid Board of Directors, is responsible for evaluating negotiating, and approving or disapproving the proposal, advised by independent financial and legal advisors. No decision has yet been made with respect to Avangrid's response to the proposal or any alternatives thereto. Additional information regarding this non-binding offer can be found in Avangrid's Form 8-K filed with the Securities & Exchange Commission on March 7, 2024: https://www.avangrid.com/investors/investors/secfilings

Commonwealth Wind, LLC were originally assigned to two previously contracted projects, Park City Wind and Commonwealth Wind. The contracts for Park City Wind and Commonwealth Wind have been terminated and New England Wind 1 and New England Wind 2 are new iterations of these projects that build on their multiple years of development and pre-FID engineering and procurement experience. More information on the termination of these contracts can be found in **Section 5.13**.

Figure 5.2-1 Avangrid Business Entity Ownership Structure



Avangrid Renewables, LLC is headquartered in Portland, Oregon, with its Offshore Wind Center of Excellence based in Boston, Massachusetts. Together, the onshore and offshore renewable divisions own over 9.3 GW of electricity capacity in 22 states, making it the fourth-largest renewables operator in the US. With more than 74 renewable energy projects in operation, Avangrid is an industry leader based on installed capacity. The Company is recognized as an early mover in the US offshore wind industry, with Vineyard Wind 1 under construction as the first commercial-scale US offshore wind project and New England Wind 1, New England Wind 2, and Kitty Hawk Wind all in advanced stages of development. The Company has an additional pipeline of over 26,000 megawatts (MW) of future renewable energy projects (approximately 20,000 MW onshore renewables and nearly 6,000 MW offshore wind) in various stages of development as of December 31, 2023. This extensive experience is complemented by that of the Company's affiliates, further described in **Section 12**. A full list of Avangrid subsidiary and affiliate companies can be found in **Attachment 5.17-1** and **Attachment 5.17-2**.

5.3. Financing Plan

Please provide a description of the financing plan for the project as described in Section 2.2.3.5, including construction and term financing. The financing plan should address the following:

1. Who will finance the project (or are being considered to finance the project) and the related financing mechanism or mechanisms that will be used (i.e. convertible debenture, equity or other) including repayment schedules and conversion features
2. The project's existing initial financial structure and projected financial structure
3. Estimated total project costs, including construction costs, and estimated annual spend on the project during development, construction, and operation
4. Estimated total project cost, broken down into nine categories:

- Development costs, such as engineering and design, legal services, geological surveys and analysis, permitting, community relations/public relations, financial advisory services, management, and administrative;
- Development costs related to ports and staging;
- Offshore turbines and their associated foundation and array cabling costs;
- Offshore substation(s) and their associated foundation(s) cost;
- Offshore export cable cost;
- Onshore construction costs, including the cabling, onshore

Affordable Clean Energy Security Act for Renewable Energy Request for Proposal substation(s) if any, and interconnection to the grid;

- Transmission system upgrades;
- Operations & maintenance, and;
- All other costs, such as financing, investments not included in the above categories, etc.

5. The projected capital structure, including expected sources of debt and equity financing, during development, construction, and operation, and if there are other competing existing or potential future obligations that may result in changes to the financing plan
6. Indicate whether the bidder has used the proposed financing strategy before for projects of similar size and type, if any issues arose, and how those issues were resolved
7. Describe any agreements, both pre- and post-commercial operation date, entered into with respect to equity ownership in the proposed project and any other financing arrangement.
8. Describe if you have any mechanisms that you will utilize to de-risk inflationary and commodity cost increases for the project.

In addition, the financing plan should address the status of the above activities as well as the financing of development and permitting costs. All bidders are required to provide this information.

The plan provided herein serves as the anticipated strategy for financing the development and construction of New England Wind 1 and New England Wind 2. It is important to note that the Projects' financing paths are subject to change as a result of turbulence in financial markets and the potential variance of equity interests included in this proposal. Given the sizes and development time horizons for the Projects, the Company is prepared to respond to changes, seek creative alternatives, and commit capital resources to ensure the successful deliveries of New England Wind 1 and New England Wind 2.

5.3.1 Project Financing

[redacted]

[redacted]

[redacted]

5.3.2 Financial Structure

[redacted]

5.3.3 Debt and Equity Financing

[redacted]

5.3.4 Estimated Construction Costs

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

5.3.5 Projected Capital Structure

[redacted]

[redacted]

[redacted]

5.3.6 Ownership Agreements

[redacted]

5.3.7 Inflation & Commodity Mechanisms

[redacted]

[redacted]

5.4. Financing Experience

Provide documentation illustrating the experience of the bidder in securing financing for projects of similar size and technology as required in Section 2.2.3.6. For each project previously financed, provide the following information:

1. Project name and location
2. Project type and size
3. Date of construction and permanent financing
4. Form of debt and equity financing
5. Current status of the project
6. Role in project development, construction, and operation

5.4.1 Vineyard Wind 1

Avangrid has a proven ability to successfully execute financing plans for projects of similar size and scope, as demonstrated by Vineyard Wind 1. The 800 MW project is located in federal waters in Lease Area OCS-A-0501, 15 miles south of Martha's Vineyard and Nantucket and 35 miles from mainland Massachusetts. With approximately $2.3 billion of project debt, Vineyard Wind 1 represents one of the largest project financings in a single renewable energy project in the US. Advised by Santander, Vineyard Wind 1 construction financing includes loans from 25 leading commercial banks worldwide. Due diligence for debt and tax equity financing under Vineyard Wind 1 started in 2019 but was put on hold as that project underwent additional federal permitting reviews. On May 11, 2021, the US Department of the Interior issued the Record of Decision on the Construction and Operations Plan (COP), allowing Vineyard Wind 1 to become the first commercial-scale offshore wind project in the US to achieve FC for the construction loan in September 2021. Onshore and offshore construction commenced in late 2021 and late 2022, respectively. [redacted]

On October 25, 2023, Avangrid announced that Vineyard Wind 1 closed a first-of-its-kind tax equity package for commercial-scale offshore wind with three US-based banks. Tax equity was provided by the three largest commercial banks in the US—J.P. Morgan Chase, Bank of America, and Wells Fargo. The partnership agreements were executed in October 2023, and initial funding by the banks occurred in December 2023. Approximately $1.2 billion of funds are expected to be invested in Vineyard Wind 1 by these banks by the time the facility is completed, making it the largest single-asset tax equity financing and the first for a commercial-scale offshore wind project.

The FC milestone enabled Vineyard Wind 1 to provide contractors with a NTP, allowing for the initiation of hiring, training, and mobilization for both onshore and offshore construction. This major milestone has provided Avangrid transaction documents that can be repeated for future offshore financings, served as a lesson in successful collaboration with banking and stakeholder syndicates, and given Avangrid confidence in the financial plans for New England Wind 1 and New England Wind 2.

In addition to projects in the US, Avangrid's team of industry experts has a long track record of developing offshore and onshore wind projects across the globe. The team is supported by experienced personnel working for the Company's affiliates, as well as expert consultants with knowledge in offshore wind, permitting, and local infrastructure construction, whose participation ensures a well-rounded team with the skillset required to develop and operate offshore wind projects. More information about the team can be found in **Section 12**.

5.4.2 Onshore Renewables Projects

Avangrid is the fourth-largest developer of onshore wind projects in the US. As of December 2023, the Company has more than 8,800 MW of installed wind and solar capacity across the country, including 8,045 MW of installed onshore wind capacity from 68 sites it has successfully financed and developed. The structured finance team at Avangrid has raised over $3 billion in tax equity financings for its onshore wind and solar projects, starting with its initial partnership in 2006. This history has given Avangrid tremendous experience in negotiating. Closing these partnerships allowed Avangrid to finance a significant portion of its onshore CapEx requirements.

5.4.3 Iberdrola Group Offshore Wind Project Financing Experience

Avangrid benefits from being a part of the Iberdrola Group, a global leader in wind energy operations and asset management. The Iberdrola Group has over 11,400 WTGs deployed both onshore and offshore and approximately 23 GW of wind energy generation assets in operation.

The Iberdrola Group's first offshore wind project, West of Duddon Sands, was a joint venture between ScottishPower Renewables (a subsidiary of Iberdrola) and Ørsted. This project featured 108 3.6 MW Siemens Wind Power WTGs with a total capacity of 389 MW and has been fully operational since 2014. Wikinger followed shortly after as the Iberdrola Group's first solo project. Wikinger is a 350 MW project based in the German Baltic Sea featuring 70 Areva 5 MW WTGs. Wikinger has been fully operational since 2018. East Anglia ONE became fully operational in July 2020 and is the Iberdrola Group's largest project completed to date, with 102 Siemens Gamesa 7 MW WTGs and an installed capacity of 714 MW. This July, the 496 MW Saint-Brieuc project located off the coast of France delivered first power to the grid and achieved commissioning. The Iberdrola Group has also started construction of several other projects: East Anglia Three, Windanker, and Baltic Eagle.

The Iberdrola Group's investment history demonstrates its considerable experience developing utility-scale offshore wind projects and is summarized below. **Table 5.4-1** lists select Iberdrola Group's offshore wind projects that are financed and either in operation or were under construction prior to 2023 and includes the form of financing utilized for the projects. It does not include additional offshore projects that have not yet achieved FC.

Table 5.4-1 Financing of Iberdrola Group's Offshore Wind Projects

Name	Size (MW)	Date of Permanent Financing	Commercial Operation Date	Form of Debt and Equity Financing
West of Duddon Sands[1]	389	Q2 2011	October 2014	[redacted]
Wikinger[2]	350	Q2 2014	October 2018	[redacted]
East Anglia ONE[3]	714	Q1 2016	July 2020	[redacted]
Saint-Brieuc	496	Q1 2020	Expected 2024	[redacted]
Baltic Eagle	476	Q3 2020	Expected 2024	[redacted]

Vineyard Wind 1[4]	800	Q3 2021	Expected 2024	$2.3 billion construction & term loan(s), and ~$1.2 billion tax equity
East Anglia THREE[5]	1,400	Q1 2023	Expected 2026	[redacted]

Notes:

1. 50/50 joint venture between ScottishPower Renewables and Ørsted.

2. 51/49 ownership structure with Iberdrola Renewables Deutschland and Energy Infrastructure Partners.

3. 60/40 ownership structure between ScottishPower Renewables and Bilbao Offshore Holding Limited.

4. 50% owned by Avangrid Renewables, LLC and 50% owned by funds of Copenhagen Infrastructure Partners.

5. Concurrently developed as East Anglia Hub. $1.4 billion tax equity financing transaction not yet closed.

5.5. Assurance of Financial Capability

Please provide evidence that the bidder has the financial resources and financial strength to complete and operate the project as planned.

As noted in **Section 5.1**, Avangrid Renewables, LLC is supported by its shareholder company, Avangrid, Inc., a public company with an equity market capitalization of approximately $13 billion as of December 2023. Avangrid, Inc. is part of the Iberdrola Group. Iberdrola is an energy pioneer, the leading power producer from wind, and one of the largest electricity companies in the world in terms of stock market capitalization, with one of the largest renewable asset bases of any company in the world. As of December 2023, Iberdrola has a market cap of approximately $83 billion. At the end of December 2023, Iberdrola had 62,883 MW of installed generation capacity. Of this capacity, more than 42,000 MW are renewable resources. More than half (i.e., 22,676 MW) of Iberdrola's renewable energy capacity portfolio is onshore and offshore wind; the remainder is hydropower and other renewable technologies. Iberdrola has committed more than $10 billion in financing to the construction of offshore wind projects in Europe.

Avangrid, Inc. has the ability to raise additional equity capital from Iberdrola, or from US public equity markets, if needed. The Company also has access to the investment-grade debt capital markets, with $2.9 billion of long-term debt outstanding. In addition, Avangrid, Inc.'s utilities access the debt capital markets directly and have approximately $8 billion of long-term debt outstanding as of December 31, 2023. Avangrid, Inc. also has committed $3.6 billion to a revolving credit facility provided by a syndicate of approximately 25 banks, and a credit facility up to $750 million through Iberdrola.

Avangrid, Inc. has strong financial performance based on its financial statements and credit ratings that is reflective of the financial obligations and potential liabilities understood in support of the Projects. Given the resources cited above, it is equally prepared for contingencies. Avangrid, Inc.'s audited annual reports for fiscal years (FY) 2022, 2021, and 2020 are linked in **Table 5.6-1**. Avangrid, Inc's latest credit ratings are provided in **Table 5.6-2**.

In terms of personnel, Avangrid has a team of nearly 150 locally based offshore wind employees supporting its US projects, as well as a US Offshore Wind Center of Excellence in Boston, Massachusetts. With Vineyard Wind 1, Avangrid is a part of the first team in the US to bring a commercial-scale offshore wind project to completion in the federal and state permitting process, conclude procurement and contracting for all major contract packages, finalize interconnection agreements, achieve FC, begin construction activities, and achieve first power.

5.6. Audited Financial Statements and Ratings

Provide complete copies of the most recent audited financial statement and annual report for each bidder for each of the past three years; including affiliates of the bidder (if audited statements are not available, reviewed or compiled statements are to be provided).

Also, provide the credit ratings from Standard & Poor's and Moody's (the senior unsecured long term debt rating or if not available, the corporate rating) of the bidder and any affiliates and partners.

Avangrid, Inc., is an entity traded on the New York Stock Exchange. Avangrid, Inc.'s audited annual reports and its credit ratings as of October 2023 are provided in **Table 5.6-1** and **Table 5.6-2**, respectively, and in US Securities and Exchange Commission filings, which can be accessed via the Company's website.[3] The latest issued reports were the Company's Q4 2023 results and the FY2023 10-K, released on February 24, 2024.

Avangrid Renewables, LLC's ultimate parent company, Iberdrola, is listed on the stock exchanges in Madrid (Ibex-35), Barcelona, Bilbao, and Valencia. In New York, the company is listed in the form of American Depository Receipts. Annual reports for Iberdrola can also be found in **Table 5.6-1** and online.[4]

Table 5.6-1 Avangrid, Inc. and Iberdrola Annual Reports Attachments

Attachment	Document	Link
Attachment 5.6-1	Avangrid, Inc. Annual Report 2023	FY2023 10-K Form
Attachment 5.6-2	Avangrid, Inc. Annual Report 2022	FY2022 10-K Form
Attachment 5.6-3	Avangrid, Inc. Annual Report 2021	FY2021 10-K Form
Attachment 5.6-4	Avangrid, Inc. Annual Report 2021 (Amended)	FY2021 10-K / A Form
Attachment 5.6-5	Avangrid, Inc. Annual Report 2020	FY2020 10-K Form
Attachment 5.6-6	Iberdrola Annual Report 2023	FY2023 Consolidated Report
Attachment 5.6-7	Iberdrola Annual Report 2022	FY2022 Consolidated Report
Attachment 5.6-8	Iberdrola Annual Report 2021	FY2021 Consolidated Report

[3] https://www.avangrid.com/wps/portal/avangrid/Investors/investors/secfilings .

[4] https://www.iberdrola.com/shareholders-investors/operational-financial-information/annual-reports.

Table 5.6-1 Avangrid, Inc. and Iberdrola Annual Reports Attachments

Attachment	Document	Link
Attachment 5.6-9	Iberdrola Annual Report 2020	FY2020 Consolidated Report

Table 5.6-2 Credit Ratings for Avangrid, Inc. (as of December 2023)

Sponsor	Standard & Poor's	Moody's	Fitch IBCA
Avangrid, Inc.	BBB+ (Stable)	Baa2 (Stable)	BBB+ (Stable)

5.7. Governance Details

Please include a list of the board of directors, officers, and trustees for the past three years and any persons who the bidder knows will become officers, board members or trustees.

Current and past members (from the past three years) of Avangrid Renewables, LLC's Board of Managers and Officers are listed in **Table 5.7-1** below.

Table 5.7-1 Avangrid Renewables, LLC Board of Managers

Years of Appointment	Name
Board of Managers	
2012–Present	Xabier Viteri
2020–Present	David Mesonero
2021–Present	Jose Antonio Miranda
2022–Present	Alvaro Martinez
2022–Present	Elizabeth Timm
2023–Present	Justin Lagasse
Former Managers	
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Table 5.7-1 Avangrid Renewables, LLC Board of Managers

Years of Appointment	Name
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
Officers	
2021–Present	Jose Antonio Miranda, President and Chief Executive Officer
2023–Present	Saygin Oytan, Chief Operating Officer Offshore Wind
2023–Present	Kenneth Kimmell, Chief Development Officer - Offshore Wind
2020–Present	Jorge Pedron, Chief Operating Officer (Onshore)
2020–Present	Sara Parsons, Vice President – Organic Growth (Onshore)
2023–Present	Brian Faist, Vice President – Commercial (Onshore)
2022–Present	Jose Luis Gutierrez, Vice President – Planning & Analysis
2023–Present	Eleftheria (Lora) Chante, Vice President – Operations and Maintenance (Onshore)
2020–Present	Tim McCabe, Vice President – Asset Management
2023–Present	Elcin Selman, Vice President – Project Delivery (Onshore)
2023–Present	Nuria Soto, Vice President – Offshore Operations and Maintenance
2014–Present	Alex Tait, Chief Compliance Officer
2022–Present	Leonard Rodriguez, Vice President, General Counsel and Secretary
2023–Present	Miguel Sanchez Calero, Vice President – Offshore Wind Projects
2023–Present	Iker Garcia Magrach, Vice President – Offshore Wind Projects
2023-Present	Jorge Alvaro Semsa, Controller
2023–Present	Michael Distefano, Assistant Secretary

Table 5.7-1 Avangrid Renewables, LLC Board of Managers

Years of Appointment	Name
Former Officers	
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

5.8. Security Assurance

The bidder should demonstrate its ability (and/or the ability of its credit support provider) to provide the required security as described in Section 2.2.3.9, including its plan for doing so.

Avangrid will provide the required security by way of cash, certified funds, a letter of credit, or guarantees in the form of equity capital, as permitted by the Company. The security value provided will be equal to the amounts included in the executed PPAs.

5.9. Disclosure of Credit Issues

Provide a description of any current or recent credit issues/credit rating downgrade events regarding the bidder or affiliate entities raised by rating agencies, banks, or accounting firms.

Avangrid and its affiliates have not experienced any recent credit issues, or any other financial issues raised by rating agencies, banks, or accounting firms. In July 2021, Avangrid, Inc. was downgraded by Moody's to Baa2 (stable) from Baa1. The downgrade event was a result of the standard review process performed by the rating agency. A Baa2 credit rating is an investment-grade rating and does not significantly impact the ability of Avangrid, Inc. to provide the financial support required to successfully deliver the Projects.

5.10. Utilization of Tax Credits

Describe the role of the Federal Production Tax Credit ("PTC") or Investment Tax Credit ("ITC") as newly revised by the Inflation Reduction Act, and any other incentives, on the financing of the project. In the response, please describe:

- Your plan to qualify for the ITC/PTC and the level of the ITC/PTC for which you plan to qualify;
- The facilities, investment in which, the ITC is expected to apply;
- Your plan to utilize the tax credits and the relationship to your financing plan; and
- How qualification for the ITC/PTC is reflected in your proposed pricing.

If a bidder assumes that such credits, subsidies, grants or incentives will not be available for its Eligible Facility, it should state how it would propose to share the benefits of those credits, subsidies, grants or incentives with Rhode Island Energy's customers if they subsequently become available. Bidders may propose adjustments to the contract price based on an increase in any state or federal tax credit or other government grant or subsidy.

[redacted]

Avangrid is open to negotiating the sharing of any future favorable tax treatment or federal grants, loans, incentives, or subsidies that could possibly be shared with Rhode Island ratepayers which are in addition to the tax benefits it has identified above. The Company has not submitted a price contingent on any future receipt of benefits and the timing, and impact of any future tax benefit is currently unknown.

5.10.1 Qualification Plan

[redacted]

[redacted]

[redacted]

5.10.1.1 Energy Community Tax Credit Bonus

[redacted]

[redacted]

[redacted]

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[5] https://www.irs.gov/pub/irs-drop/n-23-29.pdf

[6] https://www.irs.gov/pub/irs-drop/n-24-30.pdf

[7] https://www.irs.gov/pub/irs-drop/n-24-30.pdf

[8] https://www.irs.gov/pub/irs-drop/n-23-47-appendix-2.pdf; https://www.irs.gov/pub/irs-drop/n-23-29-appendix-c.pdf

[redacted]

5.10.1.2 Domestic Content Bonus Credit

[redacted]

[redacted]

Avangrid's procurement strategy has included extensive dialogue with more than 40 Tier 1 suppliers in addition to dozens more Tier 2 and Tier 3 suppliers, including both US and global companies actively considering establishing domestic manufacturing capabilities. This experience has resulted in substantial benefits for and high certainty in the procurement strategy, local content strategy, and cost estimations underlying the Projects' proposed prices, especially for New England Wind 1. The robustness and advanced status of Avangrid's procurement strategy, which builds upon Vineyard Wind 1's successful finalization of its procurement and installation contracts for the complete scope of its supply packages as well as the lessons learned from Avangrid's global affiliates' projects, is fully detailed in **Section 8**.

[redacted]

9 https://www.irs.gov/pub/irs-drop/n-24-30-appendix-1.pdf

10 https://www.irs.gov/pub/irs-drop/n-24-30.pdf; https://www.irs.gov/pub/irs-drop/n-24-30-appendix-1.pdf

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

5.10.1.3 Facilities Eligible for the ITC

[redacted]

[redacted]

5.10.1.4 Tax Equity Financing

[redacted]

5.10.2 Relationship to Financing Plan

[redacted]

5.11. Compliance with Domestic Supply Rules

Describe the bidder's plan to adhere to the domestic supply rules set forth in the Build America, Buy America Act and the act's implications on access to federal funding, cost of materials, and supply chains.

Please refer to Avangrid's compliance with domestic supply rules described in **Section 5.10.1.2.**

5.12. Consideration for Energy Customers

Describe how the bidder would consider Rhode Island Energy customers in the event of the availability or receipt of any tax credit or other government grant or subsidy not contemplated in their proposals. Include assumptions regarding the availability of federal or state tax credits, subsidies, or grants or other incentives.

[redacted]

5.13. Litigation, Disputes, and Appeals

Bidders must disclose any litigation or disputes in the last three years related to projects developed, owned, or managed by bidder or any of its affiliates in the United States or related to any energy product sale agreement.

Avangrid Renewables, LLC is a part of a large corporate entity and, consequently, the Company and its affiliates are involved in litigation and disputes from time to time in the ordinary course of business. This section identifies those litigations and disputes concerning Avangrid Renewables, LLC's (and its subsidiaries') PPA and offshore-related activities that have been active within the past three years. As a public company, additional information concerning Avangrid's material litigation and disputes, including with respect to its regulated affiliates, is available in its regular annual and quarterly disclosures with the Securities and Exchange Commission, available here: https://www.avangrid.com/investors/investors/secfilings.

5.13.1 Avangrid Renewables, LLC and Affiliates

Nike v. Karankawa Wind

On May 4, 2021, Nike USA, Inc. (Nike), the buyer under a virtual PPA with a subsidiary of Renewables, provided notice that it disagrees with the settlement amounts included in certain invoices. The PPA provides for a monthly settlement between the parties based on the metered output of the project based on a stated hub price. The disagreement relates as to the appropriate hub price to use for settlement calculations, most notably during Winter Storm Uri in February of 2021. Nike has requested an adjustment to the invoices that would increase the amount payable by approximately $31 million. Renewables has responded that the invoices have been properly calculated in accordance with the provisions of the PPA, and that Nike is not entitled to any further payments.

On June 16, 2023, Nike filed suit against the Company and certain subsidiaries of Renewables alleging breach of contract, and seeking more than $31 million in invoice adjustments, fees, and interest. The Company filed a motion to dismiss the complaint, which the Circuit Court of the State of Oregon for the County of Multnomah denied on October 25, 2023, following oral arguments. The case is currently proceeding with an expected trial beginning on October 14, 2024. We cannot predict the outcome of this matter.

California Energy Crisis Litigation

Two California agencies brought a complaint in 2001 against a long-term PPA entered by Avangrid Renewables, as seller, to the California Department of Water Resources, as purchaser, alleging that the terms and conditions of the PPA were unjust and unreasonable. The Federal Energy Regulatory Commission (FERC) dismissed Avangrid Renewables from the proceedings; however, the Ninth Circuit Court of Appeals reversed the dismissal.

A hearing was held before a FERC administrative law judge in November and early December 2015. A preliminary proposed ruling by the administrative law judge was issued on April 12, 2016. The proposed ruling found no evidence that Avangrid Renewables had engaged in any unlawful market conduct that would justify finding the Avangrid Renewables PPAs unjust and unreasonable. However, the proposed ruling did conclude that the price of the PPAs imposed an excessive burden on customers in the amount of $259 million. Avangrid Renewables' position, as presented at hearings and agreed by the

FERC trial staff, is that Avangrid Renewables entered into bilateral PPAs appropriately and complied with all applicable legal standards and requirements. On June 17, 2021, the FERC issued an Order Establishing Limited Remand, remanding the case to the administrative law judge for additional detailed findings and legal analysis with respect to the impact of the conduct of one of the parties other than Avangrid Renewables on its long-term contracts. The order did not address any of the other findings, including all of the findings with respect to Avangrid Renewables. On December 21, 2023, FERC issued a decision in favor of Avangrid Renewables, finding that while Avangrid Renewables was a proper party to the proceedings, the Mobile-Sierra presumption attached to its contract, and the Mobile-Sierra presumption was not overcome or avoided regarding it. Consequently, FERC found that the contract is just and reasonable, and refunds for Avangrid Renewables' contract are not warranted. The decision by FERC has not been appealed.

<u>New England Clean Energy Connect (NECEC)</u>

In 2018, the NECEC transmission project, proposed in a joint bid by Central Maine Power, an affiliate of Avangrid Renewables, LLC, and Hydro-Québec, was selected by the Massachusetts EDCs and the Massachusetts Department of Energy Resources in the Commonwealth of Massachusetts's 83D clean energy RFP. The NECEC transmission project includes a 145-mile transmission line linking the electrical grids in Québec, Canada and New England and will add 1,200 MW of transmission capacity to supply Maine and the rest of New England with power from reliable hydroelectric generation. NECEC has faced various permitting challenges, including a November 2021 voter referendum in Maine that sought to retroactively invalidate certain of the project's approvals. Avangrid challenged the constitutionality of the referendum and ultimately obtained a unanimous trial court decision in its favor in April 2023. On August 3, 2023, NECEC resumed limited construction and is continuing to evaluate the construction schedule for the project, related commercial operation date, and total project cost, including potential impacts from increased construction costs, disputes with third-party vendors regarding contracts and certain change orders, and a decrease in expected returns. A more detailed summary of the history of the NECEC project can be found in Avangrid's latest annual report filed with the Securities and Exchange Commission: https://www.avangrid.com/investors/investors/secfilings.

5.13.2 Vineyard Wind 1 Litigation, Disputes, and Claims

Avangrid Renewables is a 50% owner of Vineyard Wind 1, currently under construction in federal waters south of Massachusetts. Certain federal permits issued for Vineyard Wind 1 have been challenged in federal court and Vineyard Wind 1 remains a party to these litigations. The status of those lawsuits is as follows:

<u>Nantucket Residents Against Turbines (ACK RATS) et al v. Bureau of Ocean Energy Management (BOEM)</u>

On February 10, 2022, ACK RATS filed an amended complaint asserting Endangered Species Act (ESA) and the National Environmental Policy Act (NEPA) claims, seeking declaratory and injunctive relief, alleging that (1) BOEM failed to conduct adequate environmental review of the project; and (2) National Marine Fisheries Service (NMFS) issuance of the October 18, 2021, Biological Opinion was arbitrary, capricious, and unlawful. ACK RATS asserts that BOEM is violating the ESA by relying on a "legally defective" Biological Opinion and that NMFS violated the ESA by authorizing BOEM to take the actions necessary for the implementation of the Vineyard Wind 1. The Court granted Vineyard

Wind's motion for summary judgment on May 17, 2023, resolving the litigation in Vineyard Wind's favor. The ACK RATS have appealed the decision to the First Circuit Court of Appeals, where it is currently pending. A hearing on this appeal took place on March 5, 2024.

Allco Renewable Energy Limited et al v. Haaland

On July 18, 2021, Allco Renewable Energy Limited and its owner, Thomas Melone, filed a Complaint in the US District Court for Massachusetts against various federal agencies seeking to vacate and void certain federal environmental permits issued for Vineyard Wind 1 as violating NEPA, the Outer Continental Shelf Lands Act, Clean Water Act, and Marine Mammal Protection Act (MMPA).

All claims were dismissed and on September 2, 2022, the plaintiffs filed a Second Amended Complaint alleging only two claims under the MMPA—NMFS Vineyard Wind Incidental Harassment Authorization violates the MMPA and failure to adhere to the MMPA Notice Requirements.

Both parties filed for summary judgment based on the information in the administrative record that was before the agencies at the time the agency actions were finalized. A hearing on the motions for summary judgment took place on March 3, 2023. On August 4, 2023, the federal District Court in Boston granted the federal defendants' and Vineyard Wind 1's motion for summary judgment, resolving the litigation in Vineyard Wind 1's favor. Mr. Malone has appealed the decision to the First Circuit Court of Appeals, which appeal is currently pending.

Responsible Offshore Development Alliance v. United States Department of Interior

On January 31, 2022, Responsible Offshore Development Alliance filed a lawsuit against the defendants, asserting claims under Outer Continental Shelf Lands Act, Clean Water Act, ESA, NEPA, and MMPA requesting declaratory judgment and injunctive relief. On February 11, 2022, Vineyard Wind intervened in the case and was granted intervenor-defendant status. Both parties filed for summary judgment based on the information in the administrative record that was before the agencies at the time the agency actions were finalized. Final briefing on the motions for summary judgment were filed March 14, 2023. A hearing was held March 24, 2023. On October 12, 2023, the federal District Court in Boston granted the federal defendants' and Vineyard Wind 1's motion for summary judgment, resolving the litigation in Vineyard Wind 1's favor. Responsible Offshore Development Alliance has appealed the decision to the First Circuit Court of Appeals, which appeal is currently pending.

Seafreeze Shoreside, Inc. v. United States Department of Interior

On December 15, 2021, the Texas Public Policy Foundation on behalf of XIII Northeast Fishery Sector, Inc., Seafreeze Shoreside, Inc. (Seafreeze) and others filed suit against the Department of the Interior, BOEM, Department of Commerce, NMFS, National Oceanic and Atmospheric Administration, Department of Defense, and the US Army Corps of Engineers, asserting claims alleging violation of the Outer Continental Shelf Lands Act, ESA, Clean Water Act, and NEPA.

Both parties filed for summary judgment based on the information in the administrative record that was before the agencies at the time the agency actions were finalized. Final briefing on the motions for summary judgment were filed March 10, 2023. A hearing was held April 3, 2023. On May 10, 2023, the plaintiffs filed a motion for a stay, or in the alternative, a preliminary injunction to stop construction work on Vineyard Wind 1; on May 25, 2023, the District Court issued a memorandum and order denying the plaintiffs' motion. On October 12, 2023, the federal District Court in Boston granted the federal defendants' and Vineyard Wind 1's motion for summary judgment, resolving the litigation in Vineyard

Wind 1's favor. Seafreeze has appealed the decision to the First Circuit Court of Appeals; appeal is currently pending.

[redacted]

5.13.3 Park City Wind and Commonwealth Wind Litigation, Disputes, and Claims

Avangrid previously entered into 20-year agreements with the EDCs in Massachusetts and Connecticut for energy and RECs associated with two prior iterations of the projects described in this bid, Park City Wind (804 MW) and Commonwealth Wind (1,200 MW).

In May 2022, the Massachusetts EDCs submitted PPAs with Commonwealth Wind to the Massachusetts Department of Public Utilities (DPU) for approval. In late October 2022, Commonwealth Wind advised the DPU that, due to changes in economic conditions that were outside of its control, Commonwealth Wind could not move forward under the current PPAs. Commonwealth Wind attempted to work with the parties to identify a realistic path forward for the Project under the PPAs. However, the EDCs stated that they did not intend to renegotiate the PPAs and that there did not appear to be a viable path that would allow the project to move forward under the PPAs. On December 16, 2022, Commonwealth Wind notified the DPU that it could no longer support the continuation of the DPU approval of the PPAs and filed a motion to dismiss the proceedings. On December 30, 2022, the DPU denied Commonwealth Wind's motion to dismiss and issued an order approving the PPAs. Commonwealth Wind appealed the decision. On July 13, 2023, Commonwealth Wind and the EDCs executed termination and settlement agreements terminating the PPAs with Commonwealth Wind, forfeiting $48 million in security, and submitted the agreements to the DPU for approval. On August 23, 2023, the DPU approved the termination agreements. The termination agreements became effective on October 2, 2023, resolving this matter.

Park City Wind LLC's predecessor, Vineyard Wind LLC, signed two PPAs for Park City Wind on May 18, 2020, with the Connecticut EDCs (Eversource and United Illuminating). The executed PPAs were subsequently approved by Connecticut's Public Utilities Regulatory Authority on August 19, 2020. Following execution and approval of the PPAs, the offshore wind industry experienced unprecedented economic headwinds stemming from inflation, rising interest rates, and challenges within the supply chain. These challenges made Park City Wind commercially unviable at the prices approved in the PPAs. After exploring all potential solutions to the financial challenges facing Park City Wind and engaging in good-faith and productive discussions with Connecticut state officials regarding these challenges, on October 2, 2023, Avangrid and the Connecticut EDCs agreed to an orderly termination of the PPAs in exchange for a payment by Avangrid of approximately $16 million. The Public Utilities Regulatory Authority approved this termination on October 13, 2023.

5.14. Project Operational Life and Depreciation Period

What is the expected operating life of the proposed project? What is the depreciation period for all substantial physical aspects of the bid, including generation facilities, delivery facilities to move power to the grid, and mandatory and voluntary transmission system upgrades?

All major components of New England Wind 1 and New England Wind 2 have useful lives in excess of the term of the Form PPAs. The facilities are expected to have a physical life expectancy of 30 years and decommissioning will occur at the end of each Project's operating term. The standard useful life of the WTGs is 25 years, at minimum, with an opportunity to extend. The offshore export cables are expected to have even longer functional lives but would be included as part of each Project's decommissioning, as required by BOEM regulations and Avangrid's Lease Agreement. BOEM has proposed in recent rulemaking to extend the lease duration.[11]

[redacted]

5.15. Project Financing Status

Has the bidder already obtained financing, or a commitment of financing, for the project?

If financing has not been obtained, explain how obtaining a long-term agreement as proposed will help you in obtaining financing for the proposed project, in obtaining more favorable terms for the financing of the proposed project, or in supporting the future capital investment.

[redacted]

[11] In BOEM's Proposed Renewable Energy Modernization Rule [Docket No. BOEM–2023–0005], the agency explores several mechanisms for extending the duration of offshore wind leases granted to auction winners.

[redacted]

Long-term contracts make it possible to finance offshore wind projects by fixing the price paid for any generated electricity during an asset's economic life. Upon current market conditions, a long-term contract resulting from this RFP would enable Avangrid to obtain financing for the Projects. With a term on the order of 20 years, this contract would further facilitate Avangrid's ability to secure a financing package with a lower cost of capital, which ultimately translates into savings for ratepayers.

5.16. Energy Agreements

State whether the bidder or its affiliates have executed agreements with respect to energy, RECs and/or capacity for the proposed project (including any agreements that have been terminated) and provide information regarding the associated term and quantities, and whether bidder has been alleged to have defaulted under or breached any such agreement.

Avangrid previously entered into 20-year agreements with the EDCs in Massachusetts and Connecticut for energy, capacity, and RECs associated with prior iterations of New England Wind 1 and New England Wind 2: Park City Wind (804 MW) and Commonwealth Wind (1,200 MW).

More information regarding the timeline and context for termination of these prior PPAs can be found in **Section 5.15.3**.

[redacted]

5.17. Description of Affiliated Entities & Joint Ventures

List all of the bidder's affiliated entities and joint ventures transacting business in the energy sector.

The Company and its affiliates regularly conduct business in the energy sector. **Table 5.17-1** provides details for Avangrid and Iberdrola affiliate entities and joint ventures.

Table 5.17-1 Affiliates Attachment

Attachment	Companies
Attachment 5.17-1	Avangrid, Inc. Affiliate Companies 2023
Attachment 5.17-2	Iberdrola Affiliate Companies 2023

5.18. Financial History Disclosure

Has the bidder, or any affiliate of bidder, in the last five years , (a) consented to the appointment of, or been taken in possession by, a receiver, trustee, custodian or liquidator of a substantial part of its assets, (b) filed a bankruptcy petition in any bankruptcy court proceeding, (c) answered, consented or sought relief under any bankruptcy or similar law or failed to obtain a dismissal of an involuntary petition, (d) admitted in writing of its inability to pay its debts when due, (e) made a general assignment for the benefit of creditors, (f) was the subject of an involuntary proceeding seeking to adjudicate that Party bankrupt or insolvent, (g) sought reorganization, arrangement, adjustment, or composition of it or its debt under any law relating to bankruptcy, insolvency or reorganization or relief of debtors?

In the last five years, neither Avangrid nor any affiliate has:

- Consented to the appointment of, or was taken in possession by, a receiver, trustee, custodian, or liquidator of a substantial part of its assets;
- Filed a bankruptcy petition in any bankruptcy court proceeding;
- Answered, consented, or sought relief under any bankruptcy or similar law, or failed to obtain a dismissal of an involuntary petition;
- Admitted in writing of its inability to pay its debts when due;
- Made a general assignment for the benefit of creditors;
- Been the subject of an involuntary proceeding seeking to adjudicate that party bankrupt or insolvent; or
- Sought reorganization, arrangement, adjustment, or composition of it or its debt under any law relating to bankruptcy, insolvency, or reorganization or relief of debtors.

5.19. Conflicts of Interest Disclosure

Briefly describe any known conflicts of interest between bidder or an affiliate of bidder and Rhode Island Energy, or any affiliates of the foregoing.

Avangrid Renewables, LLC and its affiliates do not have any known conflicts of interest with Rhode Island Energy, or any affiliates of the foregoing.

5.20. Litigation Involving Bidder and Evaluation Team

Describe any litigation, disputes, claims, or complaints involving the bidder or an affiliate of bidder against Rhode Island Energy or any affiliate of Rhode Island Energy.

Avangrid Renewables, LLC and its affiliates do not have any current disputes, claims or complaints against the Evaluation Team, or any affiliates of the foregoing. See **Section 5.13** for a detailed discussion of Avangrid Renewables' recent disputes and litigation, including with respect to the terminated PPAs related to the Park City Wind and Commonwealth Wind projects.

5.21. Energy-Related Litigation Disclosure

Describe any litigation, disputes, claims, or complaints, or events of default or other failure to satisfy contract obligations, or failure to deliver products, involving bidder or an affiliate of bidder, and relating to the purchase or sale of energy, capacity, or renewable energy certificates or products.

Avangrid Renewables, LLC is a part of a large corporate entity and, consequently, the Company and its affiliates are involved in litigation and disputes from time to time in the ordinary course of business. This section identifies those litigations and disputes concerning Avangrid Renewables, LLC's (and its subsidiaries') PPA and offshore-related activities that have been active within the past three years. As a public company, additional information concerning Avangrid's material litigation and disputes, including with respect to its regulated affiliates, is available in its regular annual and quarterly disclosures with the Securities and Exchange Commission, available here: https://www.avangrid.com/investors/investors/secfilings.

5.21.1 Avangrid Renewables, LLC and Affiliates

Nike v. Karankawa Wind

Nike, the buyer under a virtual PPA with Avangrid subsidiary Karankawa Wind, LLC (Karankawa), claims that settlements under the PPA should be calculated using Settlement Point Price. Karankawa claims that the PPA is clear that settlements should be calculated based on the Locational Marginal Price. Historically, the difference between these two points was minimal and Karankawa sometimes inadvertently used Settlement Point Price.

During the 2021 Texas energy pricing event, the difference between these two price points was between $26 and $29 million, because of price adders ordered by the Texas Public Utility Commission to incentivize generators. Nike claims that that Karankawa owes it this amount based on its interpretation of the contract. Nike has requested an adjustment to the invoices that would increase the amount payable to Nike by approximately $26 million.

Nike filed a lawsuit June 16, 2023, claiming more than $31 million. Avangrid answered the complaint in July 2023. The Company subsequently filed a motion to dismiss, which was denied in October 2023. The case is scheduled for trial in October 2024.

California Energy Crisis Litigation

Two California agencies brought a complaint in 2001 against a long-term PPA entered by Avangrid Renewables, as seller, to the California Department of Water Resources, as purchaser, alleging that the terms and conditions of the PPA were unjust and unreasonable. The Federal Energy Regulatory Commission (FERC) dismissed Avangrid Renewables from the proceedings; however, the Ninth Circuit Court of Appeals reversed the dismissal.

A hearing was held before a FERC administrative law judge in November and early December 2015. A preliminary proposed ruling by the administrative law judge was issued on April 12, 2016. The proposed ruling found no evidence that Avangrid Renewables had engaged in any unlawful market conduct that would justify finding the Avangrid Renewables PPAs unjust and unreasonable. However, the proposed ruling did conclude that the price of the PPAs imposed an excessive burden on customers in the amount of $259 million. Avangrid Renewables' position, as presented at hearings and agreed by the FERC trial staff, is that Avangrid Renewables entered into bilateral PPAs appropriately and complied with all applicable legal standards and requirements. On June 17, 2021, the FERC issued an Order Establishing Limited Remand, remanding the case to the administrative law judge for additional detailed findings and legal analysis with respect to the impact of the conduct of one of the parties other than Avangrid Renewables on its long-term contracts. The order did not address any of the other findings, including all of the findings with respect to Avangrid Renewables. On December 21, 2023, FERC issued a decision in favor of Avangrid Renewables, finding that while Avangrid Renewables was a proper party to the proceedings, the Mobile-Sierra presumption attached to its contract, and the Mobile-Sierra presumption was not overcome or avoided regarding it. Consequently, FERC found that the contract is just and reasonable, and refunds for Avangrid Renewables' contract are not warranted. The decision by FERC has not been appealed.

New England Clean Energy Connect (NECEC)

In 2018, the New England Clean Energy Connect (NECEC) transmission project, proposed in a joint bid by Central Maine Power (CMP), an affiliate of Avangrid Renewables, LLC, and Hydro-Québec, was selected by the Massachusetts EDCs and the Massachusetts Department of Energy Resources in the Commonwealth of Massachusetts's 83D clean energy RFP. The NECEC transmission project includes a 145-mile transmission line linking the electrical grids in Québec, Canada and New England and will add 1,200 MW of transmission capacity to supply Maine and the rest of New England with power from reliable hydroelectric generation. NECEC has faced various permitting challenges, including a November 2021 voter referendum in Maine that sought to retroactively invalidate certain of the project's approvals. Avangrid challenged the constitutionality of the referendum and ultimately obtained a unanimous trial court decision in its favor in April 2023. On August 3, 2023, NECEC resumed limited construction and is continuing to evaluate the construction schedule for the project, related commercial operation date, and total project cost, including potential impacts from increased construction costs, disputes with third-party vendors regarding contracts and certain change orders, and a decrease in expected returns. A more detailed summary of the history of the NECEC project can be found in Avangrid's latest annual report filed with the SEC: https://www.avangrid.com/investors/investors/secfilings.

5.21.2 Vineyard Wind 1 Litigation, Disputes, and Claims

Avangrid Renewables is a 50% owner of Vineyard Wind 1, currently under construction in federal waters south of Massachusetts. Certain federal permits issued for Vineyard Wind 1 have been challenged in federal court and Vineyard Wind 1 remains a party to these litigations. The status of those lawsuits is as follows:

Nantucket Residents Against Turbines (ACK RATS) et al v. Bureau of Ocean Energy Management (BOEM)

On February 10, 2022, ACK RATS filed an amended complaint asserting Endangered Species Act (ESA) and the National Environmental Policy Act (NEPA) claims, seeking declaratory and injunctive relief, alleging that (1) BOEM failed to conduct adequate environmental review of the project; and (2) National Marine Fisheries Service (NMFS)' issuance of the October 18, 2021, Biological Opinion was arbitrary, capricious, and unlawful. ACK RATS asserts that BOEM is violating the ESA by relying on a "legally defective" Biological Opinion and that NMFS violated the ESA by authorizing BOEM to take the actions necessary for the implementation of the Vineyard Wind 1. The Court granted Vineyard Wind's motion for summary judgment on May 17, 2023, resolving the litigation in Vineyard Wind's favor. The ACK RATS have appealed the decision to the First Circuit Court of Appeals, where it is currently pending. A hearing on this appeal took place on March 5, 2024.

Allco Renewable Energy Limited et al v. Haaland

On July 18, 2021, Allco Renewable Energy Limited and its owner, Thomas Melone, filed a Complaint in the US District Court for Massachusetts against various federal agencies seeking to vacate and void certain federal environmental permits issued for Vineyard Wind 1 as violating NEPA, the Outer Continental Shelf Lands Act (OCSLA), Clean Water Act (CWA), and Marine Mammal Protection Act (MMPA).

All claims were dismissed and on September 2, 2022, the plaintiffs filed a Second Amended Complaint alleging only two claims under the MMPA—NMFS Vineyard Wind Incidental Harassment Authorization violates the MMPA and failure to adhere to the MMPA Notice Requirements.

The case will be decided on summary judgment based on the information in the administrative record that was before the agencies at the time the agency actions were finalized. A hearing on the motions for summary judgment took place on March 3, 2023. On August 4, 2023, the federal District Court in Boston granted the federal defendants' and Vineyard Wind 1's motion for summary judgment, resolving the litigation in Vineyard Wind 1's favor. Mr. Malone has appealed the decision to the First Circuit Court of Appeals, which appeal is currently pending.

<u>Responsible Offshore Development Alliance v. United States Department of Interior</u>

On January 31, 2022, Responsible Offshore Development Alliance (RODA) filed a lawsuit against the defendants, asserting claims under OCSLA, CWA, ESA, NEPA, and MMPA requesting declaratory judgment and injunctive relief. On February 11, 2022, Vineyard Wind intervened in the case and was granted intervenor-defendant status. The case is currently pending before Judge Talwani. As in the aforementioned cases, the case will be decided on summary judgment based on the information in the administrative record that was before the agencies at the time the agency actions were finalized. Final briefing on the motions for summary judgment were filed March 14, 2023. A hearing was held March 24, 2023. On October 12, 2023, the federal District Court in Boston granted the federal defendants' and Vineyard Wind 1's motion for summary judgment, resolving the litigation in Vineyard Wind 1's favor. RODA has appealed the decision to the First Circuit Court of Appeals, which appeal is currently pending.

