PUBLIC

NYSERDA 2022 Offshore Wind Solicitation ORECRFP22-1

# Community Offshore Wind
# A Blueprint for New York's Energy Future

COMMUNITY
offshore wind
local clean energy for all

nationalgrid | RWE

Certain information in this Submission is non-public, proprietary, commercially sensitive, and/or financial information and has been redacted from the version of this Submission marked "PUBLIC". Community Offshore Wind has submitted a confidential version of this Submission, marked "CONFIDENTIAL", which includes the redacted information. Pursuant to 21 CRR-NY 501.6, the non-public, proprietary commercially sensitive and/or financial information contained in the version of the Submission marked "CONFIDENTIAL" should be designated as a trade secret, excepted from disclosure under paragraph (d) of subdivision two of Section 87 of the Pub ic Officers Law or any other disclosure as set forth in the General Conditions of ORECRFP22-1 Request for Proposals issued July 27, 2022. Disclosure of such information would be extremely deleterious to the business and underlying proposal described in the Submission and would expose Community Offshore Wind to competitive disadvantage with respect to NYSERDA's solicitation.

## Executive summary

Community Offshore Wind (COSW) proudly presents this offer to deliver offshore wind renewable energy certificates (ORECs) to the New York State Energy Research & Development Authority (NYSERDA), pursuant to an agreed purchase and sale agreement.

Our unique value proposition to NYSERDA is aligned across four key dimensions:

### 1. Viability – A capable, trusted, and uniquely-experienced partner to NYSERDA

COSW is a joint venture between RWE Offshore Renewables (RWE), the second-largest offshore wind developer globally, and National Grid Ventures (NGV), an international clean energy transition company with a longstanding New York history serving customers from Long Island to Buffalo.

Combining extensive global offshore wind leadership and deep roots in New York State, COSW's dedicated, diverse, and growing team – with 80+ employees today – brings unique capabilities to efficiently and responsibly develop, construct, and operate offshore wind generation on lease area OSC-A-0539, **one of the largest in the New York Bight.**

Leveraging this team's expertise alongside our parent companies' financial strength, [redacted] From an early stage, we engaged local communities, suppliers, unions, environmental NGOs, fisheries, and other stakeholders to listen, learn, and garner broad-based support for our project.

[redacted].

### 2. Choice – Flexibility to optimize New York's offshore wind portfolio

We offer **different configurations to deliver a 1.3 GW project**, varying: [redacted]

We also offer the opportunity [redacted] **of 2.6 GW** of capacity [redacted]

### 3. Economic and Community Benefits – [redacted]

COSW is committed to an equitable clean energy transition, and we will deliver broadly distributed and geographically diverse benefits to New York customers and communities, **including unique opportunities to restore lost tax revenue** for vulnerable Long Island communities, [redacted] **investments in community and workforce development programs** as well as **fisheries and environmental enhancement and mitigation.** Further, we will expand the breadth of the state's offshore wind economy through a one-of-a-kind SCIP that maximizes local content [redacted]. Our SCIP includes:

- A **unique solution to localize** [redacted] **steel fabrication** [redacted], creating union jobs in [redacted], and increasing US steel supply.
- **A marshalling port** [redacted] the Staten Island Marine Terminal.
- A collaboration with GE to deliver a **nation-leading** opportunity to localize both **blade and nacelle facilities** [redacted].

[redacted]

### 4. Responsible Customer Value – Dependable pricing based on rigorous and experience-driven cost challenge and risk evaluation

[redacted]

Further details on our value proposition are covered in the following pages of the Executive Summary.

[redacted]

## 1. Viability – A capable, trusted, and uniquely experienced partner to NYSERDA

COSW is a joint venture between RWE and NGV formed for the sole purpose of developing the Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A-0539. As a joint venture, **we draw upon the full strength of our two parent companies** to offer NYSERDA an unparalleled commitment to the state of New York to deliver projects with high viability and clear line of sight to commercial operation by 2030.

We have a dedicated and growing team of **highly experienced employees** ([redacted]) who prepared this solicitation. Our team has both worked on some of the largest offshore wind and transmission projects in the world as well as with a wide range of New York stakeholders – local communities, suppliers, NYISO, labor unions, environmental NGOs, fisheries, and others.

### We benefit from RWE and National Grid's local experience in New York

**National Grid**, parent company of NGV, has owned and operated competitive and regulated generation, transmission, and distribution in New York for over 20 years. With the history of some of its operating companies dating back over 100 years, the company has a truly unique understanding of what it takes to develop and operate energy infrastructure in the state. Further, National Grid has deep experience working with its local communities as well as the technical know-how to secure interconnection in NYISO.

**RWE** will soon operate three renewable facilities in New York – Baron Winds I (in construction), Cassadaga and Munnsville (operational) – and has a local workforce, expected to be enlarged by the recent announcement of the intention to acquire the ConEd Clean Energy Businesses. In sum, RWE has invested over $1B in New York's clean energy economy in recent years.

Furthermore, **RWE and National Grid have extensive experience collaborating with governments on infrastructure projects and navigating US local, state, and federal permitting**, drawing upon the collective experience of hundreds of specialists who design, construct, and operate a portfolio of more than 21 GW of renewable energy.

### We bring an unparalleled combination of global experience in offshore wind and subsea interconnectors

**RWE** owns the **world's 2nd largest offshore wind fleet** with over 5.8 GW of commissioned capacity and another 14.4 GW under development.

National Grid operates **combined capacity of more than 6 GW of HVDC transmission**, including the world's longest subsea interconnector (North Sea Link) and another 3+ GW of multi-purpose interconnectors for offshore wind under development.

Our combined, in-house workforce brings deep knowledge and experience developing and delivering offshore wind power, including but not limited to:

- Optimizing cost of electricity
- Managing timely project delivery
- Partnering to build local supply chains
- Working with local stakeholders
- Optimizing projects to co-exist with other users in sensitive environments, including fisheries

### We draw upon the significant financial strengths of our two parent companies

This allows us ([redacted] to attain attractive financing and offer stronger assurance that we will complete the project on-time and as promised.

[redacted]

### We are committed to New York State and to a clean and just energy transition

[redacted]

Just like the state of New York, our companies have ambitious climate targets, and a commitment to building a diverse, equitable and inclusive workforce to power the clean energy transition. National Grid is committed to net zero by 2050, and RWE has made a commitment to be fully carbon neutral by 2040. Our ability to deliver on these goals is tied to our success in New York.

### We have a robust plan to deliver our project on time and on budget

[redacted]

To avoid critical onshore construction challenges, we identified viable onshore **cable routes and landfalls with the least expected disruption to local communities.** Where some disruption is unavoidable, we will use efficient equipment, smart construction practices, and coordinated approaches to minimize impacts.

Furthermore, we highlight that our project is designed exclusively for NYSERDA Request for Proposal ORECRFP22-1. We are not contractually committed to any other entity and this proposal is not conditional on other proposals or solicitation outcomes, except for conditions related to volumes in our Supply Chain Investment Plan (as specifically allowed). We are free from, and commit to preventing, conflicts of interest.

[redacted]

## 2. Choice – Flexibility to optimize New York's offshore wind portfolio

We developed [redacted]

[redacted]

Dimensions varied in our project proposals include:

[redacted]

## 3. Economic and Community Benefits – Over [redacted] in broadly distributed benefits and the premier East Coast offshore wind supply chain hub

[redacted]

Community Offshore Wind is committed to ensuring that communities throughout New York realize the direct benefits of our project, whether through jobs, economic and tax benefits, or community investments. We strive to be a partner to New York in an equitable clean energy transition by minimizing the impacts of our project on communities. To the extent we are unable to avoid impacts, we will work transparently with local residents and officials to understand concerns, mitigate impacts, and invest back into the community.

In all of our proposed project configurations, we will deliver broad-based and geographically diverse benefits to New York customers and communities, including unique opportunities to restore lost tax revenue for vulnerable Long Island communities. [redacted] We will also deliver a one-of-a-kind SCIP that establishes New York as the premier East Coast offshore wind supply chain hub. By attracting large manufacturing and sub-component supplier facilities that enter operation as early as possible and operate as long as possible, we will **secure a significant number of jobs, including well paying, union jobs and attract substantial investments in** Disadvantaged Communities **(DACs)**, Minority and/or Women-Owned Businesses **(MWBE)**, and Service-Disabled Veteran Owned Businesses **(SVDOB)**. [redacted]

Our full economic benefits plan rests on following commitments:

**We will maximize the total amount of local content, and establish a strong supply chain to make New York the premier East Coast offshore wind hub capable of building a turbine in-state**

Since acquiring our lease area, we have engaged with global suppliers and New York businesses to develop an unparalleled local supply chain on the East Coast. [redacted]

Our one-of-a-kind SCIP includes four core facilities, with investments commencing in 2023. In compiling our SCIP we worked to support NYSERDA's goals to enable in-state turbine and blade manufacturing, tier 2-4 supplier growth, and a multi-use port facility. If COSW's SCIP is selected, New York would become the premier East Coast offshore wind supply chain hub, home to:

- GE blade and nacelle facilities, [redacted]

[redacted]

— Staten Island Marine Termina[redacted]

— New York Offshore Steel Hub in greater Newburgh[redacted]

— [redacted]

COSW has invested considerable time, energy, and capital in bringing this unique coalition together in support of a growing offshore wind supply chain to serve New York and the broader East Coast market, while expanding opportunities so that a broader range of New York communities can participate in and benefit from the clean energy transition.

[redacted]

### We will invest in local communities and businesses

Our commitment to ensure that offshore wind benefits local communities, businesses, and other stakeholders is at the heart of our project. To ensure equal participation in the growing offshore wind industry and that we are maximizing the positive impacts of our project, we will invest [redacted] in initiatives guided by the following objectives:

- Accelerate clean energy employment and family-sustaining jobs in local communities through targeted workforce training and support - [redacted]
- Create opportunities for priority groups that have historically been left out (DAC, MWBE, SDVOB) - [redacted]
- Direct community investments - [redacted]

[redacted]

### We will mitigate impacts on fisheries and environment

Fishing plays an important and historic role in local communities, and we will work hand in hand with local fisheries to ensure coexistence and shared use of the ocean resource and to generate support for offshore wind. Our Fisheries Mitigation Plan was directly informed by our engagement with more than 300 members of commercial and recreational fishing and designed with a team of in-house fisheries experts with long-term professional experience. The plan commits [redacted]:

- Environmental monitoring extension [redacted]
- Federal survey augmentation [redacted]
- Shellfish enhancement program [redacted]
- Community access progra[redacted]
- Safety enhancement and fishery adaptation program [redacted]

In addition, we comply with all mandatory financial and technical support for regional monitoring of wildlife and fish and invertebrates that support economically important fisheries as well as required fisheries compensation (pending BOEM guidance).

## 4. Responsible Customer Value – Dependable pricing based on rigorous and experience-driven cost challenge and risk evaluation

[redacted]

[redacted]

### We give NYSERDA flexibility to deliver its offshore wind mandate in the most affordable way

We believe that New York's clean energy transition must be fair and affordable – offering great value and broadly-shared benefits – for all customers. We offer a varied set of proposals and prices to give **NYSERDA maximum choice to best meet and balance its objectives** of price, economic benefits, and viability.

### Our rigor and experience allow us to confidently offer our lowest pricing to deliver the project, as promised, despite current and future risks

We optimized project costs drawing on RWE's world-class track record of developing 18 offshore wind farms and National Grid's deep experience in New York transmission interconnection and European subsea cables. Project costs were rigorously challenged to make our assumptions as competitive and reliable as possible. We used data from supplier bids, internal benchmarks of our offshore wind projects commissioned and under development, internal forecasts of technology innovation pathways, and third-party technical consultants.

We applied similar rigor and depth of experience to our assessment of risks. The current environment confronts investors and developers of large capital-intensive assets with heightened risks, especially for projects with long lead times before a final investment decision is taken. We are confident our pricing reflects a thorough and balanced accounting of these and other key risks.

Furthermore, we built a competitive financing plan leveraging [redacted]

### We use NYSERDA's innovative tools to further balance risks with affordability for customers

We commend NYSERDA for introducing options to include risk-sharing mechanisms in the project proposal. [redacted]

[redacted]

NYSERDA can trust us in our commitment to deliver the project – and customer value – at the pricing we offer.

### Required disclosure

- Community Offshore Wind, LLC confirms that it has not been found non-responsible under Section 139-j of the State Finance Law within the previous four years.
- Community Offshore Wind, LLC has, to the best of its knowledge, no required disclosures, in accord with Section 8.5 of the OREC RFP22-1.
- RWE's disclosure responsive to RFP § 8.8: No RWE entity has ever been investigated or disciplined by the New York State Join Commission on Public Integrity
- NGV's disclosure responsive to RFP § 8.8: In June 2013, affiliates of NGV, National Grid's New York utilities, reached a settlement with the New York State Joint Commission on Public Ethics over alleged violations of the New York State Lobbying Law. As part of the settlement, National Grid agreed to pay a fine of $25,000 and implement ethics training. To the best of NGV's knowledge, no other shareholders of 5% or more, parents, affiliates, or subsidiaries of NGV have been the subject of any investigation or disciplinary action by the New York State Commission on Public Integrity or its predecessor State entities.




NYSERDA 2022 Offshore Wind Solicitation ORECRFP22-1

# Community Offshore Wind Submission

## CHAPTERS 2–21

COMMUNITY
offshore wind
local clean energy for all

nationalgrid | RWE

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[redacted]

[redacted]

[redacted]

# List of tables

[redacted]

[redacted]

[redacted]

[redacted]

# List of figures

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

# List of acronyms and abbreviations

| Abbreviation | Explanation |
| --- | --- |

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

# 2. Impacts of COVID-19 on proposer and project development

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No tables in this chapter.

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Appendix 2-1 National Grid annual report 2021

Appendix 2-2 RWE annual report 2021

Appendix 2-3 Covid-19 safe work guide

Appendix 2-4 Covid quarantine and isolation – CDC guidelines

Appendix 2-5 US pandemic plan

## 2.1 Summary

Since the establishment of Community Offshore Wind in 2022, COVID-19 has not significantly impacted operations, including the preparation of this proposal. At Community Offshore Wind, the health, safety, and wellbeing of our employees is of the utmost importance, and we will continue to put our team first. Starting at the top, our LLC agreement demands that we implement a comprehensive health, safety, and environment (HSE) plan, which includes COVID-19 measures, provided there are any. Therefore, we pledge to always **follow the most stringent measures as mandated by our parent companies to ensure we protect our most valuable asset, our team.** When required by law or additional workplace regulations, safety measures are implemented and enforced by the Community Offshore Wind management team.

Both of Community Offshore Wind's parent companies weathered the economic uncertainty caused by the COVID-19 pandemic. The impact on National Grid´s cash flow in 2021 was estimated at £600–£750 million, driven mainly by the suspension of customers' arrears collection in the UK and US to blunt the impact of COVID-19, but still lower than National Grid´s market guidance of up to £1 billion. There is no stated COVID-19 impact on RWE AG´s financials.

RWE had several offshore wind farms in late-stage development and construction during the height of the pandemic. In response, all projects quickly implemented successful emergency plans, including a rigorous health and safety plan, as outlined below. As a testament to this success, when these more intense work regime and adjustments were required, no financial impact or revised construction schedules delayed the planned Commercial Operations Date.

Similarly, National Grid had to re-work construction and installation plans when building its North Sea Link, a subsea interconnector project. In conjunction with suppliers and manufacturers, they successfully maneuvered around factory shutdowns, particularly delays for subsea cables. These unavoidable lost times were absorbed into the allowed construction timeframe. In the end, the North Sea Link was delivered on time and on budget. For assets already in operation, National Grid Ventures managed to retain industry standard of at least 95% availability, ensuring a steady supply of electricity through the toughest of operating conditions. See below for relevant case studies.

*Figure 2-1 Health and safety measures by RWE and National Grid during 2020-2022*

**Health and Safety Measures by both RWE and National Grid**

- Office and worksite face covering requirements
- Strict adherence to local quarantine guidance
- Close contact tracing protocols
- Distribution of health & safety information
- Increased office and worksite cleaning measures

*Figure 2-2 Pandemic case studies*

TRITON KNOLL RWE

Triton Knoll is one of the world's largest offshore wind farms, located over 32 km off the Lincolnshire coast in the UK with a power output of 857 MW. RWE led both the wind farm's construction and the long-term operation and maintenance works, on behalf of the project partners.

Despite challenges posed by the global COVID-19 pandemic, ***RWE has kept the project on track to reaching its construction milestones.*** In January 2022, RWE completed all turbine commissioning at the wind farm which includes 90 turbines standing 164 meters tall. The electricity generated from the wind farm will meet the needs of around 800,0000 UK homes each year.

New York Transco – Building a Clean Energy Future Together – nationalgrid

The New York Energy solution team has worked diligently and used alternative means to **maintain progress through the pandemic, while maintaining adherence to health and safety guidance** issued at both state and federal levels. They concluded the Engineering, Procurement and Construction agreement remotely in April 2020. Construction activities commenced in 2021, during the height of the pandemic.

Given the project's criticality, all Transco workers were designated as frontline workers. The requisite health and safety guidance was followed for social distancing, support bubbles and testing. **Contingency plans were drawn up to ensure critical personnel had coverage.** Remote working was invoked where possible. The project is on schedule for completion in 2023.

If the threat of Covid-19 re-emerges, Community Offshore Wind will be able to benefit from the prior learnings of RWE and National Grid to adapt procedures for the project in line with the guidelines of our parent company principles. We have captured learnings and built them into our plans, processes, and supplier relations. The construction schedule (Chapter 12) includes some float to allow for unforeseen events. Therefore, we consider the threat of COVID-19 to the success of our project as low.

# 3. Proposer qualifications

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## NYSERDA solicitation requirements

Our proposer qualifications address each requirement laid out by NYSERDA in the Request for Proposal (RFP) while underlining our capabilities of successfully realizing the project. The table below identifies each solicitation requirement.

*Table 3-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| 1. Describe the business entity structure of Proposers' organization from a financial and legal perspective, including all general and limited partners, officers, directors, managers, members and shareholders and any persons who the Proposer knows will become officers, board members or trustees, and involvement of any subsidiaries supporting the Project. Provide any Diversity, Equity, and Inclusion plan to be used in selecting new officers, board members or trustees. | 3.3. |
| 2. An organizational chart for the Project that lists the Project participants, including parent companies and joint ventures transacting business in the energy sector, identifies the corporate structure, including general and limited partners, and shows the relationship among the different Project participants. | 3.3. |
| 3. For joint ventures, identify all owners and their respective interests and document Proposer's right to submit a binding Proposal. | 3.3. |
| 4. For all Proposers, provide the race and gender of the members of the governing body of the Proposer and its owner(s). | 3.3.4. |
| 5. Statements that list the specific experience each of the Project participants (Proposer and any development partners) in developing, financing, owning, and operating generation and transmission facilities, other projects of similar type, size and technology, and any evidence that the Project participants have worked jointly on other projects. | 3.2. |
| 6. A listing of projects the Project sponsor has successfully developed or that are currently under construction, or that the Proposer has secured financing for. Provide the following information for each project as part of the response:<br>a. Name of the project<br>b. Location of the project<br>c. Project type, size and technology<br>d. Date of construction and permanent financing<br>e. Form of debt and equity financing<br>f. Current status of the project<br>g. Commercial Operation Date<br>h. Estimated and actual capacity factor of the project for the past three years<br>i. Availability factor of the project for the past three years<br>j. References, including the names and current addresses and telephone numbers of | 3.2.5. |

| | |
|---|---|
| individuals to contact for each reference<br>k. Specific members of the Project team that worked on the project | |
| 7. A management chart that lists the key personnel dedicated to this Project, and resumes of the key personnel, and a description of key personnel experience successfully developing and/or operating one or more projects of similar size or complexity or requiring similar skill sets. | 3.4. |
| 8. With regard to Proposer's Project Team, identify and describe, including relevant experience, the entity responsible for the following, as applicable:<br>a. Construction Period Lender, if any<br>b. Diversity, Equity, and Inclusion Officer<br>c. Environmental Consultant<br>d. EPC Contractor (if selected)<br>e. Facility Operator and Manager<br>f. Financial Advisor<br>g. Labor Liaison<br>h. Legal Counsel<br>i. Operating Period Lender and/or Tax Equity Provider, as applicable<br>j. Owner's Engineer<br>k. Transmission Consultant | 3.4.2. |
| 9. Identify the entity that will assume the duties of NYISO Market Participant for your proposed Offshore Wind Generating Facility. Provide a summary of Proposer's or Market Participant's experience with the wholesale market administered by NYISO as well as transmission services performed by Con Edison, NYPA, and PSEG-LI/LIPA. | 3.2.4.3. |
| 10. Disclose any pending (currently or in the past three years) litigation or disputes related to projects planned, developed, owned, or managed by Proposer or parent companies in the United States, or related to any energy product sale agreement. | 3.5. |
| 11. Describe any material litigation, disputes, claims or complaints, or events of default or other failure to satisfy contract obligations, or failure to deliver products, involving Proposer or a parent company, and relating to the purchase or sale of energy, capacity or RECs or other electricity products. | 3.5. |
| 12. Confirm that Proposer, and the directors, employees and agents of Proposer and any parent company of Proposer are not currently under investigation by any governmental agency and have not 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 offering on any contract or have been the subject of any debarment action (detail any exceptions). | 3.5. |

## 3.1. Summary

It is critical that the winners of this solicitation bring the project to commercial operation on time while delivering on promises made to enable the energy transition and realize benefits to New York. The RFP reflects this importance by design; NYSERDA will award developers that have a successful track record of developing, financing, owning, and operating renewable projects of significant size and complexity.

At Community Offshore Wind we believe that we are uniquely positioned to be a trusted partner to NYSERDA because we can offer the following:

- A partner with the global and local experience to successfully develop, own and operate an HVDC-linked offshore wind farm in New York
- A developer with the legal and governance structures to work effectively
- A project team that embodies and leverages the unique experience of its owners
- A partner with a reputation for delivering on its promises

These four key points are elaborated below.

### An experienced partner with the global and local experience to successfully develop, construct, own, and operate an HVDC linked offshore wind farm in New York

**Community Offshore Wind is as a joint venture between RWE and National Grid Ventures** (an indirect subsidiary of National Grid plc). By drawing on the resources of our parent companies, Community Offshore Wind can utilize a deep well of experience developing, financing, owning, and operating projects of similar type, size, and complexity to the project we are proposing in the New York Bight. **RWE is a global leader in offshore wind** with the second-largest offshore operating asset portfolio in the world and more than a 20-year track record of success. RWE currently operates 5.8 GW of offshore wind over 18 wind farms. Further, RWE is a global leader in onshore wind, solar PV, battery storage and hydrogen. RWE has built a footprint in the US that includes an operating portfolio of 5.6 GW of renewables and storage projects with a US organization of over 900 employees. Our other parent company, **National Grid Ventures, brings complementary experience in HVDC transmission and more than 20 years of experience as a leading energy generation and transmission company in New York.** The experience in HVDC stems from five major HVDC interconnector projects linking the UK with other parts of Europe. The interconnector portfolio has a combined capacity of 6.4 GW and includes the longest subsea interconnector in the world (North Sea Link). Further, National Grid plc owns and operates competitive and regulated generation, transmission, and distribution assets in New York. This ownership dates back more than 20 years and the business today employs more than 9,600 workers in New York. Finally, both parent organizations are global and US leaders in renewable energy and HVDC transmission as demonstrated over the past decades across a large portfolio of assets. Both organizations have proven true on their commitments to develop, own, and operate successful projects.