<u>Seafreeze Shoreside, Inc. v. United States Department of Interior</u>

On December 15, 2021, the Texas Public Policy Foundation on behalf of XIII Northeast Fishery Sector, Inc., Seafreeze Shoreside, Inc. (Seafreeze) and others filed suit against the Department of the Interior, BOEM, Department of Commerce, NMFS, National Oceanic and Atmospheric Administration, Department of Defense, and the US Army Corps of Engineers, asserting claims alleging violation of the OCSLA, ESA, CWA, and NEPA.

As in the other cases, the case will be decided on summary judgment based on the information in the administrative record that was before the agencies at the time the agency actions were finalized. Seafreeze had threatened to file for an injunction on construction activities but ultimately decided not to. Final briefing on the motions for summary judgment were filed March 10, 2023. A hearing was held April 3, 2023. On May 10, 2023, the plaintiffs filed a motion for a stay, or in the alternative, a preliminary injunction to stop construction work on Vineyard Wind 1; on May 25, 2023, the District Court issued a memorandum and order denying the plaintiffs' motion. On October 12, 2023, the federal District Court in Boston granted the federal defendants' and Vineyard Wind 1's motion for summary judgment, resolving the litigation in Vineyard Wind 1's favor. Seafreeze has appealed the decision to the First Circuit Court of Appeals, which is currently pending.

Contractor Disputes at Vineyard Wind 1

As with any complex construction project, Vineyard Wind 1 has various change order, variation, and similar disputes with certain of its contractors responsible for portions of the project's construction. These types of disputes typically involve requests for cost and/or time relief from contractors. In one case, Vineyard Wind 1 has recently referred certain disputed issues to a dispute arbitration board for expedited resolution. Avangrid has significant experience with such claims and expects that any claims involving Vineyard Wind 1 will ultimately be resolved in the ordinary course of business.

5.21.3 Park City Wind and Commonwealth Wind Litigation, Disputes, and Claims

In May 2022, the Massachusetts EDCs submitted PPAs with Commonwealth Wind to the Massachusetts Department of Public Utilities (DPU) for approval. In late October 2022, Commonwealth Wind advised the DPU that, due to changes in economic conditions that were outside of its control, Commonwealth Wind could not move forward under the current PPAs. Commonwealth Wind attempted to work with the parties to identify a realistic path forward for the Project under the PPAs. However, the EDCs stated that they did not intend to renegotiate the PPAs and that there did not appear to be a viable path that would allow the project to move forward under the PPAs. On December 16, 2022, Commonwealth Wind notified the DPU that it could no longer support the continuation of the DPU approval of the PPAs and filed a motion to dismiss the proceedings. On December 30, 2022, the DPU denied Commonwealth Wind's motion to dismiss and issued an order approving the PPAs. Commonwealth Wind appealed the decision. On July 13, 2023, Commonwealth Wind and the EDCs executed termination and settlement agreements terminating the PPAs with Commonwealth Wind, forfeiting $48 million in security, and submitted the agreements to the DPU for approval. On August 23, 2023, the DPU approved the termination agreements. The termination agreements became effective on October 2, 2023, resolving this matter.

Park City Wind LLC's predecessor, Vineyard Wind LLC, signed two PPAs for Park City Wind on May 18, 2020, with the Connecticut EDCs (Eversource and United Illuminating). The executed PPAs were subsequently approved by Connecticut's Public Utilities Regulatory Authority (PURA) on August 19, 2020. Following execution and approval of the PPAs, the offshore wind industry experienced unprecedented economic headwinds stemming from inflation, rising interest rates, and challenges within the supply chain. These challenges made Park City Wind commercially unviable at the prices approved in the PPAs. After exploring all potential solutions to the financial challenges facing Park City Wind and engaging in good-faith and productive discussions with Connecticut state officials regarding these challenges, on October 2, 2023, Avangrid and the Connecticut EDCs agreed to an orderly termination of the PPAs in exchange for a payment by Avangrid of approximately $16 million. PURA approved this termination on October 13, 2023.

For more information regarding the economic context of the Park City Wind and Commonwealth Wind contract terminations, refer to **Section 5.13**.

5.21.4 Vineyard Wind Litigation, Disputes, and Claims

Although Vineyard Wind is not actively involved in legal disputes, a full list of Vineyard Wind and Vineyard Wind I litigation, disputes, claims, complaints, or notices of violation or potential violation can be referenced in **Section 5.21.1** through **Section 5.21.3**.

5.22. Governmental Investigations

Confirm that neither bidder nor any directors, employees or agents of bidder, nor any affiliate of bidder are currently under investigation by any governmental agency, and that none of the above have in the last four years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction involving conspiracy, collusion or other impropriety with respect to bidding on any contract, or have been the subject of any debarment action (detail any exceptions).

Avangrid is part of a large corporate family with operations in 25 states and that includes multiple regulated utilities; as a result, Avangrid and its affiliates have been involved in investigations by governmental authorities from time to time in the ordinary course of business. Any such investigations will not have a material effect on Avangrid's ability to perform on the contracts described in this submission. As a public company, information concerning material investigations involving Avangrid's business is available in its regular annual and quarterly disclosures with the Securities and Exchange Commission, available here: https://www.avangrid.com/investors/investors/secfilings.

Neither Avangrid, nor any of its directors or affiliates, have been convicted or found liable for any act prohibited by state or federal law in any jurisdiction involving conspiracy, collusion, or other impropriety with respect to offering on any contract or been the subject of any debarment action in the last four years.

In addition, Avangrid is not aware of any such investigations or such convictions or liabilities on behalf of its employees or agents.

5.23. Regulatory Approval Disclosure

Identify all regulatory and other approvals needed by bidder to execute a binding sale agreement.

The Form PPAs contain conditions that must be met, including regulatory approvals and transmission approvals, prior to the agreements taking effect. Such approvals consist of the Regulatory Approval and any Related Transmission Approvals, as each term is defined in the Form PPAs. Avangrid does not condition its execution of a binding sale agreement on any other approval other than that of its Board of Managers in accordance with the provisions of Avangrid's limited liability company agreement, which Avangrid will seek prior to its execution of any such sale agreement.

5.24. Compliance with FERC Requirements

Describe how the project will conform to FERC's applicable regulatory requirements, including, but not limited to, FERC requirements relating to allocation of transmission capacity and open access, the justness and reasonableness of rates, the potential for undue preference or discrimination, and affiliate dealings, if any. Describe how your proposed approach is consistent with FERC precedent and ratemaking principles.

5.24.1 Generation

Avangrid will ensure it has all the necessary FERC authorizations to supply power at wholesale in connection with this proposal. Avangrid will obtain market-based rate authority from FERC under Section 205 of the Federal Power Act as necessary to sell power at wholesale pursuant to its PPA(s).

Along with its market-based rate authorization, Avangrid will also obtain the blanket authorizations and waivers from FERC that are customarily granted to entities with market-based rate authority. Avangrid will also obtain self-certification with FERC as an exempt wholesale generator (EWG) under FERC's regulations under the Public Utility Holding Company Act of 2005. Avangrid has obtained market-based rate authority and EWG status for more than 70 affiliated generation project companies with a combined generating capacity of over 9,200 MW in its ordinary course of business and expects no complications in obtaining market-based rate authority and EWG status for the Project(s) well before its generation projects are initially energized.

Avangrid has entered (with respect to New England Wind 1) and will enter (with respect to New England Wind 2) interconnection agreements with ISO-NE and incumbent transmission owners subject to ISO-NE Tariff Schedule 22 to interconnect the Projects to the ISO-NE transmission system at a pool transmission facility (PTF) node in ISO-NE. Avangrid will transmit electricity from the Offshore Wind Energy Generation facilities to the point of interconnection via several high voltage alternating current subsea electric generator lead transmission lines and will not require the Projects to have an Open Access Transmission Tariff on file with FERC (18 C.F.R. 35.28(d)(2)). New England Wind 1 and New England Wind 2 transmission facilities are radial in nature and serve to transmit electric energy from remotely located generation facilities to a point of interconnection with transmission facilities that are part of the ISO-NE PTF. Avangrid will register the Projects with ISO-NE and be fully qualified to participate in the energy, capacity, and ancillary services markets under the ISO NE Tariff.

Finally, Avangrid will register (directly or via its agent) with the North American Electric Reliability Corporation as a Generator Owner and Generator Operator with regard to the facilities and will comply with any and all applicable North American Electric Reliability Corporation reliability standards, maintenance, testing, and reporting requirements set forth by North American Electric Reliability Corporation and/or Northeast Power Coordinating Council as applicable to New England Wind 1 and New England Wind 2.

5.24.2 Transmission

Avangrid will assume the full market risk for the construction and operation of all transmission facilities required to interconnect the Projects to the ISO-NE PTF, has no captive customers, and the transmission capacity on these facilities will be solely and exclusively used by Avangrid to interconnect and deliver electricity generated at the proposed offshore wind facilities to an ISO-NE PTF node, as a result of the selection of the Projects in the open and transparent solicitation process under the RFP.

5.25. Affiliation and Relationship Disclosure with Rhode Island Energy and/or its Affiliates

Describe and document any and all direct and indirect affiliations and affiliate relationships (contractual, financial, or otherwise) in the past three years between the bidder and Rhode Island Energy and its affiliates, including all relationships in which Rhode Island Energy or its affiliates has a financial or voting interest (direct or indirect) in the bidder or the bidder's proposed project. These relationships include:

- Corporate or other joint arrangements, joint ventures, joint operations whether control exists or not
- Minority ownership (50% or less investee)
- Joint development agreements
- Operating segments that are consolidated as part of the financial reporting process
- Related parties with common ownership
- Credit, debenture, and financing arrangements, whether a convertible equity feature is present or not
- Wholly owned subsidiaries
- Commercial (including real property) relationships with Rhode Island Energy.

Neither Avangrid Renewables, LLC nor any of its affiliates have had any relationship with Rhode Island or its affiliates in the past three years.

6. Siting, Interconnection, and Deliverability

New England Wind 1 and New England Wind 2 have well-advanced siting and interconnection strategies designed to ensure that power is delivered to the New England electricity grid on schedule with minimal risk and high reliability.

The Offshore Wind Energy Generation sites for both Projects will be in Lease Area OCS-A 0534 (the Lease Area). New England Wind 1 will occupy the northern portion of the Lease Area and New England Wind 2 will occupy the southern portion. Power will be delivered to shore along a well-studied offshore export cable corridor (OECC) shared with Vineyard Wind 1. Utilizing a single OECC containing all offshore export cables for all three projects allows Avangrid to minimize impacts to the marine environment and maintain confidence in its plans for offshore cable routing and installation. The offshore export cable routes for Vineyard Wind 1 were thoroughly reviewed and approved by federal and state regulators during the permitting process and cabling operations were successfully completed in 2023.

Offshore export cables from New England Wind 1 will be routed to a landfall site beneath the parking lot at Craigville Beach in the Town of Barnstable (Barnstable). The preferred landfall site for the New England Wind 2 offshore export cables is the parking lot at nearby Dowses Beach in Barnstable. New England Wind 1 and New England Wind 2 offshore export cables will transition to onshore export cables in infrastructure installed beneath the respective beach parking lots before following carefully selected routes within public roadway layouts to onshore substations located in Barnstable. Site control for the New England Wind 1 and New England Wind 2 onshore substation sites has been secured. Both sites are less than a mile away from the West Barnstable Substation, which will serve as the point of interconnection (POI) for both Projects.

Avangrid has also made substantial progress towards securing necessary site control for the landfall sites and onshore export cable routes and has deeper ties to its host community than any other New England offshore wind developer. In addition to entering into a host community agreement (HCA) with Barnstable for Vineyard Wind 1 (HCA-1) in 2018, Avangrid entered into an HCA with Barnstable for New England Wind 1 in 2022 (HCA-2). HCA-2 requires Barnstable to issue all necessary easements for New England Wind 1, and both Barnstable and the Massachusetts Legislature have enacted Article 97 legislation to enable the granting of those easements. HCA-1 is included as **Attachment 6.0-1** and HCA-2 is included as **Attachment 6.0-2**. [redacted]

Additionally, the ISO New England (ISO-NE) interconnection application for New England Wind 1 is complete. For New England Wind 1, the System Impact Study report (SIS Report) was published in December 2020, the Transmission Service Agreement (TSA) was executed in March 2022, and the Large Generator Interconnection Agreement (LGIA) was executed in September 2022. The Federal Energy Regulatory Commission (FERC) has approved this interconnection. [redacted]

6.1. Federal Lease and Leases for Marine Terminal Facilities

An Eligible Bidder must demonstrate that it has a federal lease for an offshore wind energy generation site, as described in Section 2.2.2.2, as well as a valid lease, or option to lease, for marine terminal facilities necessary for staging and deployment of major project components to the project site.

Avangrid is proposing to build both New England Wind 1 and New England Wind 2 in the Bureau of Ocean Energy Management (BOEM)-designated Lease Area OCS-A 0534. The Lease Area is approximately 20 miles (mi) south of Martha's Vineyard and is located southwest of Lease Area OCS-A 0501, where Vineyard Wind 1 is being constructed. The Lease Area consists of 101,590 acres. [redacted]

Avangrid has the right to use the Lease Area for the entire term of the PPA(s). Vineyard Wind LLC, legal predecessor to Vineyard Wind 1 LLC, executed a lease agreement for Lease Area OCS-A 0501 with BOEM in 2015 for the purpose of offshore wind energy generation development on the Outer Continental Shelf (see **Attachment 6.1-1** and **Attachment 6.1-2**). In June 2021, the Lease Area 34 was segregated from Lease Area OCS-A 0501. A letter from BOEM outlined the segmentation in detail (see **Attachment 6.1-3**). In December 2021, the Lease Area was reassigned to Park City Wind LLC, a wholly owned subsidiary of Avangrid Renewables, LLC (see **Attachment 6.1-4)**. Avangrid has full ownership interest of the Lease Area, which is the location of the two Projects.

The Lease Agreement provides Avangrid the mechanism to build and operate offshore wind projects within the Lease Area and to install the related necessary grid interconnection system within federal waters. [redacted] To exercise its right to build and operate both Projects, Avangrid is required to obtain approval through the federal permitting process, which is further described in **Section 7**. This process includes submission of a Construction and Operations Plan (COP)[1] to BOEM, along with submission of a Facilities Design Report (FDR) and Fabrication and Installation Report (FIR). The New England Wind COP for the Projects was submitted in July 2020 and approval of the New England Wind COP is anticipated on July 1, 2024. Additional details about the federal permitting schedule can be found in **Section 9**. As required by BOEM's regulations, the FDR and FIR will be submitted following approval of the New England Wind COP and final design of New England Wind 1 and New England Wind 2.

Avangrid has several options for marine terminal facilities necessary for staging and deployment of major components of the Projects. Please refer to **Section 10** for a description of the marine terminal facilities and ports associated with New England Wind 1 and New England Wind 2.

6.2. Project Plans and Route Delineation

Plans, including a map of the Eligible Facility site that clearly delineates the perimeter of the area in which offshore wind turbines will be placed, the proposed offshore routes to the project site, the

[1] https://www.boem.gov/renewable-energy/state-activities/new-england-wind-ocs-0534-construction-and-operations-plan

proposed onshore routes to the interconnection location, and all proposed substations or areas of other major equipment.

To the extent that alternative routes for offshore and onshore interconnection facilities have been considered in developing the bid, maps showing these locations should also be provided. Maps should be of scales required to identify significant marine or terrestrial features, e.g. shellfish management areas, parks, highways, etc.

If the bidder has not secured all of its real property rights onshore, it must provide at least one alternative for each unsecured real property right.

For each route the bidder must:

- specifically describe the portions of the route for which the bidder has acquired sufficient rights to locate its Offshore Delivery Facilities proposed, and
- provide a reasonable and achievable detailed plan (with a timeline) to acquire sufficient rights to the remainder of the necessary Offshore Delivery Facilities locations.

Avangrid is proposing to build the Projects in Lease Area OCS-A 0534. New England Wind 1 and New England Wind 2 each consist of an Offshore Wind Energy Generation facility along with the Offshore Delivery Facilities required to interconnect to an ISO-NE Pool Transmission Facility (PTF) node in Barnstable.

Site plans identifying each element of New England Wind 1 and New England Wind 2 and their locations are included below. These site plans and others identifying significant marine or terrestrial features are also provided in **Attachment 6.2-1** and **Attachment 6.2-2**. Final design and permitting of New England Wind 1 is nearly complete and the Project is largely de-risked. For New England Wind 2, Avangrid has undertaken significant due diligence to de-risk delivery; however, given that New England Wind 2 is behind New England Wind 1 with respect to state and local permitting, several site elements are still pending final design.

For detailed information regarding property rights necessary for New England Wind 1 and New England Wind 2, please refer to **Section 6.4**.

6.2.1 Offshore Wind Energy Generation Facilities

Figure 6.2-1 illustrates the Eligible Facility site.[2] The wind turbine generators (WTGs) and electrical service platform for New England Wind 1 will be located in the northern portion of the Lease Area and those for New England Wind 2 will be located southwest in the southern portion of the Lease Area.

[2] The Eligible Facility site refers to the portion of Lease Area OCS-A 0534 where the Offshore Wind Energy Generation facilities are located. In the future, this Lease Area designation will change if Avangrid and BOEM segregate the New England Wind 1 and New England Wind 2 areas.

[redacted]

6.2.2 Offshore Export Cable Routes

New England Wind 1 and New England Wind 2 offshore export cables follow a substantially similar route and are located within an OECC shared with the Vineyard Wind 1 offshore export cables, as shown in **Figure 6.2-2**. The OECC ranges in width from 3,100 feet (ft) to 5,100 ft, with a typical width of 3,800 ft. The Projects' offshore export cables will travel along the western edge of Lease Area OCS-A 0501 (through Vineyard Wind 1), and then head northward through Muskeget Channel toward landfall sites in Barnstable. New England Wind 1 will utilize two 275 kilovolt (kV) high voltage alternating current (HVAC) cables to deliver power to the grid, and New England Wind 2 will utilize three cables. One or more New England Wind 2 cables may route through a variant OECC option through Muskeget Channel (Western Muskeget Variant).

Avangrid studied and selected 275 kV HVAC technology to minimize costs, electrical losses, and provide enhanced reliability compared to a high voltage direct current (HVDC) transmission system. Using HVAC technology and delivering the Projects to the West Barnstable Substation provides for the shortest cable span, most cost-efficient solutions, and earliest delivery times for New England Wind 1 and New England Wind 2.

[redacted]

6.2.3 Onshore Equipment and Facilities

The New England Wind 1 landfall site, onshore export cable route, onshore substation site, and grid interconnection route are depicted in **Figure 6.2-3**. The New England Wind 2 preferred landfall site, onshore export cable route, onshore substation, and grid interconnection route is shown in **Figure 6.2-4**. Avangrid conducted exhaustive due diligence and thorough alternatives analyses prior to selecting locations of the onshore facilities for the Projects. These analyses incorporated consultation with and feedback from permitting agencies, Barnstable, and other local stakeholders.

Figure 6.2-3 New England Wind 1 Onshore Interconnection Site Plan

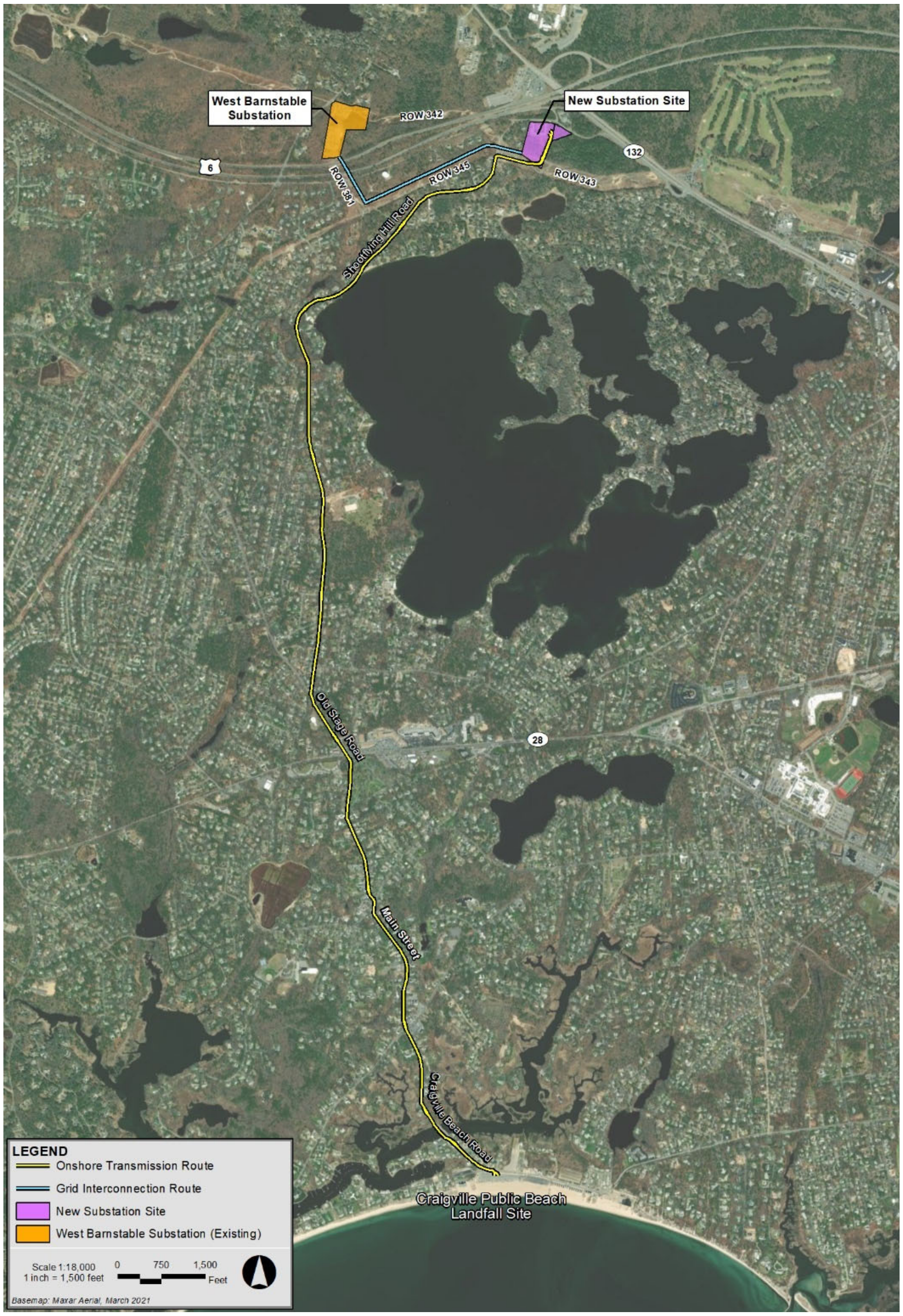
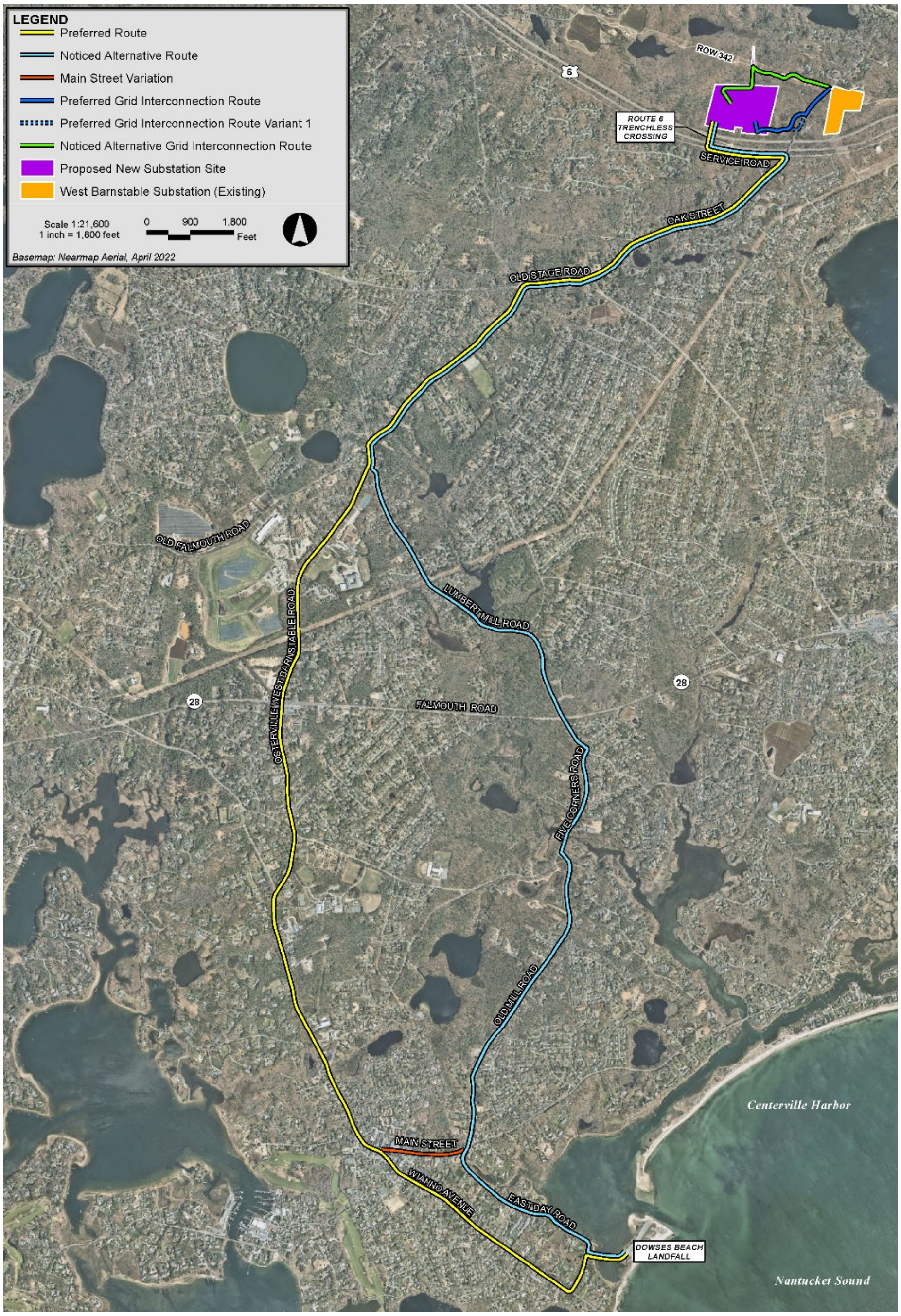


Figure 6.2-4 New England Wind 2 Onshore Interconnection Site Plan



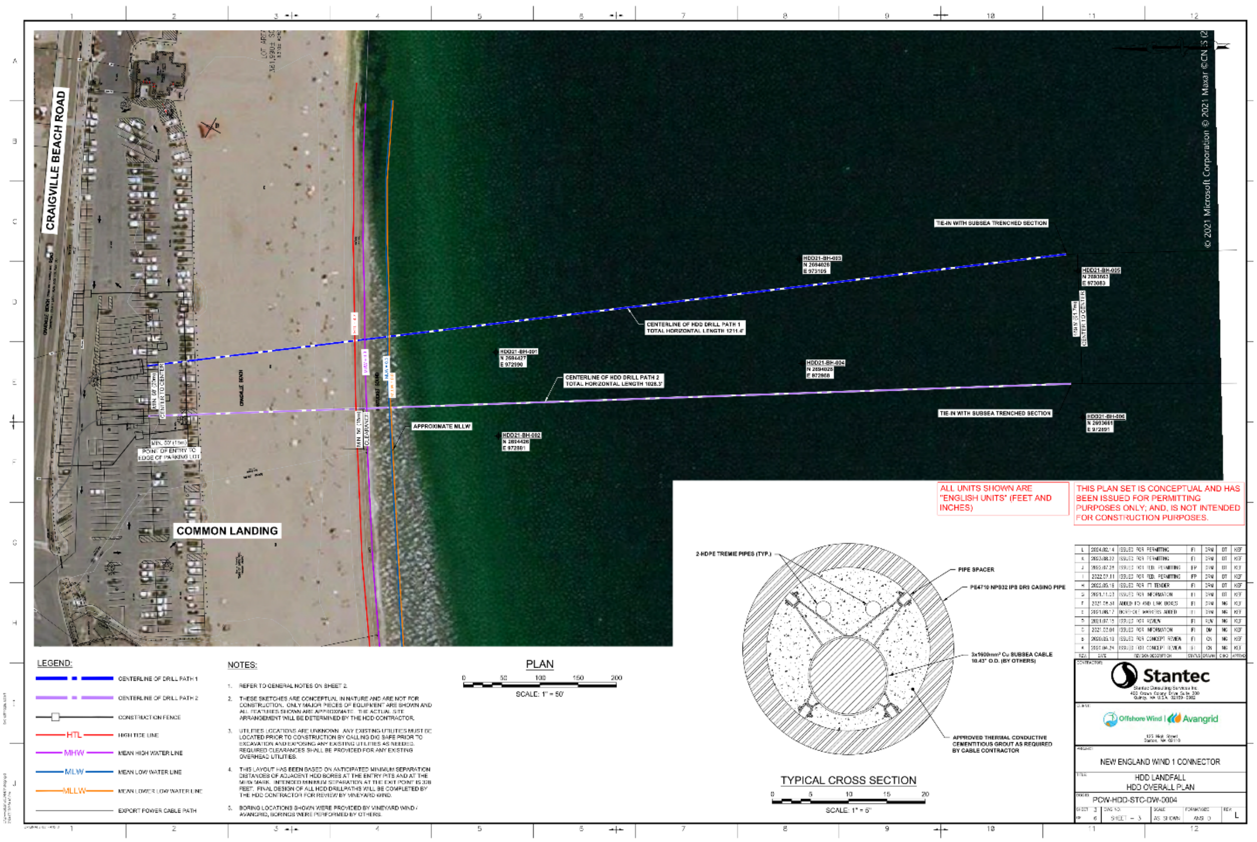
6.2.3.1 Landfall Sites

Avangrid undertook a broad assessment to identify potential landfall sites where the transition from offshore export cables to onshore export cables could occur while minimizing environmental impact. The landfall site selection process involved several iterations of review and due diligence that resulted in the selection of the Craigville Beach parking lot as the landfall site for New England Wind 1 and the Dowses Beach parking lot as the preferred landfall site for New England Wind 2.

New England Wind 1

The two New England Wind 1 offshore export cables will transition onshore via horizontal directional drilling (HDD) beneath the parking lot at Craigville Beach in Barnstable. Craigville Beach is a public beach owned and managed by Barnstable, situated in the central part of the Centerville Harbor bight. The 3.5-acre Craigville Beach parking lot landfall site has been developed through engineering design work, stakeholder engagement, and permit applications. All local, regional, and state permitting authorities have approved this landfall site. Upon completion of construction, the only visible components of the offshore-to-onshore cable transition will be two or three manhole covers within the parking lot. Necessary work at this site will be performed in the non-summer months to minimize disruption to Barnstable residents and visitors. The conceptual site plan for the preferred landfall site is provided in **Figure 6.2-5**. More details on the landfall site design work can be found in **Section 8**.

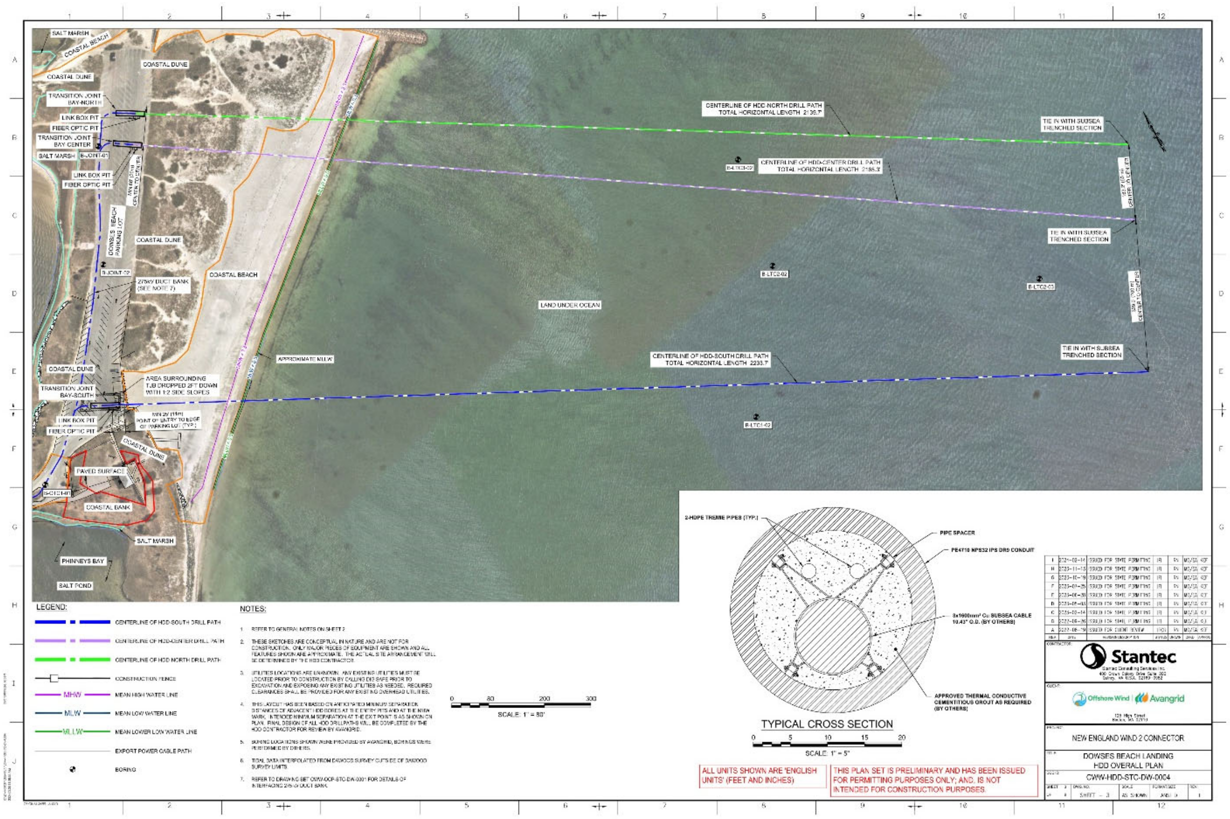
Figure 6.2-5 New England Wind 1 Landfall Site Plan



New England Wind 2

The three New England Wind 2 offshore export cables are proposed to transition onshore via HDD beneath the parking lot at Dowses Beach in Barnstable. Dowses Beach is a public beach for Barnstable residents only and is owned and managed by Barnstable. The 2.5-acre Dowses Beach parking lot can accommodate three offshore export cable landings via HDD, provide for the shortest onshore export cable route, and avoid the use of multiple onshore export cable routes. These factors minimize environmental impacts. Current design of the preferred landfall site also allows for partial beach access to be maintained during the majority of construction, which will occur in the non-summer months at the request of Barnstable to minimize disruption to resident beachgoers. Similar to New England Wind 1, the only visible components of the offshore-to-onshore cable transition after construction will be manhole covers within the parking lot. The conceptual site plan for the landfall site is provided in **Figure 6.2-6**.

Figure 6.2-6 New England Wind 2 Preferred Landfall Site Plan



6.2.3.2 Onshore Substation Sites

New onshore substations for New England Wind 1 and New England Wind 2 are required to step up voltage from 275 kV to 345 kV in preparation for interconnection at the existing West Barnstable Substation. The onshore substation sites for New England Wind 1 and New England Wind 2 are described below.

<u>New England Wind 1</u>

The New England Wind 1 onshore substation will be constructed off Shootflying Hill Road in Barnstable. Avangrid owns 1.25 acres and has secured an option to purchase the remaining 6.7-acre privately-owned parcel to have full site control. The New England Wind 1 onshore substation site is located southwest of the intersection of Route 6 and Route 132, approximately 0.8 mi east of the West Barnstable Substation. The onshore substation site is currently a commercial use, has frontage on Shootflying Hill Road, and direct access to utility right-of-way (ROW) #343. The New England Wind 1 onshore substation site plan is shown in **Figure 6.2-7**.

[redacted]

<u>New England Wind 2</u>

The New England Wind 2 onshore substation site will be located adjacent to Route 6 westbound, west of Oak Street, near the Oak Street Bridge overpass of Route 6 in Barnstable. This site is just 0.25 mi from the West Barnstable Substation. [redacted]

[redacted]

[redacted]

6.2.3.3 Onshore Export Cable Routes

New England Wind 1

The onshore export cable route for New England Wind 1 begins in the Craigville Beach parking lot and almost entirely follows public roadways in Barnstable for 4 mi to the New England Wind 1 onshore substation site on Shootflying Hill Road (see **Figure 6.2-3**). The onshore export cables will be encased within a duct bank that is installed beneath the road. The cable route proceeds from the Craigville Beach parking lot to Craigville Beach Road, then continues north on Main Street to Old Stage Road before crossing Route 28 and following Shootflying Hill Road. From Shootflying Hill Road, the route turns southeast onto ROW #343 before reaching the New England Wind 1 onshore substation. [redacted]

The route includes a segment along Craigville Beach Road that necessitates a crossing of the Centerville River, which will be accomplished via microtunnel beneath the river. The conceptual design of the Centerville River crossing is included below as **Figure 6.2-10**.

[redacted]

New England Wind 2

The preferred onshore export cable route for New England Wind 2 is located entirely within public roadway layouts or within the existing parking lot at Dowses Beach. The total length of the preferred onshore export cable route is approximately 6.7 mi (see **Figure 6.2-4**). The route begins in the paved parking lot at Dowses Beach and proceeds in a northwesterly direction along the existing paved causeway to East Bay Road. From there, the route turns northwest onto Wianno Avenue, then onto Main Street, Osterville-West Barnstable Road, and Old Falmouth Road. The route then turns and continues in a northeast direction, following Old Falmouth Road to Old Stage Road, and on to the Oak Street intersection. Heading north, the route follows Oak Street before turning west onto Service Road, and then continuing to a staging area for an underground crossing of Route 6 into the onshore substation site.

In addition to the preferred onshore export cable route, Avangrid has carried an alternative route for New England Wind 2 throughout the permitting process to maintain some flexibility in design and meeting permitting requirements established by the Massachusetts Energy Facilities Siting Board (EFSB). This alternative route is similarly located entirely within public roadway layouts or within the existing parking lot at Dowses Beach. Both the preferred and alternative onshore export cable routes are shown in **Figure 6.2-4**.

An underground crossing beneath Route 6 is required to connect the onshore export cables to the onshore substation. The Route 6 crossing will be accomplished via microtunnel, avoiding any impacts to the road. An indicative and conceptual design of the Route 6 crossing using the microtunnel approach is depicted in **Figure 6.2-11**.

[redacted]

6.2.3.4 Grid Interconnection Routes

New England Wind 1

The grid interconnection route for New England Wind 1 is 0.7 mi long and is located entirely within existing utility ROWs. The route begins on the south side of the onshore substation site, entering ROW #343 for 0.1 mi before turning southwesterly onto ROW #345. The route follows ROW #345 for approximately 0.5 mi before turning northwesterly onto ROW #381 and entering parcel #214-001; located immediately southeast of the West Barnstable Substation, before entering the West Barnstable Substation parcel. A short segment of the route along ROW #381 includes a crossing of Route 6, proposed to be accomplished via pipe jacking. The New England Wind 1 grid interconnection route is shown in **Figure 6.2-12**.

[redacted]

New England Wind 2

The preferred grid interconnection route for New England Wind 2 is approximately 0.4 mi long and includes installing the grid interconnection cables within the existing access road off Oak Street, then north along Oak Street, into the northern portion of the West Barnstable Substation parcel. This route will exit from the east side of the onshore substation site. The buried duct bank will then cross two additional parcels, owned by Barnstable and the Barnstable Fire District, before reaching Oak Street. The preferred grid interconnection route is depicted in **Figure 6.2-13**.

[redacted]

6.2.3.5 Point of Interconnection

Both New England Wind 1 and New England Wind 2 will interconnect at the West Barnstable Substation owned and operated by Eversource. Some modifications to the West Barnstable Substation will be necessary to accommodate interconnection of the Projects. All work at the West Barnstable Substation will be performed by Eversource, although Avangrid is consulting with Eversource on the specific design and location of these modifications. [redacted]

6.3. Marine Terminal Facility Location Map

A map showing the location of the marine terminal facility.

Please refer to **Section 10** and **Section 11** for maps and descriptions of the marine terminal facilities associated with New England Wind 1 and New England Wind 2.

6.4. Leases, Agreements, Easements, and Other Documents

A description of all leases, agreements, easements, and related documents granting the right to use the Eligible Facility site and associated Offshore Delivery Facilities, as well as the marine terminal for deployment of major project components, and detail which have been obtained.

Provide a detailed plan and timeline to secure the remaining leases, agreements, easements, and related documents.

Provide copies of any leases, agreements, easements, or related documents obtained, upon request.

As described in the section below, Avangrid has secured most of the real property rights, or has instruments to obtain real property rights, required for the Projects. Any remaining real property rights will be acquired in line with the schedule provided in **Section 9**. **Table 6.4-1** and **Table 6.4-2** provide the status of key real property rights required to construct and operate New England Wind 1 and New England Wind 2.

Table 6.4-1 Status of Real Property Rights Acquisition – New England Wind 1

Property Right Required	New England Wind 1 Status	Remarks
Eligible Facility Site		
Ability to Install Project Components in Lease Area OCS-A 0534	Secured	Avangrid has a federal lease for Lease Area OCS-A-0534 (see **Attachment 6.1-1**, **Attachment 6.1-2**, **Attachment 6.1-3**, and **Attachment 6.1-4**) and has filed a COP for phased development of the entire Lease Area.
Offshore Export Cable Route		
Portion Located in Federal Waters	Anticipated with COP Approval	Easements to install and locate the offshore export cables in federal waters are granted at the issuance of COP approval by BOEM, as is permitted in the lease agreement per U.S.C. § 585.200(b).
Portion Located in State Waters	Secured	A Chapter 91 license permitting offshore export cabling in state waters has been issued by the Massachusetts Department of Environmental Protection (MassDEP). See **Attachment 7.1-4**.
Onshore Export Cable Route		
Landfall Site	Highly Likely to Secure	[redacted]
Barnstable Public Roadways	Highly Likely to Secure	[redacted]

Table 6.4-1 Status of Real Property Rights Acquisition – New England Wind 1

Property Right Required	New England Wind 1 Status	Remarks
Centerville River Crossing	Secured	A Chapter 91 license has been issued by MassDEP (see **Attachment 7.1-4**). Avangrid has also purchased a parcel at 2 Short Beach Road to facilitate this crossing (see **Attachment 6.4-1**).
Utility ROW	Highly likely to secure	[redacted]
Onshore Substation		
Onshore Substation Property and Site Access	Secured	Avangrid has purchased a property at 6 Shootflying Hill Road and has an option to purchase agreement with the owner of 8 Shootflying Hill Road, providing full site control of the onshore substation site (see **Attachment 6.4-3** and **Attachment 6.4-4**).
Grid Interconnection Route	Highly likely to secure	[redacted]

Table 6.4-2 Status of Real Property Rights Acquisition – New England Wind 2

Property Right Required	New England Wind 2 Status	Remarks
Eligible Facility Site		
Ability to Install Project Components in Lease Area OCS-A 0534	Secured	Avangrid has a federal lease for Lease Area OCS-A-0534 (see **Attachment 6.1-1**, **Attachment 6.1-2**, **Attachment 6.1-3**, and **Attachment 6.1-4**) and has filed a COP for phased development of the entire Lease Area.
Offshore Export Cable Route		
Portion Located in Federal Waters	Anticipated with COP Approval	Easements to install and locate the offshore export cables in federal waters are granted at the issuance of COP approval by BOEM, as is permitted in the lease agreement per U.S.C. § 585.200(b).

Table 6.4-2 Status of Real Property Rights Acquisition – New England Wind 2

Property Right Required	New England Wind 2 Status	Remarks
[redacted]	[redacted]	[redacted]
	Onshore Export Cable Route	
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
	Onshore Substation	
[redacted]	[redacted]	[redacted]

Table 6.4-2 Status of Real Property Rights Acquisition – New England Wind 2

Property Right Required	New England Wind 2 Status	Remarks
[redacted]	[redacted]	[redacted]

6.4.2 Offshore Property Rights

6.4.2.1 Eligible Facility Site

Avangrid has the right to use the Eligible Facility site and portions of the Offshore Delivery Facilities for the entire term of the PPA(s), as provided by the Lease Agreement described in **Section 6.1**.

6.4.2.2 Offshore Export Cables

Avangrid's Lease Agreement with BOEM also provides the right to obtain one or more easements in federal waters for the purpose of installing and using offshore export cables. As described in **Section 6.1**, to exercise this right, Avangrid must obtain approval through the federal permitting process described in **Section 7**. The portions of the offshore export cable routes for New England Wind 1 and New England Wind 2 are subject to review and permitting at the state, regional, and local levels.

<u>Offshore Export Cable Route in Federal Waters</u>

Per U.S.C. § 585.200(b), Avangrid is entitled to one or more easements in which to locate the offshore export cables in federal waters as needed to enable grid connection for Offshore Wind Energy Generation Facilities located in the Lease Area. The easements will be issued upon approval of the New England Wind COP and will be recorded as an addendum to the Lease Agreement for Lease Area OCS-A 0534. The width of the easement will be determined as part of the New England Wind COP approval process; the Projects use offshore export cable routes that are substantially similar to the approved offshore export cable route used for Vineyard Wind 1.

<u>Offshore Export Cable Route in State Waters</u>

For the portions of the offshore export cable routes occurring in state waters, permission to locate the offshore export cables is granted through a license issued by MassDEP pursuant to M.G.L. c. 91, and 310 C.M.R. 9.00 (Chapter 91 license). The Chapter 91 license for New England Wind 1 has been secured.

For New England Wind 2, MassDEP would issue the license after the conclusion of the EFSB and Massachusetts Environmental Policy Act review processes, which are well underway. See **Section 7** for additional details.