### A developer with the legal and governance structures to work effectively

RWE and National Grid Ventures have extensive experience working within joint ventures. National Grid Ventures has worked in Joint Venture (JV) structures on 12 projects since 2018. Similarly, RWE makes use of partnerships on more than 25 of its offshore wind projects globally. Together, the two parent companies have leveraged all their experience with JVs to design a governance model for Community

Offshore Wind that allows for efficient execution and seamless use of their collective expertise. A key element in this approach is our Board of Managers, which is composed of senior executives from both parent companies, who have experience collaborating on other large-scale infrastructure projects in the US and UK. Our Board of Managers bring decades of experience in offshore wind and New York.

### A project team that embodies and leverages the unique experience of the owners

Community Offshore Wind is comprised of a dedicated team of experts with significant experience and the capabilities needed to develop and operate an offshore wind farm. Among our 17 managers and officers, we have over 100 years of experience in offshore wind and well over 50 years of experience in renewable generation and HVDC transmission. Including the full project team, Community Offshore Wind has unparalleled wealth of experience. Additionally, the Community Offshore Wind team is supported by expert advisors and specialists from the parent companies on topics such as financing, engineering, and the environment,

### A partner with a reputation for delivering on its promises

While Community Offshore Wind was only formed as an entity shortly before the New York Bight lease auction, the track records of RWE and National Grid Ventures of delivering on commitments are long and exemplary. Neither the Proposer nor either of its direct parent companies are currently a party to any litigation in the United States relating to any projects planned, developed, owned, or managed by the Proposer or its direct parent companies. Nor are any of the entities party to any material litigation concerning the purchase or sale of energy.

## 3.2. An experienced partner with the global and local experience to successfully develop, construct, own and operate an HVDC-linked offshore wind farm in New York

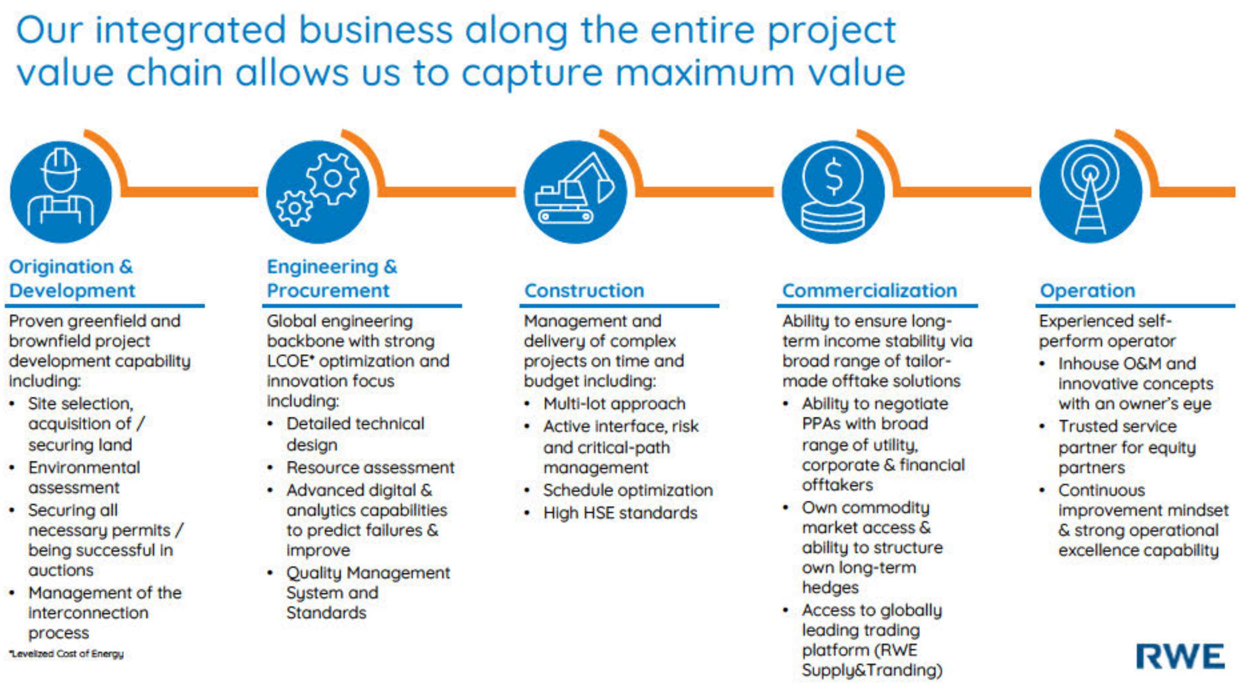
### RWE

RWE Aktiengesellschaft (RWE AG) was founded in 1898 and is headquartered in Germany with major US offices in Austin, Boston, Chicago, and San Francisco. RWE started as a local electricity company for the city of Essen in Germany and now serves as one of the world's largest power suppliers, with branches in Europe, Asia, Australia, and the United States. The company is an integrated utility with 20,000 employees and owns 14 GW of renewables, of which 5.8 GW is offshore wind. Further, it has leading positions in generation, storage, hydrogen, and energy trading.

RWE's strategy is centered around being a global leader in the green energy transition. For this reason, RWE is currently driving the expansion of renewable energy on four continents **with a robust pipeline of projects, including over 14 GW of offshore wind, 14 GW of onshore wind, 10 GW of solar PV, and 3 GW of battery storage.** North America remains one of RWE's core markets, having developed over 5.6 GW of renewable capacity (including three onshore wind facilities in New York with a combined capacity of 282 MW). The company is looking to solidify its footprint in the US and will continue to grow its presence with the recently announced planned acquisition of Con Edison Clean Energy Businesses, Inc., which will add over 7 GW of onshore wind, solar and battery storage to its current US project pipeline of 17 GW[1]. The new combined entity will be able to incorporate both companies' institutional knowledge and abilities to support Community Offshore Wind. **Once completed, this acquisition will make RWE the fourth-largest renewable energy company and the second largest solar operator in the United States.** RWE actively participates in all sections of the energy value chain, see Figure 3-1 for a full breakdown of RWE's capabilities.

1 https://www.rwe.com/en/press/rwe-ag/2022-10-01-rwe-acquire-con-edison-clean-energy

Figure 3-1 RWE business capabilities




### National Grid and National Grid Ventures

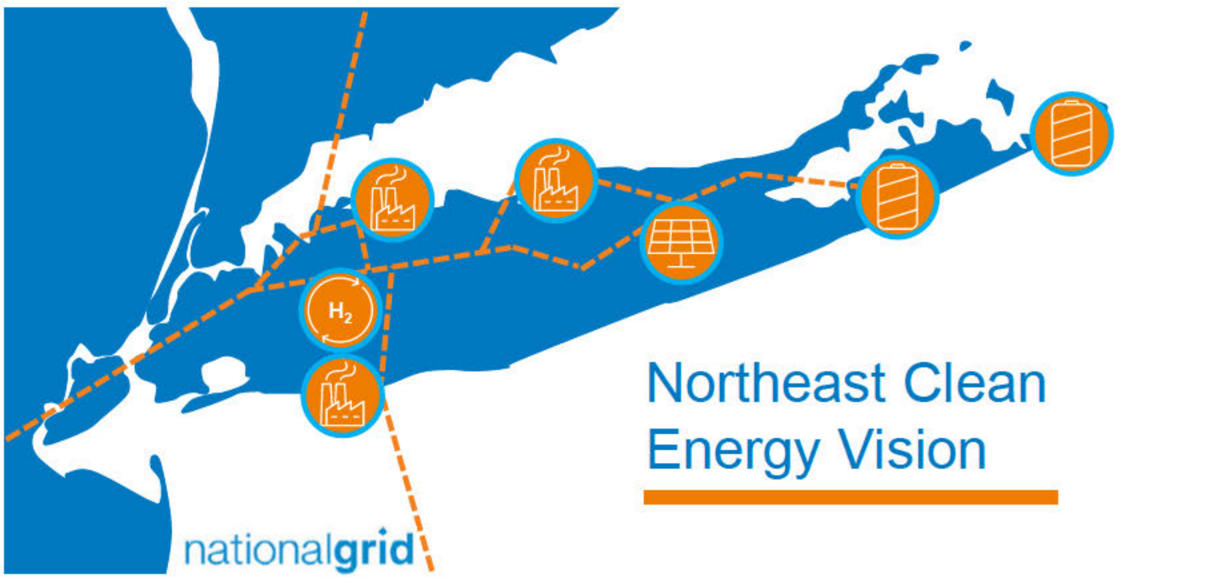
National Grid Ventures is the competitive division of National Grid plc, one of the largest investor-owned energy transition companies in the world. National Grid Ventures is shareholder-funded and operates outside of National Grid's core, regulated businesses. It develops, finances, operates, and invests in projects, technologies, and partnerships to accelerate the development of our clean energy future. Its diverse portfolio includes subsea HVDC electricity interconnectors, competitive transmission, large-scale renewable generation, battery storage, hydrogen blending, liquefied natural gas storage and regasification, and conventional generation.

In the US, National Grid Ventures includes National Grid Renewables, a division established after the acquisition of wind and solar developer Geronimo Energy in 2019 and builds upon National Grid's experience in developing and managing utility-scale renewable assets with its focus on the development of onshore wind, solar power, and battery storage. **National Grid Renewables is the majority owner of 314 MW of wind, 1 GW of solar PV projects, 225 MWh of storage in construction and operation and has a strong pipeline of wind, solar, and battery storage in various stages of development across the U.S.**

National Grid plc and National Grid Ventures have a long history operating in and with the communities of New York. National Grid has owned and operated competitive and regulated generation, transmission, and distribution assets in New York since the acquisition of Niagara Mohawk Power Company in 2000 and KeySpan Energy in 2006. It employs over 9,600 workers in New York who help develop, build, and operate electricity assets across the state, underscoring a deep commitment to local communities.

National Grid has extensive experience in New York, from permitting and developing competitive transmission, energy storage, and solar and wind projects, to operating electric and gas distribution networks and conventional generation assets under long-term contract. In New York, National Grid Ventures includes National Grid Generation Company (National Grid Genco) and New York Transco (Transco). National Grid Genco is a portfolio of steam and thermal generation assets serving critical Long Island energy system needs. National Grid GenCo brings a deep understanding of New York and Long Island energy systems, regulatory authorities, and processes. National Grid has formed long-standing relationships with key stakeholders including New York-based unions. Transco is a New York-based, New York-focused developer, owner, and operator of competitive electric transmission solutions and facilities that serve customers in New York. Together, National Grid Genco and Transco provide National Grid Ventures with a wealth of experience working with and serving the state of New York.

*Figure 3-2 Map of National Grid's northeast clean energy vision*




Building on the company's longstanding commitment to provide affordable, safe, and reliable energy to the communities of New York, **National Grid unveiled its clean energy vision at Climate Week NYC 2022 with the Long Island Clean Energy Hub as its flagship initiative and the Community Offshore Wind project as a crucial component.**[2] This initiative aims to establish a regional hub with clean energy solutions including wind, solar, hydrogen, storage, and the infrastructure to deliver it. Upon completion, it will ensure customers and communities receive clean energy in a cost-effective manner. To date, National Grid Ventures has worked to implement its clean energy hub vision through Long Island Clean Energy Ventures, a New-York focused joint venture with NextEra Energy that develops solar and storage on Long Island. The Community Offshore Wind project represents an integral next step in achieving this vision.

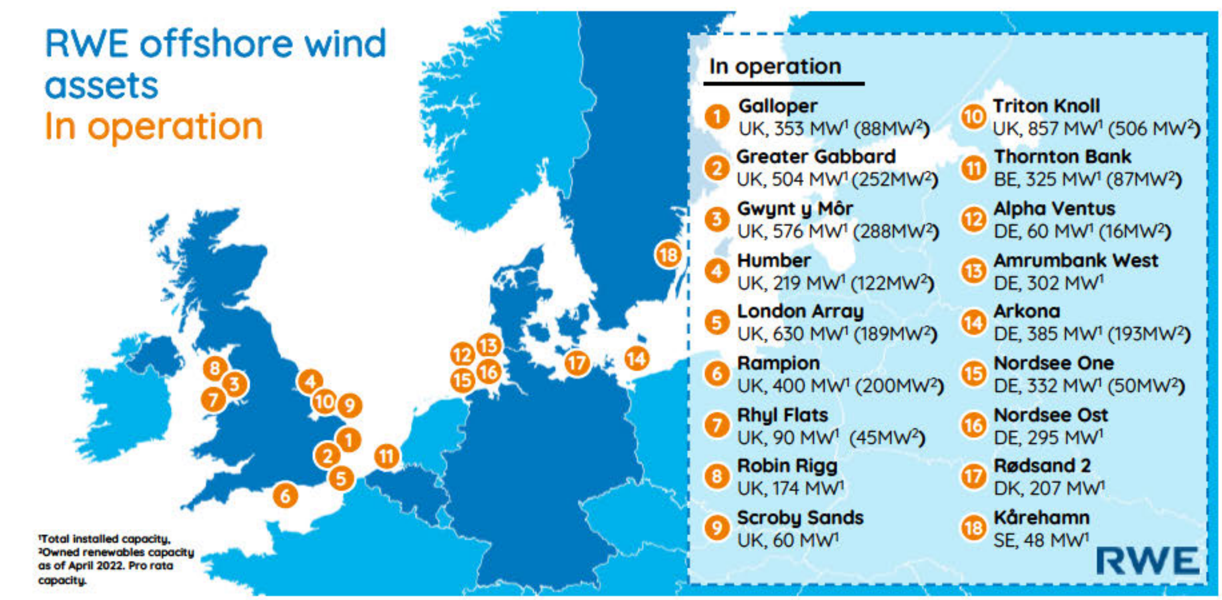
2 https:/ /www.offshore-energy.biz/ny-national-grid-introduces-large-scale-fossil-free-energy-hub-model/

### 3.2.1. Experience in developing

#### Offshore wind

RWE, the second-largest global offshore wind developer, brings decades of direct, relevant offshore wind experience to Community Offshore Wind, which includes long-standing vendor relationships, ample in-house engineers, and cutting-edge technical capabilities. **RWE owns 5.8 GW of offshore wind capacity worldwide**, with a 14 GW pipeline that triples the current operating capacity. This pipeline includes the 1.4 GW Sofia which will be one of the world's largest offshore wind farms. The project is located almost 125 miles (200 km) from shore and relies on HVDC transmission to bring the power to the grid. Another unique project in the pipeline is the **recently awarded over 750 MW Hollandse Kust West** wind farm in the Netherlands, where RWE beat out six competing major offshore wind developers. This project represents **a cutting-edge approach to integrating offshore wind into the energy system** with almost a gigawatt of integrated flexible demand solutions through the use of batteries, hydrogen electrolyzers, and e-boilers.

*Figure 3-3 RWE offshore wind assets*

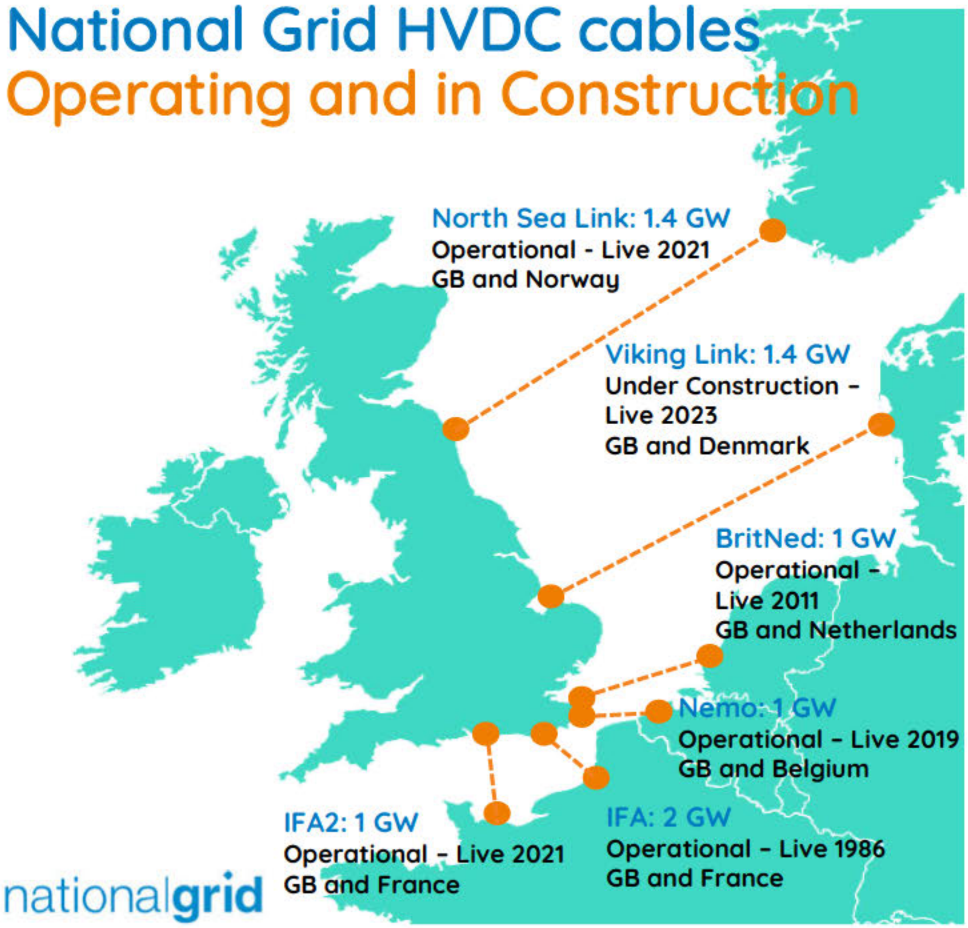



See Appendix 3-1 for a complete list of offshore wind farms that RWE has developed or are in the advanced stages of development.

#### HVDC offshore transmission

Through National Grid Ventures, Community Offshore Wind has unique experience in HVDC offshore transmission, which complements RWE's experience in developing offshore wind specific transmission solutions. In the UK, **National Grid Ventures is the leading developer and operator of interconnectors, with a portfolio of five projects that have a total capacity of 6.4 GW.** These interconnectors are HVDC subsea cables with related converter stations that enable the UK to share excess power with neighboring markets and vice versa. All five interconnectors are developed, constructed, and operated by National Grid Ventures. The first of the five interconnectors, IFA, reached commercial operation date in 1986, demonstrating the history National Grid has with this technology. Additionally, National Grid Ventures is currently constructing a 1.4 GW interconnector between the UK and Europe which, when completed, will be the longest in the world. With this extensive experience, Community Offshore Wind is confident that we have a unique advantage in developing essential HVDC subsea transmission infrastructure for New York.

*Figure 3-4 National Grid HVDC cable portfolio*




### Battery storage

RWE and National Grid Ventures have also grown their capabilities in developing battery storage projects. RWE currently operates 213 MW / 93 MWh of energy storage with more than 575 MW in pre-operational projects globally. RWE seeks to dramatically increase its deployment of storage and has 3 GW of battery storage in its development pipeline.

National Grid Ventures has similar experience of successfully deploying storage. National Grid began developing battery energy storage projects (BESS) in 2013 and has delivered over 240 MW of operating storage facilities and has more than 600 MW of BESS projects in development. **National Grid Ventures jointly developed and constructed the East Hampton 5MW/40MWh and Montauk**

**5MW/40MWh energy storage projects in Long Island, New York**. National Grid Ventures also operates 225MWh of renewables-collocated battery storage capacity at two solar facilities in Texas. In a field with relatively few experienced developers, RWE and National Grid bring the technical knowledge and experience necessary to develop the battery storage component of this project.

### Hydrogen production and distribution

RWE and National Grid are leading the development of new and innovative technologies and applications related to hydrogen. The two companies are developing and deploying pilots and utility-scale projects across Europe, the U.S. and right here in New York.

Building on its reputation for innovation, RWE is a pioneer in the clean hydrogen space and is actively involved in the development of innovative hydrogen technologies and facilities. Several demonstrations and testing facilities are under construction or operational at sites in the United Kingdom, the Netherlands, and Germany; **RWE is currently pressing ahead with around 30 different green hydrogen projects**. The company's positioning along the entire value chain offers ideal conditions for the development of hydrogen infrastructure. Four projects in particular demonstrate RWE's development expertise and ingenuity. GetH2 in Lingen, Germany is the flagship project of RWE's "Growing Green" hydrogen strategy to create electrolyzer capacity of 2 GW by 2030. At Lingen, RWE together with partners is constructing the first 100MW electrolysis plant of its envisioned 300MW facility. In the United Kingdom, RWE is committed to Pembroke, where a new center of excellence for hydrogen is commencing operations at the gas-fired power plant of the same name. The major project NorthH2 on the North Sea coast of the Netherlands aims to use installed offshore wind energy for green hydrogen production, building 4 GW of hydrogen generation capacity by 2030. Proving its commitment to furthering its green hydrogen capabilities, **RWE recently announced its plans to develop 600 MW of electrolyzer capacity as part of its Hollandse Kust West VII offshore wind project in the Netherlands**.

Similarly, National Grid Ventures believes hydrogen will play a larger role, not just in generation, but in decarbonizing the heating and industrial sectors. The company is focused on building capabilities to blend clean hydrogen with renewable natural gas through our existing networks to provide cleaner building heat. In advancing this goal, in partnership with the Town of Hempstead, New York, **National Grid Ventures is already building out one of the largest hydrogen blending projects in the Northeast and one of the first in the country, right on Long Island.** The HyGrid project, which is an expansion of the first hydrogen facility developed in 2009, will significantly grow the hydrogen production capacity in Hempstead and allow for the blending of hydrogen for heating homes and transportation at the same time.

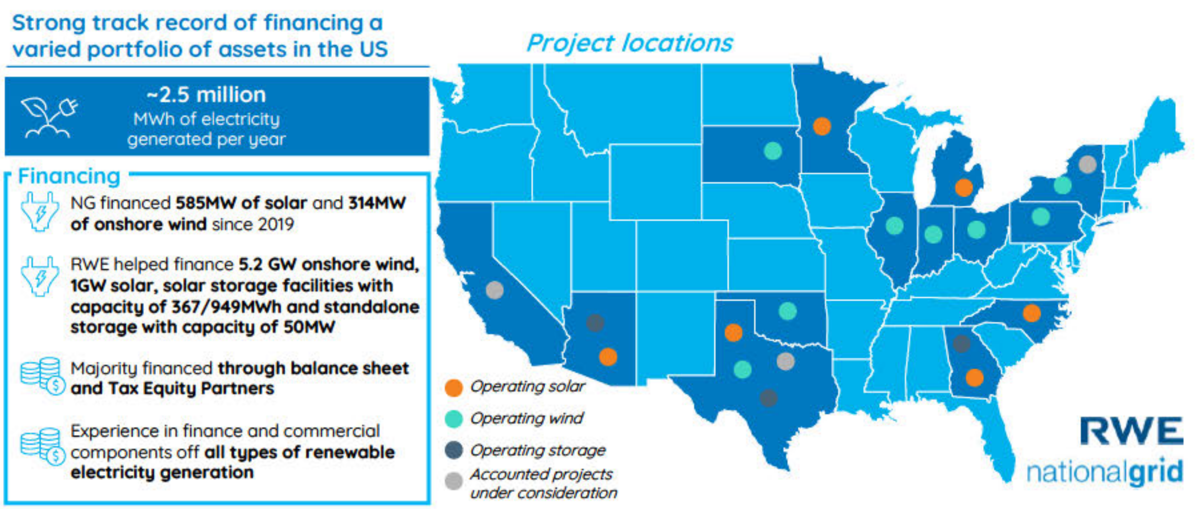
Through these projects, National Grid Ventures and RWE have proven their collective ability to navigate the complexities associated with developing new and yet-to-mature technologies.