6.4.3 Onshore Property Rights

6.4.3.1 Landfall Sites and Onshore Export Cable Routes

New England Wind 1

The rights to install the onshore export cables beneath public beaches and roads are granted by Barnstable. Such permissions are legally required by HCA-2, which includes Barnstable support for obtaining all local permits. Barnstable has successfully petitioned the Massachusetts Legislature for Article 97 relief to grant an underground easement on protected land at Craigville Beach where the HDD trajectory will pass beneath the beach and into the paved parking lot. The Barnstable Town Council has voted to grant these easements. Additionally, Avangrid has purchased a critical parcel at 2 Short Beach Road for the Centerville River Crossing. The 0.28-acre parcel is the location for the microtunnel jacking shaft and staging area for installing transmission cable underneath the Centerville River (see **Attachment 6.4-1**).

New England Wind 2

[redacted]

[redacted]

[redacted]

6.4.3.2 Onshore Substation Sites

New England Wind 1

Avangrid has an option to purchase the privately owned parcel at 8 Shootflying Hill Road in Barnstable for the New England Wind 1 onshore substation site (see **Attachment 6.4-4**). 8 Shootflying Hill Road is an approximately 6.7-acre parcel. Avangrid owns the parcel at 6 Shootflying Hill Road, a 1.25-acre, triangular, wooded parcel located directly northeast of 8 Shootflying Hill Road (see **Attachment 6.4-3**). These two parcels comprise the onshore substation site (see **Figure 6.2-7**). The

New England Wind 1 onshore substation design will utilize the 6 Shootflying Hill Road parcel for the site access road to the substation, which will improve access to the site while allowing the Project to reduce the grade at the site by up to 10 ft, thereby minimizing impacts from the need to import fill to the site to raise the site grade, as was contemplated by the initial substation design.

New England Wind 2

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

6.4.3.3 Grid Interconnection Routes

New England Wind 1

The New England Wind 1 onshore substation site on Shootflying Hill Road will interconnect to the grid at the West Barnstable Substation on Oak Street, via two 345 kV onshore transmission circuits contained within an underground duct bank. This interconnection route is less than one mile in length and will be installed within existing utility ROWs and an Avangrid-owned parcel.

New England Wind 2

[redacted]

[redacted]

6.5. Description of Project Area

A description of the area surrounding any land-based project area, including the marine terminal for deployment of major project components (e.g., foundations, towers, blades, rotors, offshore substations) and all transmission and interconnection facility locations.

6.5.1 Eligible Facility Site Location

The Eligible Facility site is located in Lease Area OCS-A 0534, in federal waters in the Atlantic Ocean. The Lease Area is comprised of 101,590 acres and is approximately 10 mi wide and over 18 mi long. The nearest WTG position is approximately 20 mi south of Martha's Vineyard and 24 mi southwest of Nantucket. New England Wind 1 will be located in the northern portion of the Lease Area and New England Wind 2 will be located in the southern portion. The Lease Area is adjacent to three other federal offshore wind energy lease areas: OCS-A 0501 (location of Vineyard Wind 1), OCS-A 0500, and OCS-A 0520. As the Eligible Facility site is located beyond state territorial waters, there are no local zoning, flood plain, or existing land use details to provide.

6.5.2 Delivery Facilities

The Delivery Facilities locations for the Projects include the following:

- The offshore export cable routes from the Eligible Facility site through federal and state waters;
- The landfall site for New England Wind 1 at the Craigville Beach parking lot and for New England Wind 2 at the Dowses Beach parking lot, both in Barnstable;
- Onshore export cable routes under public roadway layouts in Barnstable and within existing utility ROWs;
- Onshore substation sites in Barnstable and;
- Grid interconnection routes from the onshore substations to the West Barnstable Substation.

6.5.2.1 Offshore Export Cable Route

Based upon careful consideration of multiple technical, environmental, and commercial factors, Avangrid identified offshore export cable routes for both Projects that are substantially similar to the Vineyard Wind 1 offshore export cable route. The projects share an OECC that is 96% common. The Project's offshore export cables will travel from the northwestern corner of the Lease Area, and along the northwestern edge of Lease Area OCS-A 0501 (through Vineyard Wind 1). The offshore export cable route then heads through Muskeget Channel towards the landfall sites on the western side of Barnstable (see **Figure 6.2-2**).

The offshore export cable routes provide for efficient, technically feasible connection of the electrical service platforms to the POI in West Barnstable. In light of the POI, and adjacent lease areas, the most suitable route for the offshore export cables to shore is from the northwestern corner of the Lease Area. Avangrid evaluated multiple route options when siting the offshore export cable route for Vineyard Wind 1 and determined that the onshore export cable route selected for that project would result in fewer impacts than the other alternatives evaluated, less electrical line losses, and lower installation and operational costs. Accordingly, using substantially similar offshore export cable routes within the same OECC as Vineyard Wind 1 provides a proven and permittable route from the Lease Area to the POI.

The geological conditions within the OECC are also well understood, and site geological conditions are suitable for cable installation, as evidenced by the successful installation of Vineyard Wind 1 export cables. We have a large amount of survey data and a robust understanding of the offshore export cable route in terms of potential environmental impacts, and construction feasibility from the OECC survey work completed for Vineyard Wind 1. We have, for example, already gathered thousands of NM of geophysical trackline data and hundreds of vibracores, cone penetrometer tests, benthic grab samples with still photographs, and underwater video transects that support the characterization of the OECC. Avangrid has assessed the offshore export cable route for installation feasibility, which includes ensuring that water depths are suitable for fully loaded cable installation vessels, slopes are workable for typical cable installation tools, sufficient room is available for anchoring, etc. Based on these detailed geotechnical and installation feasibility analyses, we have determined that installation in the identified offshore export cable route is suitable and feasible.

Moreover, the use of a shared OECC with Vineyard Wind 1 minimizes potential environmental impacts by limiting disturbance to a single corridor and provides an opportunity to maintain cables more efficiently.

6.5.2.2 New England Wind 1 Landfall Site

New England Wind 1 offshore export cables will transition onshore in Barnstable beneath the Craigville Beach parking lot. Avangrid has explored several landfall site options and based on due diligence process has selected Craigville Beach as the landfall site. This site is preferred given its favorable egress and inland routing to the West Barnstable Substation via public roadways and an existing utility ROW.

The landfall site is within a 3.5-acre paved parking area at Craigville Beach, a public beach owned and managed by Barnstable. Craigville Beach is situated in Centerville Harbor. Existing uses in and around the landfall site include recreational use of the beach area, seasonal residential use, and recreational boating in the Centerville Harbor area to the south of Craigville Beach. At Craigville Beach, the offshore export cables offshore-to-onshore transition will be made using HDD. From Craigville Beach, the onshore export cables would continue beneath public roadway layouts. The parking area at Craigville Beach has adequate space for an HDD staging area and favorable route options to the onshore substation site. The landfall site at Craigville Beach is in a velocity zone (VE elev. 14 and 15), as established by the Federal Emergency Management Agency.

6.5.2.3 New England Wind 2 Landfall Site

New England Wind 2 offshore export cables will transition onshore in Barnstable. As previously mentioned, several potential landfall site options in Barnstable were investigated for New England Wind 2 prior to selecting the Dowses Beach parking lot as the preferred landfall site. Initial route screening included a broad assessment to identify potential landfall sites where the transition from offshore cables to onshore cables could occur.

Initially, more than 50 possible landfall sites were identified along the southern coast of Cape Cod and on the east coast of Buzzards Bay. These initial landfall sites were reviewed in the context of cable length limitations and proximity to potential POIs. They were then evaluated and graded based on the availability of adequate workspace, adjacent environmental resources, and sufficient inland egress to a suitable POI. Avangrid completed additional engineering, environmental, and constructability evaluations for each potential landfall site within the area of focus.

After a careful and iterative evaluation process, the 2.5-acre parking lot at Dowses Beach (owned and managed by Barnstable) was selected as the most suitable landfall site for New England Wind 2. The parking lot is situated on a peninsula between East Bay and Centerville Harbor, away from nearby residences. At Dowses Beach, the offshore-to-onshore transition of the export cables would be made using HDD, with construction and installation proposed entirely within paved surfaces to mitigate impacts to the surrounding environment. The parking lot at Dowses Beach has adequate space for an HDD staging area and favorable route options to the onshore substation site. The landfall site at Dowses Beach is within a velocity zone (VE elev. 14 and 15), as established by the Federal Emergency Management Agency. The initial section of the onshore export cable route in East Bay Road falls within a still-water flood zone (AE elev. 13). From Dowses Beach, the onshore export cables would continue beneath public roadway layouts.

6.5.2.4 New England Wind 1 Onshore Export Cable Route

Avangrid has selected an onshore export cable route from the New England Wind 1 landfall site to the New England Wind 1 onshore substation. The approximately 4-mi route from the landfall site to the onshore substation is almost entirely located under publicly owned roadway layouts, with the exception of a proposed trenchless crossing of the Centerville River and a short section of utility ROW. The proposed transmission route begins in the paved parking lot at Craigville Beach and then proceeds generally north on Craigville Beach Road for approximately 0.5 mi through moderate-density residential areas, then continues north on Main Street for approximately 0.5 mi through more developed mixed residential and commercial areas. Continuing north on Old Stage Road in Centerville Village for approximately 0.7 mi through mixed residential and commercial areas, the route passes through the Centerville Historic District. The route then crosses Route 28 and follows Shootflying Hill Road for approximately 2.1 mi through moderate-density residential areas before turning southeast onto ROW #343 for the final approximately 0.2 mi to the onshore substation site, where voltage will step up to 345 kV in preparation for interconnection with the existing electrical grid. The onshore export cable route is depicted in **Figure 6.2-3**.

6.5.2.5 New England Wind 2 Onshore Export Cable Route

The preferred onshore export cable route from the New England Wind 2 preferred landfall site to the onshore substation is an approximately 6.7-mi route located entirely within public roadway layouts or within the existing paved parking lot area at Dowses Beach. The route begins underneath the paved parking lot at Dowses Beach and proceeds generally west under the existing paved causeway to East Bay Road. From there, the route proceeds approximately 0.2 mi in a southerly direction underneath East Bay Road. At the end of East Bay Road, the route turns northwest under Wianno Avenue, which it follows for approximately 0.9 mi to Main Street. The route continues north under Main Street for approximately 1.1 mi to Osterville-West Barnstable Road, which it then follows for approximately 1.9 mi to Old Falmouth Road. The route then turns and continues in a northeast direction and follows Old Falmouth Road for approximately 0.9 mi, then turns eastward under Old Stage Road for approximately 0.2 mi to the Oak Street intersection. Turning north under Oak Street, the route follows Oak Street for approximately 1 mi before turning west under Service Road and continuing another 0.2 mi to a staging area to the proposed trenchless crossing of Route 6 into the onshore substation site. The preferred onshore export cable route is depicted in **Figure 6.2-4**.

The alternative onshore export cable route, which has also been included in all permit filings for flexibility, is a 6.6-mi route that proceeds along roads generally east of the preferred onshore export cable route until the two routes converge at Osterville-West Barnstable Road. The alternative onshore export cable route is depicted in **Figure 6.2-4**.

6.5.2.6 New England Wind 1 Onshore Substation

The New England Wind 1 onshore substation site is located at 6 and 8 Shootflying Hill Road, within an area zoned as residential under Barnstable's zoning bylaw. 8 Shootflying Hill Road, which will contain all the substation equipment, is an approximately 6.7-acre parcel southwest of the intersection between Route 6 and Route 132 and is located less than one mile east of the POI at the West Barnstable Substation. The substation parcel is bordered to the north by Shootflying Hill Road, to the east by land owned by MassDOT, to the south by Eversource ROW #343, which leads to the West

Barnstable Substation, and to the west by residential parcels. The northern part of this parcel currently contains a motel building and parking lot, and the southern part consists of wooded land.

6 Shootflying Hill Road is an undeveloped wooded lot abutting the northeastern edge of 8 Shootflying Hill Road and will be utilized for site access. Avangrid purchased 6 Shootflying Hill Road in 2023.

6.5.2.7 New England Wind 2 Onshore Substation

The New England Wind 2 onshore substation site is located west of Oak Street near the Oak Street Bridge overpass of Route 6, approximately 0.25 mi west of the POI at the West Barnstable Substation. [redacted]

[redacted]

6.5.2.8 New England Wind 1 Grid Interconnection Route

From the New England Wind 1 onshore substation site to the West Barnstable Substation, the onshore export cable route travels approximately 0.7 mi, and the route is located entirely within existing utility ROWs. The route follows Eversource ROW #343 for less than 0.1 mi, then ROW #345 for approximately 0.5 mi; finishing on ROW #381 for less than 0.2 mi, where it crosses Route 6 and enters Parcel #214-001. A parcel of land located immediately southeast of the West Barnstable Substation that is owned by Avangrid (see **Attachment 6.5-1**), before entering the substation site.

6.5.2.9 New England Wind 2 Grid Interconnection Route

The preferred grid interconnection route is approximately 0.4 mi long and includes installation of the grid interconnection cables in a buried duct bank within the existing Fire Tower access road off Oak Street, then north along Oak Street, and into the northern portion of the West Barnstable Substation parcel. [redacted]

[redacted]

6.5.3 Marine Terminals

Please refer to **Section 10** for a description of the marine terminals to be used for deployment of major project components.

6.6. Identification of Joint Real Property Use

Identify any joint use of existing or proposed real property rights and/or easements.

Please refer to **Section 6.4** for all discussion of real property rights and/or easements required for New England Wind 1 and New England Wind 2.

6.7. Status of Interconnection to the Grid

The bidder must detail the status (and conclusions, as available) of interconnection applications and studies.

Further, bidders must describe how proposals would be affected if the Eligible Facility is connected to regionalized offshore transmission facilities.

Avangrid engaged grid connection planners and modelers in 2016 to investigate optimal grid connection strategies for offshore wind projects in Lease Area OCS-A 0501, which included the area now known as Lease Area OCS-A 0534. Resulting studies analyzed the technical and permitting constraints of various grid POIs as well as route options to access these grid POIs. This planning identified West Barnstable Substation as the preferred POI to a PTF node for potential future projects.

Since completing these evaluations, interconnection requests have been filed and ISO-NE system impact studies have progressed and continue to demonstrate the viability of connecting offshore wind energy to the New England region. These requests secure interconnection capacity to support the build-out of the Projects, while also minimizing interconnection risk and optimizing grid interconnection for the Projects. Avangrid's interconnection requests for the QPs to be utilized for the Projects are shown in **Table 6.7-1**.

Table 6.7-1 New England Wind 1 and New England Wind 2 Interconnection

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

New England Wind 1 has a completed SIS, and the New England Wind 2 final CSIS is anticipated shortly after bid submission. These reports fulfill the requirements for the ISO-NE Proposed Plan Action approval under Section 1.3.9 of the ISO-NE Tariff. An overview of the interconnection status for each of the QPs listed in **Table 6.7-1** is included herein.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

6.7.3 Connection to Regionalized Offshore Transmission Facilities

Avangrid supports the goals of the Joint State Innovation Partnership for Offshore Wind and acknowledges the potential for "meshed" multi-terminal high voltage direct current systems to enhance energy reliability and resiliency while generating meaningful cost benefits to all future offshore wind resources connecting to New England transmission grid.

[redacted]

[redacted]

[redacted]

6.8. ISO-NE Interconnection Studies and Requirements

All projects submitted by bidders must have filed an interconnection request with ISO-NE, seeking Capacity Network Resource service.

The bidder must have a completed ISO-NE Feasibility Study, or a Cluster Enabling Transmission Upgrade Regional Planning Study (also known as a Cluster Resource Integration Study) as defined in Schedule 22, or a highly comprehensive and credible interconnection study performed by a third-party in accordance with the ISO-NE methodology and NCIS as defined by the ISO-NE Planning Procedure 5-6, that includes the proposed project prior to bid submission.

Projects that have received their I.3.9 approval from ISO-NE must identify that approval and include such documentation in their proposal.

Bidders may submit additional supporting third party technical reports or interconnection studies, which should approximate the ISO-NE interconnection process, including but not limited to clear documentation of study technical and cost assumptions, reasoning, and justification of such assumptions. If any third-party studies contain CEII information, bidders should submit non-CEII summaries of such studies with the proposal, and provide the full documents upon Rhode Island Energy submitting documentation that recipients have appropriate CEII clearance.

Avangrid has made significant advancements in the ISO-NE Interconnection Queue process for both Projects. This includes filing valid interconnection requests, providing electrical models of the proposed plants, and substantial completion of the relevant studies conducted by ISO-NE. Relevant milestones applicable to New England Wind 1 and New England Wind 2 are outlined in **Section 6.7**.

New England Wind 1 and New England Wind 2 I.3.9 statuses are outlined below, and SIS outcomes are described in **Section 6.10**.

6.8.1 I.3.9 Approval

6.8.1.1 New England Wind 1

[redacted]

6.8.1.2 New England Wind 2

Avangrid does not yet have I.3.9 approval from ISO-NE for New England Wind 2. [redacted]

6.9. Commitment to ISO-NE Interconnection Levels

Each proposal must include a commitment to interconnect to the ISO-NE PTF at a CCIS and NCIS level.

Each proposal must include a commitment to complete the Forward Capacity Auction Qualification ("FCAQ") process set forth in Section III.13.1 of Market Rule 1 of ISO- NE's Transmission Markets and Services Tariff, and to meet all FCAQ requirements in order to establish its ability to interconnect at this level.

New England Wind 1 and New England Wind 2 will interconnect to the PTF at the West Barnstable Substation at a level equivalent to the CCIS. System impact studies conducted by ISO-NE on the Projects have demonstrated that interconnection to the selected POI at West Barnstable at 345 kV level upon completion of the grid upgrades provides a reliable interconnection for New England Wind 1 and New England Wind 2.

Avangrid is fully committed to build all required network upgrades identified in the Forward Capacity Auction Qualification (FCAQ) process.

6.9.1 Capacity Supply Obligation

[redacted]

[redacted]

[redacted]

6.10. Preliminary Identification of Interconnection Costs

To the extent that ISO-NE studies have not yet been conducted to ascertain the network upgrades and other interconnection costs required to achieve such CCIS interconnection at the time of bidding, a bidder may include a preliminary non-binding overlapping impact study conducted by ISO-NE to identify the potential upgrades and associated costs that would be required by ISO-NE's CCIS interconnection determination, or may identify such costs through relevant studies and analyses performed by them or their consultants that approximate the ISO-NE capacity interconnection process. These studies and their supporting documentation, assumptions and data must match closely ISO-NE study requirements for CCIS interconnection.

Rhode Island Energy expects bidders to provide studies that are consistent with ISO-NE's approach and that approximate what the ISO-NE results would be.

Proposals with a Qualification Determination Notification ("QDN") from ISO-NE for their proposed capacity amount and commitment period must include all QDN documentation in their proposal.

All projects that do not have a QDN for their proposed capacity amount and commitment period must provide a study performed by ISO-NE or a third party in accordance with ISO-NE Planning Procedure 10 in order to prove ability to interconnect at the CCIS.

New England Wind 1 has a completed SIS, and the New England Wind 2 final CSIS is anticipated shortly after bid submission (**Attachment 6.7-2** and **Attachment 6.7-6**). These studies have identified the necessary grid upgrades summarized in the sections below. Cost estimates for the network upgrades are detailed in **Section 6.16**.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

6.11. ISO-NE FCA Wind Qualification Template and Capacity Determination

Each Bidder's proposal must include the ISO-NE FCA Wind Qualification Template spreadsheet to approximate the qualified capacity associated with its proposed project, and if the bidder has not completed an ISO-NE preliminary non-binding overlapping impact study but has provided an equivalent third-party overlapping impact study, the bidder should include a description of how the ISO-NE FCA Wind Qualification Template spreadsheet was utilized in that analysis. The final amount of capacity will be determined under the FCAQ process.

In addition, bidders are encouraged to provide any additional data, studies, or information on forecast methodologies they believe would facilitate analysis of their bids' Wind Qualification analysis.

Avangrid recognizes that the Forward Capacity Market rules and structure, as governed by ISO-NE, are highly likely to undergo significant changes within the next few years. With that in mind, Avangrid intends to qualify for and participate in the Forward Capacity Market based on the rules and regulations applicable at the appropriate time.

6.11.1 Forward Capacity Auction Qualification

Avangrid has completed preliminary estimates of summer and winter capacities for both Projects that it expects to qualify under the FCAQ requirements set forth in Section III.13.1 of Market Rule 1 of ISO-NE's Transmission Tariff. See **Table 6.11-1** for the estimates of summer and winter capacity values. These estimates are based on the anticipated operating characteristics of the WTGs that are being considered for the Projects and are subject to change. The final capacity amounts that would qualify under the FCAQ requirements will be adjusted to match the performance characteristics of the final WTGs selected for New England Wind 1 and New England Wind 2. Details on the WTG assumed in this proposal are provided in **Section 8**

Both Projects intend to meet the FCAQ requirements beginning with FCA #21 for capacity commitment period June 2030 to May 2031 (for New England Wind 1) and FCA #22 for capacity commitment period June 2031 to May 2032 (for New England Wind 2). The final decision on the amount of capacity and which capacity commitment period to begin bidding will be determined by Avangrid management.

[redacted]

[redacted]

6.11.2 Meeting Capacity Supply Obligation Requirements

Avangrid has conducted extensive assessments of the interconnection requirements for the New England transmission system based on all applicable standards established by the North American Electric Reliability Council, NPCC, and ISO-NE.

To the extent that upgrades to the New England Area Pool Transmission System are necessary to interconnect each Project, Avangrid is fully committed to funding the commercially reasonable costs of appropriately attributable system upgrades to satisfy both (a) the interconnection requirements as agreed to in the final LGIAs; and (b) resolve any issues identified in the overlapping impact analysis. Overlapping capacity deliverability analysis was performed with reference to ISO-NE Planning Procedure PP-10, Planning Procedure to Support the Forward Capacity Market.

Results indicate that there are no major constraints to deliverability of the proposed MWs to the POI for both New England Wind 1 and New England Wind 2. Avangrid's Projects will meet both the Network Capability Interconnection Standards and the CCIS as established by ISO-NE upon completion of all applicable studies by ISO-NE.

6.11.3 Forward Capacity Auction Qualification Amounts

By using the template provided by ISO-NE and using the appropriate applicable historical data, in combination with the expected performance of the WTGs for the Projects, Avangrid has calculated capacity amounts that are consistent with the methodology required by ISO-NE. Avangrid's inputs are based on the WTG technology being assumed for this proposal.

[redacted] See **Section 4** for more details on the estimated annual energy production for each Project. The calculation method used to determine the final FCAQ amounts will be the same method used for Avangrid's joint venture project Vineyard Wind 1.

6.12. Deliverability Constraint Analysis

To assist in identifying potential additional constraints on the project's deliverability, bidders must perform and provide an Informative Deliverability Study according to the criteria defined in Appendix F. This study is in addition to the required NCIS and CCIS studies discussed above. Its purpose is simply to identify system constraints under specified generation dispatch conditions, not to address the constraints with system upgrades or reductions in proposed delivery profile. Provide a description of the findings of the deliverability constraint analysis, including but not limited to a list of thermal overloads and voltage violations identified.

The deliverability constraint analyses were conducted in accordance with Appendix F of the Rhode Island Energy Request for Proposals for Offshore Wind Energy, updated December 19, 2023. The final results identified some thermal violations under 2032 minimum and light load conditions (**Attachment 6.12-1** and **Attachment 6.12-2**).

6.12.1 New England Wind 1

[redacted]

[redacted]

[redacted]

6.12.2 New England Wind 2

[redacted]

[redacted]

[redacted]

[redacted]

6.13. Impact Analysis of Project Interconnection Queue Changes

Bidders shall include a scenario analysis in their studies that shows how changes in the project interconnection queue could impact their interconnection costs using the current ISO-NE interconnection rules. Bidders are encouraged to include additional reports, analysis and studies that support their interconnection and deliverability.

Avangrid's QPs for New England Wind 1 and New England Wind 2 have advanced substantially through the ISO-NE interconnection queue process, with completed system impact studies. [redacted]

The draft CSIS Report with New England Wind 2's QPs [redacted] was completed in December 2023. Grid costs identified in the draft CSIS will be further established through a Facility Study within +/- 20% accuracy conducted by Eversource [redacted]

Therefore, changes in the project interconnection queue process, including those being discussed in the New England Power Pool (NEPOOL) stakeholder process regarding FERC Order 2023, are not expected to impact either Project.

Additionally, On March 7, 2024, at NEPOOL's Participants Committee Meeting, the committee approved ISO-NE's plan to comply with FERC Order 2023, which included decision to not subject current system impact studies in progress to FERC Order 2023 rules. Therefore, New England Wind 1 and New England Wind 2 are not impacted by changes in ISO-NE interconnection rules.

Additionally, Avangrid has conducted Capacity and Deliverability studies (**Attachment 6.12-1** and **Attachment 6.12-2**) as per Appendix I of the Request for Proposals using the grid upgrades identified in the system impact studies for New England Wind 1 and New England Wind 2. Results have indicated that Avangrid's Projects connect reliably without any constraints.

6.14. Interconnection Agreement and Studies Status

Provide a copy of an interconnection agreement, if any, executed by the bidder with respect to the proposed project.

If an interconnection agreement has not been executed, please provide the steps that need to be completed before an interconnection agreement can be executed and the associated timeline.

Please also provide the status and expected completion date of any additional interconnection studies already underway with ISO-NE and/or the transmission owner.

All studies must follow the current ISO-NE interconnection procedures and detail any assumptions regarding resources and corresponding network upgrades ahead of the project in the ISO-NE interconnection queue.

All network upgrades and assumptions identified in these studies must be clearly documented and included in the bid price.

Avangrid has made significant advancements in the ISO-NE Queue process for both Projects. This includes filing valid Interconnection Requests, providing electrical models, and substantial completion of the relevant System Impact Studies conducted by ISO-NE. Relevant milestones applicable to New England Wind 1 and New England Wind 2 (see **Section 6.7**).

[redacted]

[redacted]

6.15. Cost Estimates for Network Upgrades

Please provide cost estimates for any necessary network upgrades identified in the studies identified.

[redacted]

6.15.1 New England Wind 1

[redacted]

[redacted]

[redacted]

6.15.2 New England Wind 2

[redacted]

[redacted]

[redacted]

[redacted]

6.16. Electrical Models of Energy Resources

Provide the electrical models of all energy resources supporting the proposed project in accordance with the filing requirements of the ISO-NE Tariff Schedule 22 and 23.

[redacted]

Electrical models in Siemens Power System Simulation for Engineering (PSSE) and PSCAD models are included in the corresponding ISO-NE studies for the Projects (see **Attachment 6.7-2** and **Attachment 6.7-6**). These models, included in Appendix G of each study, can be provided upon request.

ISO-NE performed the following analyses on the Projects using the submitted electrical models:

- **Steady-State Analysis:** Performed power factor test, collection system analysis and N-1/N-1-1 voltage and thermal analysis.
- **Short-Circuit Analysis**: Assessed the impact of the Projects on fault current levels and breaker duty in the area.
- **Stability Analysis:** Analyzed the impact on transient stability performance of design contingencies in the vicinity of the Projects and to identify violations of ISO-NE stability performance criteria.

[redacted]

6.17. One-line Diagram of Interconnection Facilities

Provide a copy of an electrical one-line diagram showing the interconnection facilities, the relevant facilities of the transmission and/or distribution provider, and any required network upgrades identified in the studies required in Section 6 of this document.

Electrical one-line diagrams for New England Wind 1 and New England Wind 2 are included in **Attachment 6.7-2** (Appendix J) and **Attachment 6.7-6** (Appendix H). These appendices can be provided upon request.

6.18. Specification of Interconnection Facilities

Specify and describe the current or new interconnection facilities (lines, transformers, switching equipment, system protection and controls, etc.) that bidder owns or is intending to construct or have constructed in order to deliver the proposed energy.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

6.19. Incremental Data Requirements

1. IDV file(s) in PSSE v34 format modeling all upgrades to the transmission network identified in the studies required in Section 6 of this document. If the bidder does not use PSSE, provide in text format necessary modeling data shown on page 53 under requirement 6.19 of the RFP.

For New England Wind 1, PSSE models are included in text format in Appendix G of the SIS Report, which is provided as **Attachment 6.7-2**. Model files for all QPs can be provided in electronic format upon request.

For New England Wind 2, the PSSE models are provided in text format in Appendix G of the draft CSIS Report, which is provided as **Attachment 6.7-6**. Model files for all QPs can be provided in electronic format upon request.

6.20. Reflection of Constraints or Curtailment in Delivery Profile

Please detail with supporting information and studies (as available) that the production/delivery profile contemplated in your proposal reflects constraints or curtailment, if any, after the upgrades that are expected to take place pursuant to interconnection at an equivalent to the CCIS.

If the project is planning to make any voluntary upgrades beyond those associated with the CCIS-equivalent standard, as more fully described in the RFP, please describe the transmission network upgrades necessary, their estimated cost (for which the bidder would have cost responsibility), and the impact on the proposed generation schedule by reducing remaining constraints or curtailments.

[redacted] performed overlapping capacity deliverability analysis with reference to ISO-NE Planning Procedure PP-10, Planning Procedure to Support the Forward Capacity Market on New England Wind 1 (**Attachment 6.12-1**) and New England Wind 2 (**Attachment 6.12-2**). The analysis results indicate that there are no major constraints to deliverability of the proposed capacity to the POI for both New England Wind 1 and New England Wind 2. A summary of the results is provided in **Table 6.20-1**.

[redacted]

[redacted]

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

6.21. REC/Environmental Attribute Delivery Plan

Please provide documentation and information demonstrating that the project will deliver GIS Certificates representing the associated RECs and any other Environmental Attributes, as applicable. The RECs and environmental attributes associated with energy generation must be delivered into Rhode Island Energy's NEPOOL GIS accounts.

All bidders must include sufficient information and documentation that demonstrates that the bidder will utilize an appropriate tracking system to ensure a unit-specific accounting of the delivery of unit specific and unit contingent of energy and RECs.

Please describe whether transfer of all GIS Certificates is authorized under the current ISO-NE GIS rules and protocols, or if a rule or protocol change is required. To the extent such a change is required, please provide regarding the proposal and the process for implanting the change.

Avangrid has attached documentation of its existing access to NEPOOL GIS and three operating assets that transfer renewable energy certificates via NEPOOL (see **Attachment 6.21-1**). While these projects are not sited in Rhode Island, Avangrid does have the experience with other participants and capability to deliver into Rhode Island Energy's account if awarded a PPA through this solicitation for either Project. Avangrid has no knowledge that the transfer of all GIS Certificates will not follow the current ISO-NE GIS rules and protocols, and therefore does not believe any changes are required to authorize this activity.

7. Environmental Characterization, Environmental and Fisheries Mitigation Plan, Permit Acquisition Plan, and Environmental Attributes Certification

Having completed permitting of Vineyard Wind 1—the nation's first commercial-scale offshore wind project—Avangrid is one of the most experienced offshore wind developers in the US. Vineyard Wind 1 pioneered a successful permitting and environmental assessment approach, which will continue to serve as a tested blueprint for New England Wind 1 and New England Wind 2 (the Projects). More specifically, with all of its critical state, regional, and local permits already in hand; a signed host community agreement (HCA) with the Town of Barnstable (Barnstable); and federal permitting expected to be complete later this year, New England Wind 1 is undoubtedly the most mature and shovel-ready uncontracted offshore wind project in the region.

The permitting processes for both Projects are well underway with many significant milestones already achieved at the federal, state, regional, and local levels. The Projects are going through a joint permitting process at the federal level, where they are collectively referred to as New England Wind. Avangrid has worked closely with Bureau of Ocean Energy Management (BOEM) staff during their review of the New England Wind Construction and Operations Plan (COP).[1] The New England Wind COP details Avangrid's proposal to develop wind energy facilities as two projects (New England Wind 1 and New England Wind 2) in Lease Area OCS-A 0534 (the Lease Area). The New England Wind COP was originally submitted to BOEM in July 2020. BOEM published the Draft Environmental Impact Statement (DEIS)[2] on December 23, 2022, and has since concluded its environmental review of the Projects and issued a Final Environmental Impact Statement (FEIS)[3] on March 1, 2024. BOEM anticipates issuing a Record of Decision (ROD) on April 1, 2024, and approving the New England Wind COP on July 1, 2024.

New England Wind 1 secured its remaining state, local, and regional permits in Q1 2024.[4] [redacted]

[1] https://www.boem.gov/renewable-energy/state-activities/new-england-wind-ocs-0534-construction-and-operations-plan

[2] https://www.boem.gov/renewable-energy/state-activities/new-england-wind-draft-environmental-impact-statement-deis

[3] https://www.boem.gov/renewable-energy/state-activities/new-england-wind-final-eis

[4] The Energy Facilities Siting Board (EFSB) Final Decision for New England Wind 1 is currently pending appeal.

[redacted]

The Projects have been carefully developed and sited to avoid potential impacts to surrounding communities, including Environmental Justice (EJ) populations and host communities, to the greatest extent practicable. Avangrid's collaborative community engagement approach and deep involvement in local communities has fostered public support and recognition of the Projects as critical pieces of the State of Rhode Island's clean energy transition. Avangrid acknowledges that, like most major infrastructure projects, there is some local opposition to the Projects, specifically regarding the proposed landfall site for New England Wind 2. Avangrid's well-qualified community outreach team, consisting of several Cape Cod and South Coast locals, has successfully built upon its network of strong relationships developed during the development of Vineyard Wind 1 to ensure the successful permitting of New England Wind 1 and will continue doing the same for New England Wind 2. The voluminous and varied letters of support for the two Projects (provided as **Attachment 7.2-2**) are evidence of Avangrid's meaningful and well-rounded stakeholder engagement efforts to date.

Avangrid, with input from key stakeholders, has thoughtfully prepared several plans to construct and operate New England Wind 1 and New England Wind 2 in a responsible and sustainable manner. The Fisheries Monitoring Plan, provided as **Appendix A** to **Attachment 7.4-1**, and Fisheries Communication Plan, provided as **Attachment 7.4-2**, demonstrate Avangrid's commitment and ability to listen, address concerns when possible, and develop productive working relationships with fisheries stakeholders. The Environmental and Fisheries Mitigation Plan (EFMP), included as **Attachment 7.4-1**, outlines Avangrid's industry-leading efforts to develop environmental protection measures and initiatives that proactively conserve and protect threatened and endangered species.

[redacted]

Avangrid's years of experience in Massachusetts set us apart from other offshore wind developers in the US and lend confidence to the permitting plan set forth in this section. Avangrid's proven team includes Vineyard Wind 1 veterans and many subject matter experts committed to permitting well-sited offshore wind projects with positive environmental and economic impacts.

7.1. Permit Plan, Timeline, and Permit and Approval Assessment

A description of all regulatory body approvals, such as permits, assents, and licenses for the use and operation of the Eligible Facility site and associated Offshore Delivery Facilities, including zoning, and detail which have been obtained. Provide a detailed plan and timeline to secure the remaining regulatory body approvals for all offshore and onshore routes. Include a project permit and approval assessment which describes, in narrative form, each segment of the process, the required permit or approval, the status of the request or application and the basis for projection of success by the milestone date. All requirements should be included on the project schedule in Section 9. Provide copies of any regulatory body approvals obtained, upon request;

New England Wind 1 and New England Wind 2 are more advanced than any other uncontracted projects in the Northeast with regard to permitting. Having worked closely with BOEM staff and other federal agencies since 2017, the team has leveraged its knowledge and resources to progress the federal permitting process to near completion. Similarly, extensive experience with state, regional, and local agencies and permitting authorities in Rhode Island further ensures the success of both Projects.

Avangrid's permitting team is supported by a suite of environmental consultants with the experience and expertise required to successfully permit commercial-scale offshore wind projects. [redacted]

[redacted]

The permitting path for both Projects is similar to that of Vineyard Wind 1. A list of the permits, licenses, and approvals for both Projects is provided in **Tables 7.1-1**, **7.1-2**, and **7.1-3**.

7.1.1 Federal Permits and Approvals

New England Wind 1 and New England Wind 2 are covered by the Fixing America's Surface Transportation Act (FAST-41)[5] to expedite and coordinate the federal permitting process. FAST-41 establishes procedures that standardize interagency consultation and coordination processes, and results in increased accountability to achieve agreed-upon schedules. FAST-41 codified into law the use of the Permitting Dashboard to track project timelines. The schedule on the Permitting Dashboard provides a timeline for the environmental review and permitting processes for both Projects, which are going through a joint federal permitting process that is nearing completion. The major federal permitting processes for New England Wind 1 and New England Wind 2 are expected to conclude on July 1, 2024, when BOEM will approve the COP for the Projects.

Table 7.1-1 lists the federal permits, approvals, and consultations required for the Projects and their statuses. The timelines for each permit/approval are discussed in **Section 7.2**.

5 https://www.permits.performance.gov/permitting-project/fast-41-covered-projects/new-england-wind

Table 7.1-1 Federal Permits and Approvals

Agency/Regulatory Authority	Permit/Approval	Status
BOEM	Site Assessment Plan (SAP) approval	Completed
	COP filing/approval	COP filed with BOEM on July 2, 2020 COP approval anticipated July 1, 2024
	National Environmental Policy Act (NEPA) Environmental Review	Initiated by BOEM on June 30, 2021 DEIS published on December 23, 2022 FEIS published on March 1, 2024 ROD anticipated April 1, 2024
	Facility Design Report and Fabrication and Installation Report	To be filed (TBF) per project component, beginning Q2 2025
US Environmental Protection Agency (EPA)	National Pollutant Discharge Elimination System Permit(s)	TBF approximately three months prior to the start of construction
	Outer Continental Shelf (OCS) Air Permit	Notice of Intent (NOI) submitted January 28, 2022 Applications filed on October 7, 2022; deemed complete on February 13, 2023 Draft permits published December 19, 2023 Final OCS Air Permits are anticipated in Q2 2024
US Army Corps of Engineers (USACE)	Clean Water Act (CWA) Section 404 Permit Rivers and Harbors Act of 1899 Section 10 Individual Permit	Applications filed on August 1, 2022; deemed complete and Public Notices published in December 2022 Section 10 and Section 404 Permits for New England Wind 1 are anticipated to be issued by July 1, 2024 [redacted]

Table 7.1-1 Federal Permits and Approvals

Agency/Regulatory Authority	Permit/Approval	Status
US National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries)	Letter of Authorization (LOA) or Incidental Harassment Authorization	LOA request Notice of Receipt published in Federal Register on August 22, 2022 Published Proposed Incidental Take Authorization (ITA) in Federal Register on June 6, 2023 Publication of Final ITA anticipated May 31, 2024, with a final ITA decision issued by July 1, 2024
US Coast Guard (USCG)	Private Aids to Navigation (PATON) authorization	TBF - Assume three months prior to start of offshore construction
Federal Aviation Administration (FAA)	No Hazard Determination (for activities at construction staging areas and vessel transits, if required)	TBF - Assume three months prior to start of offshore construction
Massachusetts Office of Coastal Zone Management (MA CZM)	Federal Consistency Determination (15 CFR 930.57)	Review initiated on September 14, 2022 Concurrence issued November 9, 2023, for the COP
Rhode Island Coastal Resources Management Council (RI CRMC)	Federal Consistency Determination (15 CFR 930.57)	Review initiated on August 5, 2022 Concurrence issued on October 19, 2023

7.1.1.1 Federal Permitting Process

This section summarizes the requirements for each of the anticipated federal permits, approvals, and consultations required to construct the Projects.

Bureau of Ocean Energy Management

BOEM is the lead federal agency tasked with facilitating responsible development of both Projects. BOEM has jurisdiction under the Outer Continental Shelf Lands Act to issue leases, easements, and rights-of-way for the development of renewable energy resources on the OCS. BOEM authorizes offshore wind development on the OCS through its review and approval of a Site Assessment Plan (SAP) and a COP.

The SAP describes the initial activities to characterize a site (e.g., installation of meteorological tower and meteorological buoys). Avangrid installed a meteorological-oceanographic (metocean) buoy in Lease Area OCS-A 0501, which has since been segregated into Lease Areas OCS-A 0501 and OCS-A 0534, under an approved SAP in May 2018. The buoy, which was deployed for two years until May

2020, provided critical data to inform the design of and permitting strategies for New England Wind 1 and New England Wind 2. Therefore, this initial step in federal permitting is already complete for both Projects.

In reviewing the New England Wind COP, BOEM complies with its obligations under the NEPA, the National Historic Presentation Act (NHPA), the Magnuson-Stevens Fishery Conservation and Management Act, the Migratory Bird Treaty Act, the Clean Air Act, Marine Mammal Protection Act, and the Endangered Species Act. BOEM consulted with numerous other federal agencies during its review of the New England Wind COP, including the NOAA Fisheries, the US Fish and Wildlife Service, the EPA, and the USCG. BOEM used the NEPA substitution process for Section 106 consultation under the NHPA, coordinated with state historic preservation offices, and engaged in government-to-government consultation with Tribal Nations. BOEM also coordinated with nearby states under the Coastal Zone Management Act (CZMA) to ensure that the Projects are consistent with state-level coastal zone management plans. BOEM also consults with the US Department of Defense (DOD) Siting Clearinghouse during its review of projects.

<u>Environmental Protection Agency</u>

An OCS Air Permit is required for certain emissions from vessels and equipment use during offshore construction and operation of the Projects. The OCS Air Permits (one for each Project) will contain, at a minimum, emissions limitations, monitoring, testing, and reporting requirements for OCS sources.

<u>US Army Corps of Engineers</u>

Section 10 of the Rivers and Harbors Act of 1899 prohibits the unauthorized construction or alteration of any Navigable Waters. A Section 10 permit from the USACE is required for the installation of the wind turbine generators (WTGs), electrical service platforms (ESPs), foundations, the placement of scour protection and cable protection, and the installation of offshore export cables from the mean high-water line to the seaward limit of the OCS.

Section 404 of the CWA requires a permit before dredged or filled material can be discharged into the Waters of the US (within the three-nautical-miles [NM] limit for state territorial waters). A Section 404 permit from the USACE is needed because the installation of offshore export cables may involve the discharge of dredged materials from localized sand wave dredging and because cable installation or cable protection (if needed) could change the seafloor's bottom elevation. Like BOEM, the USACE must comply with its NEPA, NHPA, Magnuson-Stevens Fishery Conservation and Management Act, Migratory Bird Treaty Act, and Endangered Species Act obligations. However, to avoid duplication of effort, the USACE was a cooperating agency with BOEM through the NEPA process and will adopt the FEIS to meet its obligations.

<u>NOAA Fisheries</u>

An ITA from NOAA Fisheries is necessary for construction, principally because of the potential noise impacts to marine mammals associated with pile driving. Under the Marine Mammal Protection Act, the noise levels associated with construction have the potential to "harass" marine mammals; therefore, authorization is required. The Projects are seeking an LOA to obtain an ITA from NOAA Fisheries.

US Coast Guard

The USCG exercises authority over maritime navigation in Waters of the United States pursuant to 33 CFR § 66 (49 U.S.C. § 44718). Private Aids to Navigation (PATON) includes all marine aids to navigation operated in the navigable waters of the US other than those operated by the federal government or those operated in state waters for private aids to navigation. The USCG will issue a PATON approval for installation of the WTGs and ESPs to alert mariners to potential hazards to navigation. The PATON approval will be obtained prior to offshore construction.

Federal Aviation Administration/Department of Defense Siting Clearinghouse

The FAA requires a public notice of the proposed construction of a structure that is more than 200 feet (ft) above ground level or within certain distances of airports. While the WTGs for both Projects will be installed outside of the FAA's jurisdiction (which extends 12 NMfrom the US coastline), Avangrid will file Notices of Proposed Construction or Alteration for the temporary use or movement of any structures within territorial airspace that exceed 200 ft or any obstruction standard contained in 14 CFR Part 77 during construction of the Projects, including within ports and at construction staging areas. Avangrid will also consult with the US DOD Siting Clearinghouse about radar interference. The DOD Siting Clearinghouse has a structured formal review process to conduct a mission compatibility evaluation of proposed wind projects.

Massachusetts Office of Coastal Zone Management/Rhode Island Coastal Resources Management Council

The CZMA gives states the authority to review federal actions that affect their coastal uses and/or resources to ensure that such actions are consistent with a state's federally approved coastal zone management program and policies. The Massachusetts Office of Coastal Zone Management (MA CZM) and the Rhode Island Coastal Resources Management Council (RI CRMC) are responsible for implementing the federal consistency processes for Massachusetts and Rhode Island, respectively. MA CZM has consistency review authority over the Offshore Wind Energy Generation facility, the offshore export cable routes, and onshore portions of the Projects within the Massachusetts coastal zone. The Offshore Wind Energy Generation facility and portions of the offshore export cable routes are located within Rhode Island's 2018 Geographic Location Description and were therefore subject to federal consistency review by RI CRMC.

7.1.2 State Permits and Approvals

Elements of New England Wind 1 and New England Wind 2 under Massachusetts authority also require review and/or permits from numerous state agencies. **Table 7.1-2** lists the expected state permits required for the Projects and their statuses. The timelines for each permit/approval are discussed in **Section 7.2**.