### 3.2.2. Experience in financing

RWE and National Grid have successfully financed highly varied portfolios of renewable assets around the world. Both understand there is no one size fits all strategy and that all local market structures and regulations must guide the project. Our partners have, and will continue, to follow a stable and efficient financing strategy. Projects are typically funded with cash from the parent company's balance sheet and supplemented with non-recourse debt raised for European projects, while tax equity partners are utilized for most projects in the United States. While RWE and National Grid have experience throughout the world, financing projects in the United States comes with its own particularities and required knowledge.

RWE has utilized the same strategy to help finance a regionally diversified portfolio, including 5.2 GW of onshore wind, 350 MW of solar, and 70 MW / 70 MWh of battery storage in the United States. RWE is continuing to grow its development pipeline with another 14 GW of onshore wind and 10 GW of PV solar being planned. To fund these projects, **RWE created a Green Bond program issued in 2021 for 2 billion EUR. National Grid has issued 750 million euros of its own green bonds.**

*Figure 3-5 RWE and National Grid: US renewable projects*




Since 2019, National Grid Venture's subsidiary, National Grid Renewables, has financed 585 MW of solar and 314 MW of onshore wind in the United States. For all these projects National Grid secured an outside tax equity partner to monetize federal investment tax credits. This strategy allowed National Grid Renewables to maintain a low cost of capital for projects which translated to a lower burden on both local taxpayers and customers.

With global access to financial markets, RWE and National Grid have the experience to successfully finance projects in the United States, resulting in savings right here in New York for offshore wind.

### 3.2.3. Experience in owning

RWE and National Grid Ventures own a large selection of generation, storage, and transmission assets around the world. These two robust and diverse portfolios represent centuries worth of ownership experience**. Both firms have been responsible owners and managers of New York-based assets,** and through that experience have acquired the local knowledge necessary to successfully execute the Community Offshore Wind project. We are distinctly familiar with the required permitting and stakeholder engagement needs in the State of New York. Through our parent companies' experience, we will be a responsible, knowledgeable, and transparent partner to NYSERDA throughout the entire ownership lifecycle.

#### Renewable generation

RWE developed and continues to own and operate three onshore wind farms in New York. Its first project in the state was the Munnsville Wind Farm, a 34.5 MW project located in Madison County commissioned in 2007. Since then, RWE has significantly increased its footprint. As the first company to receive an Article 10 Certificate for its Cassadaga onshore wind project, with two projects in operation and a third under construction, RWE has shown it is a reliable and trustworthy partner of the state.

Between RWE's robust portfolio of onshore wind and solar projects and National Grid's experience owning transmission and generation assets, Community Offshore Wind is well-equipped to successfully operate alongside and in partnership with the communities of New York.

#### Transmission

National Grid has extensive experience as the owner-operator of regulated electric and gas network and electric generation assets alongside New York's regulatory entities. National Grid's combined regulated asset base in New York is valued at over $23 billion– with around $2 billion invested annually – and serves over four million customers. **The company operates over 53,000 miles of electric lines in the state.** In the transmission space, National Grid is currently developing the Smart Path Connect project in partnership with the New York Power Authority to de-bottleneck an additional 1 GW of clean energy generation in upstate New York. In addition to Smart Path Connect, National Grid has had 15 successful transmission project CECPN (Certificate of Environmental Compatibility and Public Need) and EM&CP (Environmental Management and Construction Plan) approvals since 2000.

#### Fossil generation

National Grid Venture's relationship with New York also includes its ownership and operation of conventional generation assets on Long Island through National Grid Genco. The generation fleet currently consists of eight steam units totaling 2,200 MW and forty-two gas turbine/diesel units totaling 1,600 MW at ten sites across Long Island, the majority of which serve the Long Island Power Authority (LIPA) through long-term power supply agreements at cost-based formula rates. The fleet provides nearly two-thirds of the Long Island Power Authority's capacity needs during summer capability periods and over half of LIPA's energy during peak periods. **National Grid Genco has a strong partnership with IBEW local 1049 and employs 550 people to operate and maintain the units which boast excellent reliability: the steam units average well above 90% annual availability despite their age and the gas turbines have a starting reliability above 97% despite relatively high usage.** National Grid looks forward to developing the next generation of renewable assets, building upon its long-standing relationships with its employees, local communities, and the regulatory agencies of New York.

### 3.2.4. Experience in operating

Operating sophisticated renewable generation assets is a core capability of both National Grid Ventures and RWE. Both companies recognize the importance of maintaining an exemplary record of operational excellence and health and safety and have demonstrated a track record of success. **RWE**

**has pioneered best practices in offshore wind operations and maintenance, and both firms have achieved very strong results in health and safety metrics.** The operations and maintenance and health and safety expertise of both firms will be leveraged by our team to ensure we deliver clean energy reliably and safely to the communities of New York.

Building on our commitment to responsible ownership of New York State generation assets. Community Offshore Wind will base its project office in New York City, establishing high paying renewable energy jobs right here in New York. **RWE plans to establish its American headquarters in the New York City area should our project obtain an offtake contract with the State of New York.**

### 3.2.4.1. Operations and maintenance excellence

Leveraging RWE's industry-leading offshore wind operations and maintenance protocols and National Grid Ventures' unique expertise operating HVDC transmission and substation assets, we bring superior operations and maintenance capabilities to the table. The two firms have not only contributed to the development of best-in-class practices but have also demonstrated the ability to apply and adapt existing procedures and develop new capabilities to address local constraints and challenges when entering new markets. Together, RWE and National Grid Ventures have the prerequisite knowledge, people, and processes in place to ensure safe and reliable operations of utility-scale generation and transmission assets.

We will take advantage of the combined expertise of the parent companies to develop and implement the in-house operations and maintenance capabilities necessary to decrease downtime during development, construction, and operation of the project. The operations and maintenance strategy to be employed by Community Offshore Wind builds upon the core tenants of the RWE and National Grid Ventures operations and maintenance strategy. That strategy includes among other things, (1) ensuring modularity in design to avoid whole system shutdowns, (2) implementing an up-front spare parts strategy, spending capital up front to avoid long lead times in supply chains, and (3) leveraging predictive analytics, combining in house data and original equipment manufacturer (OEM) specifications to schedule replacements before outages occur.

This strategy led to industry-leading uptime across the two companies' offshore wind facilities and subsea interconnectors. [redacted].[3] The ability of both firms to maintain high uptime of their respective assets is largely due to the experience of their teams and their ability to seamlessly apply best practices and learnings from that experience across new markets.

In the past, RWE and National Grid Ventures have built robust in-house operations and maintenance capabilities and established operations and maintenance functions locally when entering new markets. Applying a similar approach in New York will help to meet local content and development requirements within the project and ensure operations and maintenance protocols are modified to address local requirements. RWE currently operates offshore wind farms in five different countries and is in the process of building out projects in another three jurisdictions. In each instance, the company adapted

3 https://www.nationalgrid.com/document/148586/download

procedures to meet the needs and challenges associated with the new market. RWE navigated these complexities with ease as illustrated by its industry-leading availability factors above.

Moreover, RWE has experience leveraging the local workforce and suppliers to meet its operations and maintenance needs. For instance, at Triton Knoll – the latest of RWE's offshore wind facilities to enter operation – 75% of all employees live within a 40-mile radius of the onshore operations hub in Grimsby, U.K. and over 50% of the operations and maintenance construction and port upgrades were completed using local labor and supplies. The RWE team was able to exceed local labor and materials targets thanks to its robust recruiting and onboarding programs as well as its deep commitment to support the communities in which it operates. Its recruitment program targeted employees with experience in direct and indirectly related fields. This strategy included oil and gas, petrochemical, fishing, steel production, and aluminum industries for office positions and technical teams, while the onboarding and training program provided new hires with 12 to 18 months of wind-specific training. RWE also built up the local talent pipeline by investing in technical college apprenticeship programs and high school graduate experiential learning opportunities. Through a strong recruitment program and on-the-job training, RWE was able to strengthen Grimsby's local economy. We will look to build upon RWE's success in the United Kingdom and leverage the tools it has developed to exceed local labor and content targets in New York State.

National Grid Ventures demonstrated similar success in adapting operations and maintenance practices to meet local needs through the operation of its five HVDC interconnectors and three competitive transmission assets. Through its interconnector business, National Grid Ventures worked in four different countries staffing and supplying its operations and maintenance practice with local labor and content. In 2021, National Grid commissioned the North Sea Link (NSL) interconnector, a 1.4 GW capacity transmission line stretching 720 kilometers under the North Sea from the United Kingdom to Norway. NSL was the first in-house operations and maintenance practice developed by National Grid Ventures for its interconnector business. The team was fully staffed with local labor to ensure employees could respond promptly when on-call and to build out the local resource pool. New hires were brought in 12 to 18 months prior to the commercial operation date to get them up to speed. National Grid co-developed a robust training program with its tier 1 supplier Hitachi that included extensive shadowing and on-the-job training. The early engagement of the operations and maintenance team provided them with experience in the commissioning process and allowed the team to fill in when members of the project development team left but before new hires could be onboarded. The approach taken for North Sea Link minimized the overall cost of the operations and maintenance program by reducing the number of subcontractors, ensured all personnel were adequately trained and authorized, provided the team with more oversight of control standards, and increased accountability across the operations and maintenance practice all while growing the businesses in-house expertise. The North Sea Link experience is indicative of National Grid Ventures' ability to develop, staff, and implement new operations and maintenance practices and can inform the approach taken here in New York.

Together, National Grid Ventures and RWE bring decades of offshore wind and transmission operations and maintenance expertise along with a proven ability to stand up necessary capabilities when entering new markets across the globe and right here in New York. Leveraging this deep expertise, Community Offshore Wind can ensure safe and reliable operations of the wind farm from development through decommissioning.

[redacted]

#### 3.2.4.2. Health and safety commitment

We have a culture of health and safety which it brings from its two parent companies and is built around ensuring a safe work environment for its employees as well as delivering a safe, reliable, and resilient system for the communities it serves. The practices, protocols, and commitments made by RWE and National Grid will form the foundation of Community Offshore Wind's own health and safety culture.

### National Grid

The health, safety, and wellbeing of employees and contractors is the primary concern and a key priority for everyone at National Grid. The company firmly believes that any safety incident is one too many and continuously works to improve its performance through effective policies, standards, procedures, and training. National Grid liaises regularly with Occupational Safety and Health Administration (OSHA) in the US, along with the relevant state regulators, and the Health & Safety

4 Figure low as a result of fire at transformer facility

Executive in the UK. It engages extensively with its workforce on health, safety, and wellbeing (HSW) topics and conducts annual surveys relating to safety arrangements. Health, safety, and wellbeing matters are fully integrated into a broad range of training and competence assessments, and National Grid works collaboratively with trade unions. In the US, there are safety policy committees (SPCs) where National Grid engages with unions on a range of safety topics. In both cases, National Grid consults on policy introductions or changes with the unions. National Grid's prioritization of safety is supported by its occupational safety business management system (BMS) standard. This protocol ensures that no matter where National Grid's colleagues or contractors work, they can expect to receive a consistent and high level of protection for their safety. In support of these principles and commitments National Grid stood up and implemented several business management practices, incident management systems, and reporting protocols.

National Grid measures health, safety, and wellbeing performance through a combination of leading and lagging indicators with lost time injury frequency rate as the core KPI for the business. All key metrics are reported bi-monthly to the executive committee and quarterly to the board safety and sustainability committee. To ensure that metrics are aligned with changing circumstances, there is also a 'deep dive' annual review across health, safety, and wellbeing metrics at both the board and executive committee level. For 2021, National Grid reported a lost time injury frequency rate (LTIFR) of 0.13 hours per 100,000 hours worked and zero fatalities demonstrating its ability to deliver on its HSW commitments to its employees.