Table 7.1-2 State Permits and Approvals

Agency/Regulatory Authority	Permit/Approval	New England Wind 1 Status	New England Wind 2 Status
MEPA Office	Certificate of the Secretary of Energy and Environmental Affairs on Environmental Impact Report	Final Environmental Impact Report (FEIR) Certificate received January 28, 2022	Environmental Notification Form Certificate received on December 9, 2022 Draft Environmental Impact Report (DEIR) Certificate received on October 11, 2023 [redacted]
EFSB / Massachusetts Department of Public Utilities (DPU)	G.L. c. 164, § 69 Approval G.L. c. 164, § 72 Approval to Construct G.L. c. 40A § 3 Zoning Exemption	Final Decision issued on December 18, 2023 (Docket # EFSB 20-01)	Petition filed on November 1, 2022 (Docket # EFSB22-06) Supplemental petition filed May 12, 2023
Massachusetts Department of Environmental Protection (MassDEP)	Chapter 91 Waterways License and Dredge Permit (310 CMR 9.00)/ Water Quality Certification (Section 401 of the CWA, 314 CMR 9.00)	Joint Application filed May 5, 2022; 401 Water Quality Certificate issued May 12, 2023, and Chapter 91 License issued February 21, 2024	[redacted]
Massachusetts Department of Transportation (MassDOT)	Non-Vehicular Access Permit(s)	Application filed November 17, 2023. Anticipated approval Q2 2024	[redacted]
Massachusetts Board of Underwater Archaeological Resources	Special Use Permit	Permit 17-003 renewal approved February 26, 2021	Special Use Permit 21-006 Renewal Application approved on April 6, 2023

Table 7.1-2 State Permits and Approvals

Agency/Regulatory Authority	Permit/Approval	New England Wind 1 Status	New England Wind 2 Status
Massachusetts Natural Heritage and Endangered Species Program (MA NHESP)	Conservation and Management Permit	Massachusetts Endangered Species Act (MESA) Determination issued April 1, 2022, with conditions (will not result in a Take of State-listed species)	MESA Checklist submitted on November 11, 2023
Massachusetts Historical Commission	State Archaeologist Permit #4427 (980 C.M.R. § 70.00)	Reconnaissance Survey permit application filed May 4, 2020 State Archaeologist's Permit #4006 for Reconnaissance Survey issued May 12, 2020 State Archaeologist's Permit #4006 amended and extended March 2, 2021	Intensive Survey permit application filed on August 18, 2022 State Archaeologist's Permit #4427 for Intensive Survey issued on October 4, 2022; Amended and extended May 19, 2023.
Massachusetts Division of Marine Fisheries	LOA and/or Scientific Permit (for surveys and pre-lay grapnel run)	TBF one month prior to work	TBF one month prior to work

7.1.2.1 State Permitting Process

The permitting processes for New England Wind 1 and New England Wind 2 are identical to that of Vineyard Wind 1, which received all its state permits and is under construction. Major state permitting for New England 1 is complete;[6] New England 2 is well underway. New England Wind 1 has now received all state permits, with one appeal pending to the EFSB Final Decision. Together, the permitting processes for each of Avangrid's projects have provided invaluable experience and enabled Avangrid to establish a strong working relationship with regulators and stakeholders. Additionally, Avangrid is applying lessons learned from the Vineyard Wind 1 and New England Wind 1 state permitting processes to New England Wind 2 to help ensure a timely and successful state permitting process.

<u>Energy Facilities Siting Board</u>

The EFSB reviews proposals to construct certain energy facilities, including electric transmission lines and substations. Pursuant to M.G.L. c. 164 § 69J, no applicant shall commence construction of a "facility" unless a petition for approval of construction has been granted by the EFSB. A jurisdictional "facility" includes a "new electric transmission line having a design rating of 69 kilovolts or more and

[redacted]

which is one mile or more in length on a new transmission corridor" (M.G.L c. 164 § 69G). The EFSB also has the ability to grant a Certificate of Environmental Impact and Public Interest (approval under M.G.L. c. 164 § 69K-69O), which has the effect of granting other state, regional, and local permits.

Massachusetts Environmental Policy Act

MEPA jurisdiction is triggered when an entity undertakes certain activities in Massachusetts that require one or more state permits. MEPA jurisdiction only applies to those portions of the Projects located within Massachusetts, including its territorial waters. Components of the Projects subject to MEPA review include offshore export cables within state jurisdictional waters, all onshore export cables, the onshore substations, and the grid interconnections from the new onshore substations to the existing West Barnstable Substation.

Massachusetts Department of Environmental Protection

Both New England Wind 1 and New England Wind 2 require a unique Chapter 91 Waterways License and a Section 401 Water Quality Certificate (WQC) from the MassDEP. Elements of the Projects within jurisdictional flowed tidelands of the Commonwealth and/or Waters of the US in the Commonwealth include portions of the offshore export cable routes within Massachusetts waters and intertidal zones.

Massachusetts Department of Transportation (MassDOT)

A Non-Vehicular Access Permit is required from MassDOT for installation of utilities within the state highway layout (SHLO). New England Wind 1 and New England Wind 2 require access to and installation of utilities within the SHLO including along a portion of Falmouth Road (Route 28) and a trenchless crossing beneath Route 6 for each route.

Article 97

Lands that have been acquired for certain conservation, recreation, or open space purposes are protected under Article 97 of the Amendments to the Massachusetts Constitution. A permanent change of use or a disposition of a property interest in these lands (including underground easements) requires legislative approval under Article 97.

Avangrid submitted a request for legislative authorization for disposition of land required for New England Wind 1. This request included the use of the Craigville Beach landfall site and a permanent easement for the onshore export cable crossing underneath Aaron S. Crosby Park in Barnstable. Legislative approval in accordance with Article 97 was granted on July 28, 2022 (see **Attachment 7.1-1**).

[redacted]

[redacted]

7.1.3 Regional and Local Permits and Approvals

In addition to state permits, elements of the Projects that occur in Massachusetts will need to obtain approvals and permits at the regional and local levels. **Table 7.1-3** lists the expected regional and local level reviews and permits required for the Projects and their status. The timelines for each permit/approval are discussed in **Section 7.2.**

Table 7.1-3 Regional and Local Permits and Approvals

Agency/Regulatory Authority	Permit/Approval	New England Wind 1 Status	New England Wind 2 Status
Regional Permits and Approvals			
Cape Cod Commission (CCC)	Development of Regional Impact (DRI) Review	DRI approval decision issued May 11, 2023	[redacted]
Martha's Vineyard Commission (MVC)	DRI Review	DRI approval decision issued September 19, 2022	DRI application filed December 13, 2023
Local Permits and Approvals			
Edgartown Conservation Commission	NOI	Superseding Order of Conditions issued by MassDEP May 16, 2023 Edgartown Wetland Bylaw Permit issued by the Edgartown Conservation Commission September 13, 2023	Filed November 2, 2023
Barnstable Conservation Commission	NOI	Order of Conditions issued October 17, 2023	[redacted]
Mashpee Conservation Commission	NOI	N/A	[redacted]
Nantucket Conservation Commission	NOI	Order of Conditions issued May 16, 2022	Order of Conditions issued January 4, 2024

7.1.3.1 Regional Permits and Approvals

Onshore elements of the Projects are primarily located in Barnstable, Massachusetts, and require review by the CCC. Project elements within the waters of Edgartown on Martha's Vineyard also require review by the MVC.

7.1.3.2 Local Permits and Approvals

Permits and approvals at the local level consider the offshore export cable routes, New England Wind 1 landfall site and onshore export cable route, and the New England Wind 2 preferred landfall site and onshore export cable route. Road opening permit(s)/Grant(s) of Location from Barnstable and permits from the appropriate local conservation commissions are also required for each of the Projects.

[redacted]

7.1.4 Permitting Timeline Overview

New England Wind 1 and New England Wind 2 have been planned and designed with a detailed and prudent schedule in line with the information provided in **Section 9**. Avangrid is confident this permitting timeline is realistic and achievable given that the federal permitting process is almost complete and the state, regional, and local permitting of New England Wind 1 is complete. [redacted]

[redacted]

[redacted]

7.1.4.1 Federal Permitting Timeline

Bureau of Ocean Energy Management

Avangrid filed the New England Wind COP (which includes both New England Wind 1 and New England Wind 2) with BOEM in July 2020. BOEM finished its completeness review of the New England Wind COP and issued an NOI to prepare an Environmental Impact Statement on June 30, 2021. BOEM published a DEIS on December 23, 2022, assessing the potential impacts to physical, biological, socioeconomic, and cultural resources that could result from both Projects. BOEM issued the FEIS on March 1, 2024, concluding its environmental review of the Projects. BOEM has also concluded the Section 106 historic preservation consultation process, and the Memorandum of Agreement has been executed. BOEM will issue the ROD on April 1, 2024, and is expected to approve the New England Wind COP on July 1, 2024. Following approval of the New England Wind COP, Avangrid will submit a Facilities Design Report and a Fabrication and Installation Report for review by BOEM. In adherence, Avangrid will not fabricate or install any relevant aspect of the Projects until it is determined that all proposed work will remain within the approved project design envelope.

US Environmental Protection Agency

The OCS Air Permit process was initiated by the filing of an NOI for the Projects on January 28, 2022. Avangrid submitted OCS Air Permit applications for the Projects (one for New England Wind 1 and one for New England Wind 2) in October 2022. The applications were deemed complete by EPA on February 13, 2023. The draft OCS Air Permits were published on December 19, 2023. Final OCS Air Permits are anticipated in Q2 2024.

US Army Corps of Engineers

The USACE has served as a cooperating agency during BOEM's development of the EIS for the Projects. The USACE will coordinate its review of the Section 10 Rivers and Harbors Act and Section 404 CWA permits and will issue a joint ROD with BOEM and NOAA Fisheries for both Projects. The Section 10 and Section 404 permit applications were deemed complete and Public Notice was published in December 2022. The Section 10 and Section 404 Permit for New England Wind 1 is anticipated to be issued by July 1, 2024; [redacted]

National Marine Fisheries Service

Avangrid submitted a request for an LOA on December 1, 2021, for both Projects. The LOA request Notice of Receipt was published in the Federal Register on August 22, 2022. The application was deemed complete by NOAA Fisheries on July 20, 2022, and a proposed LOA was published June 6, 2023. The final LOA and issuance of the final ITA are anticipated July 1, 2024. Additionally, NOAA Fisheries issued a Biological Opinion in February 2024.

US Coast Guard, Federal Aviation Administration, and Department of Defense Siting Clearinghouse

The USCG and FAA authorizations/reviews are pre-construction approvals. For New England Wind 1 and New England Wind 2, FAA Determinations of No Hazards are not needed for the offshore infrastructure; however, Determinations of No Hazards may be needed for port activities (e.g., use of cranes) and certain offshore vessels. Avangrid anticipates receiving any required FAA Determinations of No Hazard in Q2 2026 and receiving USCG's PATON authorization 90 days prior to offshore construction. Avangrid anticipates completing consultation with the DOD Siting Clearinghouse regarding radar interference by Q2 2024.

Massachusetts Office of Coastal Zone Management and Rhode Island Coastal Resources Management Council

The federal consistency review process was technically initiated upon BOEM's release of the NOI for the Projects. To synchronize federal consistency review with other federal and state permits, Avangrid entered into separate agreements with MA CZM and RI CRMC to "stay" the agencies' six-month review periods. The MA CZM and RI CRMC completed their respective federal consistency review processes in Q4 2023. The RI CRMC issued its federal consistency determination on October 19, 2023, and the MA CZM issued its determination on November 9, 2023.

7.1.4.2 State, Regional, and Local Permitting Timelines

As discussed in **Section 7.1**, approvals are required for portions of the offshore export cables and onshore components over which Massachusetts and its regional and local entities have jurisdiction.

Massachusetts, regional, and local approvals are not required for elements of New England Wind 1 and New England Wind 2 located in federal waters.

Massachusetts Environmental Policy Act Office

Avangrid initiated the MEPA process for New England Wind 1 with the filing of an Environmental Notification Form (ENF) on June 11, 2020 (EEA #16231). Avangrid submitted a Draft Environmental Impact Report (DEIR) to the MEPA Office on March 19, 2021, and a Final Environmental Impact Report (FEIR) on November 15, 2021. The MEPA process successfully concluded for New England Wind 1 with the issuance of a Certificate of the Secretary of Energy and Environmental Affairs on the FEIR (i.e., the Final MEPA Certificate) on January 28, 2022 (**Attachment 7.1-2**).

Avangrid filed an ENF and DEIR for New England Wind 2 with the MEPA Office in November 2022 and July 2023, respectively (EEA #16611). New England Wind 2 received a Certificate of the Secretary of Energy and Environmental Affairs on the DEIR in October 2023. [redacted]

Energy Facilities Siting Board/Massachusetts Department of Public Utilities (DPU)

The EFSB review process for New England Wind 1 was initiated by Avangrid with the filing of its petition on May 28, 2022, to construct the transmission lines (i.e., offshore and onshore export cables) and onshore substation pursuant to M.G.L. c. 164 § 69J (Section 69J Petition). Avangrid also filed the DPU Section 72 and 40A petitions for New England Wind 1 at the same time. Review of these DPU petitions was consolidated with the EFSB review. Evidentiary hearings for New England Wind 1 concluded on June 2, 2022, and Briefs were filed in July 2022. The EFSB issued its Final Decision on New England Wind 1 on December 18, 2023 (**Attachment 7.1-3**). That Final Decision, in support of the Projects, is currently facing one appeal, related to one narrow issue—expected noise impact from the facility at an abutter's home.

Avangrid filed a petition with the EFSB to construct the New England Wind 2 offshore and onshore export cables and onshore substation on November 1, 2022. Avangrid has also filed related petitions with the DPU for approval of the construction of transmission lines and for relief from local zoning requirements on the same date (see **Attachment 7.1-4**). [redacted]

Massachusetts Department of Environmental Protection Permits

Avangrid submitted a Joint Application for a Water-Dependent Chapter 91 Waterways License/Permit (310 CMR 9.00) and Dredging Fill/Excavation Water Quality Certification (314 CMR 9.00) for New England Wind 1 on May 5, 2022. MassDEP issued a 401 Water Quality Certificate on May 12, 2023. The New England Wind 1 Chapter 91 License (**Attachment 7.1-5**) was issued on February 21, 2024 following receipt of all required permits (i.e., Order of Conditions and Superseding Order of Conditions) from the municipal conservation commissions and MassDEP.

[redacted]

Massachusetts Department of Transportation—Non-Vehicular Access Permit(s)

The MassDOT permits required for various activities within the SHLO are within the purview of primary contractors completing the associated scope of work. The filing of these permits will occur with consideration to the time needed for MassDOT to review all relevant information, ensure compliance, and process all requests.

Massachusetts Board of Underwater Archaeological Resources Special Use Permit

A Special Use Permit (#17-003) covering marine archaeological reconnaissance surveys in state waters was first granted to New England Wind 1 by the Massachusetts Board of Underwater Archaeological Resources on June 4, 2019. It was renewed on multiple occasions, most recently on February 26, 2021. New England Wind 2 also received a Special Use Permit (#21-006) on December 22, 2021 for additional marine archaeological survey work. It was successfully renewed most recently on April 6, 2023.

Natural Heritage and Endangered Species Program—Conservation and Management Permit

In consideration of National Heritage and Endangered Species Program criteria for conservation and management, New England Wind 1 was granted a determination with conditions on April 1, 2022. The determination stated that the Projects would not result in a take of any state-listed endangered species, as dictated by the Massachusetts Endangered Species Act. On November 11, 2023, New England Wind 2 initiated this process by submitting a Massachusetts Endangered Species Act Checklist, along with an initial permit fee payment.

Massachusetts Historical Commission—State Archaeologist Permit

New England Wind 1 filed for a permit covering reconnaissance survey work on May 4, 2020. In consideration of Avangrid's archaeological consultants, resources, and their research designs, State Archaeologist Permit #4006 was issued on May 12, 2020. The permit was amended and extended on March 2, 2021. New England Wind 2 first filed for a permit covering intensive survey on August 18, 2022. The filing yielded State Archaeologist Permit #4427, which was issued on October 4, 2022. It was later amended and extended on May 19, 2023.

Massachusetts Division of Marine Fisheries—Letter of Authorization and/or Scientific Permit

An LOA will be required for vessel services associated with pre-lay surveys and pre-lay grapnel runs in state waters, which will take place prior to cable installation. These activities and associated measures to eliminate obstruction conflict in the OECC are scheduled shortly before their occurrence and rely on information specific to vessels and captains available at the time. Submission of associated requests are anticipated to occur approximately one month before the start of pre-lay survey and grapnel run efforts begin.

Regional Reviews

Avangrid submitted Developments of Regional Impact (DRI) applications to the CCC and MVC for New England Wind 1 in June 2022. The MVC issued a DRI Decision on September 19, 2022, and the CCC issued a DRI Decision on May 11, 2023 (**Attachment 7.1-6** and **Attachment 7.1-7**).

For New England Wind 2, Avangrid filed a DRI application with the MVC on December 13, 2023 [redacted]

Local Permits

For large developments on Cape Cod and Martha's Vineyard, local permitting initiates DRI review and then follows the DRI processes. Once the DRI process is complete, decisions on local filings such as those from conservation commissions can be issued.

Local filings for New England Wind 1 have been made to conservation commissions in the towns of Edgartown, Nantucket, and Barnstable in accordance with the Massachusetts Wetlands Protection Act and local wetland bylaws. The Nantucket Conservation Commission issued a permit on May 16, 2022 (i.e., Order of Conditions) (**Attachment 7.1-8**), and the Barnstable Conservation Commission issued an Order of Conditions on October 17, 2023 (**Attachment 7.1-9**).

The Edgartown Conservation Commission voted to deny the NOI application for New England Wind 1 at its meeting on January 25, 2023. Following that decision, Avangrid successfully appealed this denial, and a Superseding Order of Conditions was issued by MassDEP on May 16, 2023 (**Attachment 7.1-10**). Subsequently, the Edgartown Conservation Commission agreed to issue a permit to approve the Projects under the Wetland Bylaw, which was executed on September 13, 2023.

Local filings for New England Wind 2 commenced in Q4 2023. Avangrid filed an NOI with the Nantucket Conservation Commission on October 27, 2023, and received an Order of Conditions on January 4, 2023 (**Attachment 7.1-11**). Avangrid also filed an NOI with the Edgartown Conservation Commission on November 2, 2023. [redacted]

7.2. Stakeholder Engagement Plan

A description of the stakeholder engagement plan, including identification of groups of stakeholders to be included, engagement goals for each such group, engagement activities and community partnerships included in the plan, and demonstrated evidence of past and current productive relationships with project stakeholders.

Avangrid's Stakeholder Engagement Plan (**Attachment 7.2-1**) reflects the extensive stakeholder consultation Avangrid has undertaken to-date and plans to continue should Avangrid be awarded a long-term contract. The Plan is dynamic and will be revisited and revised as the Projects move from the development phase to the construction and operations phases to keep it relevant and up to date.

Stakeholder engagement is a critical component to facilitating meaningful public discourse on the future of offshore wind development and generating support for its broad adoption across Rhode Island, the region, and the US. Avangrid's approach to stakeholder engagement prioritizes creating regular and meaningful opportunities for stakeholders to provide input on the Projects, developing strong community relationships, and developing community benefits in collaboration with relevant stakeholders. This approach has informed Avangrid's stakeholder engagement efforts to date and will be carried through the design, construction, and operation phases.

Community engagement efforts for the Projects began in 2019 with the introduction of the development of Lease Area OCS-A 0534 (the Lease Area). Since that time, Avangrid has worked to develop a multi-faceted coalition of local, state, and regional support that emphasizes participation in a diverse array of accessible forums, including but not limited to in-person discussions with subject matter experts, hybrid open houses, formal comment periods, and direct meetings with stakeholders. These channels of engagement are directed to primary stakeholder populations that include:

- **Local and Onshore Communities:** representing a broad range of interests, their input is necessary to effectively map direct or indirect project impacts, and gauge general interest in different aspects of the project. Avangrid is especially active in Massachusetts' communities where project infrastructure will be located. Outreach to impacted populations near the Port of Providence, the Port of Davisville, and other economically disadvantaged or EJ communities will further complement these efforts once the Projects advance to the construction stage.
- **Fisheries and Marine Groups:** Fishing communities, associated organizations and their members are crucial contributors to meaningful advancement of US offshore wind development. Avangrid's track record of fisheries engagement includes continuous industry-leading initiatives that prioritize the development of proactive solutions to often complex fisheries-related issues. Outreach to fisheries stakeholders includes the utilization of Rhode Island–based fisheries representatives, Rhode Island–based research partners, and industry events (port hours, fishing tournaments, working groups, etc.) held in the Ocean State.
- **Public and Other Interest Groups:** Public interests in Rhode Island have cultivated uniquely positioned organizations that focus on renewable energy, climate change, environmental action, and economic opportunities associated with these topics. The engagement of their local knowledge and expertise will continue to help Avangrid craft meaningful collaborative opportunities between Rhode Islanders and the offshore wind industry. This includes continued work with local workforce development entities such as Building Futures RI and sustaining relationships with the many relevant trade associations in the state.
- **Federal, State and Local Government Entities:** This stakeholder group comprises the federal and state agencies involved in the offshore wind permitting process and those directly engaged in the request for proposals/power purchase agreement process taking place at the state level. Federal permitting agencies, in addition to BOEM, include USCG, NOAA Fisheries, EPA, US Fish and Wildlife Service, USACE, FAA, US Geological Survey, and DOD. Rhode Island state permitting agency participation is driven by the RI CRMC.
- **Tribal Nations:** Avangrid recognizes the historical and cultural properties of Tribal Nations in Rhode Island and the New England region and the concerns that offshore wind development has raised in relation to their culture, and the protection of ancestral resources. These working relationships center on regular communication and consultation activities with the Tribal Historic Preservation Officers, workforce coordinators, and other Tribal Nation members for each of the Tribal Nations. In Rhode Island, this includes the Narragansett Indian Tribe and the Rhode Island Indian Council.

Documentation of support for the projects is detailed further in Avangrid's Project Support Letters (**Attachment 7.2-2),** showcasing endorsement of the Projects at the state and local level as well as attached examples of local partnerships including the Nantucket Good Neighbor Agreement (**Attachment 7.2-3**), HCA-1 and HCA-2 (**Attachments 6.1-1** and **6.1-2**), and the community benefits agreement with Vineyard Power Cooperative (**Attachment 7.2-4**).

7.3. Environmental Characterization and Route Review

An Environmental Characterization, which refers to a thorough, desktop-level review of the environmental characteristics of both the offshore and onshore areas impacted by the project, including the alternative routes proposed if site control has not been acquired for all real property rights, and provides a review of those areas for natural or cultural resource sensitivity with a description of how this determination was made. If multiple routes are provided or required in your submission, a review of the positive and negative reasoning for each route and a determination of a preferred route is preferred. In addition, the Environmental Characterization must describe the environmental impacts of the Proposed Facility on environmental justice communities and plans to mitigate those impacts.

As part of the New England Wind COP, Avangrid has completed an in-depth review of existing literature and conducted site-specific primary data collection to characterize the baseline species and habitats in the project area, both onshore and offshore. Avangrid has analyzed the potential effects of the Projects to physical, atmospheric, biological, economic, cultural, and historic resources and identified measures, in consultation with regulators and stakeholders, to first avoid, then minimize, and lastly, mitigate potential impacts.[10]

This comprehensive environmental characterization and route review, which is summarized in **Attachment 7.4-1**, is provided in Volume III of the New England Wind COP and in the FEIS. The FEIS analyzes the numerous project design alternatives, including alternate cable routes and WTG positions and provides detailed descriptions of the positive and negative impacts and reasoning associated with the differing development scenarios. The onshore environmental impacts of the Projects are anticipated to be limited and will not vary significantly between the preferred and alternative routes.

The RI CRMC reviewed the detailed environmental characterization of routing as part of the CZMA review process and provided Concurrence in October 2023 that the Projects are consistent with RI State Policies, including the Ocean Special Area Management Plan.

The environmental impacts of the Projects on EJ communities and plans to mitigate those impacts are detailed in Section 4 of **Attachment 7.4-1**.

7.4. Environmental and Fisheries Mitigation Plan

Provide an Environmental and Fisheries Mitigation Plan (EFMP) per Section 2.2.3.7, including a confirmation of agreeance to the Site and Environmental Data Transparency, Fisheries Compensation, Noise Mitigation, Monitoring Acoustic Attenuation, and Regional Collaboration paragraphs.

Avangrid is committed to developing, permitting, and deploying well-sited offshore wind projects with minimal environmental impact. As the developer of both Vineyard Wind 1, New England Wind 1, and New England Wind 2, Avangrid possesses unique insights into key environmental issues and has

[10] The environmental assessment for the New England Wind COP is based on the maximum design scenario for the Projects. Thus, the potential impacts of the Projects described in the attached EFMP are based on the maximum design scenario and are a conservative assessment of impacts for the Projects.

pioneered a successful approach to applying the mitigation hierarchy in order to prioritize avoidance of potential impacts wherever possible and minimize and mitigate any unavoidable impacts. The extensive experience gained from developing and refining environmental protection measures for Vineyard Wind 1 directly informed the avoidance, minimization, and mitigation measures proposed for the Projects.

Avangrid’s successful track record of avoiding, minimizing, and mitigating potential impacts is most readily demonstrated through the receipt of the Vineyard Wind 1 COP Approval, which contained 79 pages of terms and conditions that provided a comprehensive suite of protective measures related to navigational and aviation safety, national security, protected species and habitat, commercial fisheries, for-hire recreational fishing, EJ, and cultural resources. The conditions represented the culmination of years of extensive coordination with BOEM, other federal, state, and local agencies, Tribal Nations, environmental organizations, and stakeholders to develop innovative measures that afford the highest levels of environmental protection while maintaining project viability. In accordance with the Request for Proposals, Avangrid intends that the Projects shall comply with environmental, navigation, and worker safety and applicable regulations.

Potential impacts and effects to atmospheric, physical, and biological resources are detailed in the New England Wind COP and in the FEIS. The FEIS details proposed mitigation measures that will be integrated into the terms and conditions of COP approval. In addition to measures included in Avangrid's federal approvals, it will also integrate state, regional, and local requirements in its plans. Avangrid agrees to follow the Regional Wildlife Science Collaborative's recommendations with respect to standardized new data collection and facilitation of data sharing, and to make publicly available any information or raw data and supporting metadata that is developed in furtherance of the Projects related to environmental characteristics, inclusive of natural and cultural resources, of any offshore, nearshore or onshore areas relating to the potential impacts of the construction, operation, or decommissioning of the Projects on the environment and wildlife of such areas.

Avangrid has a decade of experience working with commercial and recreational fishermen, vessel owners, fishing advocacy organizations, shore support services, and fisheries research institutions. Avangrid’s track record in the region demonstrates its ability to overcome challenging circumstances and develop productive working relationships with fisheries stakeholders as well as a commitment to develop, permit, and deploy well-sited offshore wind projects with minimal environmental and fisheries impacts.

To address mariner and fisheries stakeholder concerns during the Vineyard Wind 1 development phase, the layout was modified in an unprecedented step to adopt a more uniform, east-west and north-south grid pattern with one NM spacing between WTG/ ESP positions. The 1 x 1 NM WTG/ESP layout was adopted to facilitate vessel navigation and commercial fishing activities in direct response to feedback from the commercial fishing industry. The 1 x 1 NM spacing will also be used for the Projects.

Avangrid has consistently participated in efforts to develop and support the BOEM recommendation for regional federal mitigation and Avangrid compensation. Avangrid’s Fisheries team has actively provided input and financial support to best support the 11-state regional effort. These efforts have been conducted in parallel with the recently completed federal consistency reviews carried out by the MA/RI CZM programs. The mutually agreed upon terms and conditions, in combination with Avangrid's proposed compensatory mitigation and other mitigation measures, have allowed the CZM and RI CRMC to issue written determinations finding New England Wind 1 and New England Wind 2 to be consistent with the enforceable policies of the MA/RI CZM programs.

To support fisheries communication and engagement, Avangrid employs a full-time Lead for Fisheries Outreach Coordination and a full-time Fisheries Liaison, both of whom have deep knowledge of fishing practices and issues as well as an extensive network of personal relationships with various types of fishermen and fisheries organizations in the region.

The EFMP outlines industry-leading environmental protection measures and initiatives that proactively protect habitats and species, including those that are threatened or endangered. The EFMP expands on the environmental characterization and evaluation of the project area, including the criteria for identifying environmental impacts and details on monitoring acoustic attenuation (see **Attachment 7.4-1** for more details). Additionally, fisheries impacts and associated avoidance, minimization, and mitigation measures are further described in the EFMP and in the Fisheries Communication Plan provided as **Attachment 7.4-2**.

7.5. Project Alignment with Greenhouse Gas Reduction Goals

Explain how the proposed project advances the objectives of achieving a reliable, clean energy future that is consistent with meeting regional greenhouse gas reduction goals as established by the 2021 Act on Climate.

Avangrid's proposed Projects advance the objectives of achieving a reliable, clean energy future that is consistent with meeting regional greenhouse gas (GHG) reduction goals as established by the 2021 Act on Climate. The Projects would support Rhode Island's strategies, programs, and actions to meet economy-wide enforceable targets for net-zero GHG emissions by 2050 by providing commercial scale renewable energy and supporting clean energy jobs.

As part of the Iberdrola Group, Avangrid has an ambitious goal to achieve zero net GHG emissions across the entire value chain by 2039 from the 2020 base year. This target includes short- and long-term emission reduction milestones in line with a 1.5°C trajectory.

7.6. Documentation for Renewable Energy Resource Qualification

Provide documentation demonstrating that the project will be qualified as an eligible renewable energy resource conforming to R.I.G.L. § 39-26-5.

New England Wind 1 and New England Wind 2 will serve as new offshore wind generation resources located within the ISO-New England Control Area that will generate electricity using wind energy as its fuel source. The Projects will therefore qualify as a "generation unit in the NEPOOL [New England Power Pool] control area" that utilizes a renewable energy resource, as defined under R.I.G.L. § 39-26-5. Avangrid will provide documentation demonstrating such qualification at the appropriate time as per the regulations.

7.7. Claims or Litigation

Identify any existing, preliminary, or pending claims or litigation, or matters before any federal agency or any state legislature or regulatory agency that might affect the feasibility of the project or the ability to obtain or retain the required permits for the project.

With exception of one appeal to the New England Wind 1 EFSB Final Decision,[11] there are no existing, preliminary, or pending claims or litigation, or matters before any federal agency or any state legislature or regulatory agency that might affect the feasibility of the Projects or the ability to obtain or retain the required permits for the Projects.

7.8. Investments for Emissions Improvement

Describe any investments that will be included with your facility to improve its emissions profile.

GHG reduction is one of the key pillars of Avangrid's sustainability strategy. Avangrid's GHG reduction goals include:

1. Net zero GHG for Scope 1 and Scope 2 emissions by 2030
2. Net Zero GHG for Scope 3 emissions by 2040

In addition to the emission-free energy generated by the Projects that will help displace electricity from fossil fuel power plants, Avangrid is implementing several programs and investments to improve the emissions profile of the Projects, including:

- Use of ultra-low sulfur fuels in vessels
- Auditing of all project vessels for compliance with permit, regulatory, and vessel certification requirements (e.g., maintenance of engines and use of ultra-low sulfur fuels)
- Implementing a fleet management system to track vessel performance and optimize for lower emissions
- Integrate Health, Safety and Environment minimum requirements into vessel contracts, including mitigation measures to reduce emissions at port
- Communication of all requirements in bid documents and toolbox talks

Avangrid is currently developing its strategy for achieving its net zero goals for both Projects, including receiving cost estimates for electric and/or hybrid electric vessels and offshore charging buoys in the lease area and green hydrogen powered vessels and fuels (e.g., hydrogen fuel cells, ammonia, e-methanol, and liquid organic hydrogen carriers). At the current time, these options are not economically feasible as the technologies are still nascent in the industry. However, during Operations and Maintenance (O&M) project vessels will need to have engines rebuilt multiple times and/or new

[11] This appeal concerns one narrow issue: the noise impact of the onshore substation on one abutter. Appeals of this kind typically take six to nine months to be resolved and the Supreme Judicial Court has never overturned a decision of the EFSB.

charters will be procured allowing future integration of green vessels and other decarbonization initiatives.

Avangrid, as part of the Iberdrola Group, is working to decarbonize the offshore wind industry. Avangrid's sister-company, Scottish Power is a founding signatory of Operation Zero, an industry coalition working together to accelerate the decarbonization of the O&M vessels in the North Sea offshore wind sector, with a view to making zero-emission O&M vessels a reality in the region by 2025.[12] In signing the declaration, members pledge to:

- Ensure that wider consideration is taken for environmental impacts and sustainability
- Share best practice in the decarbonization of O&M vessels in the offshore wind sector
- Maintain an open dialogue between industry and government, to facilitate this transition as much as possible
- Explore the potential for offshore wind to be a part of shipping's future fuel mix, and for the sector to play an active role in decarbonizing the wider maritime industry
- Work collaboratively in ensuring that costs and risks inherent to the energy transition are fairly distributed, and that all tiers across the supply chain will make an equitable contribution to reaching Avangrid's collective ambition
- Lastly, Avangrid also has a Net Zero Deforestation by 2025 sustainability goal, so Projects will offset all forested areas cleared for development activities (primarily the substation plots).

[12] https://ore.catapult.org.uk/stories/operationzero/

8. Engineering and Technology; Commercial Access to Equipment

The engineering plans for New England Wind 1 and New England Wind 2 (the Projects), as detailed herein, reflect the maturity and viability of Avangrid's project concepts. Avangrid developed these concepts through detailed internal analysis, work performed by third-party engineering firms, and significant supply chain engagement. These efforts were driven by an in-house team of over 100 dedicated engineers, contract experts, and project managers over the last five years. The plans also align with the joint Construction and Operations Plan (COP)[1] submitted for both Projects to the Bureau of Ocean Energy Management (BOEM) in 2022, which is expected to be fully approved in July 2024.

[redacted]

[redacted]

[redacted]

[1] https://www.boem.gov/renewable-energy/state-activities/new-england-wind-ocs-0534-construction-and-operations-plan

[redacted]

Table 8.1-1 New England Wind 1 Major Equipment Procurement Status

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Table 8.1-1 New England Wind 1 Major Equipment Procurement Status

[redacted]	[redacted]	[redacted]
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8.1. Preliminary Engineering Plan

Provide a reasonable but preliminary engineering plan which includes the following information:

1. Type of generation and transmission technology, if applicable
2. Major equipment to be used
3. Manufacturer of the equipment
4. Status of acquisition of the equipment
5. Whether the bidder has a contract for the equipment. If not, describe the bidder's plan for securing equipment and the status of any pertinent commercial arrangements
6. Equipment vendors selected/considered
7. History of equipment operations
8. If the equipment manufacturer has not yet been selected, identify in the equipment procurement strategy the factors under consideration for selecting the preferred equipment
9. How the proposed equipment adheres to the domestic supply rules set forth in the Build America, Buy America Act."

New England Wind 1 and New England Wind 2 are offshore wind projects that Avangrid is proposing to build in federally designated Lease Area OCS-A 0534 (the Lease Area). Each Project is comprised of an Offshore Wind Energy Generation facility that will deliver power to the region via high voltage alternating current (HVAC) subsea cables that make landfall in the Town of Barnstable (Barnstable), Massachusetts. The Projects will interconnect to the New England electricity grid through an interconnection point in West Barnstable.

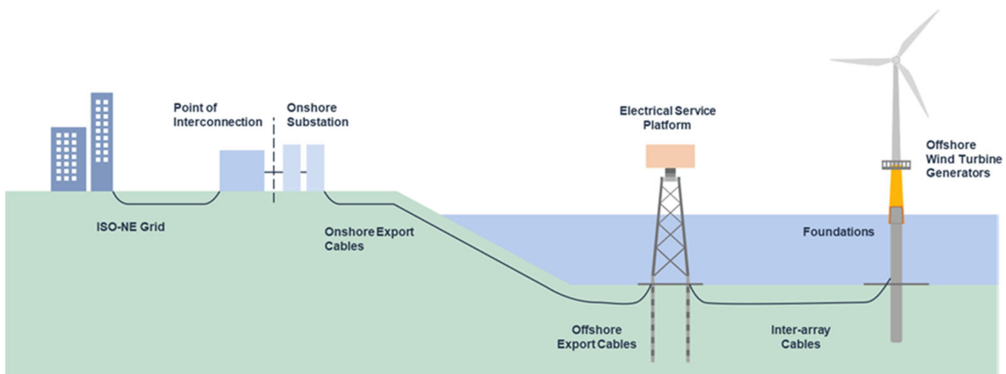
The engineering plan described herein applies to both Projects, which share many preliminary engineering concepts and procurement strategies, but are differentiated as needed.

8.1.1 Type of Generation and Delivery Technology

The Projects will generate and deliver reliable, cost-effective renewable electricity to the New England region through their Offshore Wind Energy Generation facilities and Delivery Facilities. The major technology and equipment groups that compose the Projects are the WTGs, foundations, and Delivery Facilities (inter-array cables, ESP, offshore export cables, onshore export cables, and onshore substation). These are illustrated in **Figure 8.1-1** and described below.

The components and design elements for both Projects are similar in concept to those of Vineyard Wind 1, [redacted].[2] Vineyard Wind 1's project design continues to undergo rigorous independent certification and review, including by a third-party CVA, as is required by BOEM. Avangrid has already advanced through the BOEM process for nominating and approving the CVA for the Projects. Lloyd's Register was approved for New England Wind 1 by BOEM as the CVA in July 2022 (see **Attachment 8.1-1**) and for New England Wind 2 in February 2024 (see **Attachment 8.1-2**). Lloyd's Register will review and certify that all project facilities are designed, fabricated, and installed in conformance with accepted engineering practices.

Figure 8.1-1 Offshore Wind Energy Generation and Delivery Facilities



8.1.2 Major Equipment Components

The following subsections detail each major equipment component, from concept design to commercial availability and procurement status and strategy. Each component's proposed design and procurement strategy has been thoroughly reviewed and evaluated by the project engineering team to provide the most optimal and cost-effective solution for delivering the Projects safely and efficiently, and within the identified schedules reflected in **Section 9**.

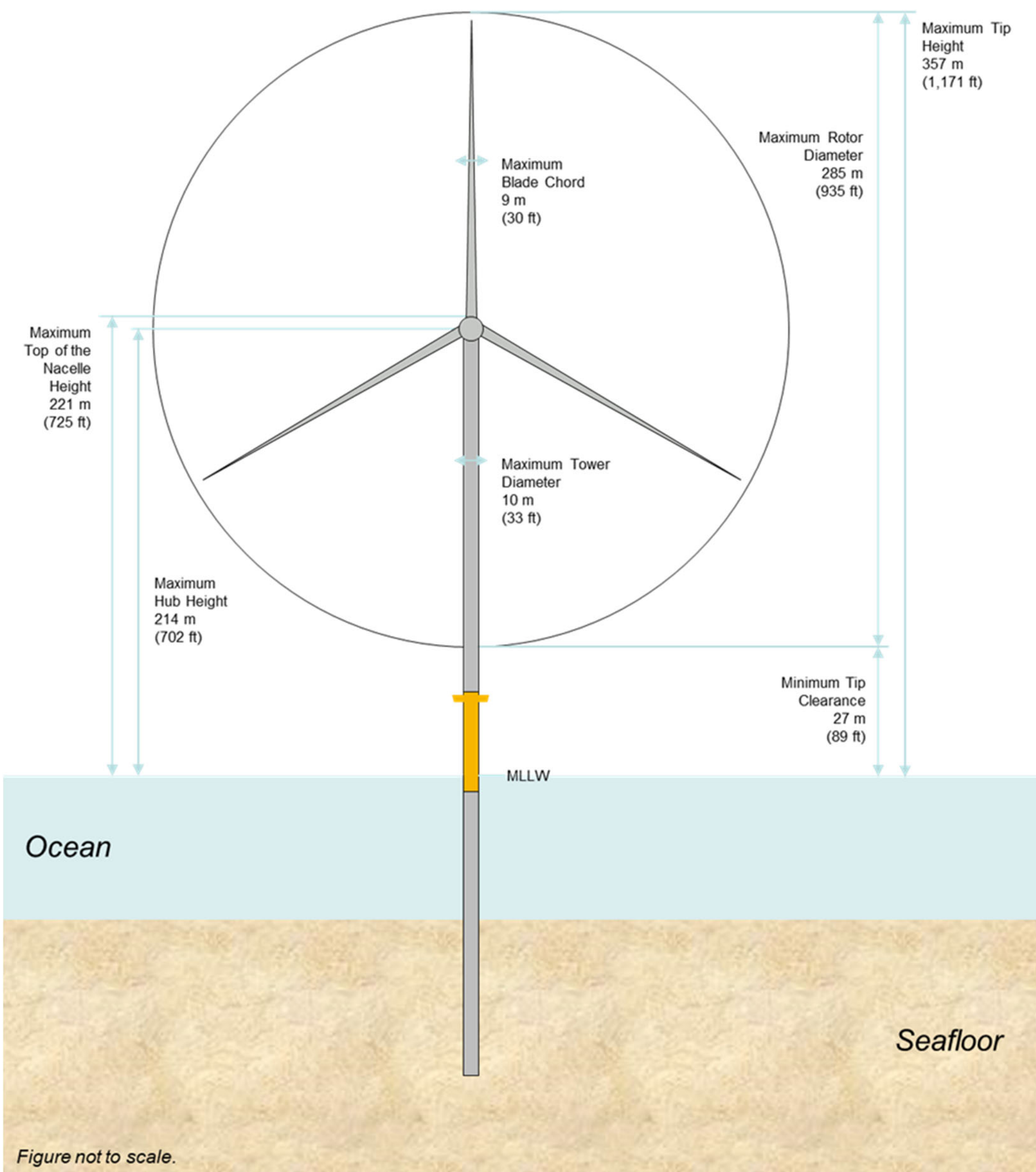
8.1.2.1 WTGs

A schematic of a typical WTG of the type planned for the Project is provided as **Figure 8.1-2**. A WTG consists of a tower, a nacelle, and a three-bladed rotor connected at the hub. As described in the COP, Avangrid's design concept for both Projects uses a WTG with a steel tower that has a diameter of about 29 feet (ft) and is bolted to the top of the foundation. The nacelle (housing) and rotor hub are located on top of the WTG tower. Depending on the model used for each Project, the nacelle may contain either a direct-drive or gearbox system, the electrical generator, electric motors to yaw and pitch the WTG, and workspace. The nacelle also contains a full array of instrumentation, controls, fire protection systems and other safety equipment, ventilation and cooling, and ancillary equipment. Wind sensors mounted on top of the nacelle are used to control the yaw and pitch system. The yaw

[2] https://www.mass.gov/news/vineyard-wind-americas-first-large-scale-offshore-wind-farm-delivers-full-power-from-5-turbines-to-the-new-england-grid

system turns the nacelle into the wind to maximize power production and out of the wind to maintain the WTG's safety in high winds. The blade pitch controllers adjust the angle of the blades to optimize power production whilst mitigating loads under the prevailing conditions. The WTGs are envisioned to have a lower rotor tip height of at least 90 ft above Mean Lower Low Water, which will create a uniform tip clearance throughout the Offshore Wind Energy Generation sites and aid in maritime navigation. The Projects will include a nighttime WTG aviation obstruction lighting system controlled by an Aircraft Detection Lighting System (ADLS), subject to BOEM approval, that complies with Federal Aviation Administration (FAA) and/or BOEM requirements.

Figure 8.1-2 Wind Turbine Generator



Source: New England Wind COP

The Projects have undergone an extensive, multi-year procurement process for the WTG, which is the most important decision for an offshore wind project. It is the single largest contract value for both CapEx and operating expenditure (OpEx), determines the annual energy production of the project, and impacts all other balance of plant designs. [redacted]

8.1.2.2 Foundations

The selection of a foundation concept is one of the most crucial decisions made in offshore wind project design regarding structural resiliency. Avangrid has conducted significant technical and commercial due diligence to develop and de-risk the foundation requirements for the Projects. In addition, Avangrid (independently and through the former [redacted] Vineyard Wind, LLC, the predecessor for Vineyard Wind 1, LLC) has already completed geophysical and geotechnical surveys in the Lease Area, the results of which have been used in the concept level and advanced foundation designs for the Projects.

The Offshore Wind Energy Generation sites and Offshore Export Cable Corridor (OECC) have been extensively investigated from 2016 through to present day. During these studies, geophysical and geotechnical data was acquired and used to understand the physical characteristics of the surface and sub-surface at the Offshore Wind Energy Generation sites, and along the OECC. Detailed maps and reports have been generated and have supported the planning, design, and engineering of the WTG foundations and ESP foundations. The studies have helped to identify geohazards that could represent design and installation challenges for foundations and electrical transmission cables. Some studies have been repeated to create a time-lapse view of the seafloor and determine the mobility of sediment bodies (e.g. sub-marine sand waves) that move due to the motion of water (currents and storms). It is essential to determine areas of environmental and historical sensitivities, including benthic and fisheries habitats. The geophysical survey method is used on these types of studies, where side-scan images and point cloud data are acquired to build detail surface models. These studies also support the COP and Final Design Report (FDR). Avangrid will complete additional studies prior to construction to identify the presence of surface boulders, debris, and unexploded ordnance. Other specialized studies that use data acquired on the Offshore Wind Energy Generation sites and OECC include pile drivability assessment, cable burial risk assessment, Facilities Design Report, Fabrication and Installation Report, Bathymetry Digital Terrain Model, Ground Model (describes the physical surface and sub-surface geology, depositional environment, and geohazards), Marine Site Investigation Report, Marine Archeological Resource Assessment, and unexploded ordnance threat risk assessment and mitigation plan. An overview of the studies and reports acquired to date is presented in **Table 8.1-2** and summarized in **Attachment 8.1-6**.