National Grid Ventures tracks key metrics to ensure it meets the same standard and precedent set by its parent company. The most important metrics include lost time incident frequency rate (LTIF), high potential controllable events (HPCE), public injuries, tier 1 and 2 process safety events, and category 1 environmental incidents. Records for the last two years along with descriptions of the relevant metrics are identified in [redacted]

National Grid is also committed to safely and reliably serving its communities. Public safety is a key priority for the business, and the relevant risks are scrutinized at each PLC board meeting. 'Catastrophic asset failure resulting in a significant safety and/or environmental event' are identified as a 'Principal Risk' of the business and mitigated appropriately. National Grid operates an extensive process safety approach and carries out risk assessments in relation to all the hazardous operations in its portfolio. The company tracks and records all injuries to members of the public connected with its operations and activities and during 2021/22, reporting only one injury to members of the public. Reliability and resilience of National Grid's networks is a part of its regulatory duty, but also its social contract. The company has detailed and tested incident response plans in response to extreme weather events and measures network reliability separately for each of its business areas. Both its UK and US networks continued to maintain excellent reliability, achieving over 99.9% reliability across its US and UK transmission and distribution assets.

[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] |

## RWE

Health, safety, and environment is a core value at RWE. It is incorporated into all aspects of what RWE does, from development and construction to corporate culture and management. RWE has been, and continues to be, a health, safety, and environment leader in the offshore wind industry. Under Marcus Peters leadership – RWE's Head of HSE Offshore and HSE Culture & Contractor Engagement – RWE became a founding member of G+ Global Offshore Wind Health & Safety Association and is an active member of health and safety working groups in WindEurope (formerly known as European Wind Energy Association). RWE is also engaged in the ACP (American Clean Power), Global Wind Organization, Renewables UK Wind Association, and SafetyOn (health and safety group for the onshore wind sector). RWE's Global Head of health, safety, and environment offshore, and current Community Offshore Wind project team advisor, is the lead for "G+ Safe By Design" workshops, looking at design issues identified by industry professionals and driving industry-led solutions aimed to improve offshore wind health, safety, and environment standards.

[redacted]

Additionally, RWE Renewables closely monitors and reports its total recordable incident frequency rate (TRIF), which sums all recordable incidents per one million hours worked. Since 2019, RWE recorded zero high incidents and a total recordable incident frequency rate of zero within RWE PV Americas and RWE's US onshore wind construction. See Figure 3-6 for safety information on RWE Renewables globally. [redacted]

RWE brings with it robust risk management within the lifecycle approach for offshore wind, embedding health, safety and environment resources into the project origination and development teams and ensuring that risk management tools are used to analyze designs and project layouts. Additionally, team members consider health, safety and environment in planning, evaluating designs, and methods of working; to identify, record, and assess health, safety, and environment risks while implementing suitable controls. Hazard studies are also built into the development and construction programs that are run by independent Hazard Study leads.

We will adopt these best practices around employee health and safety and system reliability to ensure the safe and reliable operation of its offshore wind assets.

#### 3.2.4.3. RWE's experience as a NYISO market participant

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

### 3.2.5. Assets owned by RWE & National Grid

We have assembled a full collection of assets owned by RWE AG and National Grid by Appendix 3-1.

## 3.3. A developer with the legal and governance structures to work effectively

### 3.3.1. Legal, finance, and ownership structure

[redacted]

[redacted]

[redacted]

### 3.3.2. Right to submit a binding proposal

Community Offshore Wind, LLC (the "Proposer") hereby certifies that it has obtained all necessary internal approvals, as well as the requisite external approvals from its respective shareholders, to submit this binding proposal. Full documentation of this authorization is available in Appendix 3-2 and Appendix 3-2.

### 3.3.3. Our standing with The New York State Join Commission on Public Integrity

#### RWE

No RWE entity has ever been investigated or disciplined by the New York State Join Commission on Public Integrity

#### National Grid

In June 2013, affiliates of National Grid Ventures, National Grid's New York utilities, reached a settlement with the New York State Joint Commission on Public Ethics over alleged violations of the New York State Lobbying Law. As part of the settlement, National Grid agreed to pay a fine of $25,000 and implement ethics training. To the best of National Grid Ventures' knowledge, no other shareholders of 5% or more, parents, affiliates, or subsidiaries of National Grid Ventures have been the subject of any investigation or disciplinary action by the New York State Join Commission on Public Integrity or its predecessor State entities.

#### 3.3.4. Community Offshore Wind's board of managers

Community Offshore Wind is governed by the board of managers which consists of eight members: four representatives from each partner company. In addition, up to four observers can be appointed from each parent company. The structure and composition of the board of managers were selected to allow for efficient decision-making within the board and the parent companies' organizations. The inclusion of senior executives that also serve in critical decision-making bodies within National Grid Ventures and RWE ensures Community Offshore Wind's fast turnaround on critical decisions and vigorous senior management attention when required.

*Table 3-4 Community Offshore Wind board of managers*

| [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] | |

The Community Offshore Wind board has collectively more than 100 years of experience in the wind industry and an unparalleled breadth and depth of knowledge within the energy and utility sectors. The board was equally selected to ensure the highest level of expertise across critical business functions including project development, finance, construction, and operations. The makeup of the board, as presently constituted, can be found in Table 3-4. The composition of the board reflects our commitment to, and belief in, the importance of diversity of thought and experience at the highest levels.

The board also brings a deep working knowledge of the state of New York, positioning us to navigate the complexities and nuances of developing this project in New York. For a full list of members see below. For complete bios, see Section 3.6.

*Table 3-5 Community Offshore Wind officers*

| [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] |

### 3.3.5. Diversity, equity, and inclusion plan for future board selections

Community Offshore Wind's parent companies, RWE and National Grid, prioritize diversity, equity, and inclusion (DE&I) and recognizes the critical role it plays in enhancing the value we can provide to our customers, employees, and stakeholders. Both companies are active in supporting diversity, equity and inclusion across internal and external networks and have earned international awards and recognition for their successful practices. Supporting an inclusive and diverse workforce is embedded in the practices, values, and missions of both RWE and National Grid.

In its 2020 Charter, National Grid committed to several diversity, equity and inclusion goals related to its workforce, including achieving 50% diversity in senior leadership and 50% diversity in all talent programs by 2025. Moreover, a 50% diversity target was set for the group executive committee, ensuring pay practices do not show bias with public reporting on recruitment, promotion, progression, and leaver rates by gender and ethnicity/race. Prompted by these overarching objectives, National Grid Ventures made several diversity, equity and inclusion commitments including improving gender and racial diversity across the organization. This was done by assessing baselines and setting aggressive targets to increase the percent of diversity hires, females in management positions, racial and ethnic diversity in management, and reduce the percent of voluntary attrition of women and ethnic and racial minorities.

RWE brings a similar culture and commitment to diversity in the workplace. The firm's success is driven by the development of unbiased processes for attracting and selecting diverse talent, proactive succession planning for diverse leadership, and the creation of measurable goals. The latter includes increasing the share of women in management positions to 30% by 2030.

*Table 3-6 Diversity amongst officers and directors in National Grid Ventures and RWE*

| Gender | Total officers and directors |
|---|---|
| Female | 5 |
| Male | 12 |
| **Race** | **Total officers and directors** |
| White | 17 |
| Other | 0 |

These practices, values, and missions extend to and are fully embedded within Community Offshore Wind. From our conception, we worked to foster a welcoming, respectful, and inclusive workplace that reflects the principles, goals, and aspiration of our parent companies. We strive to create a diverse and inclusive culture and workforce that is representative of the communities in which we operate. We treat everyone fairly and equally, without discrimination on the grounds of race, age, role, gender, gender identity, color, religion, country of origin, sexual orientation, marital status, dependents, disability, social class, or political views. This includes consideration for recruitment, promotion, reward and benefits, training, or retirement. **We will appoint all new board members and officers in accordance with the leading diversity, equity and inclusion practices of our parent companies, National Grid and RWE.**

We are committed to ensuring a diverse, equitable, and inclusive workplace and established diversity, equity and inclusion goals that reflect those values. That commitment extends not only to officers, board members, and trustees but to the general and limited partners, officers, directors, managers, members, and any joint venture owners with financial interests. Table 3-6 identifies the race and gender breakdown of the Community Offshore Wind team as it exists today.

## 3.4. A project team that embodies the unique experience of the owners

RWE and National Grid have extensive experience developing complex, utility-scale projects in New York and across the world. We have and will continue to leverage this expertise through the appointment of experienced personnel from both companies into key management positions and across all business functions: e.g., finance, project development, operations, and stakeholder engagement.

### 3.4.1. Management team

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## 3.5. A partner with a reputation for delivering on its promises

### Legal considerations

As of the end of the fourth quarter of 2022, neither Proposer nor either of its direct parent companies are currently a party to any litigation in the United States relating to any projects planned, developed, owned, or managed by Proposer or its direct parent companies. [redacted]

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# 4. Project description and site control

## 1 Table of contents



## 2 List of tables



## 3 List of figures



## 4 List of appendices

## NYSERDA solicitation requirements

Our site plan addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP) while ensuring the reliability of the overall project. The table below identifies each solicitation requirement.

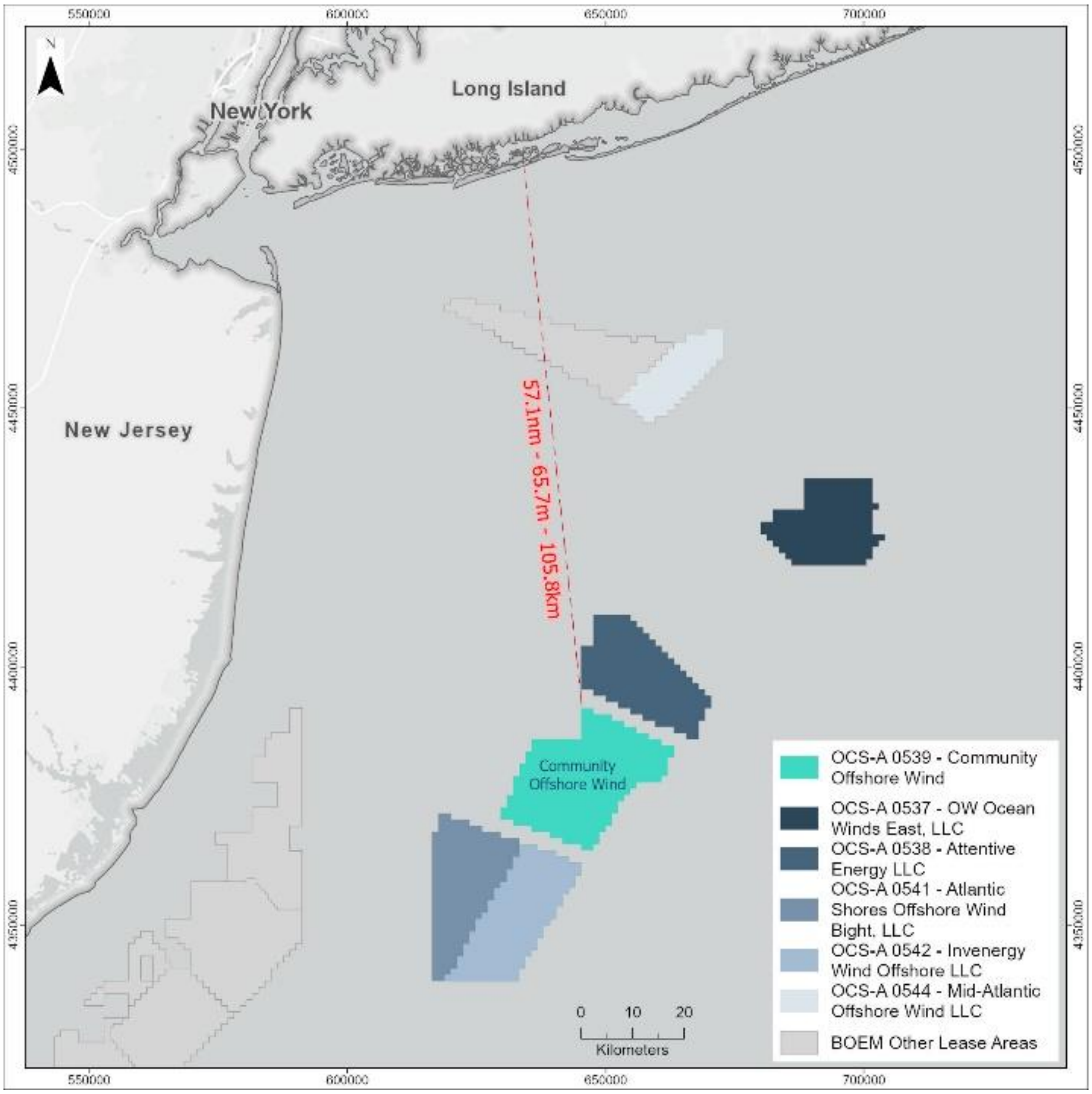
*Table 4-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| Identify the BOEM wind energy area where the proposed Offshore Wind Generation Facility will be located. Provide documentation that Proposer has a valid lease or irrevocable lease option to develop the leased area within this wind energy area over the entire Contract Tenor. | 4.3 |
| Provide a site plan (or plans) including a map (or maps) that clearly identifies the location of the proposed Offshore Wind Generation Facility, collection facilities, offshore substation and Meshed Ready facilities, offshore and onshore route of the generator lead line to the interconnection point, converter station(s), and the assumed right-of-way width. Identify the anticipated Injection and Delivery Point(s), support facilities, and the relationship of the Injection and Delivery Point(s) to other local infrastructure, including transmission facilities, roadways, and waterways. | 4.4 |
| Identify any rights that Proposer or its development partner has at the Injection and Delivery Point(s) and for the generator lead line right of way. Identify any additional rights that are necessary for interconnection and for the generator lead line right-of-way. | 4.3 |
| The site plan should also illustrate the location of all onshore and offshore equipment and facilities and clearly delineates the turbine array and perimeter of the area in which offshore wind turbines will be placed. | 4.4 |

## 4.1. Favorable geographic conditions for a wind farm and transmission system

The Community Offshore Shore lease (BOEM OCS-A-0539) area is located in waters 66 miles (106 km) south of Long Beach as demonstrated in Figure 4-1.

*Figure 4-1 Lease area*

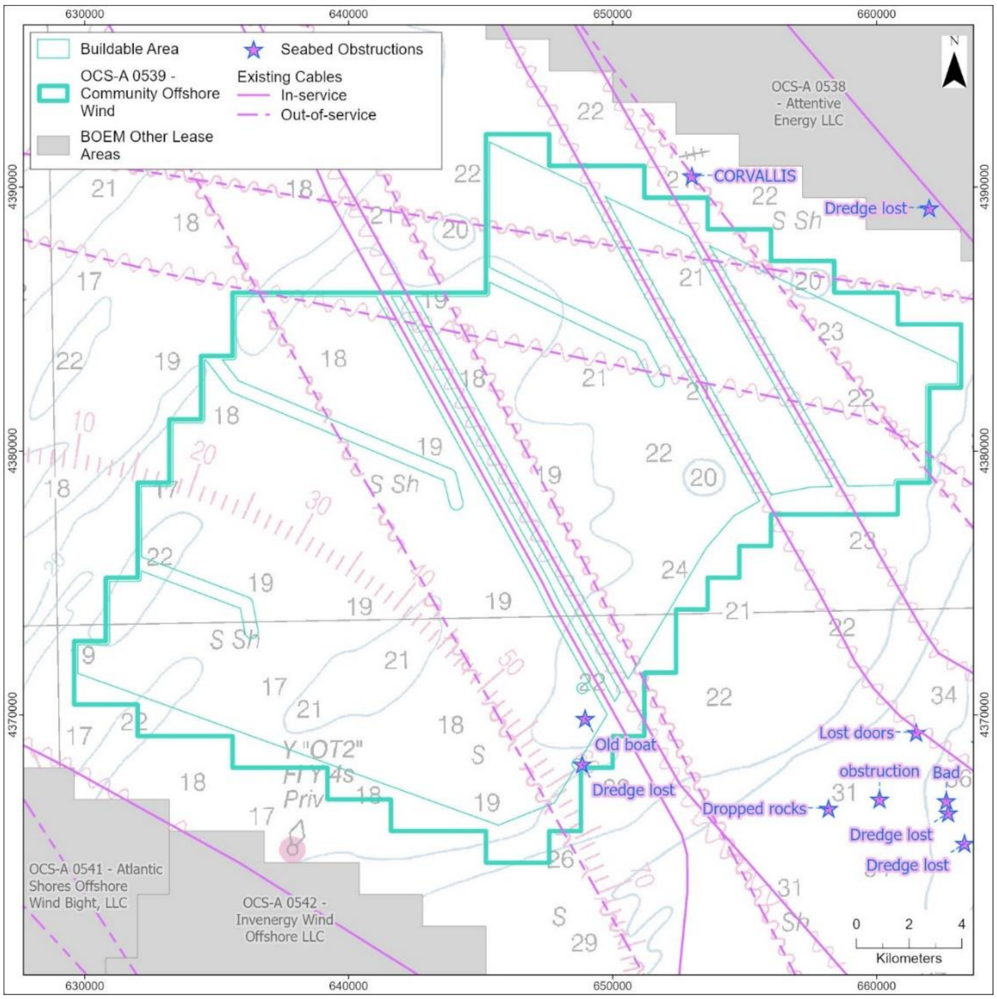



The lease site's seafloor is generally a uniform sandy bottom with depths ranging from 101 feet (31 m) to 167 feet (51 m). To date, we have identified limited physical constraints such as wrecks, rocks, or other physical features, which we anticipate will allow for full utilization of the lease site. We have contracted Fugro to begin detailed geophysical and environmental surveys on the site beginning in January 2023.[5]

5 https://www.fugro.com/media-centre/news/fulldetails/2022/11/21/fugro-strengthens-leading-position-in-us-offshore-wind-market

As shown in Figure 4-1 the lease is immediately surrounded by three other sites to the southwest and northeast. While this is oriented along the predominant wind direction, our wind wake modeling (see Chapter 5) allows us to accurately model the effects of these wind farms.

*Figure 4-2 Working area of lease site*




## 4.2. Limited stakeholder interplay

The total area of the lease site BOEM OCS-A-0539 awarded by the Bureau of Ocean Energy Management (BOEM) is 197 square miles (509 km$^2$). As shown in Figure 4-1, the lease site has an irregular shape with boundaries laid out in incremental cardinal direction steps. **After consultation with local marine and fishery stakeholders, the BOEM adjusted the working area of our lease site to establish smooth edge boundaries that enable ships and bottom-dredging fishing vessels to maintain constant headings in transit through the site.** This adjusted working area is shown in Figure 4-2 with the light green line. The adjusted size of the lease area is 179 square miles (462 km$^2$).

### Vessel traffic

Our lease site does not border any of the shipping lanes radiating out from the entrance to the Port of New York or New Jersey in the Lower New York Bay. As such, we do not anticipate heavy vessel traffic through the site. Most of the activity is limited to fishermen, both within the lease area and in transit to fishing areas further offshore.

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### Local fisheries

Within the lease area, there are two active commercial fisheries that rely on bottom dredging: Atlantic Sea Clams and Scallops. These fisheries support local economies in several states and their continued stability plays a critical role in the design, construction, and operation of the wind farm. **To ensure compatibility with current fishing practices** and the protection of the wind farm infrastructure, **we will construct our project in a grid manner with a northeast-southwest axis to enable unobstructed dredging running through the lease site.** The use of bottom dredging in our site will also require the target burial of all inter-array and export cables at a minimum 6 feet (~1.8 meters) below the surface. See Chapter 14 for a detailed description of our fisheries mitigation plan.

Further offshore, to the east of our lease site, there are additional economically important fisheries. To enable unencumbered access to these sites, the BOEM designated navigation corridors to allow for quick and efficient access to these fishing grounds (see subsection about vessel traffic above).

### Third party subsea cables and other objects

We identified four active communication cables crossing our lease area and have consequently built-in setbacks to our turbine array plan. We identified the owners of these cables and have prepared an engagement plan for them including the technical solutions for cable crossing and contractual requirements.

Sections of all out-of-service cables will be removed when crossing our assets, in line with industry standard procedure. Effective mitigation measures will be developed if other objects that could interfere with offshore wind installation are found.

### Wrecks and archaeological findings

Based on desktop studies and NYSERDA site survey data, no wrecks or archaeological features have been identified in our lease area. Local fishermen have contributed with knowledge of two small seafloor obstacles to our site study. Should we encounter a wreck during our site investigation, we will consider how best to protect the wreck during construction, including possible relocation of the wreck or altered placement of our turbines.

## 4.3. A rights and lease plan that faces minimal permitting and leasing hurdles

We secured the lease rights to the proposed wind farm area following the February 2022 BOEM seabed lease auction. For a full list of the proposed permitting and leasing requirements, see Chapter 10.

### Lease area

Community Offshore Wind secured lease area OCS-A 0539 in the offshore auction organized by the Bureau of Ocean Energy Management, a department of the United States Department of the Interior. The lease was sent to Community Offshore Wind and released publicly on April 18th with an effective date of May 1st, 2022, as seen in appendix 4-1. At the time of the lease signing, the joint venture Community Offshore Wind LLC operated under the name of Bight Wind Holdings LLC. Formal documentation of the entity name change can be found in appendix 4-2.

### Right of way

The export cable path, both offshore and onshore, will require us to secure additional access rights. [redacted]

### Delivery point

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## 4.4. Site plan

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The [redacted] proposal will inject into the [redacted] The offshore cable route will require [redacted]

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To reach the final interconnection site, we have specified a route that will require [redacted] of onshore cable. Of this length, [redacted] of the route run underneath roads along public right of ways, with no required crossings of waterways. [redacted]

# 5. Energy resource assessment and plan

## 1 Table of contents



## 2 List of tables

## 3 List of figures



## 4 List of appendices

### NYSERDA solicitation requirements

Our in-depth study of our procedure to create a thorough annual energy prediction (AEP) analysis addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP). The table below identifies each solicitation requirement.

*Table 5-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| Provide a summary of all collected wind data for the proposed Offshore Wind Generation Facility site. Identify when and how (e.g., meteorological mast or LiDAR – for "Light Detection and Ranging) the data was collected and by whom. | 5.2. |
| Indicate where the data was collected and its proximity to the proposed Offshore Wind Generation Facility 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 data collection efforts that are planned or ongoing. Provide at least one year of hourly wind resource data in a working Excel file (the required Wind Resource Data attachment). Data collected from the site is preferred, though projected data is permissible. The method of data collection must also be included. | 3.3. |
| Provide a wind resource assessment report for the Proposed Offshore Wind Generation Facility site. Include an analysis of the available wind data which addresses the relationship between wind conditions and electrical output. Provide a site-adjusted power curve. Each curve should list the elevation, temperature and air density used. | 3.3. |
| Provide a justification for the selected P10 Annual OREC Excedance value based in the Wind Resource Data for the Project. Provide the basis for the delivered energy profile presented in Part III of the Offer Data Form relative to the P50 generation profile, including a reasonable assessment of potential/expected curtailment in addition to losses. Describe measures to identify and control the regulatory and operational risks related to the delivery of energy from the Offshore Wind Generation | 3.3.4. |

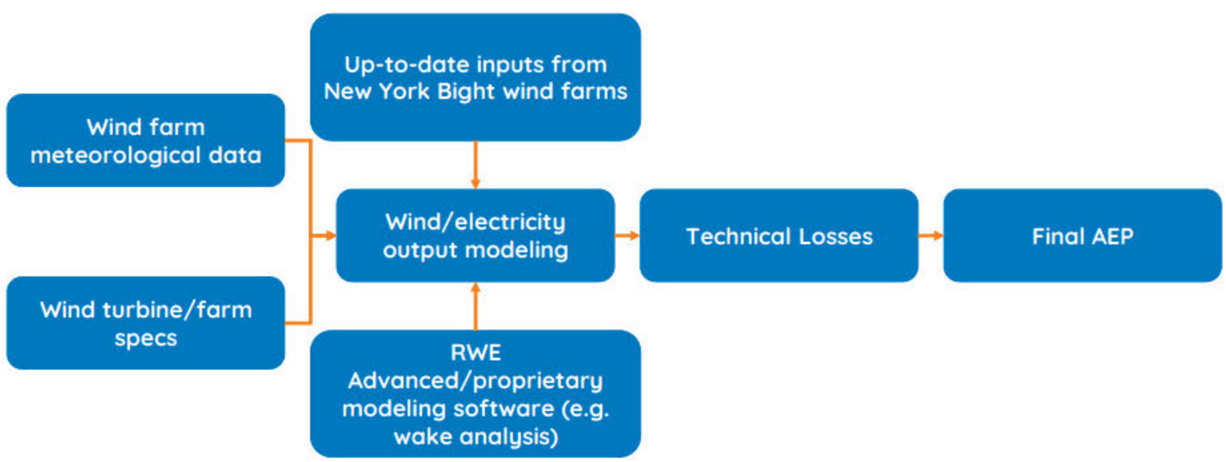
## 5.1. Summary

We affirm that we can be a trusted partner of NYSERDA by providing reliability, consistency, and adaptability, as well as state-of-the-art evaluations in our energy assessments. We are confident in our ability to provide rigorous energy assessment figures from year one of the project all the way through the end of the project's useful life, even as conditions evolve in the New York Bight.