Table 8.1-2 Geophysical and Geotechnical Investigations and Reports

Year	Survey Type	[redacted]	Description
2016	Geophysical	[redacted]	Reconnaissance high-resolution geophysical (HRG) survey over the Offshore Wind Energy Generation sites
2016	Geotechnical	[redacted]	Reconnaissance sampling of soils (boreholes and cone-penetration tests (CPT) over the Offshore Wind Energy Generation sites
2016	Benthic	[redacted]	Grab samples of surficial sediments over the Offshore Wind Energy Generation sites
2017	Geophysical	[redacted]	Reconnaissance HRG surveys along the OECC
2017	Geotechnical	[redacted]	Reconnaissance geotechnical sampling along the OECC
2018	Geophysical	[redacted]	HRG survey of the northern section of the Offshore Wind Energy Generation sites and along the OECC. Data for design of the offshore wind farm and in support of the COP; archaeological assessment
2018	Geotechnical	[redacted]	Acquisition of geotechnical data (boreholes and CPT data) at WTG locations and the ESP location for supplement COP submission
2018	Benthic	[redacted]	Under-water video and still photography along transects in the Offshore Wind Energy Generation sites and along the OECC. Grab samples in the Offshore Wind Energy Generation sites and along the OECC.
2019	Geophysical	[redacted]	HRG surveys of array cable locations on the Offshore Wind Energy Generation sites and OECC for COP submission, wind farm design and archeological assessment. Site survey for metocean buoy installation

Table 8.1-2 Geophysical and Geotechnical Investigations and Reports

Year	Survey Type		Description
2019	Geotechnical	[redacted]	Shallow geotechnical samples from OECC
2019	Benthic		Under-water video and still photography along transects in the Offshore Wind Energy Generation sites and along the OECC. Grab samples along the OECC
2020	Geophysical		HRG survey of the Offshore Wind Energy Generation sites for final COP submission and archeological assessment
2020	Geotechnical		Shallow geotechnical sampling in the Offshore Wind Energy Generation sites and along the OECC. Acquisition of geotechnical data (boreholes and CPT data) at WTG locations and the ESP location for supplement COP submission and future FDR
2020	Benthic		Under-water video and still photography along transects in the Offshore Wind Energy Generation sites and along the OECC. Grab samples along the OECC
2021	Geophysical		HRG surveys of array cable locations on the Offshore Wind Energy Generation sites and OECC.
2021	Geotechnical		Shallow geotechnical sampling in the Offshore Wind Energy Generation sites and along the OECC. Acquisition of geotechnical data (boreholes and CPT data) at WTG locations and the ESP location for supplement COP submission and future FDR
2021	Benthic		Under-water video and still photography along transects in the Offshore Wind Energy Generation sites and along the OECC. Grab samples along the OECC
2022	Geotechnical		Acquisition of geotechnical data (boreholes and CPT data) at WTG locations and the ESP location for supplement COP submission and future FDR
2023	Geotechnical		Acquisition of geotechnical data (CPT) at WTG locations for supplement COP submission and future FDR

Based on these extensive survey efforts, Avangrid produced a Ground Model and several foundation design studies. [redacted]

[redacted]

[redacted]

[redacted]

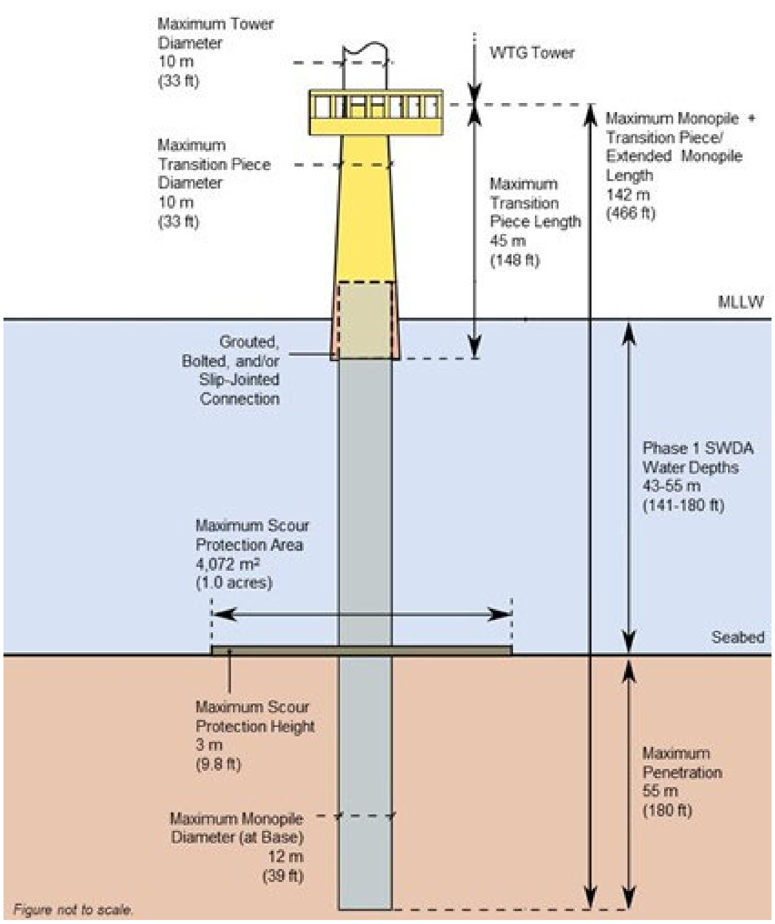
[redacted]

Monopile Foundation Concept

A monopile is a single, hollow cylinder fabricated from steel that is driven into the seabed. A TP is installed on top of the monopile using a bolted or grouted connection to connect the top of the monopile to the bottom of the WTG tower. The monopile foundation concept for the Projects is illustrated in **Figure 8.1-3**.

[redacted]

Figure 8.1-3 Monopile Foundation Concept



Source: New England Wind COP

The values shown in **Figure 8.1-3** are approximated maximums and were submitted in the COP. [redacted]

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[redacted]

The foundations will include the following: inter-array cable hang-off supports, corrosion protection systems (both internally and externally), a boat landing or personnel hoist for accessing each WTG, a davit crane(s) to lift tools and parts from the service vessel, marine navigation aids (e.g., identification marking and lights), external and internal platforms (i.e., scaffolding), and various electrical components.

Scour Protection

Scour protection is installed around each WTG foundation to protect the foundations from scour development, consisting of an armor and filter layer with a preliminary design [redacted] for a double grading scour protection design (see **Attachment 8.1-14**) and a single grading scour protection design (see **Attachment 8.1-15**). [redacted]

[redacted]

[redacted]

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[redacted]

[redacted]

8.1.2.3 Delivery Facilities

Avangrid has performed extensive electrical design and installation studies to mature and optimize the transmission infrastructure for the Projects. These studies have incorporated data gathered within the Offshore Wind Energy Generation sites and along the OECC. Site data, engineering studies, and supplier outreach collectively affirm the highly viable, well-advanced Offshore Delivery Facilities concept for the Projects.

The Projects will utilize a 275 kilovolt (kV) HVAC export cable system and 66 kV alternating current inter-array cables. Avangrid has substantial commercial experience working within the supply chain for all required components and has performed extensive supplier outreach to validate and refine the electrical design and timeline.

[redacted]

[redacted]

A robust design for all the major electrical equipment for the Projects has been developed through multiple detailed electrical studies such as load flow and reactive power compensation, short-circuit and fault in-feed studies and stability studies. All electrical studies ensured compliance with the grid code stipulated by ISO-NE under all operational scenarios.

Dynamic power system stability studies inclusive of voltage, frequency and rotor-angle stability studies have been conducted to verify that the plants remain connected to the network in all the required scenarios without stability issues or causing undesirable grid perturbations.

Furthermore, the Projects have been extensively studied by ISO-NE through the System Impact Studies (refer to **Section 6** for more detail). The results indicate that the Projects do not have any significant adverse impact on the ISO-NE's transmission system after the network upgrades, illustrating the robust design of the Projects.

<u>Inter-Array Cables</u>

Avangrid has developed a complete layout for the Projects, which includes the expected inter-array cable design to connect the WTGs to the ESP (**Figure 8.1-5**). The 66 kV inter-array cables are three-core copper (Cu) or aluminum (Al) cables manufactured and installed within a single steel armored bundle. The Projects will use copper and aluminum conductors based on the electrical design studies with forecasted commodity rates affecting supply prices in the market. [redacted]

[redacted]

[redacted]

Based on the expected maximum output current of each WTG and the cable current carrying capacity, the following cable size and lengths have been determined to achieve required electrical performance for the Projects in a cost-efficient way. The cable lengths are based on engineering analysis by inter-array cable EPCI suppliers participating in the New England Wind 1 and New England Wind 2 procurement processes and confirmed by the Avangrid engineering team. The cable cross-sections and lengths were optimized to achieve the necessary ampacity at the lowest supply costs by using primarily aluminum cable cores and minimizing the cross-section size as much as possible (see **Attachment 8.1-17** and **Attachment 8.1-18**). [redacted]

[redacted]

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To assess the installation of the inter-array cable design, Avangrid completed a Geotechnical Interpretation Report (see **Attachment 8.1-19**), Cable Burial Risk Assessment (see **Attachment 8.1-20**), and Seabed Mobility Study (see **Attachment 8.1-21**). These studies were used to develop the inter-array cable layout and design, validating the installation feasibility for the methods proposed by the potential contractors.

<u>ESP and MEQ</u>

[redacted]

[redacted]

[redacted]

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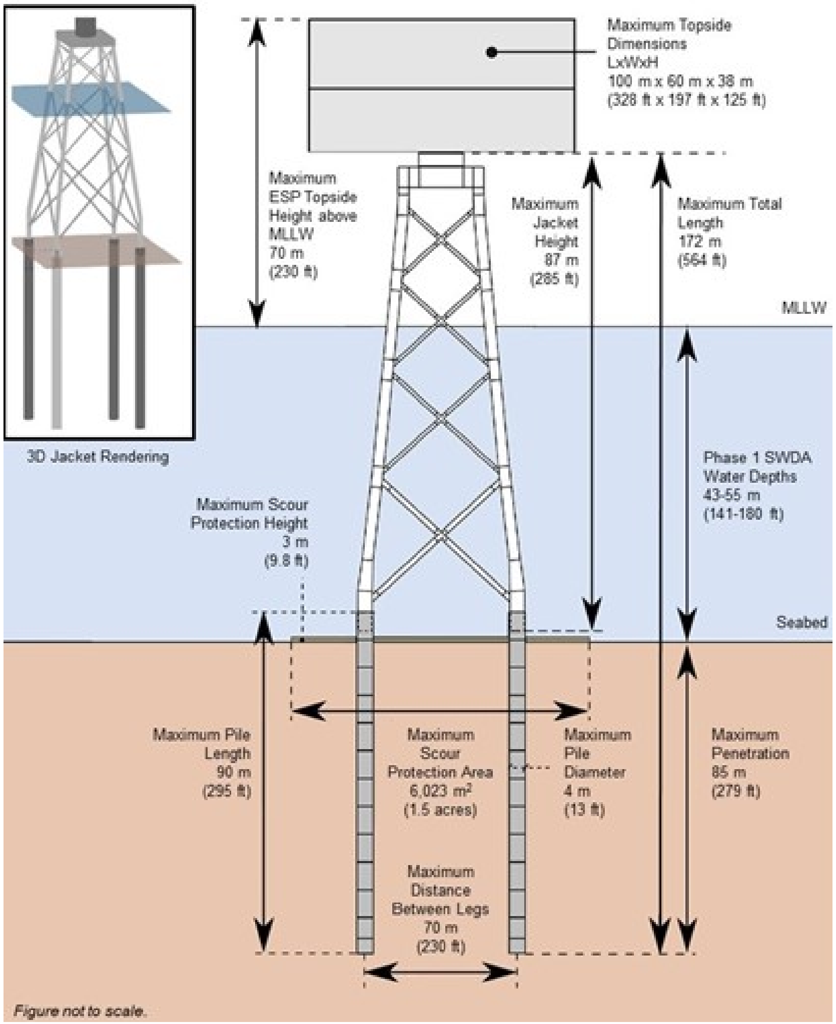
Figure 8.1-6 Electrical Service Platform Concept



Source: New England Wind COP

In addition, significant pre-work has been completed for both New England Wind 1 and New England Wind 2 to understand the electrical losses based on the generating capacity of each Project at the POI. The steady-state power and energy losses were evaluated using a detailed power flow model of each facility for review of the electrical system. The electrical loss studies for New England Wind 1 (**Attachment 8.1-24**) and New England Wind 2 (**Attachment 8.1-25**) are included for reference.

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Offshore Export Cables

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<u>Onshore Export Cables</u>

The New England Wind 1 and New England Wind 2offshore export cables will be brought to shore and buried in transition vaults located at the landfall site. Within the transition vaults, the offshore export cables will connect to the onshore export cables. The onshore export cables will then transmit power from the landfall site to the onshore substation. [redacted]

The onshore export cables will consist of 275 kV cross-linked polyethylene cables buried underground along the onshore export cable route, as described in **Section 6**. [redacted]. The onshore export cables will be installed in an underground duct bank (i.e., an array of plastic conduits encased in concrete, providing the necessary mechanical protection and thermal conditions for cable operation). Avangrid has confirmed the viability of the onshore routing installation concept for roadway and utility conditions through third-party design studies, included as attachments to **Section 6**. [redacted]

An underground 345 kV transmission line will connect the onshore substation to the POI in West Barnstable. Based on the anticipated route from the onshore substation to the POI, this connection is expected to take the form of buried cables in a concrete duct bank. These cables will be designed in accordance with all applicable infrastructure standards and will be no different than existing 345 kV transmission lines.

New England Wind 1 Onshore Civil Works and Duct Bank Engineering Progress

The duct bank design and installation concepts for both Projects, especially New England Wind 1, require coordination with the Town of Barnstable, Centerville-Osterville-Marstons Mills Water Department, and National Grid for sewer, water, and gas utility lines, , respectively. [redacted]

Table 8.1-8 New England Wind 1 Duct Bank Detailed Design Schedule

[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Utility relocations and coordination is ongoing for detailed design and construction schedule sequencing. [redacted]

Table 8.1-9 New England Wind 1 Water Main Detailed Design Schedule

[redacted]	[redacted]
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[redacted]

Table 8.1-10 Sewer Project Detailed Design Schedule

[redacted]	[redacted]
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To inform the conceptual and detailed designs for the onshore duct bank and HDD, geotechnical investigations were performed. An initial report was conducted [redacted] for the purposes of the HDD. The investigation included subsurface exploration and laboratory testing services to provide information on the subsurface soil conditions. The scope of services included moisture content, grain size distribution, Atterberg limits, organic content, corrosivity testing, thermal resistivity, and unconfined compression and consolidation tests.

The subsurface conditions were characterized and included in the report as **Attachment 8.1-34** and shown as **Figure 8.1-11.**

[redacted]

[redacted]

[redacted]

[redacted] performed a geotechnical investigation for New England Wind 1 along the onshore cable route from the onshore cable landing (Craigville Beach) to the onshore substation location. The report is provided as **Attachment 8.1-36.** [redacted]

The report also contains laboratory and field test data for the geotechnical and thermal properties of the onsite soils. Soil abrasivity, direct shear, thermal conductivity, Atterberg limit, particle size analysis, and moisture content tests were performed. The results detailing thermal properties, organic layers, and other areas of concern were used to inform progression of detailed design and cable sizing. **Table 8.1-11** shows summary depth to ground water for various borings along the duct bank route.

[redacted]

Onshore Substation

[redacted]

[redacted]

The [redacted] geotechnical investigation for the onshore duct bank (**Attachment 8.1-36**) is applicable to the onshore substation, as investigation included the onshore substation. In addition, the topographical land title survey is included as **Attachment 8.1-41**.

A stormwater management report was completed [redacted] to inform design and compliance (see **Attachment 8.1-42**). [redacted] The proposed system will meet or exceed the Massachusetts Stormwater Policy recommendations and will comply with MassDEP Stormwater Standards.

These design activities will serve to benefit New England Wind 2 as well, as a similar onshore substation can be expected for the Project. Ultimately, the detailed substation design will be completed by the EPC contractor, coordinating with MEQ detailed design and additional site investigations such as test pits. [redacted]

8.1.3 Equipment Manufacturers

Avangrid has leveraged its experience from developing and completing the Vineyard Wind 1 procurement process to identify cost-effective opportunities to use and support the offshore wind supply chain that is emerging along the US East Coast, particularly within New England.

As described earlier in this section, both Projects have progressed through multiple rounds of advanced competitive procurement. [redacted]

[redacted]

8.1.4 Equipment Acquisition Status

[redacted]

[redacted] The project procurement schedules (see **Section 9**) incorporate the experience gained from Vineyard Wind 1, which was the first commercial-scale offshore wind project in the US to complete a procurement process. This experience significantly enhances Avangrid's precision in developing the cost and timeline underlying the New England Wind 1 and New England Wind 2 proposals.

[redacted]

[redacted]

8.1.5 Equipment Contracting

As mentioned, Avangrid has matured its procurement process significantly for both Projects [redacted]

For both Projects, Avangrid is using a multi-contract strategy that allows for multiple EPCI suppliers to cover the supply and installation of the project components across multiple packages. [redacted] The final contract configuration will be subject to market availability and pricing at the time of contract signing.

[redacted]

Avangrid's procurement process builds on the strategies implemented for Vineyard Wind 1, creating and leveraging synergies where possible between the projects.

The procurement timeline accounts for:

- availability of site conditions assessment data and design timelines;
- interdependencies between different equipment design and selection processes;
- availability of (ISO-NE) System Impact Reliability Study and related grid interconnection requirements;
- BOEM and CVA certification timelines;
- manufacturing and transportation lead times;
- risk of limited availability of suitable Jones Act compliant vessels and specialized equipment;
- the expected PPA award date, financing process, and expected date for FC; and
- the planned construction schedule, including permitting restrictions.

Section 9 provides more detail on the project procurement schedules. Information regarding how Avangrid intends to increase diversity in the offshore wind supply chain through the procurement process is detailed in **Section 16**.

[redacted]

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[redacted] [redacted]

[redacted]

8.1.7 Equipment Procurement Strategy

Avangrid’s equipment procurement strategy builds on the successful approach deployed for Vineyard Wind 1, and the extensive dialogue the Company has had with major suppliers.

This dialogue includes detailed engagement with engineering departments from dozens of Tier 1 suppliers who contributed to Vineyard Wind 1’s supply packages, Avangrid's other global affiliate projects' supply chain, and more. **Table 8.1-12** outlines key factors that Avangrid considers when procuring equipment for the Projects.

Table 8.1-12 Equipment Manufacturer Selection Factors

[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

8.2. Key Equipment Suppliers Under Consideration

If the bidder has not yet selected the major equipment for a project, please provide a list of the key equipment suppliers under consideration, and how the bidder plans to mitigate the risks of long-lead items on the schedule and cost volatility on the financial viability of the project.

As described in **Section 8.1.**, the Projects have progressed through multiple rounds of advanced competitive procurement and have selected preferred suppliers for all several major equipment manufacturers, [redacted]

As with past projects, Avangrid will continue to push for collaboration directly and indirectly between principal (Tier 1) suppliers and Tier 2 and Tier 3 local suppliers and seek to localize as much as possible. See **Section 16** for details on local and domestic supply chain commitments.

8.3. Commercial Operation of Equipment

Please identify the same or similar equipment by the same manufacturer that are presently in commercial operation including the number installed, installed capacity and estimated generation for the past three years.

A general overview of the equipment track record for each Project component is provided in **Section 8.1.6**. Specifically with respect to WTGs, the Projects will use the most advanced and economical technology available for delivery and commercial operation. **Table 8.3-1** summarizes the deployment status of each major supplier's previous and current models, per data that is publicly available as of December 2023.

Table 8.3-1 WTG Deployment Status

	General Electric	Siemens Gamesa	Vestas
Years 2015-2022 (Actuals)			
Capacity Installed (GW)	1.1	21.9	8.3
Number Installed	219	4,148	1,600
Years 2023-2028 (Forecast)			
Capacity Installed (GW)	7.5	24.2	6.9
Number Installed	568	2,082	475

8.4. Technology Maturity and Financial Considerations

For less mature technologies, provide evidence (including identifying specific applications) that the technology to be employed for energy production is ready for transfer to the design and construction phases.

Also, address how the status of the technology is being considered in the financial plan for the project.

The technology and equipment that will be deployed for the Projects are considered mature because they have a long track record in the offshore wind industry, and similar technology is currently being deployed for Vineyard Wind 1, as detailed in **Sections 8.1** and **8.3**. Further, all equipment will be manufactured by or with the involvement of industry leaders. As part of the financing process, an in-depth review of the applied technologies will be performed and taken into consideration when designing the project schedules (see **Section 9**). Similarly, third-party reviews of the engineering plans will be conducted by potential lenders and tax equity investors, based on Avangrid's experience with the FC of Vineyard Wind 1.

In addition, the Projects will incorporate a robust Design Review and Assurance process to ensure all proposed technology will be advanced and mature for energy production as proposed in the New England Wind COP. For any first article applications, a Technology Readiness Level will be assessed and evaluated based on relevant qualification data and provided type certifications by the OEM. The overall design and technical evaluation are also certified by an independent third-party (CVA) as required by BOEM with the verification completed under the direct supervision of a registered Professional Engineer.

8.5. Completeness of Equipment List and Identification of Uncertainties

Please indicate if the bidder has a full and complete list of equipment needed for all physical aspects of the bid, including generation facilities, transmission lead lines, and mandatory and voluntary transmission system upgrades.

If not, identify the areas of uncertainty and when the full and complete list of equipment will be identified.

Section 8.1 provides a full and complete list of all major equipment needed for all physical aspects of the Project.

As detailed in **Section 6**, the grid interconnection and planning studies that have been completed to-date indicate that transmission system upgrades are required at the planned interconnection point. Avangrid has incorporated the results of the studies performed by ISO-NE to-date and other relevant considerations into this preliminary engineering plan. Please refer to **Section 6** for more details.

8.6. Status of Equipment Procurement and Timelines

Please indicate if the bidder has secured its equipment for all physical aspects of the bid, including generation facilities, transmission lead lines, and mandatory and voluntary transmission system upgrades. If not, identify the long-lead equipment and describe the timing for securing this equipment.

[redacted]

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

[redacted]

[redacted]

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

[redacted]

9. Project Schedule

Advancing Vineyard Wind 1, the first large-scale offshore wind project in the nation, has provided Avangrid significant insight into US—and New England-specific—offshore wind project permitting, procurement, and installation timelines, as well as lessons learned for efficiency opportunities and schedule risks.[1] Based on Avangrid's and its affiliates' extensive experience with offshore wind project development, financing, and construction, the team has created a robust two-stage plan to develop and construct New England Wind 1 and New England Wind 2 (the Projects).[2] The schedule for New England Wind 1 is depicted in **Figure 9.1-1** and the schedule for New England Wind 2 is depicted in **Figure 9.1-2**. Large-scale versions of both schedules are provided as **Attachments 9.0-1** and **9.0-2** for the reader's convenience.

[redacted]

1 Vineyard Wind 1 is a 50/50 joint venture with Copenhagen Infrastructure Partners P/S. Vineyard Wind 1 has obtained permitting approval at the federal and state levels, concluded procurement and contracting for all major contract packages, finalized interconnection agreements, successfully implemented a financing plan, and begun construction and operation activities.

2 "New England Wind," formerly "Vineyard Wind South," is Avangrid's proposal to develop offshore wind energy facilities in BOEM Lease Area OCS-A 0534 as two Projects: New England Wind 1 and New England Wind 2.

[redacted]

[redacted]

This section outlines the critical path to achieving commercial operation and also illustrates how the schedules for the Projects are significantly de-risked and uniquely advantaged by the advanced permitting status and targeted and robust supplier engagement of both Projects. New England Wind 1 undoubtedly has the most certain, lowest-risk schedule of any uncontracted project in the region, having already:

- signed a Large Generator Interconnection Agreement (LGIA) with Eversource for interconnection in West Barnstable, as well as a Host Community Agreement for landfall and onshore routing and siting with the Town of Barnstable (Barnstable) (see **Section 6**);
- secured all its critical state, regional, and local permits and expects remaining federal permits by Q3 2024 (see **Section 7**);

[redacted]

9.2. Critical Path Schedule

Identify the elements on the critical path. The schedule should include, at a minimum:

1. Acquisition of all required real property rights necessary for construction and operation;
2. Receipt of all permits necessary to construct and operate the facility;
3. Execution of interconnection agreement with ISO-NE and interconnecting utility;
4. Closing of construction financing;
5. Major material purchase order/contract agreements in-place, including turbines, foundations, cables, and substations;
6. Major material delivery for use, including turbines, foundations, cables, and substations;
7. Vessel procurement and/or contracting;
8. Commencement of construction;
9. Commercial Operation Date, and;
10. Any other elements that could influence the project schedule (e.g. adherence to Build America, Buy America Act).

Bidders must demonstrate that their projects have a credible operation date. The term "credible operation date" means the project is more likely than not to come on-line by the date that is projected within the proposal, as evidenced by documents filed by a bidder showing, at a minimum, the following:

- material progress toward and plan for acquisition of all required real property rights;
- commencement of and plan for permitting;
- viable electrical interconnection plan;
- viable wind resource assessment;
- Environmental Characterization;
- Environmental and Fisheries Mitigation Plan (EFMP);
- viable financing plans;
- evidence of material vendor activity and procurement strategy; and
- viable Construction and Logistics Plan for offshore and onshore work.

In developing the New England Wind 1 and New England Wind 2 schedules, Avangrid identified key milestones and mapped out the subsequent workstreams needed to meet them successfully. Through this process, Avangrid identified the critical path, or the longest sequence of tasks required to achieve commercial operation.

[redacted]

[redacted]

Avangrid has extensive experience from managing these scopes for Vineyard Wind 1 and has significantly advanced commercial dialogue with key suppliers over the last several years to ensure that the supply chain is able to support manufacturing and installation within the necessary periods.

9.2.1 Avangrid Project Critical Path Schedule Advantage

[redacted]

9.2.2 New England Wind 1 Critical Path Schedule Certainty

[redacted]

[redacted]

[redacted]

9.2.3 Strong Confidence in the Non-Critical Path

As detailed in **Section 7**, several key development and permitting milestones have already been achieved or are progressed enough such that they are not considered to be critical path activities. New England Wind 1 and New England Wind 2 are jointly progressing through the federal permitting process, which is expected to effectively conclude in Q3 2024. In July 2020, the project team submitted the New England Wind Construction and Operations Plan (COP)[3] to the Bureau of Ocean Energy Management (BOEM), which was reviewed and deemed complete by BOEM and other consulting federal agencies. BOEM issued a Notice of Intent to prepare an Environmental Impact Statement on June 30, 2021. Public scoping meetings were held in July 2021. BOEM issued the Notice of Availability of the Draft Environmental Impact Statement (DEIS)[4] on December 23, 2022, opening a 60-day public comment period. The input received via this process informed the Final Environmental Impact Statement (FEIS)[5], which was published on March 1, 2024 and is anticipated to be followed by the Record of Decision (ROD) on April 1, 2024 and full COP approval for both Projects on July 1, 2024.[6]

[redacted]

[redacted]

[redacted]

3 https://www.boem.gov/renewable-energy/state-activities/new-england-wind-ocs-0534-construction-and-operations-plan

4 https://www.boem.gov/renewable-energy/state-activities/new-england-wind-draft-environmental-impact-statement-deis

5 https://www.boem.gov/renewable-energy/state-activities/new-england-wind-final-eis

[redacted]

9.2.4 Summarized Key Project Activities and Critical Path Activities

Table 9.1-1 summarizes key elements of New England Wind 1's schedule, including critical path activities.

Table 9.2-1 New England Wind 1 Key Project Activities and Critical Path Activities

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 9.2-1 New England Wind 1 Key Project Activities and Critical Path Activities

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 9.2-1 New England Wind 1 Key Project Activities and Critical Path Activities

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 9.2-1 New England Wind 1 Key Project Activities and Critical Path Activities

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 9.2-1 New England Wind 1 Key Project Activities and Critical Path Activities

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 9.1-2 summarizes key elements of the Project schedule for New England Wind 2, including critical path activities.

Table 9.2-2 New England Wind 2 Key Project Activities

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 9.2-2 New England Wind 2 Key Project Activities

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 9.2-2 New England Wind 2 Key Project Activities

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 9.2-2 New England Wind 2 Key Project Activities

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 9.2-2 New England Wind 2 Key Project Activities

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

9.3. Mechanisms for Mitigating Lead Time Volatility

Describe what mechanisms the bidder will utilize to mitigate lead time volatility, in order to better meet the project schedule.

[redacted]

[redacted]

10. Construction and Logistics

Avangrid is a pioneering leader in offshore wind project development and construction in the US, with extensive experience in US renewable energy development through our land-based power and wind projects, and in the offshore sector as co-owner and operator of Vineyard Wind 1, the first commercial-scale offshore wind project in the US. As discussed in **Section 12**, Avangrid also has the benefit of being part of a strong network of affiliates that have experience developing and constructing projects across Europe, South America, and East and Southeast Asia, allowing New England Wind 1 and New England Wind 2 to leverage significant knowledge, experience, history, and lessons learned. The construction and logistics plan for the Projects, detailed in this section, addresses the necessary arrangements and processes for outfitting, assembly, storage, and deployment of major project components. Avangrid validated the construction and logistics plan by engaging and coordinating with suppliers and conducting a detailed logistical analysis across multiple installation and downtime scenarios, incorporating over 35 years of site-specific meteorological and oceanic data.

The construction and logistics plan for the two Projects is at a mature stage due to the collective resources and experience of Avangrid and the Iberdrola Group. A fully staffed engineering, procurement, construction, and installation (EPCI) team is dedicated to the development of the Projects; their experience is detailed in **Section 12**. This team has been advancing the project strategy within Lease Area OCS-A 0534 (the Lease Area) since 2020 and has worked closely with the Vineyard Wind 1 EPCI team to develop a detailed construction methodology and schedule that aligns with supply chain considerations, vessel, and port availability (including Jones Act requirements), and anticipated permitting requirements (e.g., seasonal restrictions). While certain aspects of the construction and logistics plan have already been submitted to BOEM as part of the New England Wind Construction and Operations Plan[1], the construction and logistics plan described herein has been updated for this submission to incorporate additional detail on experience, procurement status, and other elements specific to the proposals for both Projects.

The construction and logistics strategy for both Projects incorporates several key local content initiatives providing a number of critical advantages and benefits compared to other offshore wind projects, which are summarized below. These initiatives will bring numerous jobs and other long-term economic development benefits, as is discussed in greater detail in **Section 14**.

Local Content Initiatives for Construction and Logistics

The construction and logistics strategy incorporates several key initiatives to enhance local content, create jobs, and provide lasting economic impacts across New England. The initiatives summarized in this section provide a number of critical advantages and benefits in comparison to other offshore wind projects. Emphasizing community involvement and local development, the construction and logistics plan results in the attraction of new suppliers and manufacturers to the region and increases the participation of local businesses and workers in the offshore wind industry. [redacted] to

[1] https://www.boem.gov/renewable-energy/state-activities/new-england-wind-ocs-0534-construction-and-operations-plan

stage and marshal from New England ports and facilities, represent a unique opportunity to build a new industry in the region and will deliver substantial and meaningful long-term economic benefits. All of the marshalling of wind turbine generator (WTG) components for the Projects will be from local port facilities, as will the construction logistics and operations and maintenance (O&M) activities. In committing to marshal, develop, and operate the Projects from New England ports, Avangrid is committing to maximizing the economic, social, and positive environmental impacts of the two Projects for the region and its residents.

Additionally, nearly all of the facilities selected by Avangrid to support the construction of the two Projects are shuttered former coal- and oil-fired power plants or historic brownfields facilities. The redevelopment and use of these facilities not only creates local content jobs and supports local companies, but also transitions some of the most impaired and contaminated sites in New England into rehabilitated beneficial use facilities that significantly benefit the clean energy revolution. Additional detail of all primary port and waterfront facilities, including renderings of several facilities, is included in **Section 14**.

Primary local ports and facilities that will be used to stage, assemble, and deploy New England Wind 1 and New England Wind 2 include:

- **Salem Offshore Wind Terminal, Salem, MA**—Avangrid is partnering with marine transport and logistics company Crowley Wind Services[2] (Crowley) to facilitate the development of Massachusetts' second purpose-build construction staging and marshalling port in Salem. Crowley is developing the port facility in conjunction with the City of Salem as a partner, and under ownership by the Massachusetts Clean Energy Center (MassCEC). Avangrid will serve as the anchor tenant with its New England Wind 1 and New England Wind 2 Projects, which provide the long-term lease needed for Crowley to finance the port redevelopment. [redacted] The facility will fill the critical role of storage and marshalling site for the offshore construction of the WTGs needed for the two Projects. It will provide an unprecedented opportunity for Salem and the entire region to participate in the growth of US offshore wind. Avangrid expects that the new facility will attract other international and global entities to settle in the region to take advantage of the opportunities these port developments will provide.

[redacted]

[2] Crowley is one of the nation's leading owner and operator of tugs, barges, and other vessels as well as a leading provider of terminal management, marine transportation, logistics, and naval architecture and engineering services.

[redacted]

[redacted]

[redacted]

10.1. Project Steps

Please list the major tasks or steps associated with deployment of the proposed project and the necessary specialized equipment (e.g. vessels, cranes).

The main offshore wind components of New England Wind 1 and New England Wind 2, as well as the installation processes and logistics considerations for those components, are included in **Section 10.1.1** below. As outlined above and detailed in **Section 14**, Avangrid expects the installation activities and logistics associated with those activities to generate significant local content and supply chain opportunities.

The deployment of the Projects consists of six main work packages:

1. WTG Foundations – Monopiles, Jackets, and Transition Pieces (TPs); and also Scour Protection;
2. Electrical service platform (ESP);
3. Offshore export cables;
4. Inter-array cables;
5. WTGs; and
6. Onshore works (including Marine to Shore Cable, Onshore Substation, and Onshore Cables).

The project schedules, provided in **Section 9**, detail the planned sequence of the major tasks for these work packages. When developing the schedules, Avangrid conducted a detailed logistical analysis for multiple installation scenarios. The analysis examined various vessel spreads and the potential use of different harbors and their respective operational and load-out capabilities. [redacted] The results of the analysis, in combination with the procurement activity done to-date, allowed Avangrid to develop a robust construction and logistics plan.

The transportation and installation (T&I) vessel spread terminology used in this section are defined in **Table 10.1-1**. An overview of the major tasks associated with deployment of the Projects, including the specialized equipment required to complete each of the work packages, is outlined in **Section 10.1-1**.

Table 10.1-1 Installation Vessels and Technologies Definitions

Vessel Type	Description	Technologies
Feeder Vessel	Transportation from US harbors to the Offshore Wind Energy Generation site using Jones Act compliant vessels; oceangoing tugs are required for long distances	• Jack-up feeder vessels • Tugs • Articulated tug barges (ATBs) • Feeder Barges
Transport Barge	Transportation from overseas manufacturers' fabrication facilities to the Offshore Wind Energy Generation site or for movement of components from ports in the US or non-US port for staging. Can involve the use of US-flagged or non-US-flagged vessels depending on the Coastwise situation; oceangoing tugs are required for long distances	• Tugs • Barges • ATBs
Heavy Transport Vessel (HTV)	General transport vessel for foundations, the ESP, WTGs, cables, and other project equipment from the manufacturer site to the Offshore Wind Energy Generation site or staging port	• Semi-submersible HTVs • Heavy transportation vessels with cranes • Transportation vessels (without craneage capability)
Heavy Lift Vessel (HLV)	Expected installation vessel for the ESP and possibly foundations	• Dynamically positioned (DP) or anchored HLVs with cranes (higher capacity than HTVs with cranes)
Wind Turbine Installation Vessel (WTIV)	Expected installation vessel for WTGs and possibly foundations	• Typically jack-up installation vessel(s) with cranes
Cable Installation Vessel	Large vessels that contain specialized cable spools for transport and payout of cable during installation	• Cable laying vessel(s) • Cable transport vessels
Specialized Support Vessel	Various vessels specifically designed to support offshore wind construction and operation, crew lodging and transportation, and/or general port and offshore logistics	• Fall pipe vessel • Offshore support vessels • Noise mitigation support vessels • CTVs • SOVs/ Walk-to-work vessels • Anchor handling tug and supply (AHTS) vessels • Dredging vessels • Accommodation vessels • Survey vessels • Safety vessels

10.1.1 Major Tasks and Specialized Equipment for Deployment and Construction

The steps involved in the construction of New England Wind 1 and New England Wind 2 are broken down below into functional components. In general, the tasks are presented in time sequence of installation, however, tasks overlap, and the actual sequencing and timing of the installation activities are detailed in the schedules presented in **Section 9**. The necessary specialized vessels and equipment Avangrid intends to use to construct the Projects is presented below.

Avangrid's T&I plan for each of these major components is based on a robust procurement process involving the leading global and domestic suppliers and contractors. The plans employ a variety of contractor-led installation solutions. As described in **Section 8**, New England Wind 1 is in significantly advanced stages of procurement and has either executed agreements or obtained best and final offers for supply (and, in some cases, installation) of all the major packages listed herein, enabling the development of credible deployment and construction plans that benefit New England Wind 2's plan, as well.

10.1.1.1 Foundations

[redacted]

Task 1. Foundation Transport

Foundation elements will be manufactured in the home factory of the specialty monopile manufacturer selected for each of the Projects [redacted]

[redacted]

Task 2. Foundation Installation

Foundation installation requires both specialized vessels and specialized equipment. Some of the largest ships in the world are needed for this activity. The vessels and equipment needed for foundation installation include:

[redacted]

[redacted]

Task 3. Scour Protection

Scour protection is made up of rock, engineered stone [redacted] and placed around the foundations of the WTGs. Scour protection is required to prevent loss of seabed sediment from currents around the bases of the WTGs.

In addition to some of the installation equipment required for foundation installation (e.g., safety [guard] vessels and survey equipment), scour protection installation requires the following specialized equipment and technology:

[redacted]

10.1.1.2 ESP Package

An ESP is an offshore substation that is installed in the Offshore Wind Energy Generation site among the WTGs. It collects alternating current power from the inter-array cables that are connected to the WTGs and exports the power to shore through a buried offshore export cable. The ESP is often made far from the offshore wind deployment location. Additional information on the ESP is presented in **Section 8**.

Task 1. Transport

ESPs are some of the largest and heaviest pieces of equipment associated with an offshore wind project. Specialized vessels must be used to carry the ESP out to the Offshore Wind Energy Generation site. Specialized vessels include:

[redacted]

Task 2. ESP Installation

ESP installation requires all the same specialized equipment and technologies as is used for foundation installation, but also can require:

[redacted]

Task 3. ESP Offshore Commissioning

Testing and offshore commissioning begin after the ESP and related cabling have been connected to the WTGs. ESP commissioning requires a number of highly skilled technicians and specialized electrical equipment. Initial commissioning of the ESP can take many days.

[redacted]

10.1.1.3 Offshore Export Cable Package

The offshore export cable is installed beneath the seafloor and spans both federal waters on the outer continental shelf and state waters. The offshore export cable is connected to the ESP and carries energy from the ESP to the landfall. The offshore export cable is jointed at the landfall to the onshore export cable that continues to transfer the energy to the onshore substation and then into the grid. Additional information on the export cable concept for the two Projects is presented in **Section 8**.

[redacted]

Task 1. Cable transport

Offshore export cables require specialized vessels for transport. The vessel typically consists of a barge carrying a cable spool basket, with the cable either spooled on and off the basket or an entire cassette of cable can be lifted on or off a transport vessel using a crane. The vessels needed for cable transport include:

[redacted]

Task 2. Pre-lay surveys and pre-lay grapnel run

Prior to laying the offshore export cable, seabed conditions within the offshore export cable corridor must be surveyed. Pre-lay surveys and grapnel runs are used to characterize the sea bottom and sub-bottom conditions in the path of the offshore export cable. Slight adjustments to the offshore export cable can be made within the surveyed offshore export cable corridor during installation if hazardous conditions for installation are noted on the seabed. The pre-lay grapnel run is performed by a vessel with a grapnel towed on the seafloor along the planned able route. The pre-grapnel run removes any debris prior to the cable installation. The vessels and equipment needed for pre-lay surveys and pre-lay grapnel run include:

[redacted]

[redacted]

Task 3. Cable installation (laying and burial)

Offshore export cable installation is one of the most challenging activities associated with the development of an offshore wind project. The vessels that install these cables are some of the most specialized vessels in the world. The vessels and equipment needed for cable installation include:

[redacted]

Task 4. Cable jointing

Cable joining is a necessary activity for both connecting sections of a cable, and also **pulling the cable through the hull of the WTGs and then** up the tower into the nacelle. The massive cables that are used in offshore wind projects take a significant amount of skill and care to connect. Cable joining electricians spend years training and apprenticing before making a cable splice.

[redacted]

[redacted]

Task 5. Termination and commissioning works

Termination is conducted when a subsea cable is pulled into the ESP and plugged into a termination plug. The armoring and insulation of the cable must be stripped back so that the cores of the cable can be connected to the termination plug. The cable must be properly spliced and terminated in order for the electrical system to work properly.

10.1.1.4 Inter-Array Cable Package

Similar to the offshore export cable, the inter-array cable connects the individual WTGs to each other and to the central ESP located within the Offshore Wind Energy Generation site. Additional information on the inter-array cable design is presented in **Section 8**.

Task 1. Cable transport

Cable transport for the inter-array cable is similar to that of the offshore export cable. The inter-array cable will be a smaller diameter cable than the offshore export cable, as described in **Section 8**. The vessels needed for cable transport include:

[redacted]

Task 2. Pre-lay surveys and pre-lay grapnel run

These operations are very similar to those conducted for the offshore export cable. The pre-lay grapnel run involves a vessel towing a grapnel train over the centerline of the cable route to locate and remove any debris along the cable route that could impact cable installation. The vessels and equipment needed for pre-lay surveys and pre-lay grapnel run include:

[redacted]

Task 3. Cable installation (laying and burial)

Inter-array cable installation is similar to offshore export cable with the exception that the cable runs are typically shorter (length needed only to connect one WTG to another or to the ESP). The vessels and equipment needed for cable installation include:

[redacted]

Task 4. Cable pull-in (into the foundations and ESP)

Additional specialized personnel often operating from separate vessels are required however:

[redacted]

Task 5. Termination and commissioning works

Commissioning of the cabling, ESP, and electrical system and interconnects for an offshore wind project requires significant personnel and equipment. The cables are connected and are fully tested after being pulled into position at the WTGs and the ESP. Testing of the cable and the circuits is conducted prior to energization.

[redacted]

10.1.1.5 WTG Package

The WTG produces the power that is transmitted to the grid, and is comprised of the tower, nacelle, hub, rotor, and blades. At present, many of the separate components that make up a complete WTG are manufactured in different locations and must be shipped to the marshalling and assembly port. Additional information on the planned WTG design is presented in **Section 8**.

Task 1. WTG transportation to the pre-assembly harbor

Transportation of the WTG components to the marshalling and assembly port involves specialized vessels, cranes, and gear for moving and transport.

[redacted]

Task 2. Harbor logistics and pre-assembly

Harbor logistics represents a complex set of movement patterns for offshore wind components. Individual components are received at the marshalling port, off-loaded, and temporarily staged on-site. The components are stored on the ground or on racks as storage requirements dictate.

Components are moved toward the quayside to prepare for off-loading onto the feeder barge or the WTIV that is being used to transport the components to the install location.

[redacted]

Task 3. WTG T&I at the site

WTG T&I falls under two main categories: The first is the "feeder method" which involves the use of feeder barges in which the WTIV, typically a jack-up vessel, remains offshore at the installation location. Jones Act tugs and barges shuttle components to a foreign flagged vessel. This enables the use of international WTIVs to provide the most cost-efficient and reliable solution due to the limited availability of US-flagged WTIVs capable of installing offshore wind WTGs. The feeder method has been utilized on Avangrid's Vineyard Wind 1 project and is a tested and proven method for US offshore wind WTG installation. [redacted]

The second method is the "shuttle method" which involves a WTIV that comes into the marshalling port to pick up a full set of WTG components and then travels to the installation area to install the WTG. In the shuttle method, the installation vessel must be US-flagged and crewed, as required by the Jones Act, as the vessel is delivering goods from one marine facility (the marshalling port) to another marine facility (the previously installed foundation). Currently there is only one available US-flagged Jones Act WTIV anticipated to be available, Blue Ocean Energy Marine's (a subsidiary of Dominion Energy Inc.) the Charybdis.

[redacted]

The vessels and equipment needed to transport and install the WTG components to the installation site include:

[redacted]

[redacted]

Task 4. WTG commissioning

Similar to the commissioning of the ESP, the commissioning of the WTGs requires special equipment, special vessels, and personnel that are trained in commissioning.

10.1.1.6 Onshore Works Package

For the power from an offshore wind project to be received at the grid, the cables must connect through the landfall site and into a substation that can handle the type and amount of power that is produced. The system that receives the power is a complex set of cables, substations, and electrical interconnect points. Collectively this is known as the Onshore Works Package.

The T&I plan for onshore works is based on a robust procurement process involving multiple contractors with global and US experience, employing a variety of contractor-led installation solutions. [redacted]

Task 1. Onshore substation construction

The onshore substation is one of the key components of grid interconnection and selling offshore wind energy. The equipment needed to bring the cable onshore at landfall, run it through duct banks, and connect to the grid is listed below:

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The onshore substation is one of the key components of grid interconnection and selling offshore wind energy. The equipment needed to bring the cable onshore at landfall, run it through duct banks, and connect to the grid is listed below:

[redacted]

Task 2. Landfall site construction

The landfall site construction includes nearshore export cable work to bring the cable ashore at the beach crossing through HDD, the transition into the duct banks that house the cable from landfall to the substation, and the connection of the substation to the grid. The HDD drill rig is staged at the beach landing with appropriate site measures such as drill fluid recycler, security fence, and noise mitigation. The rig drills horizontally underground, and installs conduit to the punchout location, where the export cable will be tied in. Divers and barges are used to facilitate the submarine construction such as underwater welding, excavated spoil disposal, and underwater trenching. Once the conduit is completely installed, the punchout will be stabilized in preparation for the future export cable installation. At the landfall site, transition joint bay vaults are installed where the offshore export cable can be spliced to the onshore export cable. Cable installation nearshore is challenging because the cable lay vessel cannot operate in shallow waters. The cable is transferred to a smaller vessel for landfall construction. From the transition vault, the cable is installed in the duct bank and pulled through to the onshore substation for grid interconnection.

Task 3. Duct bank installation

The duct bank is the conduit through which the export cable comes ashore and connects into the grid. The duct bank consists of underground concrete-encased polyvinyl chloride (PVC) conduits with thermal fill placed on top. [redacted] The entire process of cable installation from the WTGs to grid interconnection represents a series of complicated steps that must align in order for the power to be delivered to the grid.

Task 4. Onshore export cable installation

The cables will be delivered to the site in reels. The conduits will be proofed to ensure they are clear of debris and obstructions. Using the splice vaults, the cable installer will use a winch system to pull the cables throughout the duct bank system. The cables will be cut to the required lengths and spliced. This process will be performed throughout the route until the cable system is completely installed. Terminations will be installed and the cable system will be tested for compliance.

10.2. Contractor Management

Please describe your general approach to contractor management, including how many contractor bid packages you plan on pursuing. Within each contractor bid package, explain who will be manufacturing, transporting, and installing the major equipment, including but not limited to the wind turbines, advanced foundation component, foundations, cabling, offshore substation, and onshore construction work. Please describe any current agreements for this project, and the approach for procuring the remainder.

Table 10.2-1 provides a list of the potential parties involved in deployment of New England Wind 1 and New England Wind 2 along with their scope of responsibility for each of the work packages. This list represents the suppliers with whom Avangrid has been in direct dialogue. Tier 2 suppliers (including port facility owners, crane companies, supply vessel owners, and transport vessel owners) have been approached but are not included in the table below. This list is not exhaustive, as other suppliers are likely to be considered relevant to the two Projects. A detailed description of the approach to contractor management, including how many contractor bid packages the project team anticipates pursuing, and the status of current agreements, is provided in **Section 8**. New England Wind 1's advanced procurements are expected to be awarded within 2024.

Table 10.2-1 Parties Potentially Involved in Deployment of the two Projects

[redacted]

Table 10.2-1 Parties Potentially Involved in Deployment of the two Projects

[redacted]

Table 10.2-1 Parties Potentially Involved in Deployment of the two Projects

[redacted]

The sequence of the Projects and the associated construction details reflect Avangrid's experience from the construction of Vineyard Wind 1 and the practical realities of the current marketplace. Persistent supply chain shortages in recent years have led to increased costs for components and services. However, both Projects have been carefully formulated to reflect the safest and most efficient construction process possible, while providing the best value to ratepayers. Formulation of the construction and logistics plan has benefited from Avangrid's experience with Vineyard Wind 1, and incorporates numerous lessons learned and adaptive procedures that were gained through the construction of that project.

10.3. Site Control

Please provide documentation to demonstrate site control for all marine terminals and other waterfront facilities that will be used to stage, assemble, and deploy the project for each stage of construction.

1. Evidence that the bidder or the equipment/service provider have a valid lease, or option to lease, a marine terminal and/or waterfront facility for construction of the offshore wind energy project (e.g., by virtue of ownership or land development rights obtained from the owner).

7. If not available, describe the status of acquisition of real property rights for necessary marine terminal and/or waterfront facilities, any options in place for the exercise of these rights and describe the plan for securing the necessary real property rights, including the proposed timeline. Include these plans and the timeline in the overall project schedule. Provide any agreements, options, or other materials reflecting the bidder's efforts so far to secure real property rights (and any letters of intent to the extent signed agreements are not in place).

8. Identify any joint use of existing or proposed real property rights for marine terminal or waterfront facilities."

A critical challenge in the US offshore wind industry is the insufficiency of port infrastructure capable of hosting offshore wind construction staging activities. This challenge will be exacerbated by the anticipated rapid growth of the industry over the coming decade, particularly as multiple projects move into their construction phase with overlapping time horizons. Avangrid is committed to expand and anchor US and New England-based port facility infrastructure for the major construction and operations scopes of both Projects. Avangrid will serve as the anchor tenant for the Salem Offshore Wind Terminal, utilizing the facility for pre-assembly, staging, and load-out of the WTGs in order to maximize the economic benefits from the Projects to the Region.

As detailed in this section, Avangrid has secured site control for all critical US-based marine terminals and other waterfront facilities that will be used to stage, assemble, and deploy the Projects for each stage of construction, including the Salem Offshore Wind Terminal for WTG marshalling [redacted]

Avangrid has secured critical marine terminals and waterfront suppliers to support manufacturing of key components (see **Section 14**) and to support the ongoing operation and maintenance of both Projects (see **Section 11**). In all cases, Avangrid has developed relationships with the facilities identified herein, and discussions and documentation have been acquired to support this submission.

10.3.1 Salem Offshore Wind Terminal - Marshalling Harbor for WTGs, Salem

In February 2023, Avangrid and Crowley (through their wholly-owned subsidiary, Salem Wind Terminal LLC) executed a lease agreement securing Avangrid tenancy at the Salem Offshore Wind Terminal for the term needed for it to build New England Wind 1 and New England Wind 2. A Notice of Lease is provided as **Attachment 10.3-1**.

Since obtaining the facility, Crowley has engaged AECOM, a large international provider of infrastructure design, to design and manage a robust team of subconsultants and engineering professionals supporting Crowley's redevelopment of the port facility. TetraTech, a large national provider of permitting and scientific services, is leading the drive to bring the associated permitting processes to conclusion, on behalf of Crowley. The site is being redeveloped to provide the quayside, load bearing capacity, and berthing infrastructure necessary to accommodate the large vessels and components necessary for offshore wind project construction. An important element of these infrastructure improvements is the installation of a second berth at the facility to accommodate incoming vessels carrying large offshore wind components. The existing berth will be hardened to facilitate the out-loading and trans-loading of the components onto barges and WTIVs that will ferry the components to their installation site offshore. Through their Community Benefits Agreement with the City of Salem, Crowley has committed nearly $9 million in direct assistance to the community as well as other non-financial benefits, including a commitment to incorporate electrification and shore power technologies as they become technologically feasible, with a goal of achieving 100% port electrification by 2040. This port exemplifies the additional, specialized infrastructure needed to support the region's current and future ambitious offshore energy goals.

At the time of this proposal's submission, Crowley, AECOM, and TetraTech have advanced the redevelopment project to the construction phase, having acquired nearly all permits, completed all design plans, and awarded the associated civil works contracts. MassCEC has acquired an ownership stake in the Salem Offshore Wind Terminal [redacted] As described in **Section 14,** this process has been facilitated by New England Wind 1's anchor tenancy, providing the financial commitment necessary to initiate development of the port facility. [redacted] A rendering of the Salem Offshore Wind Terminal is depicted in **Figure 10.3-1**.

Figure 10.3-1 Rendering of Salem Offshore Wind Terminal

[redacted]

[redacted]

[redacted]

10.3.5 Additional Backup and Optional Facilities

Complex offshore wind projects involve a number of assets and facilities in the construction and operation processes. The incorporation of backup and optional facilities into the Projects stems from Avangrid/Iberdrola's experience installing and operating offshore wind projects across the globe, and from the experience of Vineyard Wind 1. The purpose of a backup or optional facility is to reduce the risk of delays and or operational inefficiencies if parameters change during the course of the Projects, or if logistical challenges such as weather, traffic, shipping constraints, or unforeseen equipment issues create challenges for the project flow. A summary of critical marine terminals and waterfront facilities, which may be used during the construction period, is provided in **Table 10.3-1**. [redacted]

Table 10.3-1 Backup and Optional Port Facilities

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]

[redacted]

[redacted]

10.3.6 Joint Use

For the primary construction support facilities for New England Wind 1 and New England Wind 2, Avangrid is not planning for any joint use of the marine terminal or waterfront facilities. While joint use may be necessary at support facilities, Avangrid has secured priority rights for vessel berthing and facility use, as described below:

- **Salem Offshore Wind Terminal:** The Lease Agreement that Avangrid has negotiated with Crowley for the Salem Offshore Wind Terminal in Salem Harbor includes Avangrid's: (1) exclusive use of all buildings and other improvements located on the site; (2) exclusive or priority use of all quays, wharves, and berths on terms to facilitate Avangrid's intended uses; and (3) non-exclusive use of the navigable access channel.

[redacted]

10.4. Staging and Deployment

Please describe the proposed approach for staging and deployment of major project components to the project site.

Indicate the number, type and size of vessels that will be used, and their respective roles, as well as the projected timing of their use.

Please include specific information on how the bidder's deployment strategy will conform to requirements of the Merchant Marine Act of 1920 (the Jones Act).

Avangrid's proposed approach for staging and deployment leverages the knowledge and expertise gained from the unique experience of constructing Vineyard Wind 1, the first large-scale offshore wind project to have commenced offshore and onshore construction in the nation, let alone the region. In addition, the approach is based on extensive research and supply chain engagement.

Avangrid has been developing and analyzing potential concepts to secure cost-effective and reliable logistics, ports, and vessel solutions for its projects since 2016. During this time, Avangrid has engaged extensively with the most qualified US and European-based installation contractors. Securing access to appropriate vessels and identifying logistical solutions are essential steps to ensure successful adherence to the offshore construction schedule, as detailed in **Section 9**.

With the experience of constructing Vineyard Wind 1 and over six years developing and analyzing potential concepts for cost-effective and reliable logistics, ports, and vessel solutions in New England, the project team has significant experience dealing with and overcoming challenges such as Jones Act restrictions, low harbor access clearances, space limitations at ports, and supply chain availability constraints – especially with respect to offshore wind vessels and logistics – and has taken special care to explore all possible staging and deployment approaches prior to proposing this strategy. Avangrid has also been able to draw from experience from the global affiliates of the Iberdrola Group. To validate the construction and logistics plan for both Projects, Avangrid has engaged in direct dialogue with numerous potential contractors and suppliers (see **Section 10.2**).

An overview of expected vessels to be used during the staging and deployment for each offshore package, including the type, example vessel class, and size, is provided in **Table 10.4-1**. The list is indicative and non-exhaustive.

Table 10.4-1 Vessel Types and Sizes

Vessel Type	Vessel Examples	Width (feet)	Length (feet)
Cable laying vessel	[redacted]	90-110	400-500
Fall pipe vessel / Cable protection placement vessel	[redacted]	100-150	430-560
HTV [redacted]	[redacted]	80 – 185	390 – 740
HTV (TPs)	[redacted]	100 – 150	395 – 650
HTV (WTGs)	[redacted]	65 – 100	395 – 560

Table 10.4-1 Vessel Types and Sizes

Vessel Type	Vessel Examples	Width (feet)	Length (feet)
HLV	[redacted]	155 – 460	591 – 757
WTIV	[redacted]	128-164	433-495
Feeder vessel	[redacted]	75-150	130-200
Barge (including cable transport and laying barges)	[redacted]	80-145	300-500
Tug (including “site assistance tugs”)	[redacted]	30-45	80-160

Table 10.4-1 Vessel Types and Sizes

Vessel Type	Vessel Examples	Width (feet)	Length (feet)
DP support vessel/AHTS vessel	[redacted]	40-70	200-260
Support vessel/walk-to-work vessel	[redacted]	25-65	115-445
CTV	[redacted]	25-40	80-110
Walk-to-work vessel	[redacted]	35-50	115-445
Safety vessel	[redacted]	33-40	L: 110-135
Hotel vessel	[redacted]	50-60	L: 120-305 ft

[redacted]

The following subsections summarize the six main work packages for New England Wind 1 and New England Wind 2 and the approach Avangrid intends to take to complete the staging and deployment of the major components.

10.4.1 Foundations – Monopiles, TPs and Scour Protection

[redacted]

[redacted]

[redacted]

Vineyard Wind 1 is also using monopile foundations topped with TPs and completed multiple rounds of comprehensive competitive procurements for the Vineyard Wind 1 monopile foundations before finalizing contracts for the fabrication, transportation, and offshore installation logistics, which helped inform the construction and logistics plan for those scopes. Members of Avangrid's team also have experience with the installation of WTGs on jacket foundations for the East Anglia ONE offshore wind project located in the UK and the Wikinger offshore wind project location in Germany.

Foundation deployment consists of the following major tasks:

- Monopile fabrication[3];
- Monopile transportation;
- Monopile installation;
- TP transportation;
- TP installation; and
- Scour protection T&I.

Vessel types used, expected number of vessels, and respective roles are summarized in **Table 10.4-2** below.

Table 10.4-2 Foundation Vessels: Monopile, TP, and Scour Protection

Vessel Type	# of Vessels	Role
Fall pipe vessel	1-2	Scour protection installation
HTV	2-5	Foundation transport
HLV	1-2	Foundation installation
Barge	4-8	Foundation transport to Offshore Wind Energy Generation site

[redacted]

Table 10.4-2 Foundation Vessels: Monopile, TP, and Scour Protection

Vessel Type	# of Vessels	Role
Tug	[redacted]	Foundation transport to Offshore Wind Energy Generation site
DP support vessel/AHTS vessel equivalent	[redacted]	Noise mitigation deployment, barge positioning, secondary work
Support vessels	[redacted]	Noise mitigation deployment, passive acoustic monitoring, protected species observation, sound field verification
CTV	[redacted]	Crew transfer
Safety vessel	[redacted]	Guard the installation works

10.4.1.1 Foundation Transportation

[redacted]

<u>Monopile Transport</u>

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

TP Transport

[redacted]

[redacted]

[redacted]

Table 10.4-3 Foundation and Harbor Logistics Steps

Foundation Transport and Harbor Logistics Steps	
Monopile and TP Transport	
Monopile transportation	[redacted]
TP transportation	

Table 10.4-3 Foundation and Harbor Logistics Steps

Foundation Transport and Harbor Logistics Steps
[redacted]

10.4.1.2 Foundation Installation

[redacted]

Table 10.4-4 Foundation Installation Steps

Foundation Installation Steps	
Monopile and TP Installation	
Monopile installation using an HLV	[redacted]
Post Pile Installation Activities	
TP installation using an HLV	

Table 10.4-4 Foundation Installation Steps

Foundation Installation Steps
[redacted]

10.4.1.3 Scour Protection T&I

The benefit of scour protection is that foundation penetration can be minimized. The need for scour protection is specific to the final design of the foundation concept(s) selected and will be further assessed upon further engineering of the foundations. [redacted]

[redacted] Scour protection may be installed up to several months prior to the start of foundation installation and/or after foundation installation following the multi-step process outlined in **Table 10.4-5**. The steps shown in **Table 10.4-5** describe the installation of rock material, which is the most widely used scour protection material in the offshore wind industry. [redacted]

Table 10.4-5 Scour Protection T&I

Scour Protection T&I
[redacted]

Several techniques exist for placing scour protection at the base of foundations, including side dumping and placement with a crane/bucket or fall pipes. The fall pipe method uses a pipe extending from a vessel to the seafloor near the foundation location; it is the most precise technique and is expected to be used wherever possible. Scour protection installation vessels will likely operate in DP mode and will move along a pre-determined pattern to minimize usage of the scour protection material and ensure even distribution of the rock material.

10.4.2 ESP

The ESP consists of two primary components: (1) the topside, which houses the electrical components; and (2) the foundation substructure. As described in **Section 8**, Avangrid has selected ESP topsides that will be installed on piled jackets. This is a conventional offshore substation design that has been utilized in the offshore wind industry globally. The deployment of the ESP will mainly consist of the following tasks:

- ESP T&I;
- ESP offshore commissioning; and
- Energizing and system commissioning.

Vessel types used, expected number of vessels, and respective roles are summarized in the **Table 10.4-6** below.

Table 10.4-6 ESP Vessels

Vessel Type	# of Vessels	Role
HLV	[redacted]	ESP installation
HTV	[redacted]	ESP transport
Tugs	[redacted]	ESP transport
CTV	[redacted]	Crew transfer
Hotel vessel	[redacted]	Crew accommodations during commissioning

10.4.2.1 ESP T&I

Each ESP topside will be delivered directly to the installation site on an HTV, or an installation vessel, and lifted into place with an HLV. The specific steps required to transport and install the ESP foundation are similar to those described above for WTG foundations in **Tables 10.4-4** and **10.4-5**. [redacted] Scour protection will be installed as the design requires during the same campaign as the scour protection for the WTG foundations (see **Table 10.4-6**).

[redacted]

Table 10.4-7 ESP Topside Installation

ESP Jacket and Topside Installation Steps
[redacted]

After each ESP is installed, the inter-array cables and offshore export cables will be pulled into the ESP. These cables will be routed through J-tubes located on the foundation. Once the cables are connected to the ESP, the corrosion protection/control system is expected to be installed around the foundation.

10.4.2.2 ESP Offshore Commissioning

Onshore commissioning of each ESP occurs as part of the final manufacturing process for the topside and is conducted at the factory prior to ESP T&I. After the ESP is installed, offshore commissioning will commence. ESP offshore commissioning includes tests of the electrical infrastructure and safety systems prior to commercial operations, which can last several months[redacted] During the commissioning period, a vessel may be positioned adjacent to the ESP to provide accommodations for workers performing commissioning activities.

Table 10.4-8 ESP Offshore Commissioning Steps

ESP Offshore Commissioning Steps
[redacted]

10.4.3 Offshore Export Cables

[redacted]

Offshore export cable installation consists of the following steps:

- Route clearance (e.g., boulder relocation), pre-lay grapnel run, and pre-lay surveys;
- Cable transportation, installation, and jointing of cable sections and terminations at connection nodes on the ESP;
- Landfall site cable equipment installation, including, cable pull-in winches, excavation for trenching, cable accessories, inspection and maintenance manholes, and armoring; and
- Cable termination and commissioning works at both the landfall site transition vault and ESP.

Vessel types used, expected number of vessels, and respective roles are summarized in **Table 10.4-9** below.

Table 10.4-9 Offshore Export Cable Vessels

Vessel Type	# of Vessels	Role
Barge	[redacted]	Offshore export cable transportation and/or installation in shallow water areas
Support vessel	[redacted]	Pre-lay surveys and pre-lay grapnel run, burial support, and boulder clearance

Table 10.4-9 Offshore Export Cable Vessels

Vessel Type	# of Vessels	Role
Cable laying vessel	[redacted]	Laying of the cables (and likely burial)
Support vessel	[redacted]	Burial support vessel, boulder clearance
AHTS vessel	[redacted]	Support main vessel with anchor handling
CTV	[redacted]	Crew transfer for termination and commissioning
Safety vessel	[redacted]	Guard the installation works
Cable protection placement vessel	[redacted]	Place cable protection (if needed)

10.4.3.1 Route Clearance, Pre-Lay Grapnel Run, and Pre-Lay Surveys

Extensive surveys, geotechnical borings, and digital ground models were completed by Avangrid and its contractors to gather information and data on the seabed surface and subsurface within the cable corridors.

The subsurface along the cable route is well known and significant quantities of boulders are not expected to be encountered. Large obstructions (large boulders and anthropogenic debris) are generally not expected along the cable route. If small fields or individual boulders are encountered, the first means of mitigation would be avoidance. If boulders cannot be avoided, they will be relocated out of the cable route. This procedure is expected to be accomplished either by means of a grab tool suspended from a vessel's crane, or by using a plow-like tool that is towed along the route to push boulders aside (this may occur during the cable installation process).

In the unlikely event large boulders are encountered, local cable route segments will be slightly relocated and/or realigned (within the permitted cable corridor) prior to cable installation.

The planned cable alignments will be prepared with a pre-lay grapnel run. The pre-lay grapnel run involves a vessel towing a grapnel train to find and recover debris crossing the cable route. This will be performed along the route in advance of the cable deployment to minimize the risk of any debris on the seabed hindering installation or the achievement of target burial depth. A pre-lay survey using a full suite of geophysical and remote sensing equipment will be carried out shortly before installation to confirm that the cable route is free of obstructions and verify seabed conditions.[4]

[4] The Environmental and Fisheries Mitigation Plan, included as Attachment 7.4-1, discusses measures that Avangrid would adopt to minimize potential environmental impacts associated this these and other construction and installation activities.

[redacted]

10.4.3.2 Cable Transportation, Installation, and Jointing

[redacted]

To install each cable, the cable laying vessel will move along the cable alignment while simultaneously laying and burying the cable. Installation can begin from shore and move towards the Offshore Wind Energy Generation site, but the final installation sequencing for cable burial will be determined during the detailed engineering phase.

The offshore export cables will have a target burial depth of 5-8 feet below the seafloor, which Avangrid engineers have determined is more than twice the burial depth required to protect the cables from fishing activities; it also provides a 1 in 100,000-year probability of anchor strike, which is considered a negligible risk. Several possible techniques may be used during cable installation to achieve the target burial depth. Based on currently available technologies, the majority of the offshore export cables are expected to be installed using jetting techniques (e.g., jet plow or jet trenching) or mechanical plow. Additional specialty techniques, such as mechanical trenching or precision installation by diver or ROV, may be used to maximize the likelihood of achieving sufficient burial depth in areas of coarse or consolidated sediment, rocky bottom, or other difficult conditions. While the actual offshore export cable installation method(s) will be determined by the cable installer based on site-specific conditions, Avangrid will prioritize the least environmentally impactful installation practicable for each segment of cable installation.

During installation, the burial tool will grade-out near jointing locations and at the ESP. Where the offshore export cables approach the ESP foundation, the cables will likely be protected by a cable entry protection system intended to reduce fatigue and mechanical loads as they transition above the seabed and into the foundation.

[redacted]

[redacted]

[redacted]

10.4.3.3 Landfall Site Installation

For each Project, HDD will be employed at the landfall site to bury the offshore export cables underground, which will avoid or minimize disturbance to the beach and surrounding area. HDD is a trenchless method of installing a conduit in an arc along a prescribed bore path by using a surface-launched drilling rig. It was similarly employed at the Vineyard Wind 1 landfall site. Once the conduit is inserted into the bore hole, the cable is pulled through it in a process known as “pull-in.” One conduit is needed for each offshore export cable.

The cable laying vessel offshore from the landfall site will position close to the HDD exit and deploy the burial tool. The onshore winch wire will be pulled through the conduit to the cable laying vessel. There, the wire will be connected to the offshore export cable’s end and the export cable will be pulled through the conduit towards shore. Buoys will be installed (if required) on the cable prior to the offshore export cable section leaving the chute of the vessel, enabling the cable to be floated during the pull-in process towards the HDD offshore outlet. Once in position, the buoys will be removed, and the offshore export cable end will be guided through the HDD tool. The cable pull-in continues until the export cable end arrives at the transition vault at the landfall site.

When the shore pull-in is complete, the cable laying vessel will commence burying the cable as it moves towards deeper water. The HDD cable conduit end will then be closed and buried. This process is then repeated for each HDD conduit required. The additional HDD conduit(s) would be completed in quick succession utilizing the same equipment as the first conduit.

10.4.3.4 Cable Pull-In into the ESP

Cable-pulling into the ESP is a critical step in the completion of the two Projects. The operation must be conducted with the highest health and safety standards and implement all industry certified technical requirements. As the cable laying vessel approaches the ESP, it will stop at a calculated distance and the cable will be cut and sealed. An ROV will then be lowered to the seabed to recover a pre-installed messenger wire from the base of the foundation and connect it to the pull-in head of the cable. Using the messenger wire, a winch on the ESP will then begin to pull the cable up through the foundation into the ESP topside. As pull-in progresses, the cable laying vessel will move towards the ESP and the cable will be lowered to the seabed. The pull-in continues from the ESP-mounted winch until the cable reaches the hang-off point where a dedicated team will install the temporary hang-off.

10.4.3.5 Cable Termination and Commissioning

The termination team will strip the cables to expose the power cores and the fiber optics after the offshore export cable is secured on the temporary hang-off in the ESP; the permanent hang-off will then be installed. The power cores will be routed inside the ESP and terminated in the high voltage gas-insulated switchgear bay. The fiber optic cables will be connected into the fiber optic patch box. Ground wires will be connected to the dedicated ground points. Once termination is completed, the export cables will be fully tested and commissioned to confirm they can be energized safely.

10.4.4 Inter-Array Cables

The inter-array cables for the Projects will connect the individual WTGs to one another and to the ESP. Inter-array cable installation will be performed prior to WTG installation to facilitate the rapid testing and commissioning of WTGs once they are installed, so first power can be delivered from the WTGs on a rolling basis as each set of WTGs on the inter-array cable strings come online prior to COD.

Inter-array cable installation consists of the following steps:

- Pre-lay surveys and pre-lay grapnel run;
- Cable transportation and seabed installation utilizing a cable lay ship;
- Cable pull-in into the WTG foundations and into the offshore ESP; and
- Cable termination and commissioning at both ends of each array cable segment.

[redacted]

Vessel types used, expected number of vessels, and respective roles are summarized in **Table 10.4-10** below.

Table 10.4-10 Inter-Array Cable Vessels

Vessel Type	# of Vessels	Role
Barge/Cargo Vessel	[redacted]	Inter-array cable transportation
Support vessel	[redacted]	Pre-lay surveys and pre-lay grapnel run
Cable laying vessel	[redacted]	Laying of the cables (and potentially burial)
Support vessel	[redacted]	Burial support vessel
CTV	[redacted]	Crew transfer for termination and commissioning
SOV/Walk-to-work vessel	[redacted]	Crew transfer for termination and commissioning
Safety vessel	[redacted]	Guard the installation works
Fall pipe vessel/Cable protection stabilization vessel	[redacted]	Place cable stabilization (if required)

10.4.4.1 Pre-Lay Surveys and Pre-Lay Grapnel Run

[redacted] A pre-lay detailed remote sensing and ROV (as necessary) survey will be carried out shortly before cable installation to confirm that the cable alignments are free of obstructions, and to verify seabed conditions.

10.4.4.2 Cable T&I

[redacted]

Upon arrival at the Offshore Wind Energy Generation site, the first end of an inter-array cable will be pulled into the WTG or ESP foundation using winches installed on the foundation. With the required cable length pulled-in, the cable laying vessel will move in the direction of the next foundation, surface-laying the cable along the planned route. The departure angle of the cable will be constantly monitored along with the laid cable length as it leaves the vessel. These measures ensure the cable is not laid with too much tension and help ensure that the cable's maximum bending radius is not compromised. As the installation vessel approaches the next foundation, the remaining length required to carry out the second-end pull-in will be calculated, and the cable will be cut.

Cable burial operations (referred to as "post-lay burial") will then be performed by the cable laying vessel or a separate dedicated vessel.

10.4.4.3 Cable Pull-In into the Foundations and ESP

Messenger wires will be used to pull the inter-array cables into the foundations. These wires can be pre-installed in foundations onshore or installed offshore, depending on the final strategy and foundation type. If monopiles are utilized, messenger wires would likely be installed directly offshore. Before the inter-array cables are pulled in, the preparation teams will install the pull-in rigging equipment and winch on the ESP and WTG foundations.

Messenger wires will be recovered by the cable laying vessel using an ROV. Once on board, they will be connected to the cable pull-in head. After connection of the messenger wire to the cable rigging, the preparation team will increase tension on the wire using the winch and the cable laying vessel will simultaneously pay out cable. The pull-in will continue until the cable is in the right position in the foundation, where it will be secured at the temporary hang-off point. Cables will likely be installed with a cable entry protection system to ensure integrity. Additional protection may be placed over the cable entry protection system to secure it in place and limit movement of the cable. An ROV will carry out a final visual inspection of the cable entry protection system and cable to ensure that there are no issues with scour protection surrounding the foundation.

10.4.4.4 Cable Termination and Commissioning

After the inter-array cable is secured on the temporary hang-off, the termination team will strip the cables to expose the power cores and fiber optics. [redacted]

[redacted] Once termination is completed, the inter-array cables will be fully tested and commissioned to confirm they can be energized safely.

10.4.5 WTGs

[redacted] As detailed in **Section 12**, Avangrid's team benefits from extensive experience with successful offshore wind project construction and WTG installation, from affiliate projects installed globally using a variety of original equipment manufacturers (OEMs) to staging and installing the WTGs used for Vineyard Wind 1, which is sited immediately next to the Offshore Wind Energy Generation site and shares many identical or similar characteristics.

[redacted]

Various installation solutions for WTGs are available in the US and have been tested in the market with suppliers. The logistical approach chosen for the Projects will transport WTG components from the fabrication facilities to a pre-assembly harbor (also referred to as a WTG staging port) at the Salem Offshore Wind Terminal. From there, the WTGs will be transported offshore for installation using the feeder method described in **Section 10.1**. Alternatively, if a US-flagged WTIV is utilized, the WTG components could be transported using the shuttle method described in **Section 10.1.**

Vessel types used, expected number of vessels, and respective roles are summarized in **Table 10.4-11** below.

Table 10.4-11 WTG Vessels

Vessel Type	# of Vessels	Role
HTVs	[redacted]	Nacelles, tower sections, and blades transport
Feeder vessels	[redacted]	Feeding WTG components from harbor to the Offshore Wind Energy Generation site
WTIV	[redacted]	WTG installation
CTV	[redacted]	Crew transfer for WTG installation and commissioning
Safety vessels	[redacted]	Guard the installation works
Hotel vessel	[redacted]	Crew accommodations during commissioning

WTG staging and deployment consists of the following major tasks:

- WTG transportation to the pre-assembly harbor;
- Harbor logistics and pre-assembly;

- WTG T&I at the Offshore Wind Energy Generation site; and
- WTG commissioning.

10.4.5.1 WTG Transportation to the Pre-Assembly Harbor

The WTG consists of three major components: the tower sections, the nacelle, and the blades. Each component will be prepared at a fabrication facility and shipped to the pre-assembly harbor. As described in **Section 10.3**, Avangrid will use the Salem Offshore Wind Terminal in Massachusetts for the pre-assembly, staging, and load-out of WTGs. A lease agreement with Crowley at the Salem Offshore Wind Terminal has been executed with the intention of supporting these activities.

A sufficient stock of components will be accumulated at the pre-assembly harbor prior to WTG installation so that a steady pace of installation activities can be maintained. WTG components may be transported from their manufacturing sites to the pre-assembly harbor on multi-purpose HTVs or transport barges. These vessels are readily available in the market and various suppliers are already engaged with Avangrid on other projects.

The development of case-specific transport and storage plans will ensure the best possible utilization of these vessels; a vessel may carry a mix of components or may be dedicated to one component type (i.e., blades only or towers only). Multiple transport vessels will likely be involved simultaneously in WTG transportation to the pre-assembly harbor. WTG transport will proceed according to the steps outlined in **Table 10.4-12**.

Table 10.4-12 WTG Transport to the Pre-Assembly Harbor

WTG Transport Steps
[redacted]

10.4.5.2 Harbor Logistics and Pre-Assembly

The main activities at the pre-assembly harbor will include shifting WTG components between transport vessels, lay-down storage and feeder or WTIVs for transport offshore. Once the nacelles, blades, and tower sections arrive in Salem, the handling steps listed in **Table 10.4-13** will occur. Mobile harbor cranes can be used for inbound logistics if no crane capability is available on the HTVs; crawler cranes or a fixed location ringer crane can be used to support the lifting of WTG components onto feeder vessels.

Table 10.4-13 WTG Pre-Assembly Harbor Logistics

WTG Pre-Assembly Harbor Logistics Steps	
Staging of Nacelles and Tower sections	[redacted]
Blade Storage	[redacted]

Preparatory efforts will be implemented before the WTG components are transported offshore for installation. This primarily relates to the upending and stacking of tower sections, as well as the maintenance and pre-assembly of internal components. Final preparation and tests will also be performed on the nacelle to ensure the fastest possible offshore commissioning.

10.4.5.3 WTG T&I at Offshore Wind Energy Generation Site

When ready for final assembly, each WTG component will be loaded onto a feeder vessel at the pre-assembly harbor and brought offshore. WTG components will be loaded by cranes located at the quayside onto feeder vessels, or by the main WTIV onto its own deck. [redacted]

For the feeder method, WTG feeder vessels will employ a tug-barge-tug or tug-barge arrangement, which consists of a regular deck cargo barge assisted by a capable main towing tug from the bow and an offshore assist tug from the stern or custom-made barge and tug configuration that will allow a newly developed docking process offshore. The tug-barge-tug arrangement has been demonstrated successfully by the recent offshore delivery of WTG components for Vineyard Wind 1. The operation is achieved using a main towing tug, equipped with nozzled propellers, triple rudders, and bow thrusters; the main tug will be connected to the deck cargo barge on a short tow line and bridle connection. The offshore assist tug, equipped with fully rotatable propulsion thrusters, will be connected to the stern of the deck cargo barge centerline by redundant synthetic push lines. The two tug types will provide high maneuverability and capability to control the cargo barge, providing safe offshore lifting operations from the deck cargo barge. Such tugboats and deck cargo barges are commonly utilized in the US and represent an opportunity for direct engagement with US-flagged vessels and the local businesses that support them. [redacted]

WTG installation will occur continuously until all WTGs are installed onto their respective foundations. The Projects are both expected to utilize either a American-made WTIV, such as the U.S-built Charybdis, a foreign-flagged WTIV, [redacted] At the time of this submission, only one US-flagged WTIV is under construction in Texas; planning is underway to build additional vessels, but it is unlikely that others will be ready to mobilize in the near future. If a foreign-flagged jack-up vessel scenario is needed, it would remain at the Offshore Wind Energy Generation site while feeder vessels transport a steady stream of WTG components for installation. The WTG installation process (assuming the use of a feeder concept) is further described in **Table 10.4-14**.

[redacted]

Table 10.4-14 WTG Transport to Site and Installation

WTG T&I Steps	
Feeder vessels cycle	[redacted]
WTIV cycle	

Should a US-flagged WTIV be contracted for either of the two Projects, the WTIV would shuttle between the marshalling port and the Offshore Wind Energy Generation site, picking up components in port and installing them at their designated offshore position. Specialized quayside load-out equipment is required and load-out activities under such an arrangement would likely be accomplished using a mixture of ship-side and land-side cranes.

10.4.5.4 WTG Commissioning

WTG installation will be followed by commissioning, where the WTGs are prepared for operation, and become energized. Commissioning involves the completion of tests to electrical infrastructure and the WTG before a formal transfer of responsibilities to the operations and maintenance teams is made. The WTG commissioning phase will overlap with the WTG installation phase, with individual WTGs being commissioned shortly after their erection.

10.4.6 Onshore Works

Onshore works consist of the following major tasks:

- Onshore substation construction;

- Landfall site construction;
- Duct bank installation; and
- Cable transport, installation, and commissioning.

10.4.6.1 Onshore Substation Construction

For each Project, Avangrid will construct an onshore substation where the onshore export cable voltage will be increased before interconnection to the New England grid at the West Barnstable substation. The onshore substation's electrical design will be comparable to that of most other onshore substations built to support offshore wind energy generation (see **Section 8**). There are many experienced contractors in New England and throughout the US with the expertise to build this type of onshore substation; Vineyard Wind 1 has recently completed the construction of its onshore substation. Lessons learned from the Vineyard Wind 1 project have further informed Avangrid preparations. [redacted]

Construction of the onshore substation will be completed in four primary phases: (1) site preparation; (2) assembly of foundations and primary structures; (3) equipment installation; and (4) site restoration. Site preparation involves installation of a security fence and gates, placement of erosion controls, clearing and grading of the substation site, and excavation work. The assembly phase involves constructing the foundations and structural facilities. Phase three involves the installation, erection, testing, and commissioning of electrical equipment. Site restoration includes cleanup, landscaping, and site stabilization. Construction of the onshore substation is planned to occur in parallel with the onshore duct bank and cable installation campaign.

10.4.6.2 Landfall Site Construction

The offshore export cables for New England Wind 1 and proposed offshore export cables for New England Wind 2 will make landfall in the Town of Barnstable, MA (see **Section 6**). At the landfall site, the transition of the offshore export cables to land will be accomplished using HDD to avoid or minimize impacts to the beach, intertidal zone, and nearshore areas. HDD functions will achieve a burial significantly deeper than any expected erosion. The offshore and onshore export cables will be joined together in transition vaults located below-grade at the landfall site. The construction of the transition vaults and entry pit for cable pull-in will constitute the majority of onshore works at the landfall site.

<u>Horizontal Directional Drilling</u>

HDD operations at the landfall site will include a land-based drill rig system, drilling fluid recirculation systems, residuals management systems, and associated support equipment. Drilling will begin with bore holes between the onshore HDD staging area and an offshore exit point. At the staging area, the drill rig will be set up behind the entry pit, providing the contractor with access to a proper drilling trajectory and serving as a reservoir for drilling fluids (i.e., a slurry consisting predominantly of water and bentonite, a naturally occurring, non-toxic clay). When the drill bit advances to the exit point, it will be replaced with a series of reamers that widen the bore hole. Once the desired bore hole diameter is achieved, a pulling head will be placed on the end of the drill pipe to pull a section of plastic (e.g., high-density polyethylene (HDPE)) conduit into the bore hole. The cables are then subsequently pulled into the plastic conduit. Thermal grout may be used to fill spaces between the offshore export cable and the conduit to enhance the thermal characteristics of the cable (i.e., heat dissipation). This process is repeated for each conduit required; there will be one conduit for each offshore export cable.

[redacted]

10.4.6.3 Duct Bank Installation

The onshore export cables for each Project are expected to be installed in an underground duct bank along selected onshore cable routes. Associated duct bank will primarily be placed within existing public roadway layouts (either beneath the road or within the shoulder); portions of the duct bank may extend into existing utility rights-of-way (ROWs). **Section 6** provides more detail on the onshore export cable routes.

The duct bank will likely consist of plastic pipes or sleeves encased in concrete; each onshore export cable and fiber optic cable will be installed within its own pipe or sleeve. The duct bank provides mechanical protection for the cable from roadway loading, allows for easier access, and requires less environmental disturbance if a cable repair is necessary post-installation.

The duct bank is expected to be installed via open trenching with conventional construction equipment (e.g., hydraulic excavator, backhoe, dump trucks, etc.). Similar to the installation of water mains and gas lines, saw cutting of roadway and removal of existing pavement is required before excavation of the open trench. Minor tree branch clearing and grading may be required along utility ROWs to accommodate excavation equipment and the stockpiling of soils. Once installation of the duct bank is complete, all trenches will be backfilled, and the road will be restored to its original condition. The top of a duct bank typically requires at least three feet of cover (i.e., properly compacted sand topped by pavement). Any excess soil or soil unsuitable for use as backfill will be transported off-site in accordance with applicable regulations. For construction within utility ROWs, any disturbed vegetated areas will be loamed and seeded to match pre-existing vegetation.

Specialty trenchless crossing methods (e.g., HDD, pipe jacking, direct pipe, auger bore) are expected to be used where the onshore export cables traverse unique features (busy roadways, wetlands, waterbodies, etc.) to avoid associated impacts. Utilization of a specific trenchless crossing method(s) will depend on location, mechanical loading considerations, safety factors, potential environmental impacts, and other applicable requirements.

[redacted]

<u>Cable Transport, Installation, and Commissioning</u>

Once the duct bank is in place, the onshore export cables are pulled into place via underground splice vaults (i.e., underground concrete chambers) and associated manholes spaced along the duct bank. Onshore cables will be transported to site by truck to reduce the need for a large cable laydown area. Each cable will be installed between splice vaults; a reel containing the cable length will be positioned at one splice vault and the pulling vehicle will be located at the other splice vault. Once cables are installed between the splice vaults, the cables will be spliced together. The supplier will test and commission the cables following cable installation and termination.

10.4.7 The Coastwise Laws (Jones Act)

The deployment strategy for both Projects conforms to the requirements of the Merchant Marine Act of 1920 (Jones Act) and the Passenger Vessel Services Act (PVSA; 46 USC. § 55103). In September 2020, the US House of Representatives passed the Expanding Access to Sustainable Energy Act of 2019, which further affirmed the position that foreign-flagged vessels cannot transport merchandise for offshore wind projects between US ports and highlights that US Customs and Border Protection will enforce these regulations during offshore wind project construction. Congress' recent amendments to Section 4(a) of the Outer Continental Shelf Lands Act contained in the National Defense Authorization Act for Fiscal Year 2021 also clarified any ambiguity regarding whether US laws (including the Jones Act) governing offshore energy apply equally to the offshore wind industry.

The installation logistics for the two Projects has been developed around the main principles of the Jones Act in close cooperation with potential contractors and vessel owners. [redacted]

[redacted]

Table 10.4-15 summarizes Avangrid's approach to compliance with the Jones Act, based on current rulings.

Table 10.4-15 Jones Act Compliance Approach

Activity	Description
Foundation installation	[redacted]
ESP Installation	

Table 10.4-15 Jones Act Compliance Approach

Activity	Description
Cable Installation	[redacted]
WTG Installation	
Personnel Transport	

10.5. Mitigation Plan for Risks Related to Vessel Availability

Please describe how you plan to mitigate the risk of project delays due to lack of availability of wind turbine installation vessels, as well as heavy lift vessels used for foundation and offshore substation installation.

Avangrid identified construction vessel availability as a key industry priority early on in the development process of New England Wind 1 and New England Wind 2 and has maintained this discussion as an integral part of the contractor procurement processes. Avangrid has identified the following mitigations that are being implemented within the methodology and WTIV and HLV contract awards for the two Projects.

- Supplier Engagement: Continuous engagement through procurement rounds and supplier relationships with the WTIV and HLV vessels and operators, monitoring vessel availability and reservation status with an expected 2024 award for all scopes.
- **Package Synergies:** Potential synergies have been identified across packages in the case of mitigation events. For example, in the event of reduced HLV availability, either a secondary completions vessel or the jack-up installation vessel can be utilized for installation of foundation TPs to reduce the HLV program.
- **Program Verification:** To fully verify and interrogate contractor programs, inclusive of weather delay and risks based on historical data, detailed SPRINT analyses have been performed for each

construction package in order to identify long stop dates and extension options that should be included within each vessel contract.

- **Contract Strategies:** With the benefit of protracted procurement processes, Avangrid has implemented a number of strategies within the contractor award discussions that will both help mitigate vessel availability risk, while allowing for additional options to add to program flexibility.

[redacted]

- **Jones Act:** With Avangrid's understanding and experience of working with Jones Act requirements in the offshore construction vessel market, project methodologies have been developed to account for multiple installation scenarios based on vessel availability. This allows for either capturing enhanced local content options through the utilization of Jones Act compliant vessels or mitigating the risk of a lack of compliant vessels through feedering installation strategies.

11. Operations and Maintenance

This section details the operations and maintenance (O&M) plan for New England Wind 1 and New England Wind 2, which draws heavily from the substantial effort undertaken to develop Avangrid's first offshore wind project, Vineyard Wind 1, the first commercial-scale offshore wind project in the US to implement an O&M plan. Not only is Avangrid 50% owner and developer of Vineyard Wind 1, but Avangrid serves as the sole operator of the project and signed an Operations and Maintenance Service Agreement and Asset Management Agreement with Vineyard Wind 1, LLC in 2022 (see **Attachment 11.0-1** and **Attachment 11.0-2**). The experience and lessons learned from Vineyard Wind 1, which has a very similar site location, site conditions, and technology to New England Wind 1 and New England 2, provide Avangrid with unparalleled expertise in the development of a thorough and factual O&M concept for the Projects. This O&M plan has also been benchmarked against similar O&M plans developed for the many offshore wind projects owned and operated by Avangrid's affiliates across the globe (see **Section 11.5** and **Section 12**).

Avangrid is able to take advantage of its established offshore wind O&M team in the US for early implementation of operation and maintenance plans, contracts, and requirements within the two Projects.

Avangrid has accomplished or (if specified) significantly advanced the following key O&M planning and execution milestones:

- Development of a comprehensive "ready-to-operate" O&M plan for both Projects;
- Execution of option and lease agreements for multiple port options (detailed in **Section 11.1**) to guarantee facility availability in line with the schedule described in **Section 9**;
- Implementation of a fast and reliable response logistics concept by progressing permitting and design of port facilities able to support Service Operations Vessels (SOVs) and Crew Transfer Vessels (CTVs), similar to the one that was developed in Tisbury, Martha's Vineyard for Vineyard Wind 1;

[redacted]

- Alignment of operational plans with the issued Final Environmental Impact Statement[1]; and

[1] https://www.boem.gov/renewable-energy/state-activities/new-england-wind-final-eis

- Mitigation of spare parts risk by contracting a cable storage management system in New England.

[redacted]

Avangrid welcomes questions from the Evaluation Team regarding status updates on any of these key milestones post-submission of this proposal.

Based on experience from Vineyard Wind 1, global projects, and the years already spent refining the O&M plan, Avangrid is confident the O&M plan will readily deliver the following:

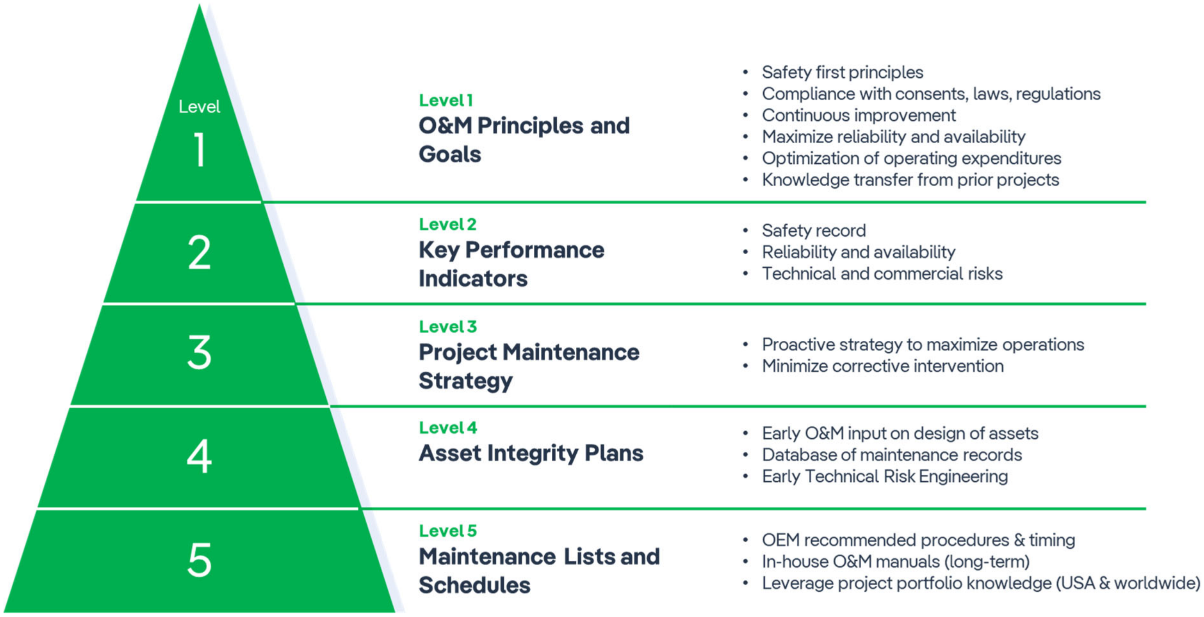
[redacted]

11.1. Operations and Maintenance Plan

Provide an O&M plan for the project that demonstrates the long-term operational viability of the proposed project. The plan should include a discussion of the staffing levels proposed for the project, the expected role of the project sponsor or outside contractor, scheduling of major maintenance activity, and the plan for testing equipment.

The O&M plan for New England Wind 1 and New England Wind 2 is defined by Avangrid's O&M Management System, which is a set of policies, processes, and procedures that ensure satisfaction of all targets required to achieve the O&M principles and goals (see **Figure 11.1-1**). The O&M principles and goals govern which key performance indicators should be monitored on a continuous basis to optimize the maintenance strategy so that targets are met or exceeded. This framework allows Avangrid to deploy an ever-evolving O&M plan that can leverage new technologies and market conditions (e.g., drone repairs, autonomous underwater vehicles, or new service providers).

Figure 11.1-1 Avangrid O&M Framework



With clear principles and goals, the management system helps define operational strategies that affect multiple levels. [redacted]

Key operational strategies driven by the management system include the following:

- O&M logistics strategy
- Organization and workforce strategy
- Project maintenance strategy
- Quality, Health, Safety, and Environment strategy
- Systems and special tools strategy
- Risk management strategy

11.1.1 Logistics Strategy

Based on global experience, and the experience operating Vineyard Wind 1, Avangrid has developed a cost-effective O&M logistics strategy that leverages operational synergies across projects. The team also has a clear understanding of environmental regulations affecting O&M logistics. The O&M logistics plan endeavors to deliver reliable, cost-effective energy to ratepayers while, as detailed further in **Section 14**, maximizing the economic, social, and positive environmental benefits for the region. [redacted]

[redacted] Refer to **Section 10** for additional information on the ports that will be utilized to support construction [redacted]

[redacted]

[redacted]

[redacted]

The O&M logistics strategy for New England Wind 1 and New England Wind 2 [redacted] additional optional and backup facilities have been identified throughout New England to support the long-term operations of the Projects. The locations, acquisition status, and existing or joint uses of the primary facilities to be used as part of the O&M strategy are summarized herein. [redacted]

[redacted]

[redacted]

[redacted]

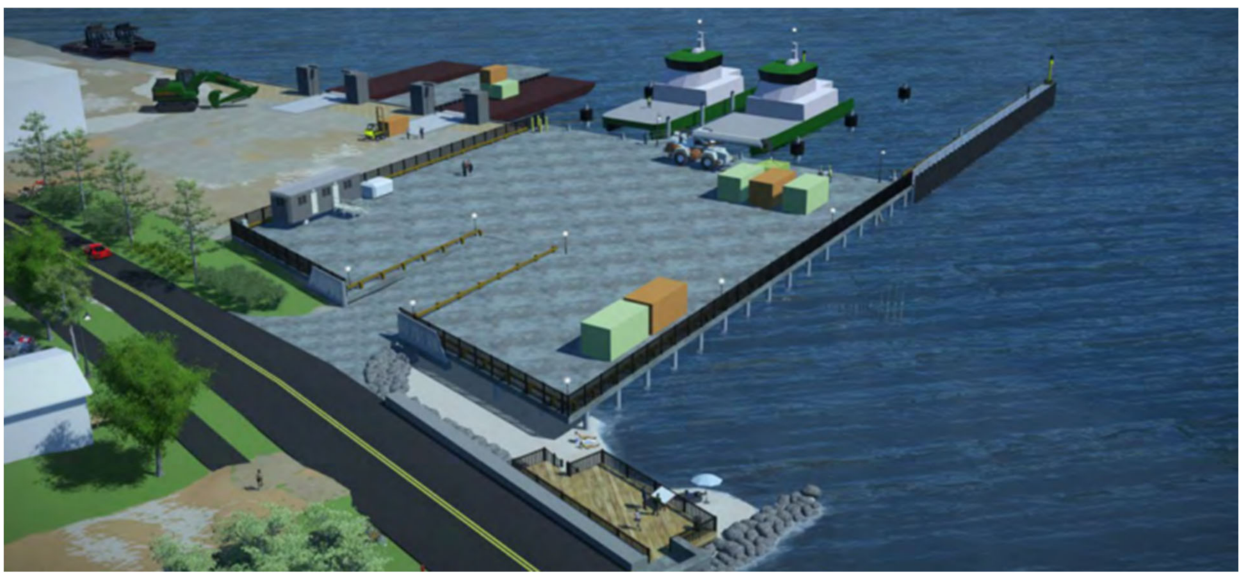
11.1.1.3 Martha's Vineyard

The Tisbury Marine Terminal in Vineyard Haven, currently being developed by Vineyard Wind 1, is the closest marine facility to the Offshore Wind Energy Generation site (**Figure 11.1-8**). While the primary

O&M facility for New England Wind 1 and New England Wind 2 is located [redacted] the proximity of the Vineyard Haven facility to the site makes it an excellent port of opportunity if rapid launching of personnel or equipment is required. [redacted]

[redacted]

Figure 11.1-8 Rendering of Tisbury Marine Terminal in Tisbury, MA



Source: Foth Infrastructure & Environment

11.1.2 Organization and Workforce Strategy

Avangrid's plan is to fully own and oversee the O&M organization and workforce strategy for New England Wind 1 and New England Wind 2. Following suit from the Vineyard Wind 1 strategy, the Avangrid team will establish an O&M organization and hire a workforce of skilled offshore wind technicians, administration, and management staff that will work together with O&M experts from Avangrid and Iberdrola as well as other competent service providers to maintain a high performance, reliability, and availability of both Projects.

[redacted]

Avangrid will also leverage its operational experience performing asset management activities required to operate and participate in the ISO New England (ISO-NE) market. [redacted]

[redacted]

The O&M phase for each of the two Projects will create long-term, skilled jobs directly with Avangrid, while the use of major service contractors and their subcontractors will create additional jobs both locally and in the wider supply chain. The O&M workforce can be divided into two key groups:

- **Local administrative and management staff:** [redacted]
- **Offshore wind technicians:** [redacted]

[redacted]

11.1.3 Project Maintenance Strategy

Avangrid's O&M philosophy is based on the execution of robust preventative maintenance designed to minimize the need for corrective intervention. With respect to corrective maintenance, Avangrid's approach is centered on constant readiness so repairs can be executed as effectively and efficiently as possible.

11.1.3.1 Preventative Maintenance

Avangrid will take advantage of low wind periods to conduct planned visits to the WTGs to perform preventative maintenance. The different types of planned preventative maintenance are:

- **Scheduled maintenance:** [redacted]
- **Risk-based maintenance:** [redacted]
- **Condition-based maintenance:** [redacted]

Table 11.1-1 describes example maintenance strategies and inspection activities for key components.

Table 11.1-1 Preventative Maintenance Strategy Examples

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	
	[redacted]	[redacted]	
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	
	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]

Table 11.1-1 Preventative Maintenance Strategy Examples

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	
[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	
	[redacted]	[redacted]	

11.1.3.2 Corrective Intervention

[redacted]

[redacted]

11.1.3.3 Extraordinary Maintenance Campaigns

[redacted]

11.1.4 Spare Parts

O&M close-to-project spare parts management will be implemented throughout New England– [redacted] As discussed in **Section 10**, the complex nature of developing and maintaining offshore wind projects requires that the two Projects identify a number of assets and facilities, as well as backup and optional facilities for contingency planning. [redacted]

11.1.5 Systems and Tools Strategy

Avangrid will use systems and tools that are proven and in use by Avangrid today to manage day-to-day operations (see **Table 11.1-2**). These systems and tools will be further optimized by leveraging operational data from Vineyard Wind 1, enabling the Avangrid team to implement a fully functional strategy for the two Projects.

Table 11.1-2 Examples of Systems and Tools Used to Manage Operations

[redacted]	[redacted]
[redacted]	
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Table 11.1-2 Examples of Systems and Tools Used to Manage Operations

[redacted]	[redacted]
[redacted]	
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

[redacted]

11.1.6 Health and Safety Strategy

Health and safety are top priorities for Avangrid. The O&M requirements have been incorporated into the design of the technical concept for the two Projects at the outset, not only to ensure high reliability but, more importantly, to ensure the highest levels of health and safety for all personnel. During the operational phase, safe systems of work such as risk assessments, method statements, lock-out/tag-out processes, lifting plans, and a permit-to-work system will be developed and implemented before work begins. The safe systems of work will be based on regulatory Health, Safety and Environment requirements, project requirements, and best practices, as well as the adoption of international standards to the extent possible and beneficial.

11.1.7 Risk Management Strategy

To ensure the long-term success of New England Wind 1 and New England Wind 2, the O&M plan will deploy a risk management strategy with a focus on personnel safety, environmental impact, and asset integrity. The local project team will manage and mitigate risks with support from teams of specialists working across Avangrid's and its affiliates' combined global portfolio, sharing best practices.

11.2. Funding Mechanism and Levels for Operations and Maintenance

Describe in detail the proposed O&M funding mechanism and funding levels to support planned and unplanned O&M requirements.

[redacted]

[redacted]

[redacted]

[redacted]

11.3. Equipment Warranties and Guarantees

Describe the terms (or expected terms) and the term lengths of the warranties and/or guarantees on major equipment that the bidder is utilizing or proposing to utilize.

Avangrid will negotiate industry-standard warranty periods as part of equipment supply agreements on all major project components. Warranties will be those that are typically available for offshore wind projects and aligned with industry best practices. [redacted]

11.3.1 Wind Turbine Generators

[redacted] The warranty agreement is expected to include the coverages outlined in **Table 11.3-1** below.

Table 11.3-1 Full Service and Warranty Agreements with WTG OEM

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted]

11.3.2 Balance of Plant

Table 11.3-2 below outlines the warranties and coverages Avangrid anticipates securing for BOP components. [redacted]

Table 11.3-2 Balance of Plant Warranty Coverages

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

11.4. Status and Plans for Operations and Maintenance Agreements/Contracts

Describe the status of the project sponsor in securing any O&M agreements or contracts.

Include a discussion of the sponsor's plan for securing a medium-term or long-term O&M contract, including the expected provider of O&M services.

[redacted]

[redacted]

[redacted]

Avangrid has significant experience securing such contracts, having undertaken this work already for Vineyard Wind 1 and several Iberdrola offshore wind projects in Europe. Avangrid has executed an O&M agreement as part of the WTG Engineering, Procurement, and Construction supply agreement for Vineyard Wind 1 with GE to serve as the WTG and O&M supplier for that project. Experience from this process will be incorporated into the solicitation for the contracts required to support the operational phase of New England Wind 1 and New England Wind 2. Avangrid is confident that all required O&M agreements will be in place well in advance of the commencement of operations.

Table 11.4-1 lists the key O&M agreements that will be secured prior to financial close.

Table 11.4-1 Key O&M Agreements to be Secured Prior to Financial Close

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Table 11.4-1 Key O&M Agreements to be Secured Prior to Financial Close

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted]

11.5. Experience with Operations and Maintenance Services for Similar Projects

Provide examples of the bidder's experience with O&M services for other similar projects.

As described in **Section 12**, Avangrid and its affiliates have extensive O&M experience with multiple offshore wind projects. Avangrid is also actively developing new offshore wind projects [redacted] This expertise, including technical know-how, will be used in support of the two Projects. The experience gained in Vineyard Wind 1 in preparing for and executing the operations phase, as well as the ongoing experience from operating it, will also be leveraged to the benefit of New England Wind 1 and New England Wind 2.

11.5.1 Avangrid

Avangrid has more than 9,200 MW of owned and controlled renewable generation capacity, primarily wind and solar, across 24 states. In addition to New England Wind 1 and New England Wind 2, Avangrid is currently developing Kitty Hawk Wind, an offshore wind project proposed in North Carolina (up to 3,500 MW). Through owning and operating four onshore wind projects in the ISO-NE region, Avangrid has years of experience as a Lead Market Participant and is a registered Designated Entity in ISO-NE. Please see **Attachment 12.2-1** for a detailed list of onshore wind projects owned and operated by Avangrid to demonstrate the breadth of operational expertise.

Most importantly, Avangrid is also the contracted O&M provider for Vineyard Wind 1. Through this role, Avangrid leads the industry as one of the first developers to have O&M experience in the US. This has produced a detailed understanding of what is required to achieve operational success safely and efficiently while remaining in adherence to all relevant US regulations. Continued campaigns to commission and service offshore components for Vineyard Wind 1 will further bolster the capacity for Avangrid to establish successful O&M logistics in the region and create solutions to unforeseen challenges that will be inherent to offshore operations unique to New England.

11.5.2 Iberdrola

Avangrid is part of a growing global network of onshore and offshore wind expertise within the Iberdrola Group, allowing the Avangrid O&M team to benefit from ongoing experience gathered by contemporaries abroad. The Iberdrola Group is the world's leading producer of wind power and one of the biggest electric utilities globally in terms of market capitalization. With more than 4,900 MW of offshore wind capacity in operation or under construction (including Vineyard Wind 1), the Iberdrola Group has established itself globally as a leading offshore wind developer with a significant pipeline of projects spanning Europe, South America, and East and Southeast Asia.

The Iberdrola Group has been responsible for offshore wind projects of similar size, distance from shore, and/or water depth as the two Projects, which also follows a similar design as offshore wind projects developed, constructed, and operated by the Iberdrola Group globally. Avangrid O&M staff are regularly given opportunities to tour and collaborate onsite with European colleagues, allowing for invaluable in-person perspective on critical lessons learned. Iberdrola O&M subject matter experts have regularly engaged with project staff to provide conceptual input. The diversity of marine conditions, equipment types, and logistic variables represented in the Iberdrola offshore wind portfolio has offered Avangrid a frame of reference for incorporating best management practices and tested procedures from around the world into new strategies that encompass all aspects of O&M for New England Wind 1 and New England Wind 2. [redacted] Many contractors and consultants involved in roles supporting O&M preparations for Avangrid were identified as a result of their experience and ongoing engagement with other projects operated by Iberdrola. More details on the status of the Iberdrola Group's advanced projects can be found in **Section 12.**

12. Project Management/Experience

Rhode Island Energy is particularly interested in project teams that have demonstrated success in projects of similar type, size and technology and, for projects that include new facilities or capital investment, can demonstrate an ability to work together effectively to bring the project to commercial operation in a timely fashion.

Through its in-depth experience and active development of the Vineyard Wind 1[1] project, Avangrid (or the Company) is leading the US offshore wind industry as one of the first developers in the country to obtain permitting approval at the federal and state levels, conclude procurement and contracting for all major contract packages, finalize interconnection agreements, successfully implement a financing plan, and achieve first power for a commercial-scale offshore wind project. Avangrid has a deep understanding of what is required to develop, permit, finance, and construct offshore wind projects in the US. The Company's understanding is further enhanced by its close relationship with the Iberdrola Group, one of the largest offshore wind developers in the world with over 4,900 MW of capacity in operation or under construction, including Vineyard Wind 1.

After obtaining all permits in the spring of 2021, Vineyard Wind 1 became the first US commercial-scale offshore wind project to achieve financial close in September 2021. Attaining this major milestone enabled Vineyard Wind 1 to provide a Notice to Proceed to its contractors, which allowed suppliers to start hiring, training, and mobilizing for offshore construction. Onshore construction in the Town of Barnstable is now complete and offshore construction activities are well underway, with 47 foundations, 30 transition pieces, and 10 wind turbine generators (WTGs) installed as of March 1, 2024, providing additional direct experience that will benefit New England Wind 1 and New England Wind 2 (the Projects).[2] Notably, Vineyard Wind 1 achieved a momentous milestone earlier this year when the project delivered first power to the electricity grid.

Avangrid's offshore wind team of nearly 150 full-time equivalent (FTE) positions, which includes some of the most experienced offshore wind professionals in the world, possesses the resources, capacity, and expertise required to successfully drive the Projects from development to construction and, ultimately, the operations and maintenance (O&M) period. Most of the personnel on this team are already dedicated exclusively to advancing the Projects, which have been in development since 2020. Avangrid's offshore wind team is supported by a suite of consultants and partners, many of whom have been working on the Projects for years and who also have supported, and in many cases continue to support, the development of Vineyard Wind 1, creating continuity and the opportunity to leverage lessons learned. Finally, the successes of the Projects are further assured by the vast global offshore wind expertise and management capabilities of Avangrid's affiliates, as described in **Section 12.2.2.**

[1] Vineyard Wind 1 is a 50/50 joint venture with CIP P/S. Vineyard Wind 1 has obtained permitting approval at the federal and state levels, concluded procurement and contracting for all major contract packages, finalized interconnection agreements, successfully implemented a financing plan, and begun construction, with first power delivered in January 2024.

[2] "New England Wind," formerly "Vineyard Wind South," is Avangrid's proposal to develop offshore wind energy facilities in BOEM Lease Area OCS-A 0534 as two Projects: New England Wind 1 and New England Wind 2.

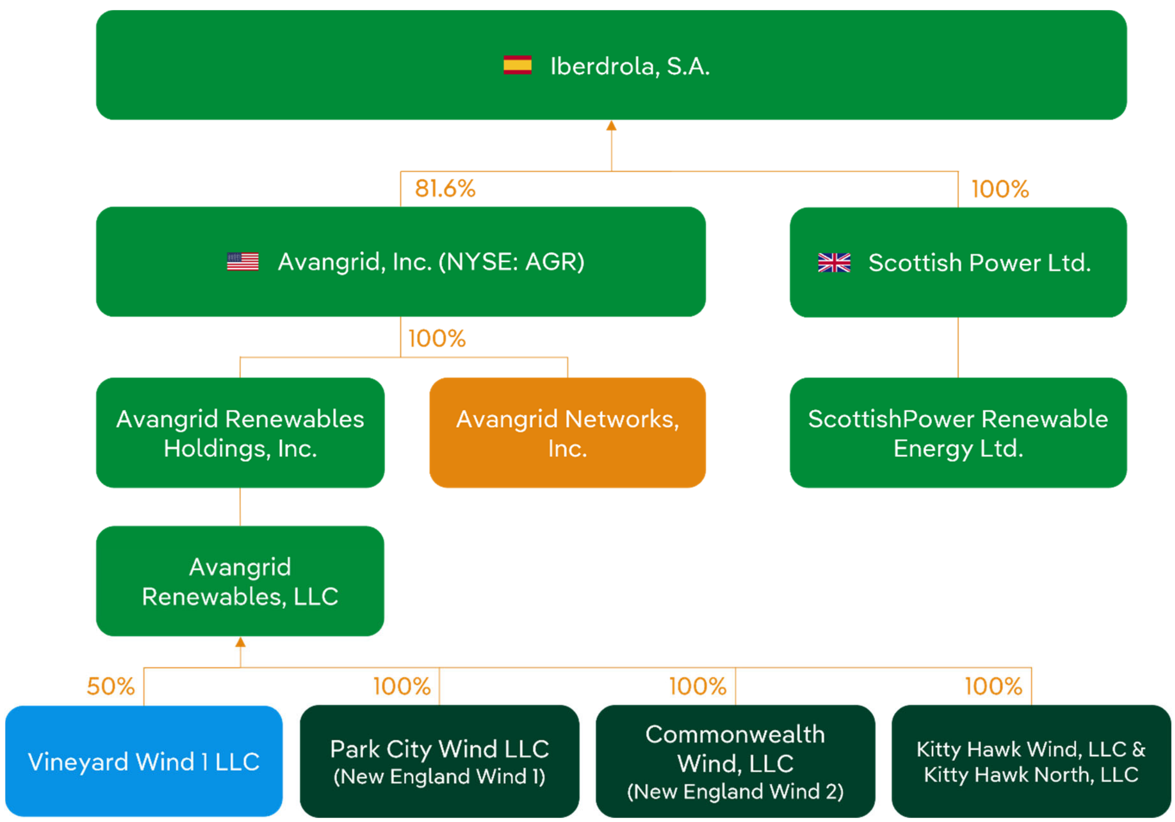
12.1. Organizational Chart

Provide an organizational chart for the project that lists the project participants and identifies the corporate structure, including general and limited partners.

12.1.1 Corporate Structure

Pioneers in US renewable energy development, Avangrid Renewables, LLC (Avangrid Renewables) was formed in 1995 and executed its first renewable energy transaction in 1999. Avangrid Renewables is an Oregon Limited Liability Company and direct subsidiary of Avangrid Renewables Holdings, Inc. Avangrid Renewables is an indirect subsidiary of Avangrid, Inc. and part of the Iberdrola Group, led by Iberdrola, S.A. (Iberdrola). Avangrid, Inc. is 81.6% owned by Iberdrola and the remaining shares are publicly traded on the New York Stock Exchange (NYSE: AGR). [3]**Figure 12.1-1** summarizes these relationships and how the Projects fit in.

Figure 12.1-1 Avangrid Business Entity Ownership Structure



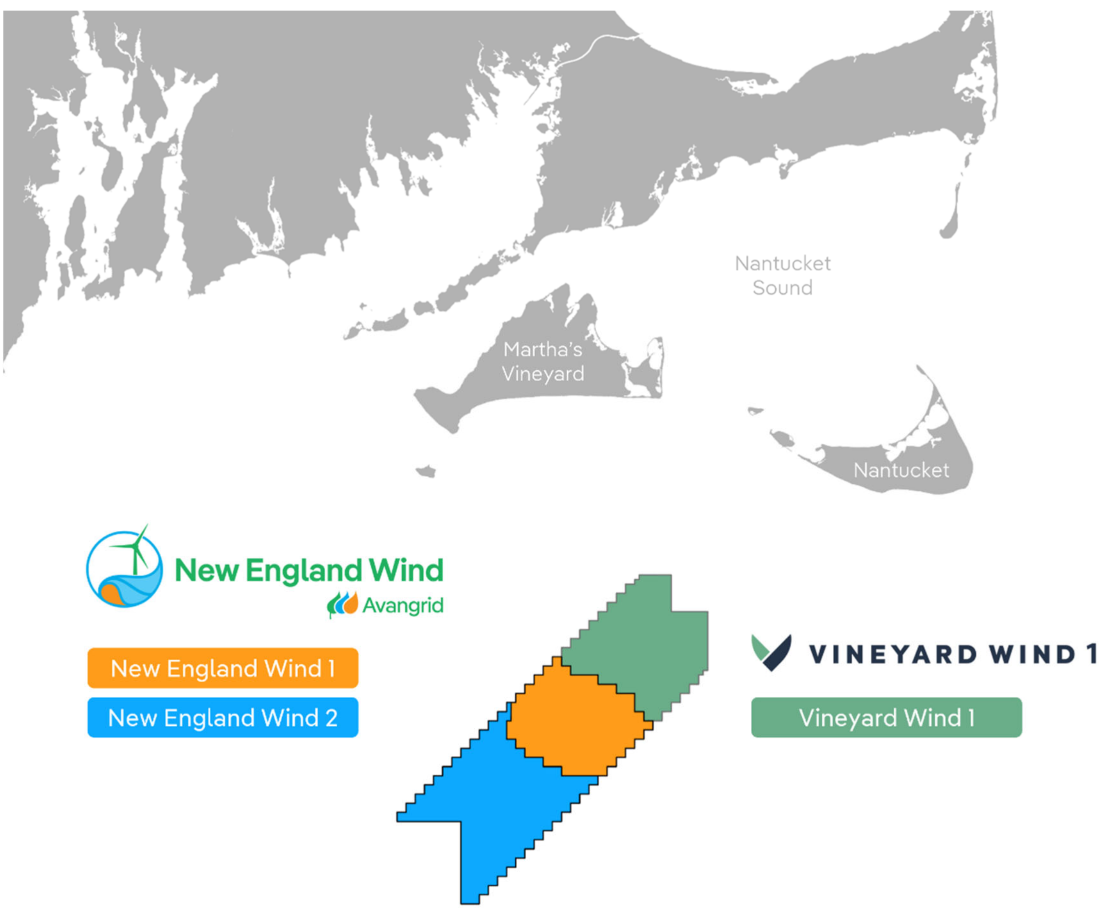
[3] On March 6, 2024, Avangrid received a non-binding proposal from Iberdrola to acquire all the issued and outstanding shares of common stock of Avangrid not already owned by Iberdrola or its affiliates. The Unaffiliated Committee of the Avangrid Board of Directors, comprised of three independent members of the Avangrid Board of Directors, is responsible for evaluating negotiating, and approving or disapproving the proposal, advised by independent financial and legal advisors. No decision has yet been made with respect to Avangrid's response to the proposal or any alternatives thereto. Additional information regarding this non-binding offer can be found in Avangrid's Form 8-K filed with the Securities & Exchange Commission on March 7, 2024: https://www.avangrid.com/investors/investors/secfilings

Avangrid's relationship to the Iberdrola Group allows it to benefit from the experience of its affiliates, such as Avangrid Networks, Inc. (Avangrid Networks), ScottishPower Renewable Energy Ltd. (ScottishPower Renewables), and Iberdrola Renovables SAS (Iberdrola Renovables). These affiliates have substantial expertise in offshore and onshore wind development, transmission project development, finance, construction, and operations. Additional details on Avangrid and its affiliates are provided in **Section 5**.

12.1.2 Project Ownership History

Avangrid is the current owner of the Projects through the business entity ownership structure depicted in **Figure 12.1-1**. Previously, the Projects were owned by the joint venture Vineyard Wind LLC (now Vineyard Wind 1 LLC), but in September 2021, Avangrid and Copenhagen Infrastructure Partners (CIP) announced a restructuring of the joint venture. While Vineyard Wind 1 continues to be developed as a 50/50 project between the two entities, Avangrid took full ownership of Lease Area OCS-A 0534 in January 2022, following an approval by the Bureau of Ocean Energy Management (BOEM) of the assignment of Lease OCS-A 0534 from Vineyard Wind LLC to Park City Wind, LLC, now a wholly owned subsidiary of Avangrid. Further details about the reassignment of Lease OCS-A 0534 can be found in **Section 6**. The outcome of the restructuring can be seen in **Figure 12.1-2**.

Figure 12.1-2 Avangrid Offshore Wind Projects in New England



12.1.3 Project Team

Avangrid has a strong, experienced team of professionals dedicated solely to advancing the Projects. The team is steered by leaders shown in **Figure 12.1-3** below. Biographies of key personnel assigned to the Projects are included in **Section 12.3.2** and an organizational chart showing all personnel currently working on the Projects can be found in **Attachment 12.1-1**.

[redacted]

12.1.4 Key Consultants and Service Providers

Key consultants and service providers supporting the Projects are depicted in **Figure 12.1-4** and described in **Table 12.2-2**. Partners and consultants involved in economic development, workforce training, supply chain, and research initiatives to support the Projects are discussed further in **Section 14** and **Section 15**.

[redacted]

12.2. Project Experience

For a project that includes new facilities or capital investment, provide statements that list the specific experience of the bidder and each of the project participants (including, when applicable, the bidder, partners, EPC contractor and proposed contractors), in developing, financing, owning, and operating generating or transmission facilities (as applicable), other projects of similar type, size and technology, and any evidence that the project participants have worked jointly on other projects.

As later described in **Section 12.3**, Avangrid's team of industry experts has a long track record of developing offshore and onshore wind projects across the globe. The team is supported by the experienced personnel working for Avangrid's affiliates as well as expert consultants with knowledge in offshore wind, permitting, environmental affairs, and local infrastructure construction. Avangrid has assembled a well-rounded team with the diverse skillset required to develop and operate the Projects.

12.2.1 Avangrid Experience

As a first mover in the US offshore wind industry, Avangrid has significant experience that puts it at an advantage relative to many other developers. Avangrid is also a leading developer for onshore renewable generation and transmission facilities. Moreover, Avangrid has the benefit of being part of a strong network of affiliates that are experienced in developing, financing, owning, and operating generation and transmission facilities across the country, which complements the Company's and its partners' specific expertise in developing, permitting, financing, constructing, and/or operating offshore wind projects.

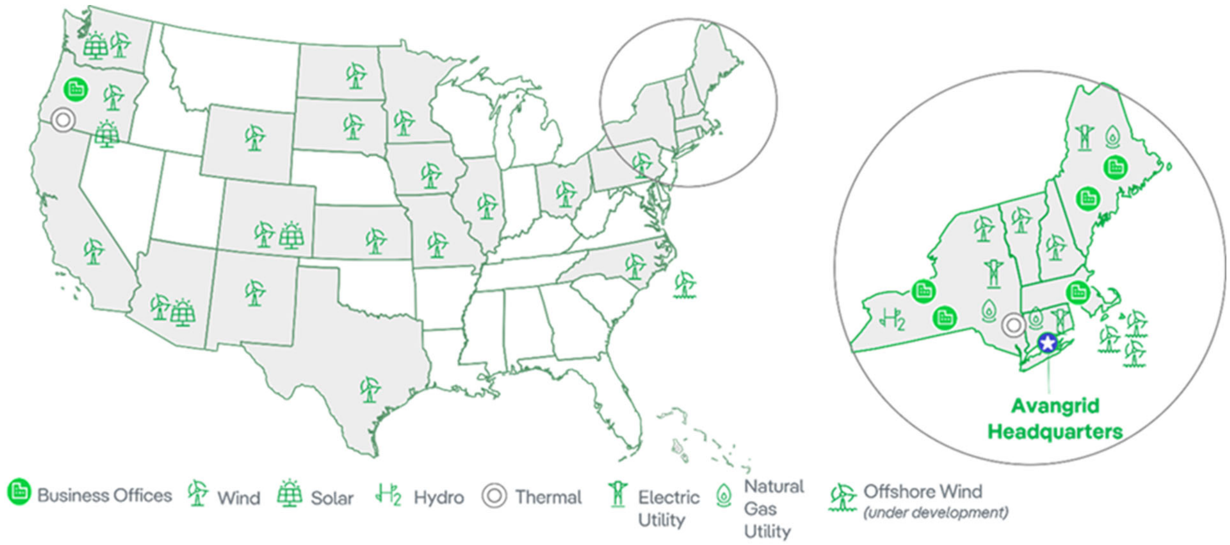
12.2.1.1 Onshore Experience

Avangrid is the third-largest developer of onshore wind projects in the US and strives to lead the transformation to a sustainable, competitive, and clean energy future. As of September 30, 2023, the Company has more than 9,600 megawatts (MW) of installed capacity across the country, including 8,045 MW of installed onshore wind capacity from 67 sites.

The map provided in **Figure 12.2-1** shows Avangrid's wind, solar, thermal generation, hydroelectric generation, and electric/natural gas distribution networks across the US. The geographic diversity of

Avangrid's project portfolio allows the Company to optimize lessons learned across different regions, markets, and operating conditions and maximize generation capabilities for each project. **Attachment 12.2-1** provides an overview of Avangrid's onshore renewable energy generation projects as of December 2023.

Figure 12.2-1 Avangrid Footprint



12.2.1.2 Offshore Wind Experience

Avangrid has a team of nearly 150 locally based offshore wind employees supporting its US projects as well as a US Offshore Wind Center of Excellence in Boston, Massachusetts. With the Vineyard Wind 1 project, Avangrid is a part of the first team in the US to bring a commercial-scale offshore wind project to completion in the federal and state permitting process, conclude procurement and contracting for all major contract packages, finalize interconnection agreements, achieve financial close, and begin onshore and offshore construction activities. The permitting, financing, and technology required for Vineyard Wind 1 are very similar to that of the Projects.

The Projects are among the most mature uncontracted offshore wind projects able to serve New England, particularly New England Wind 1. As detailed in **Section 7**, permitting for the Projects has been actively underway since 2020, when the New England Wind Construction and Operations Plan (COP)[4] was filed with BOEM. The New England Wind COP is on track to be approved in July 2024. Furthermore, as of February 2024, New England Wind 1 obtained all major state, regional, and local permits required for construction and interconnection. The Avangrid team has also advanced procurement activities for all key packages for the Projects. [redacted] This experience will lead to substantial benefits for

4 https://www.boem.gov/renewable-energy/state-activities/new-england-wind-ocs-0534-construction-and-operations-plan

the remainder of the New England Wind 1 (and New England Wind 2) procurement strategy, high confidence in schedule, and high certainty for the cost estimations underlying this proposal, as detailed in **Sections 8, 9**, and **10**.

Avangrid also holds two offshore leases off North Carolina—Lease Area OCS-A 0508 and Lease Area OCS-A 0559—which together total 122,000 acres and are being developed as the Kitty Hawk Wind North and Kitty Hawk Wind South projects (together, Kitty Hawk Wind), and which represent approximately 3,500 MW of potential offshore wind capacity. The Company has commenced development activities in these lease areas and submitted a Site Assessment Plan and COP to BOEM for both projects. On July 30, 2021, BOEM published a Notice of Intent to prepare an Environmental Impact Statement for Kitty Hawk Wind North. [redacted]

The knowledge gained from Vineyard Wind 1, New England Wind 1, New England Wind 2, and Kitty Hawk Wind places Avangrid at the forefront of experience in developing commercial-scale offshore wind projects in the US. If successful in securing power purchase agreements (PPAs) to develop the Projects offered in this proposal, the Company would leverage its deep experience, as well as its significant purchasing power and its expert team, to achieve safe, on-time, and reliable projects for Rhode Island ratepayers.

12.2.2 Iberdrola Group

With more than 4,900 MW of offshore wind capacity in operation or under construction (including Vineyard Wind 1), the Iberdrola Group has established itself globally as a leading offshore wind developer with a significant pipeline of projects spanning Europe, South America, and East and Southeast Asia. The Iberdrola Group has been responsible for offshore wind projects of similar size, distance from shore, and/or water depth as the Projects, which also follow a similar design as offshore wind projects developed, constructed, and operated by the Iberdrola Group globally, as shown in **Figure 12.2-2** below.

The Iberdrola Group is the world's leading producer of wind power and one of the biggest electric utilities globally in terms of market capitalization. The Iberdrola Group's offshore business has over 900 directly employed individuals who possess skills and experience in the full spectrum of offshore wind requirements: permitting and development, transmission, finance, construction, and O&M. The Iberdrola Group's offshore wind strategy is focused on developing operational hubs in key regions, including the US, with a current emphasis on the Atlantic Coast, Europe, and Asia. The Iberdrola Group has three operational projects in the UK and Europe and an additional four under construction.

The Iberdrola Group's first offshore wind project, West of Duddon Sands, was a joint venture between ScottishPower Renewables and Ørsted. This project featured 108 3.6 MW Siemens WTGs with a total capacity of 389 MW and has been fully operational since 2014. Wikinger followed shortly after as the Iberdrola Group's first solo project. Wikinger is a 350 MW project based in the German Baltic Sea featuring 70 Areva 5 MW WTGs. Wikinger has been fully operational since 2018. East Anglia ONE, which became fully operational in July 2020, is the Iberdrola Group's largest project completed to date, with 102 Siemens Gamesa 7 MW WTGs and an installed capacity of 714 MW. The Iberdrola Group has also started construction of several other projects, as summarized in **Table 12.2-1**, including the 496 MW Saint-Brieuc project off the coast of France, which achieved commissioning in July 2023.

Figure 12.2-2 Iberdrola Group Offshore Wind Projects

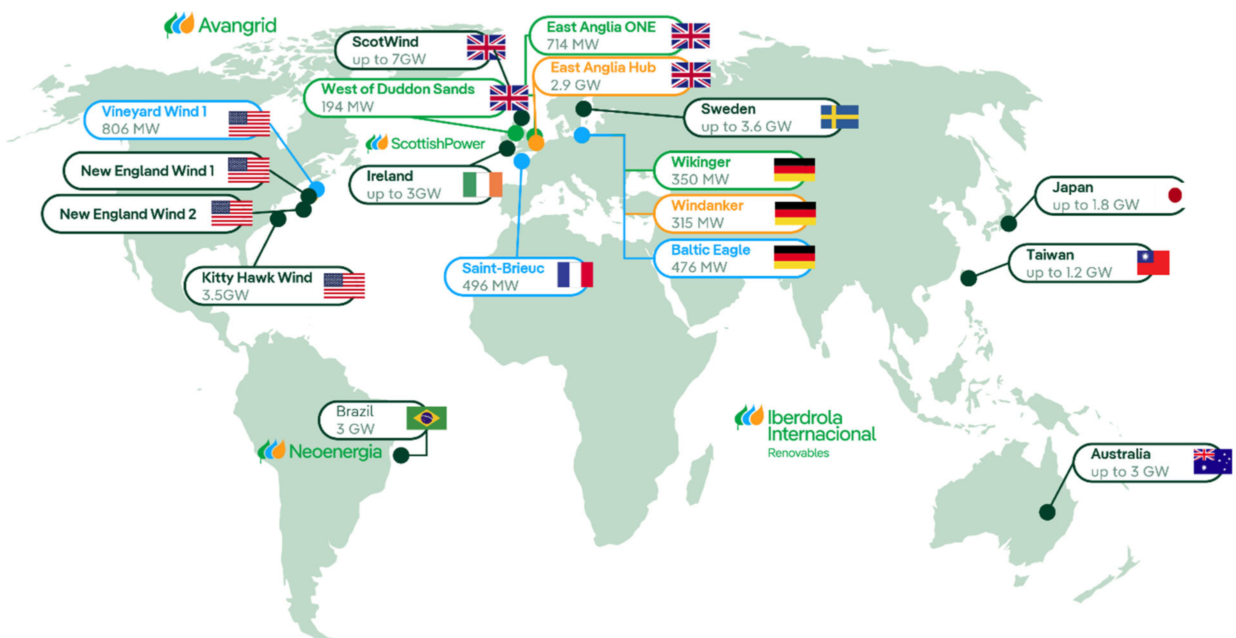


Table 12.2-1 Status of Key Projects from Iberdrola Group's Non-US Portfolio

Project Name	Capacity (MW)	Development	Financing	Construction	O&M
West of Duddon Sands[1]	389	✓	✓	✓	✓
Wikinger[2]	350	✓	✓	✓	✓
East Anglia ONE[3]	714	✓	✓	✓	✓
Saint-Brieuc	496	✓	✓	✓	
Baltic Eagle[4]	476	✓	✓	✓	
Windanker	315	✓	✓	✓	
East Anglia THREE[5]	1,400	✓	✓	✓	

Table 12.2-1 Status of Key Projects from Iberdrola Group's Non-US Portfolio

Project Name	Capacity (MW)	Development	Financing	Construction	O&M
East Anglia ONE North[5] and East Anglia TWO[5]	1,600	✓			
Machair	2,000	✓			
Marram[6]	3,000	✓			
Campion[6]	2,000	✓			
	12 projects	12 projects	7 projects	7 projects	3 projects
	12,734 MW	12,734 MW	4,134 MW	4,134 MW	1,453 MW

Notes:
1. This is a 50/50 joint venture between ScottishPower Renewables and Ørsted.
2. This is a 51/49 ownership structure with Iberdrola Renewables Deutschland and Energy Infrastructure Partners.
3. This is a 60/40 ownership structure between ScottishPower Renewables and Bilbao Offshore Holding Limited.
4. This is a 51/49 ownership structure with Iberdrola Renewables Deutschland and Masdar.
5. This project is being developed as a macro-complex, East Anglia Hub.
6. Marram and Campion are 50/50 joint ventures with Shell.

12.2.3 Project Development Partners

Avangrid works with a number of partners and expert consultants to support its offshore wind project development efforts. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

12.3. Management Chart and Key Personnel Resumes

Provide a management chart that lists the key personnel dedicated to this project and provide resumes of the key personnel.

For Eligible Facilities that are not yet in-service, key personnel of the bidder's development team having substantial project management responsibilities must have:

- Successfully developed one or more projects of similar size or complexity or requiring similar skill sets; and
- For a project that includes new facilities or capital investment, experience in financing power generation projects (or have the financial means to finance the project on the bidder's balance sheet)

Avangrid's offshore team of approximately 150 FTE positions is comprised of highly qualified and experienced individuals. Guiding the offshore team, the Company's senior leadership is based in the US yet has the full resources of the global Iberdrola Group available to support them in successfully executing the Projects. Biographical details of the Executive Team members, Offshore Management Team members, and other key development and delivery team personnel for both Projects are provided below.

12.3.1 Avangrid Executive Team

Avangrid's Executive Team, pictured in **Figure 12.3-1**, brings together expertise from different parts of the organization to make key strategic decisions and direct the execution of tactical decisions by the Company.

Figure 12.3-1 Avangrid Executive Team

Pedro Azagra Blazquez, Chief Executive Officer of Avangrid, Inc.

Pedro Azagra Blazquez was appointed to the position of Chief Executive Officer (CEO) in May 2022. Pedro has served as a member of the Avangrid Board of Directors since 2019, and previously served as a member of the Board of Directors from 2014 to 2018.

Pedro formerly served as the Chief Development Officer for Iberdrola, where he executed more than 100 transactions and led the international expansion of the Iberdrola Group. Pedro holds a degree in Law and Business Administration from Universidad Pontificia de Comilla (Spain) and a master's in Business Administration (MBA) from the University of Chicago.

Catherine Stempien, President and Chief Executive Officer of Avangrid Networks, Inc.

Catherine Stempien was appointed to the position of President and CEO of Avangrid Networks in February 2021. In this role, Catherine oversees Avangrid Networks' eight electric and gas utilities, serving approximately 3.3 million customers across New York and New England. She is also responsible for regulatory affairs, asset management, and planning for Avangrid Networks.

Previously, Catherine served as President of Duke Energy Florida. She also held a variety of executive roles at Duke including Senior Vice President of Corporate Development and various leadership positions in the company's legal department. Catherine holds a bachelor's degree in Government from

Dartmouth College and a Juris Doctorate (J.D.) degree from the Boston University School of Law. She also completed the Advanced Management Program at Harvard Business School.

Jose Antonio Miranda, President and Chief Executive Officer of Avangrid Renewables, LLC

Jose Antonio Miranda was appointed as Avangrid Renewables' Onshore President and CEO in October 2021 and then was appointed to CEO of all of Avangrid Renewables in September 2022. He leads the growth and development of the company's offshore and onshore wind portfolios, as well as its solar pipeline in the United States. Jose Antonio has extensive renewables leadership experience. Prior to joining Avangrid Renewables, he served as CEO of Onshore in the Americas region for Siemens Gamesa and Chairman of its boards in the US, Mexico, and Brazil. He also served as Secretary of the Board and Executive Committee member of the American Wind Energy Association. Prior to his 14-year tenure at Siemens Gamesa where he held roles in Europe, Asia, and the Americas, he held a variety of roles over a 10-year period at the multinational engineering firm ABB. He was appointed to the Board of Directors for the American Clean Power Association in 2022.

Jose Antonio holds a bachelor's and master's degree in Industrial Engineering from Oviedo University (Spain) and an MBA from Universidad Pontificia de Comillas (Spain).

Ignacio Estella, Senior Vice President – Corporate Development

Ignacio Estella has served as Senior Vice President – Corporate Development since December 2015 and is responsible for delivering non-organic growth opportunities for the company beyond those of its present businesses. Ignacio most recently served as Corporate Vice President of Business Origination of Iberdrola and, prior to that, as Gas Markets Development Director.

Ignacio holds a degree in Law and Business Administration from Universidad Pontificia de Comillas (Spain) and a master's degree in Public Administration from Harvard University, with concentrations in Industry Analysis and Strategic Negotiation.

Alfredo Del Canto, Senior Vice President – Chief of Staff

Alfredo del Canto joined Avangrid as the Senior Vice President – Chief of Staff in April 2023. He manages a team that provides operational, financial, and strategic oversight for the CEO of Avangrid. He previously worked at Iberdrola for 15 years. His most recent role was the Head of Finance, Regulation, and Energy Policy at the Chairman and CEO's Office serving as the liaison with the executive leadership team to implement strategic processes and prepare for board meetings, executive and operating committees, and the General Shareholders' meeting. His prior roles at Iberdrola include representing the company at the International Energy Agency; planning, reporting, and regulation for Iberdrola's global networks business; and Corporate Development. Alfredo began his career at Repsol working in financial risk.

Alfredo holds a degree in industrial engineering from ICAI (Universidad Pontificia Comillas) and a master's degree in management of energy companies from IESE Business School.

R. Scott Mahoney, Senior Vice President – General Counsel and Secretary

Scott Mahoney has served as Senior Vice President – General Counsel for Avangrid since December 2015 and was appointed Secretary of the Board of Directors of Avangrid in January 2016. Scott previously served in several legal and senior executive positions at Avangrid subsidiaries including Vice President – General Counsel and Secretary of Avangrid Networks. Prior to joining Avangrid, Scott served as an attorney in the US Army Judge Advocate General's Corps, earning a Bronze Star for service in Iraq during Operation Desert Storm. Scott serves on the board of directors of the Gulf of Maine Research Institute.

Scott holds a J.D. from the University of Maine and a master's degree, with honors, in Environmental Law from Vermont Law School. Scott also holds a Postgraduate Diploma in Business Administration from the University of Warwick. He is a member of the bar in Maine, New York, the US Court of Appeals, the US District Court, and the US Court of Military Appeals. Scott is a Certified Compliance and Ethics Professional and a member of the Society of Corporate Compliance and Ethics.

Kimberly Harriman, Senior Vice President – State Government Affairs and Corporate Communications

Kim Harriman was appointed to the position of Senior Vice President, State Government Affairs and Corporate Communications in June 2022. Kim joined Avangrid at the end of 2020 as Vice President, State Government Relations and Public Affairs, coordinating state government relations and public affairs for electric and gas utility subsidiaries in New York, Connecticut, Massachusetts, and Maine and renewable onshore and offshore energy projects across 22 states.

Prior to Avangrid, Kim worked for over 20 years on energy issues for the state of New York. She holds a bachelor's degree in Political Science from Siena College and a J.D. from Albany Law School of Union University.

Kyra Patterson, Senior Vice President and Chief Human Resources Officer

Kyra Patterson was appointed to the position of Senior Vice President and Chief Human Resources Officer of Avangrid in November 2021. She leads all facets of the Human Resources (HR) organization, including talent management, diversity and inclusion, compensation and benefits, employee and labor relations, as well as strategic planning and organizational effectiveness. She most recently served as Vice President – People Operations at Avangrid and was responsible for labor relations, employee relations, HR shared service center, HR policy, and compliance. Prior to joining Avangrid, Kyra was the Director – Diversity and Inclusion at Diageo, N.A., successfully leading the company's diversity, equity, and inclusion efforts. Throughout her career, she has provided subject matter expertise, thought leadership, and cross-cutting partnership to establish alignment between HR strategy, company culture, and business goals and outcomes.

Kyra holds a bachelor's degree in English from Prairie View A&M University and a master's degree in Labor and Human Resources from Ohio State University. She serves as a member of the American Association of Blacks in Energy.

Justin Lagasse, Interim Chief Financial Officer and Senior Vice President – Controller

Justin Lagasse was appointed Senior Vice President – Controller in July 2023 and was appointed Interim Chief Financial Officer in November 2023. He is responsible for all aspects of accounting, financial reporting, business performance, long-term planning, and administration for Avangrid and its two lines of business, Networks and Renewables. Prior to this role, Justin most recently served as Vice President, Chief Accounting Officer and was responsible for corporate accounting, consolidations and reporting, technical accounting, and internal accounts. Before joining Avangrid, Justin served as

Assurance Director at BDO, LLP in Southern California and Assurance Senior at a regional accounting firm in Maine.

Justin holds a bachelor's degree in accounting and an MBA from Thomas College and holds an active Certified Public Accountant license in Maine.

12.3.2 Project Team

The advancement of New England Wind 1 and New England Wind 2 to the level of having an established delivery team shown in **Attachment 12.1-1** is a testament to the extraordinary maturity of not only the development of both Projects, but also their design, engineering, and procurement. The team has the collective experience and in-depth, Project-specific knowledge required to confidently execute the Projects per the schedule described in **Section 9**. The personnel described below represent key individuals dedicated to the Projects and are only a subset of the nearly 150 FTE positions dedicated to advancing the Projects.[5] Resumes for key personnel are included in **Attachment 12.3-1**.

12.3.2.1 Key Personnel – Management

The management personnel listed below represent the key individuals leading strategic decision making for the Projects. These individuals have already worked to identify appropriate pathways to execution for all project stages, from development to construction to operations and decommissioning.

- **Sy Oytan, Chief Operating Officer – Offshore:** Sy Oytan has over 25 years of experience in the development and construction of international onshore and offshore wind projects around the world, including the US, Asia, and Europe. During his career, he led the development, delivery, and construction of 6,500 MW of onshore and offshore wind energy projects. Sy led a range of offshore wind port and supply chain development initiatives for the State of New Jersey with a $400 million strategic investment plan. He has an international background with living and working experience in the US, Norway, Germany, Denmark, Turkey, and Singapore. He has held a variety of leadership positions at Arup, the New Jersey Economic Development Authority, Siemens Gamesa, and Schlumberger. Sy holds a master's degree in Industrial Management from Clemson University.
- **Kenneth Kimmell, Chief Development Officer – Offshore:** Ken Kimmell leads a team of engineers, permitting specialists, and other staff to secure all the federal, state, regional, and local permits needed for Avangrid's offshore wind projects. He is responsible for building stakeholder support for New England Wind 1 and New England Wind 2, ensuring the Projects comply with all workforce and non-workforce bid commitments, media relations, and supporting the work of other teams in developing new projects. Ken has been involved in offshore wind since 2007, when he served in state government as General Counsel to the Executive Office of Energy and Environmental Affairs for Massachusetts. In that position, he wrote and helped secure enactment of pathbreaking legislation to authorize long-term contracts for offshore wind. He also oversaw the state permitting of an offshore wind project and the defense of its state permits that were

[5] While some positions will be filled after a PPA is awarded and executed, the Projects (New England Wind 1 and New England Wind 2) have approximately 150 dedicated FTEs in place as of December 2023.

challenged in court. As Commissioner of the Massachusetts Department of Environmental Protection, he issued permits for the construction of the New Bedford Marine Commerce Terminal. As president of the Union of Concerned Scientists, he helped develop tax incentive legislation pertinent to offshore wind. Ken holds a J.D. from the University of California, Los Angeles School of Law and a bachelor's degree in Economics and Political Science from Wesleyan University.

- **Iker Garcia Magrach, Vice President – Offshore Projects and Project Director:** Iker manages all packages for New England Wind 1 and New England Wind 2. In the past, he was responsible for the Global Offshore Installation Department at Iberdrola Renovables, which coordinates the teams for foundation, cable, and WTG installation, and establishes site offices, marine warranty surveyors, and marine expertise across the entire offshore pipeline in Iberdrola Renovables. Iker also was the Construction package manager on the pre-final investment decision stage of Vineyard Wind 1. He has more than 20 years of international experience in the wind industry and was previously responsible for the Onshore International Construction Department within Iberdrola Renovables. Iker holds a degree in Industrial Engineering from the University of Bilbao (Spain), an MBA from Instituto Empresa (Spain), and a Project Management Graduate Certificate from Harvard University.
- **Nuria Soto, Vice President – Operations and Maintenance:** Nuria Soto has more than 12 years of experience in O&M. She has been Head of O&M Services and Head of Supply Chain at Iberdrola. Her main responsibilities have been to ensure that projects are fully set up for the efficient transfer from construction to O&M, as well as developing and implementing O&M strategies in the US. She has a bachelor's degree in Mechanical Engineering from Technische Universität Dresden (Germany), a master's degree in Industrial Engineering from the University of Valladolid (Spain), and a master's degree in Energy Business Management from Club Español de la Energía (Spain).
- **Leonard Rodriguez, Vice President and General Counsel of Avangrid Renewables, LLC:** Leonard Rodriguez is Vice President and General Counsel of Avangrid Renewables and supports Avangrid's onshore and offshore renewable energy businesses. He also serves as Corporate Secretary to Avangrid Renewables where he manages the corporate process and meetings of the Board of Managers. Prior to this position, Leonard was Deputy General Counsel of Avangrid Networks and General Counsel at UIL Holdings Corporation (UIL). He received a bachelor's degree from Assumption College and a J.D. from the University of Connecticut Law School. He has attended various leadership training seminars while at Avangrid, UIL and Eversource Energy (his former employer), including completing the two-year Northeast Utilities Finance Academy program. Mr. Rodriguez has been with UIL/Avangrid since 2013 after spending the prior 15 years at Eversource. He is a member of the Bars of Connecticut and Massachusetts.
- **Michael Distefano, Deputy General Counsel of Avangrid Renewables, LLC:** Mike has more than a decade of experience in the renewable energy sector and is responsible for legal matters concerning Avangrid's offshore and onshore renewable energy generation business. Mike began working on the Vineyard Wind 1 project in 2019 and since 2021, Mike has overseen all legal matters for Avangrid's offshore wind business, including with respect to leasing, permitting, offtake, financing, and other commercial transactions. Prior to joining Avangrid, Mike spent eight years at two law firms–Sheppard Mullin and Chadbourne & Parke (now part of Norton Rose Fulbright)–

where he represented clients engaged in the financing, construction, and development of onshore wind and solar projects as well as in connection with large corporate restructurings. Mike holds a J.D. from the American University, Washington College of Law and a bachelor's degree in Political Science from Boston College.

12.3.2.2 Key Personnel – Project Development

The Development team is responsible for delivering fully authorized projects that are ready for construction. This task requires navigating multiple technical teams through the process of developing an offshore wind workforce (including supply chain opportunities) in the northeastern US, managing numerous external stakeholders, following through on PPA contract commitments, implementing regional and Project-specific science to support the nascent industry, and obtaining the necessary local, regional, state, and federal authorizations. The work necessitates close coordination with the Delivery team to maintain consistency between what is authorized by the various regulatory agencies and what is ultimately procured, designed, and constructed.

[redacted]

[redacted]

[redacted]

12.3.2.3 Key Personnel – Project Delivery

The Delivery team leads project management and execution aspects of the Projects, with key delivery team members overseeing the WTG supply and installation, foundation supply and installation, inter-array cable supply and installation, as well as the quality, engineering, supply and expediting, construction, commissioning, and systems integration scopes of the Projects.

Avangrid has assigned a robust Delivery team for the Projects. This team of experts defines technical, logistical, and contracting strategies; determines capital expenditure budgets for projects; and procures, negotiates, and manages multi-million/billion offshore delivery contracts. Summary biographies for key members of the Delivery team are provided below as a demonstration of the depth and breadth of experience behind Avangrid's projects.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

12.3.2.4 Key Personnel – Project Management and Origination

The Value Engineering and New Business teams lead project management and origination activities, compete in lease area auctions, secure offtake awards and long-term contracts, create commercial value for projects, and are responsible for growing Avangrid's offshore wind project pipeline and ensuring success for the Delivery team.

[redacted]

[redacted]

12.4. Company Project Experience

Provide a listing of all projects the project sponsor has successfully developed or that are currently under construction. Provide the following information as part of the response:

- Name of the project
- Location of the project
- Project type, size, and technology
- A description of the role the bidder had in the project, including if they still currently own and have a role in the operations of each facility
- Commercial operation date
- Estimated and actual capacity factor of the project for the past three years
- Availability factor of the project for the past three years
- References, including the names and current addresses and telephone numbers of individuals to contact for each reference"

12.4.1 Relevant Projects

Avangrid and its affiliates have extensive onshore and offshore wind project development experience in the US and globally. Avangrid's project development record includes experience in established and emerging offshore wind markets and pioneering new technologies and approaches.

Avangrid is one of the leading offshore wind developers in the US, with its portfolio projects Vineyard Wind 1, New England Wind 1, New England Wind 2, and Kitty Hawk Wind, as previously described in

Section 12.2.1. Additional relevant information about Avangrid's US offshore wind projects is provided in **Table 12.4-1**. **Table 12.4-2** lists the Iberdrola Group's global offshore wind projects that are similar to the Projects in complexity and technology used and are operational, under construction, or have secured contracts and are pre-construction. Several of the international projects are similar in scale to New England Wind 1 and New England Wind 2, particularly those with commercial operation dates (CODs) in the late 2020s.

Attachment 12.4-1 provides a summary of the international offshore wind projects from **Table 12.4-2** and Avangrid's relevant onshore projects. The attachment includes details like real capacity factors and availability factors from the past three years, where available.

[redacted]

Table 12.4-2 Iberdrola Group Non-US Projects in Advanced Stages

Project Name and Location	Capacity (MW)	Technology Type	Operating Status	COD
West of Duddon Sands[1] UK	389	SWT-3.6-120 (3.6 MW)	Operational	October 2014

Table 12.4-2 Iberdrola Group Non-US Projects in Advanced Stages

Project Name and Location	Capacity (MW)	Technology Type	Operating Status	COD
Wikinger[2] Germany	350	Areva M5000-135 (5 MW)	Operational	October 2018
East Anglia ONE[3] UK	714	SWT-7-154 (7 MW)	Operational	July 2020
Saint-Brieuc France	496	SG-8.0-167 (8 MW)	Under construction	2024[4]
Baltic Eagle[5] Germany	476	Vestas V174-9.525 (9.5 MW)	Under construction	2024[4]
Windanker Germany	315	SG 14-236 DD (14 MW + power boost)	Under construction	2026[4]
East Anglia THREE[6] UK	1,400	SG 14-236 DD (14 MW + power boost)	Under construction	2026[4]
East Anglia ONE North[6] and East Anglia TWO[6] UK	1,600	TBD	Pre-Construction	2028 and 2029[4]

Notes:

1. A 50/50 joint venture between ScottishPower Renewables and Ørsted.
2. A 51/49 ownership structure with Iberdrola Renewables Deutschland and Energy Infrastructure Partners.
3. A 60/40 ownership structure between ScottishPower Renewables and Bilbao Offshore Holding Limited.
4. Currently projected COD.
5. This is a 51/49 ownership structure with Iberdrola Renewables Deutschland and Masdar.
6. Concurrently developed as East Anglia Hub.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

12.5. Responsible Entities

With regard to the bidder's project team, identify and describe the entity responsible for the following, as applicable:

- Construction Period Lender, if any
- Operating Period Lender and/or Tax Equity Provider, as applicable
- Financial Advisor
- Environmental Consultant
- Facility Operator and Manager
- Owner's Engineer
- EPC Contractor(s) (if selected)
- Transmission Consultant
- Legal Counsel

Avangrid has extensive contacts and access to the firms required to satisfy the financing, environmental assessment, O&M, engineering, transmission, and legal counsel requirements of New England Wind 1 and New England Wind 2.

- **Construction Period Lender:** Construction financing for the Projects is described in **Section 5** Avangrid will advance financing for the Projects after PPA award and execution.
- **Operating Period Lender and/or Tax Equity Provider:** This position will be finalized at the appropriate phase of development. For Vineyard Wind 1, Avangrid and CIP recently closed a $1.2 billion tax equity package with three US-based banks: J.P. Morgan Chase, Bank of America, and Wells Fargo.

[redacted]

[redacted]

- **Facility Operator and Manager:** Avangrid plans to manage operations internally using the Iberdrola Group's experience operating onshore and offshore wind projects in the US and internationally.

[redacted]

- **EPC Contractor(s):** Please see **Section 8**.

[redacted]

12.6. ISO-NE Market Experience

Provide details of the bidder's experience in ISO-NE other Markets affected by the bid.

With regard to bidder's experience with ISO-NE markets, please indicate the entity that will assume the duties of Lead Market Participant for your Project. Please provide a summary of the proposed Lead Market Participant's experience with each of the ISO-NE markets.

[redacted]

[redacted]

[redacted]

13. Alternate Bid Proposals

13.1. Submission of Alternative Project Proposals and Bid Fee Requirements

Per Section 2.2.2.5 of the Request for Proposals, bidders may submit alternative project proposals, based on varying aspects of the proposed project:

- Contract Term Length
- Additional Pricing Offer
- Production/Delivery Profile
- In-service Date
- Project Size
- Technology Type
- Delivery Location

Each submitted proposal must be accompanied by a non-refundable bid fee, which will be used to offset the cost of the evaluation of proposals. Bid fee instructions will be sent upon request to bidders who contact the Official Contact listed in Section 3.5.

[redacted]

[redacted]

14. Economic Benefits to the State of Rhode Island

Bidders must provide annual estimates for all economic benefits, including employment, expenditures, and investments, and identify the specific in- state commitments during the development, construction and operation and maintenance phases of the project.

[redacted]

Avangrid, through New England Wind 1 and New England Wind 2 (the Projects), is committed to maximizing economic opportunities to Rhode Island businesses and workers by prioritizing local supply wherever feasible, establishing training facilities and job opportunities for Rhode Islanders, and utilizing the technical skills of businesses in the Ocean State. The Projects will build on Rhode Island's legacy as the home state of the first-ever offshore wind project in the US, helping to establish the state and the region as a national anchor for the US offshore wind supply chain. New England Wind 1 and New England Wind 2 will capitalize on the generational opportunities offshore wind can bring to diverse communities and regions and establish lasting jobs and economic benefits. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Per the requirements of the Offshore Wind Multi-State Coordination Memorandum of Understanding[1] (Multi-State MOU) issued on October 3, 2023, and the Multi-State Proposal Form[2] that was subsequently issued on November 16, 2023, the proposals that are being offered only to Rhode Island are contingent upon corresponding Multi-State Proposals not being selected. [redacted]

14.0. Overview

As the most advanced project bidding into this solicitation, New England Wind 1 is shovel-ready and offers the highest degree of certainty on the economic and other benefits it can deliver, including (though not limited to):

[redacted]

1 Multi-State MOU accessible at: https://www.mass.gov/doc/ma-ri-ct-offshore-wind-procurement-collaboration-memorandum-of-understanding/download. Issued October 3, 2023 by and among the Massachusetts Department of Energy Resources (MA DOER), Connecticut Department of Energy and Environmental Protection and the Rhode Island Office of Energy Resources.

2 Multi-State Proposal Form accessible at: https://macleanenergy.files.wordpress.com/2023/11/multi-state-bid-form-final-november-16-2023.pdf. Issued November 16, 2023 by and among the MA DOER, Connecticut Department of Energy and Environmental Protection and the Rhode Island Office of Energy Resources.

[redacted]

[redacted]

Similarly, New England Wind 2 is highly advanced compared to other offshore wind projects in the region and will directly benefit from New England Wind 1's critical commitments listed above. [redacted]

[redacted] This suite of verifiable and demonstrable commitments made by the two Projects to Rhode Island and New England provide substantial, meaningful, and timely benefits.

14.0.1 Strong Commitments Backed by Firm Partnerships

Avangrid looks forward to expanding its offshore wind business to Rhode Island through this coordinated procurement process and already has a track record of working with Rhode Island community stakeholders (e.g., fishers, via port hours and the Commercial Fisheries Center of Rhode Island's [CFCRI's] Seafood Donation Program), businesses (through previously contracted consultant and engineering work), and government agencies (e.g., the Coastal Resources Management Council's federal consistency certification process and regular engagement with Rhode Island Commerce Corporation, or "Commerce", including participation in the Supply RI program).

Avangrid recognizes the experience of Rhode Island's blue economy and its delivery of the first-in-the-nation Block Island Wind Farm in 2016 and has deliberately sought to utilize the vast network of subject matter experts in the Ocean State. [redacted]

[redacted]

The Projects will achieve significant economic benefits through a series of new local, regional, and statewide partnerships that grow the local offshore wind industry, delivering opportunities to communities throughout Rhode Island and the region. Avangrid's investments and partnerships will have rippling positive effects throughout the rest of New England, primarily in Massachusetts and Connecticut, [redacted]

This Section contains a full description of the economic benefits and job creation that will be generated by New England Wind 1 and New England Wind 2. Economic benefits to Rhode Island specifically are summarized in **Figure 14.0-2**.

[redacted]

[4] One full-time equivalent (FTE) job-year is the equivalent of one person working full time for one year (2,080 hours). Thus, two half-time employees would equal one full-time equivalent.

Table 14.0-1 Total Economic Benefits to Rhode Island

[redacted]

14.0.2 Summary of Major New England Wind 1 Supply Chain Initiatives

As proposed to Rhode Island, through supply chain partnerships and economic benefit initiatives, New England Wind 1 will:

[redacted]

[redacted]

[redacted]

[redacted]

14.0.3 Summary of New England Wind 2 Additional Benefits

All the initiatives summarized above are tied to the award of the New England Wind 1 RI Bid. However, New England Wind 2 also strengthens many of the same initiatives. [redacted]

[redacted]

[redacted]

14.0.4 Detailed Descriptions of Major Initiatives

Avangrid's strategic partnerships and robust commitments to Rhode Island provide critical advantages and benefits in comparison to other offshore wind projects. Through these key initiatives, New England Wind 1 and New England Wind 2 will enhance local content, create jobs, and provide lasting economic impacts to the region. Major commitments proposed across Rhode Island are summarized in the following subsections.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]. Additional details on each specific commitment are provided in **Section 14.2** and **Attachment 14.0-8**.

14.1. Direct Job Creation Estimates

For the direct economic benefits to the State of Rhode Island, please provide an estimate of the number of jobs to be created directly during project development and construction (for a project that includes new facilities or capital investment), and during operations, and a general description of the types of jobs created, estimated annual compensation, the employer(s) for such jobs, and the location.

Please treat the development, construction, and operation periods separately in your response.

The Projects will create substantial short-term and long-term employment in Rhode Island and the region. These jobs are the result of direct project activities through Avangrid and its contractors (referred to in this Section as "Avangrid") as a direct result of award.

[redacted]

[redacted]

[redacted]

Table 14.1-1 Summary of Rhode Island Job Creation (FTE Job-Years)

[redacted]

In addition to the substantial jobs created in Rhode Island, New England Wind 1 and New England Wind 2 will have positive employment impacts across the region, as described in **Table 14.1-2**. Undoubtedly, the MA Bids prioritize the greatest job creation in Massachusetts through their many economic benefit initiatives.

[redacted]

14.1.1 Development Direct Jobs

Avangrid contributes to the New England economy on an ongoing basis through its Vineyard Wind 1, New England Wind 1, and New England Wind 2 projects, with existing offices in New England. [redacted]

Table 14.1-3 Development Job Examples

[redacted]

Table 14.1-3 Development Job Examples

[redacted]

14.1.2 Construction Direct Jobs

[redacted]

[redacted]

Table 14.1-4 Construction Job Examples

[redacted]

Table 14.1-4 Construction Job Examples

[redacted]

[redacted]

14.2. Project Commitments and Investments in Offshore Wind-related Initiatives

Describe the proposed project's commitment to the following: investing in offshore wind-related environmental research, monitoring and mitigation sponsored by the DEM and/or the Rhode Island Coastal Resource Management Council; investing in workforce development and environmental research facilities to support the offshore wind industry; utilizing port facilities and office space; and investing in development activities that directly benefit economically distressed areas and/or low-income populations.

Avangrid is committed to promoting economic activity and development across Rhode Island as a direct result of either Project being awarded under this solicitation and has included significant community investments that will be carried through regardless of the selected configuration. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

14.3. Additional Direct Economic Benefits to the State of Rhode Island

Please describe any other direct economic benefits to the State of Rhode Island (either positive or negative) that could result from the proposed project, such as creating property tax revenues or purchasing capital equipment, materials, or services for Rhode Island businesses. Please provide the location(s) where these economic development benefits are expected to occur.

[redacted]

Table 14.3-1 Rhode Island Expenditure & Investment

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 14.3-1 Rhode Island Expenditure & Investment

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[redacted]

[redacted]

[redacted]

14.4. Other Associated Project Benefits and/or Impacts

To the extent not already specified elsewhere in your response, please describe any additional benefits or impacts associated with the proposed project.

[redacted]

Table 14.4-1 Direct Contract Impacts (NPV[1] 2023$)

[redacted]

Table 14.4-1 Direct Contract Impacts (NPV[1] 2023$)

[redacted]

Table 14.4-2 Indirect Market Benefits (NPV[1] 2023$)

[redacted]

Table 14.4-2 [redacted]

	[redacted]	[redacted]

[redacted]

14.4.1 Ratepayer Impacts

[redacted]

[redacted]

Table 14.4-3 Rhode Island Ratepayer Bill Impact

[redacted]	[redacted]	[redacted]
[redacted]		
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]		
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted]

[redacted]

14.5. Section 14 Addendum: Economic Development Summary Sheet

The Section 14 Addendum: Economic Development Summary Sheet is a Microsoft Excel workbook provided on ricleanenergyrfp.com. Please fill out and submit the Section 14 Addendum to accompany responses in this section.

Economic Development Summary Sheets are provided as **Attachment 14.5-1**, **Attachment 14.5-2**, **Attachment 14.5-3**, and **Attachment 14.5-4** for the New England Wind 1 RI Bid, New England Wind 1 Multi-State Bid, New England Wind 2 RI Bid, and New England Wind 2 Multi-State Bid, respectively.

[redacted]

15. Diversity, Equity, and Inclusion Plan

15.1. Diversity, Equity, and Inclusion Plan

The Diversity, Equity and Inclusion Plan should describe the proposed strategy to actively promote access to employment and contracting opportunities for, and to actively recruit, diverse workers, vendors, contractors, and investors, and include how the direct, specific and measurable employment and contracting benefits created by the proposed project provides employment and procurement/contracting opportunities for minorities, women, veterans, LGBT and persons with disabilities. A Diversity, Equity and Inclusion Plan must contain, at a minimum, a Workforce Diversity Plan, a Supplier Diversity Plan, and a DEI Stakeholder Engagement Plan.

Over the last five years of development, Avangrid (the Company) has demonstrated a commitment to building a diverse, equitable, and inclusive offshore wind sector. [redacted]

The DEI Plan addresses key gaps in the current offshore wind workforce pipeline and supply chain, including the need to educate diverse residents, businesses, and stakeholders about potential opportunities in offshore wind and empower them to pursue those opportunities. In addition, the DEI Plan proposes to strengthen capacity-building entities already present within Rhode Island to better reach diverse audiences. The DEI Plan involves two key components: a Workforce Diversity Plan (WDP) and a Supplier Diversity Program (SDP). Together, these components construct a robust strategy for how New England Wind 1 and New England Wind 2 can build on Avangrid's corporate strategy and prior experience. This includes commitments to engage diverse partners and local communities as much as possible through its projects, not only in the offshore wind business but across the Company.

The DEI Plan reflects substantial stakeholder engagement, analysis, and consultation with experts to assess potential opportunities to maximize local content and put DEI principles at the center. The result is a carefully crafted, but flexible, plan that supports the rapidly evolving offshore wind industry as it strives to build a diverse US offshore wind workforce. Avangrid's goal is to ensure this workforce is supported by union labor and localizes critical supply chain capacity to the region, while prioritizing the integration of local and diverse businesses and other benefits to local communities.

To progress Avangrid's ambition to be a champion of DEI in the energy industry, Avangrid has focused on deliberate policies that translate to tangible action being taken to promote DEI both in its own workforce and stakeholder engagement processes, as well as throughout the entire energy supply chain. This section provides an overview of the ways Avangrid exemplifies its dedication to DEI through its corporate policies and through its commitments to specific offshore wind initiatives.

15.1.1 Corporate Policies and Initiatives

DEI is a business imperative for Avangrid that is key to its future success. Avangrid continues to build and sustain a diverse internal workforce. The Company has focused its DEI initiatives on increasing diverse representation; promoting equitable opportunities to grow, develop, and lead within the Company; and building community by establishing pathways for connection with others inside and outside Avangrid.

Avangrid's DEI strategy has three areas of focus, with several initiatives tied to each: Increase Representation, Drive Opportunity, and Build Community. As part of this roadmap, the Company has committed to:

1. **Increase Representation** through equitable and competitive business practices that strengthen participation of ethnic minority-owned, women-owned, service-disabled veteran-owned, veteran-owned, people with disabilities, and lesbian, gay, bisexual, transgender, queer, and intersex individuals (LGBTQI+) owned businesses in Avangrid's purchases of goods and services.
2. **Drive Opportunity** by building strong relationships with diverse suppliers and taking proactive steps to provide purchasing opportunities to these businesses to maximize their representation in the procurement process.
3. **Build Community** in two ways: first, by promoting an inclusive working environment, and secondly, through thoughtful engagement with project stakeholders.

Avangrid policies target multiple avenues of social impact from customer empowerment to holistic project planning. [redacted]

15.1.2 Offshore Wind DEI Commitments

From its involvement in Vineyard Wind 1 to its leadership of New England Wind, Avangrid has made meaningful and substantive commitments towards building a more inclusive offshore wind industry, especially within New England.

[redacted]

15.1.2.1 Project-Specific Initiatives

Building on Avangrid's significant ongoing commitments to promote DEI in the renewables industry, the Company intends to use New England Wind 1 and New England Wind 2 as additional chances to actively advance access to employment and contracting opportunities for diverse workers, vendors, contractors, and investors and to specifically create pathways for local stakeholders to meaningfully shape the industry's development. These Project-specific opportunities and their funding levels for New England Wind 1 and New England Wind 2 are listed in **Table 15.1-1** below.

[redacted]

[redacted]

15.2. Workforce Diversity Plan

The Workforce Diversity Plan should include descriptions of each type, duration, and salary bands of the employment created, as well as identify the recruitment efforts aimed at hiring diverse candidates for these employment opportunities.

This plan should include goals for Workforce Diversity, as well as a plan for monitoring success against these goals, how the metrics will be calculated, how often they will be calculated and reported, and a process for improving the process over time if goals are not met.

If a significant portion of the labor force will be sub-contracted, the plan should be inclusive of sub-contractors.

15.2.1 Overview

Avangrid is committed to building a diverse, equitable, and inclusive offshore wind sector. [redacted]

New England Wind 1 and New England Wind 2 will require a significant workforce across a wide range of roles from development through construction and operations and maintenance (O&M). Through procurement and internal practices, Avangrid will recruit and hire a diversity of Rhode Islanders for these positions whenever possible. For description of each type, duration, and salary bands of the employment to be created by the Projects, refer to **Section 14.1**.

Avangrid's corporate DEI policy and the proposed workforce DEI initiatives for Rhode Island are outlined below.

15.2.2 Avangrid Corporate Policy

Avangrid has specifically strategized ways to increase opportunities for historically marginalized populations (e.g., minorities, women, veterans, LGBTQI+-identifying persons, and persons with disabilities) to start a career in the offshore wind industry. In 2022, Avangrid set several new goals and launched multiple key initiatives to increase gender equity, promote a more diverse and inclusive workplace, and create pathways to leadership opportunities within the Company. Recognizing that a strong DEI plan does not only include recruitment initiatives to attract diverse job candidates but also support services and opportunities for mentoring and career development for those hired, Avangrid strives to retain diverse talent by creating an attractive and welcoming working environment for all.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

15.3. Supplier Diversity Program

The Supplier Diversity Program should include descriptions of the subcontracting, vendor, investor, and ancillary (operational) business opportunities that will be provided by diverse businesses, as well as identify the efforts aimed at engaging diverse candidates for these opportunities.

This plan should include a form of expenditure goals for Supplier Diversity, as well as a plan for monitoring success against these goals, how the metrics will be calculated, how often the metrics will be calculated and reported, and a process for improving the process over time if goals are not met.

15.3.1 Overview

Avangrid is committed to building a diverse, equitable, and inclusive offshore wind supplier base. [redacted] Avangrid's corporate Supplier Diversity policy and the proposed supplier diversity initiatives for Rhode Island are outlined in the sections below.

15.3.2 Avangrid Corporate Policy

Avangrid's Supplier Diversity program has established ambitious goals over the next two years to increase supplier diversity, and these goals apply to the Projects as well. Working with diverse suppliers can stimulate fresh ideas, bring the Company closer to its local communities, and drive increasingly innovative and creative benefits and services. As Avangrid evolves alongside an increasingly diverse supplier base, it endeavors to directly support Environmental, Social, Governance and Financial (ESG+F) principles to strengthen the backbone of its business.

Avangrid defines supplier diversity as a commitment to promote an inclusive environment through equitable and competitive business practices that strengthen the participation of ethnic minority-owned business enterprises (MBE), women-owned business enterprises (WBE), service-disabled business enterprises (DBE), veteran-owned business enterprises (VBE), people with disabilities, and lesbian, gay, bisexual, transgender, queer, and intersex individuals (LGBTQI+) owned businesses in its purchases of goods and services. The Avangrid team is committed to working with its subcontractors to implement inclusive procurement policies and make sure that this program is a success.

The core principles of Avangrid's Suppler Diversity Program (SDP) include:

- **Actively seek out certified diverse suppliers** that can provide competitive, high-quality goods and services and whose business model is aligned with the Company's business strategy.
- **Assist diverse businesses in becoming competitive** sources of supply through strategies such as mentoring, education, and supplier sub-contracting.

- **Communicate the value of supplier diversity** both internally and externally to all stakeholders. Avangrid recognizes the positive impact diversity brings to its employees, clients, and communities it serves and will strive to ensure the inclusion of diverse suppliers as a part of its strategic sourcing and procurement processes.

Avangrid has demonstrated the Company's commitment to supplier diversity through its actions. In 2022, the Company exceeded its spend goal for Supplier Diversity by approximately 30%, at $195 million. In 2023, Avangrid exceeded the spend goal for Supplier Diversity by approximately 21%, reaching over $275 million. Additionally, Avangrid held its first Supplier Diversity Summit in 2023 to facilitate discussion and connect with diverse suppliers. Avangrid plans to hold this Summit yearly. In the future, to meet Avangrid's supplier diversity goals, the Company is taking the following steps:

- **By 2025, reach a target spend of $300 million** with diverse suppliers across the supply chain.
- **Build awareness** within the purchasing community at Avangrid to help purchasers understand how to support this program.
- **Grow Avangrid's external presence and visibility** by creating a Supplier Diversity page on the website, participate in various organizations, and attend keynote speaking engagements.
- **Continue to review best practices** in Supplier Diversity as the Company sets actionable steps and best in class goals for its diversity program.
- **Procurement strategy by categorizing** spend by commodities to facilitate opportunities.
- **Engage with certifying organizations to aid in building strong relationships** with diverse suppliers and maximizing their participation in the procurement process.
- **Launch a supplier diversity training and awareness video** to help spread the message about the positive impacts and importance of this program and how all Avangrid employees can contribute to achieving the $300 million diverse spending goal.

Avangrid's commitments to its communities, people, and the environment make it one of the most sustainable, socially responsible energy companies in the country.

15.3.3 Opportunities Provided to Diverse Business

The Projects present opportunities for diverse suppliers in Rhode Island–most notably as an opportunity for locals to provide key services that form the bedrock of the Tier 2 and Tier 3 supply chains. Local scope opportunities for diverse suppliers in the state include engineering and environmental studies, general counsel services, consulting services, marketing and public relations services, and secondary steel services, among others.

[redacted]

[redacted]

[redacted]

15.4. DEI Stakeholder Engagement Plan

The DEI Stakeholder Engagement Plan considers how the bidder will engage with project stakeholders. It includes an identification of groups of stakeholders to be included (e.g. tribal communities, economically-disadvantaged communities, environmental justice advocates, and fishing communities), project impacts on each stakeholder and associated mitigation plans, and engagement goals and activities for each group. It also should include a description of community partnerships and evidence of past and current stakeholder engagement.

15.4.1 Overview

Avangrid's DEI Stakeholder Engagement Plan for the Projects (see **Attachment 7.2-1**) reflects the extensive stakeholder consultation Avangrid has undertaken to-date and plans to continue should Avangrid be awarded a long-term contract. The plan is dynamic and will be revisited and revised as the Project moves from the development phase to the construction and operations phases to keep it relevant and up to date. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

16. List of RI Vendors and Domestic Supply Chain Opportunities

[redacted]

16.1. Identification of Rhode Island Vendors and Existing Vendor Commitments

Please list the Rhode Island vendors that have been identified to potentially supply the project, as well as any Rhode Island vendors that you have an existing commitment with for this project.

Avangrid is committed to local content and maximizing engagement with businesses in the communities that our Projects rely on. [redacted]

16.1.1 Local Content Commitment

Avangrid's local content policies require all major contractors to ensure local vendors have an opportunity to bid on available scopes of work during all phases of project development, construction, and operations. The term "local" is relative and varies depending on the context, but in all cases, it emphasizes the need to prioritize the sourcing of goods and services, vessels, and personnel from the communities in which New England Wind 1 or New England Wind 2 have a direct presence. These communities are referred to as "primary project areas." Primary project areas include communities hosting project infrastructure and project activities as well as communities potentially impacted[1] by the Projects.

In the event primary project areas are unable to meet a particular project need, Avangrid's local content commitment requires the use of a tiered approach to meet project needs outside of primary project areas:

[1] Potentially impacted communities are broadly defined to include those that will host project infrastructure, project activities and construction, or otherwise be impacted by the project (e.g., visual impacts).

- the local regional area inclusive of primary project areas;
- the state(s) within which primary project areas are or will occur (e.g., Rhode Island);
- the regional area, inclusive of the state(s) hosting primary project areas;
- within the US for project needs that are supportive of US supply chain buildout; and
- outside of the US.

Avangrid's efforts to implement this commitment in procurement, vessel contracting, and hiring practices are summarized below.

16.1.1.1 Procurement

When it comes to procurement, Avangrid has prioritized the sourcing of goods and services from local companies in primary project areas whenever feasible. When goods and services are not available from local companies in primary project areas, Avangrid has endeavored to meet its needs from local companies in accordance with the tiered approach described above.

To implement this commitment, Avangrid proactively identifies and partners with companies to support the development of the local, regional, and domestic offshore wind supply chain. Avangrid maintains an internal database and is constantly evolving its internal contractor and supplier lists that can be filtered and organized based on scope, location, and other relevant information. For New England Wind 1 and New England Wind 2, Avangrid has proactively engaged with the Oceantic Network (formerly the Business Network for Offshore Wind), Rhode Island Commerce Corporation (Commerce), and Wind Win Rhode Island to reach out to all accessible local suppliers and disseminate contract opportunities. Avangrid has also conducted an internal investigation, engaging its Tier 1 contractors and project teams to understand what materials, labor, services, and vessels/vehicles could be sourced from any of the southern New England states in preparation for a potential award of the Projects by Rhode Island, Connecticut, or Massachusetts. Based upon award, Avangrid will determine which state to most highly prioritize procurements in.

Avangrid has taken additional steps to prioritize local content in its procurement processes through measures such as:

- including an explanation of its local content priorities and commitments along with specific information about relevant local content in RFPs, Invitations to Tender (ITTs), and bidders' meeting presentations;
- requiring RFP and ITT respondents to describe plans to commit to local content, including potential price impacts. If it's too early in the contracting process for participants to commit to local suppliers, RFP and ITT respondents have committed to a dollar amount for a resource to be sourced locally;
- requiring RFP and ITT respondents to detail opportunities for local content that could be sourced from any state in the New England region (i.e., which opportunities are mutually exclusive to Rhode Island versus which opportunities are interchangeable between any state in New England);
- providing the abovementioned contractor and supplier lists to major contractors to assist their efforts to identify local content opportunities; and

- evaluating and scoring the local content aspects of all proposals received in response to RFPs and ITTs.

[redacted]

16.1.1.2 Vessel Contracting

Offshore wind project development, construction, and operation entail the use of many different types of vessels. Whenever feasible, Avangrid and its contractors utilize US-flagged vessels and prioritize efforts to identify and contract with local vessels, including commercial and recreational fishing vessels and fishermen. To implement this commitment across the Projects, Avangrid is focusing on the following:

- identifying vessel needs, such as scout vessels, and opportunities to use domestic and local vessels across projects and packages;
- identifying areas where services could be provided by fishing vessels and/or fishermen, determining requirements for training and safety, and supporting programs that expand opportunities for fishing vessels and fishermen to provide vessel related services to offshore wind projects;
- engaging with local vessel owners and operators, including issuing requests for information, to gather information on local vessel capabilities and interest with an emphasis on fishing and area standard vessels;

- requiring contractors to propose vessel spreads for approval prior to subcontracting; and
- including contract clauses relevant to Avangrid's local content commitments and priorities in applicable contracts for major contractors, OEMs, and other suppliers.

[redacted]

16.1.1.3 Hiring Practices

Avangrid supports hiring local residents, the use of local union labor, and the creation of a diverse and inclusive offshore wind workforce. To implement these commitments across the Projects, Avangrid has focused on the following:

[redacted]

The vendors identified and listed below are the results of Avangrid's development to date, internal analysis on strong partners for future work scopes, and input from Commerce and Rhode Island-based consultancy OSWind Partners on all the potential Rhode Island vendors that may be contracted or subcontracted by Avangrid and its partners for various Project-related tasks.

16.1.2 Contracted or Committed Rhode Island-Based Vendors

[redacted]

[redacted]

16.1.3 Potential Vendors

The vendors listed above represent the Rhode Island entities committed or contracted, or in the final stages of contract award, and utilized by Avangrid to develop and construct the Projects. As discussed in **Section 8**, Avangrid has already secured agreements with preferred Tier 1 suppliers for many of the critical equipment packages for New England Wind 1 and has required consideration of local content opportunities within each of those packages. [redacted]

[redacted]

[redacted]

16.1.3.6 Additional Potential Vendors in Rhode Island

It is important to note that Avangrid has not gone to market for many of its remaining supporting scopes that may be sourced locally in Rhode Island ([redacted] Upon award, Avangrid is fully committed to prioritizing Rhode Island vendors for project scopes/tasks yet to be contracted and will leverage its participation in the SupplyRI program to ensure Avangrid and its contractors can readily access local suppliers and disseminate contract opportunities. To demonstrate this commitment, Avangrid has conducted an analysis of the local supply chain and consolidated thematic lists of the Rhode Island vendors it has identified that can potentially service the Projects, as shown below.

Avangrid's local content approach helps to identify suitable project scopes and potential suppliers capable of meeting its requirements. Avangrid intends to use various supplier databases and offshore wind resources, including Commerce, Wind Win Rhode Island, and the Oceantic Network to reach out to all accessible local suppliers and circulate contract opportunities. Rhode Island is a unique hub that contains a concentrated number of suppliers capable of supporting complex scientific and engineering needs in the marine environment. While acknowledging that these resources are specific to a certain type of vendor, Avangrid remains committed to fully promoting all applicable opportunities across a broad number of industries. Below is an outline of some of the potential fields of interest and the local vendors identified as candidates for scopes of work that advance development, construction, and operations of the Projects.

The services and vendors listed below are organized into broad categories. Avangrid recognizes that it is possible that a single vendor may service multiple scopes, multiple vendors may not be able to service a single scope fully, or vendors may be directly contracted or subcontracted by a Tier 1 contractor already working with Avangrid.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Construction and Execution Subcontractors

[redacted]

[redacted]

[redacted]

[redacted]

16.2. Identification of Domestic Vendors and Existing Vendor Commitments

Please list the domestic vendors that have been identified to potentially supply the project, as well as any domestic vendors that you have an existing commitment with for this project.

[redacted]

[redacted]

[redacted]

[redacted]

16.3. Supply Chain and Infrastructure Improvement Investments

Please identify the project's plans to invest in supply chain and infrastructure improvements to support the offshore wind industry, if any.

As detailed in **Section 16.2**, Avangrid is committed to making several key strategic investments that will grow the local, regional, and domestic supply chain, not only to the immediate benefit of the Projects, but also to other future projects in the region.

[redacted]

[redacted]

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3 https://www.masscec.com/resources/massachusetts-offshore-wind-ports-infrastructure

[redacted]

[redacted]

[redacted]

17. Plans for Construction Labor Agreement

Avangrid is committed to developing a strong offshore wind workforce in Rhode Island and delivering economic benefits to residents and communities throughout the state. [redacted] A well-trained and experienced offshore wind workforce will create a cycle of attracting more offshore wind projects to base activities out of Rhode Island for years to come.

Leveraging the experiences from Vineyard Wind 1[1] and global Iberdrola Group projects, Avangrid is committed to entering and honoring labor agreements that pay prevailing wages for project-related activities to ensure New England's skilled labor is at the forefront of the offshore wind industry. Moreover, as described in **Sections 14** and **15**, Avangrid has committed to meaningful workforce development efforts and localizing the supply chain as much as possible, which will direct economic benefits to the region and Rhode Island. Through these agreements and initiatives, Avangrid is prepared to provide compelling, well-paid job opportunities for a variety of Rhode Island workers if either Project is awarded a power purchase agreement (PPA) by Rhode Island Energy.

17.1. Labor Peace Agreement and/or Employee Representation

As part of the contract negotiation process, the bidder must commit to enter into a labor peace agreement with at least one bona fide labor organization either where such bona fide labor organization is actively representing employees providing necessary construction, operations and maintenance services for the project at the time of such agreement or upon notice from a bona fide labor organization that is attempting to represent employees who will provide necessary operations and maintenance services for the renewable energy system employed in the state or the region. The maintenance of such labor peace agreement will be an ongoing material condition of any continuation of payments under the PPA.

Describe the Bidder's plan to enter into a labor peace agreement and/or plan for project employee representation by a labor organization.

New England Wind 1 is objectively the most mature, shovel-ready uncontracted offshore wind project in the region, with New England Wind 2 close behind. [redacted]

[1] Vineyard Wind 1 is a 50/50 joint venture of Avangrid Renewables, LLC (Avangrid) and Copenhagen Infrastructure Partners P/S. Vineyard Wind 1 was the first commercial-scale US offshore wind project to obtain permitting approval at the federal and state levels, conclude procurement and contracting for all major contract packages, finalize interconnection agreements, successfully implement a financing plan, and begin onshore and offshore construction activities. It began delivering power to Massachusetts in January 2024.

[redacted]

[redacted] The Vineyard Wind 1 team spent several years negotiating with the Massachusetts Building Trades Council and Southeastern Massachusetts Building Trades Council and ultimately signed on July 16, 2021. As of December 2023, Vineyard Wind 1 had nearly doubled its initial expectations (and PLA commitment) for job creation in the region, with the creation of over 937 labor union jobs in only two years of construction.[2]

[redacted] Avangrid has developed a comprehensive understanding of how to work with unions to recruit and train tradespeople to be ready for the challenging work of building an offshore wind project.

17.1.1 Commitment to Labor Agreements for Project

Avangrid will abide by all requirements of the Request for Proposal and PPA. [redacted]

17.1.2 Directly Funded Workforce Development Initiatives

Offshore wind construction and O&M activities provide numerous career pathways for skilled workers. As mentioned, Avangrid is uniquely experienced in building strong relationships with local unions to ensure growth and diversification in the pipeline of local workers serving the offshore wind industry.

[redacted] Avangrid is committing funds to benefit union members and pre-apprenticeship partners across New England, to increase awareness of opportunities, spur engagement with the offshore wind industry, and increase regional worker preparedness for roles within the industry. Avangrid's initiatives will strongly prioritize recruiting and retaining members of historically marginalized communities. Targeted workforce programs can eliminate barriers to entry and promote equitable access for all workers in the offshore wind industry. The list below summarizes some of the initiatives Avangrid has committed to via either Project proposal. Additional details on these initiatives and the workforce development plans for the Projects are provided in **Sections 14** and **15**.

- **Labor Union Training and Career Advancement DEI Fund:** The Projects will create a fund dedicated to supporting members of the unions Avangrid partners with to attain the training and credentialing they need to participate in the offshore wind industry (e.g., Global Wind Organisation

[2] Vineyard Wind. (December 15, 2023). *Vineyard Offshore, Avangrid Nearly Double Union Hiring Target for Vineyard Wind 1.* https://www.vineyardwind.com/press-releases/2023/12/19/vineyard-offshore-avangrid-nearly-double-union-hiring-target-for-vineyard-wind-1

training, offshore wind health and safety training, and other career-advancing trainings and certificate programs). This fund will also support the union partners themselves, to help facilitate implementing diversity, equity, and inclusion (DEI) best practices for recruiting, hiring, and retaining apprentices and members who are from historically marginalized communities (e.g., BIPOC, women, veterans, and LGBTQI+ people).

[redacted]

17.2. Prevailing Wage Commitments

Bidders must commit to pay each construction, operations and maintenance employee wages and benefits that are not less than the prevailing wage and fringe benefit rates at the journeyman level that are prescribed by the Rhode Island Department of Labor and Training, or other applicable laws, rules or regulations in the state or region, and not less than the prevailing wage rates for employees for

[redacted]

which there is no classification prescribed by the Rhode Island Department of Labor and Training, or other applicable laws, rules or regulations in the state or region.

Bidders must also commit to pay benefits and wages not less than the rate applicable to apprentices for the pertinent classification prescribed by the Rhode Island Department of Labor and Training, or other applicable laws, rules or regulations in the state or region if the worker is a participant in an approved apprenticeship program and the approved apprenticeship program maintains a direct entry agreement with a certified pre-apprenticeship training program.

Describe the Bidder’s plan to compensate project employees and apprentices not less than the prevailing wage.

[redacted]

As previously mentioned, Avangrid will abide by all requirements of the Request for Proposal and PPA and is confident that it can work with local unions to simultaneously benefit the Projects and local workforce.

18. Exceptions to Form PPA

Please attach an explanation of any exceptions to the Form PPA set forth in Appendix C. Comments to the proposed Form PPA must include any specific alternative provisions in a redline format to the Form PPA. **Bidders are discouraged from proposing material changes to the Form PPA**.

The Form Power Purchase Agreement (PPA) redline, included as **Attachment 18.0-1**, details certain requested changes to be negotiated between the parties.

[redacted]

[redacted]

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19. Exceptions to Commitment Agreement

Please attach an explanation of any exceptions to the Commitment Agreement set forth in Appendix E to this Notice, including any specific alternative provisions in a redline format to the Commitment Agreement. Bidders must include a marked version showing any proposed changes to the Commitment Agreement with their bid, and it is assumed that bidders would be willing to execute the marked-up agreement included in their bids. **Bidders are discouraged from proposing material changes to the Commitment Agreement.**

The form Commitment Agreement redline is included as **Attachment 19.0-1** as part of Avangrid's redline of the form Power Purchase Agreements for Offshore Wind Energy Generation (Form PPA). The Form Commitment Agreement redline details certain requested changes to be negotiated between the parties.

[redacted]