We rely extensively on our parent company RWE's cutting-edge experience in wind farm modeling to provide NYSERDA with the most reliable annual energy production figures. Combining their expertise on wind resource, energy conversion, and wake modelling with data from over 18 completed projects, representing 5.8 GW of capacity, RWE has developed a robust process. This process leverages proprietary cluster wakes and global blockage modeling software with high-precision output modeling to realistically and accurately forecast energy potential.

[redacted]

*Figure 5-1 Assembly process for final annual energy production figures*




Our process starts with wind farm data collected via NYSERDA placed LiDAR stations in the New York Bight, with the Hudson South buoy directly placed in Community Offshore Wind's lease site. This data is then filled and adjusted with other local meteorological data sources. We then introduce the planned turbine height, and the power curve is calculated according to the rotor diameter. [redacted]

[redacted] provides an overview of the main results of this study. The metadata of the wind farm, including turbine type, is described in the upper third of the table and is followed by the calculated energy yield figures including wake losses and technical deductions. The calculated long-term annual energy yields, including exceedance probabilities based on various averaging periods, are presented in the lower third of the table.

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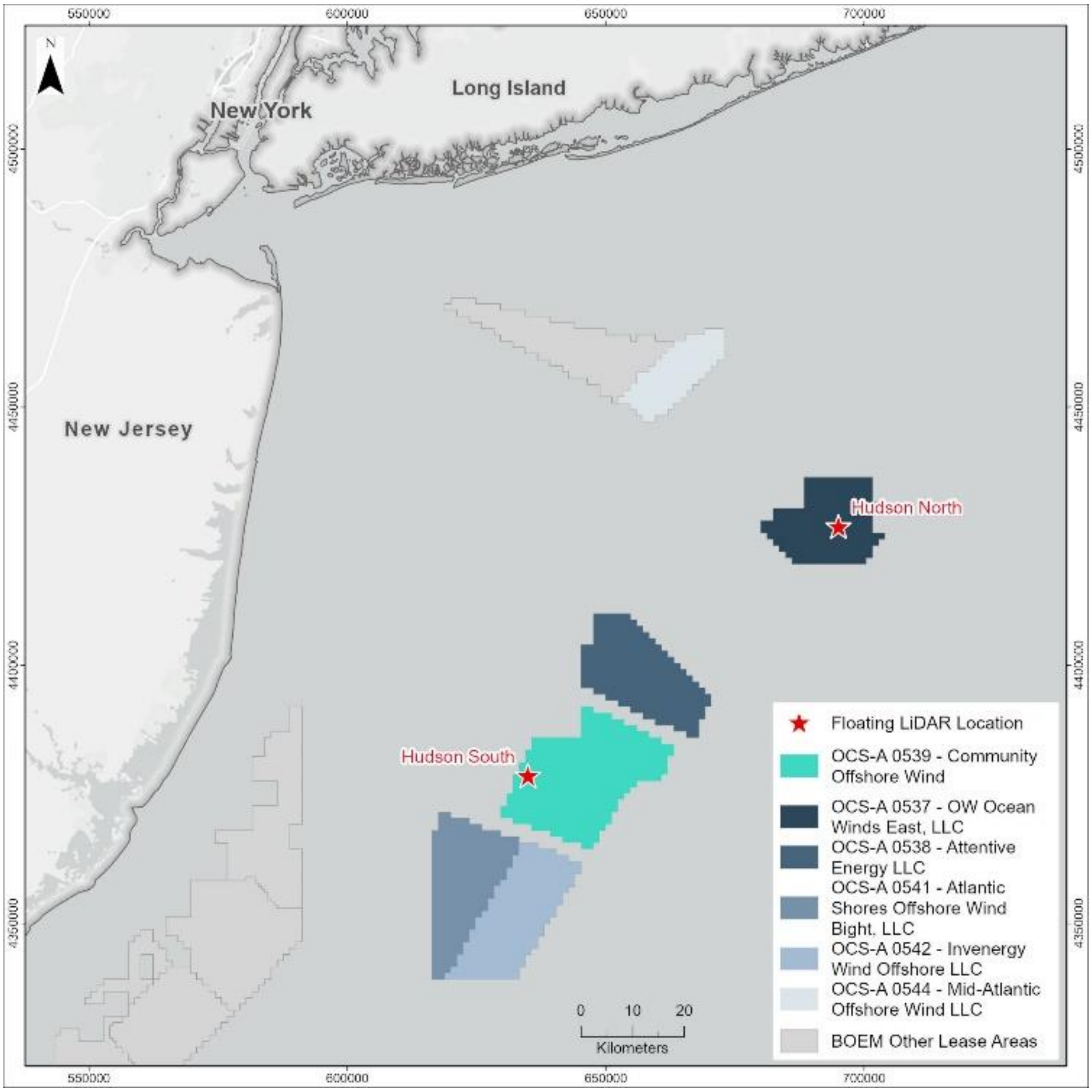
## 5.2. Wind measurements on site

Table 5-3 shows the Floating Lidar System (FLS) units - EOLOS FLS-200 buoy. At the time of measurement, this unit type was certified as Stage 2 of the Carbon Trust's Offshore Wind Accelerator (OWA) road map for commercial acceptance of floating LiDAR. It has now attained Stage 3 as a commercially accepted unit.

*Table 5-3 Measurement campaign study*

| Floating LiDAR | LiDAR model | Measurement's heights (in m AMSL) | Latitude | Longitude | Measurement period |
|---|---|---|---|---|---|
| Hudson North | ZX300M | 20, 40, 60, 80, 100, 120, 140, 160, 180, 200 | 39.55 N | 73.43 W | August 2019 to September 2021 |
| Hudson South | ZX300M | 20, 40, 60, 80, 100, 120, 140, 160, 180, 200 | 39.97 N | 72.72 W | September 2019 to February 2022 |

Figure 5-2 Lease areas map and Floating Lidar System unit positions




## 5.3. Wind data summary

In the following subsections, the analysis of the measured data from Hudson North (H-North) and Hudson South (H-South) Floating LiDAR System (FLS) units are presented and discussed in detail. A description of the onsite measurement campaigns and data processing is also provided. Vertical variation of wind with height is analyzed, and a range of data sets are investigated to adjust the 30 months of measured data to be representative of the lease site. The analysis's key points are summarized below.

The data supplied is already pre-processed using the manufacturer's standard algorithm to convert lidar doppler returns to wind speeds. The full system including the standard processing has undergone pre-deployment validation against a met mast in the United Kingdom, RWE internal data quality control checks were then applied.

[redacted].

Extrapolation of measured data to the required hub height was performed. The shear calculation being based on the nearest heights to hub height. A long-term correction against reanalysis/modeled data was applied as a scaling factor for each measurement location.

### 5.3.1. Data processing

*Figure 5-3 EOLOS FLS-200 buoy (DNV, 2022)*

The following sub-sections provide an overview of the data processing implemented by Community Offshore Wind on the FLS units' raw data sets to provide the basis of the wind conditions at turbine hub height.

### 5.3.1.1. Shear analysis and hub height wind speed

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The use of modelled/re-analysis data as sources of long-term reference is becoming increasingly standard practice. An internal validation has highlighted the excellent performance of these long-term data sources offshore, given that adequate checks for consistency are made.

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[redacted] It also exhibited the lowest standard deviation of the mean bias error (MBE) in multiple slice self-prediction testing, which is taken as a measure of the uncertainty of the correlation. Lower uncertainty in the correlation gives higher confidence in the long term adjusted dataset.

[redacted]

The wind conditions at turbine hub height were estimated based on extrapolating the wind speeds at the measurement height of [redacted] This is undertaken for both the H-North and H-South FLS units independently. The Northern location is concluded to have slightly higher wind speeds. [redacted]

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#### 5.3.1.4. Turbulence

It is widely accepted that turbulence intensity (TI) from LiDAR devices (volume measurements), particularly buoy mounted ones, are not directly comparable to TI measurements from meteorological masts using cup anemometers (point measurements). Cup measurements currently remain the wind industry standard. [redacted]

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sensitivity of energy yield variation against measured TI. Furthermore, [redacted]

## 5.4. Wind farm description

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[redacted] It therefore is a realistic assumption for the efficiency of a [redacted] The power curve's characteristics as used in this energy yield assessment are summarized [redacted]

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## 5.6. Gross energy calculation and wake modelling

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## 5.7. Technical losses

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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] | |

# 6. Operational parameters

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There are no appendices for this chapter.

## NYSERDA solicitation requirements

Our proposed operations and maintenance concept addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP) and strengthens our position as a reliable operator and maintenance provider. The table below identifies each solicitation requirement.

*Table 6-1 Solicitation requirements*

| Solicitation requirement | Section |
| --- | --- |
| Provide partial and complete planned outage requirements in weeks or days for the Offshore Wind Generation Facility. Also, list the number of months required for the cycle to repeat (e.g , list time interval of minor and major overhauls, and the duration of overhauls). | 6.3. |
| Provide all the expected operating constraints and operational restrictions for the Project, the reason for the limitation, and characterize any applicable range of uncertainty. | 6.4. |

## 6.1. Summary

We are committed to ensuring our project will safely and reliably deliver electricity into New York State over its full lifetime and with best-in-class availability. **We are confident that we can preserve asset integrity for the wind farm over its [redacted] of lifetime by minimizing outages and delivering the highest efficiency possible for the benefit of customers.**

We will utilize the combined capabilities and expertise of our parent companies, RWE and National Grid. Both companies have extensive knowledge and expertise in energy asset management and operations. RWE brings over 20 years' experience in designing, constructing, and operating offshore wind farms in Europe along with over 100 years' experience in electricity generation operation and maintenance. National Grid has experience in operating and maintaining electric and gas infrastructure, serving over 2.5 million customers in New York State, as well as 10 years' experience in servicing HDVC infrastructure in Europe.

At each step of the generation and transmission process, we utilize a comprehensive operations framework to maintain high availabilit [redacted]

[redacted]

## 6.2. Operations and maintenance past experience

We will rely on the capabilities and the expertise of our two parent companies in operating and maintaining the wind farm and transmission systems. RWE's large portfolio of offshore assets, both developed and acquired over the past 20 years, sets us apart from peer operators. RWE has developed 5.8 GW of offshore wind globally and operates 4.6 GW in total. The fleet has a total runtime of 110 years, and the operations group has a combined >10,000 years of experience. We have global expert teams supporting regional operations and driving continuous improvement, with a focus on constantly incorporating learnings from our projects into the operations strategy of future projects.

[redacted]

[redacted]

[redacted]

- [redacted]
- [redacted]

[redacted]

[redacted]

## 6.3. Operating constraints

[redacted]

---

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

### Health, safety, and environment

The Community Offshore Wind team and on-site OEM and contactor technicians will be required to participate in emergency response drills. These drills will be planned in advance and could require downtime of one turbine (in the event of a high rescue drill or similar) or passive use of the offshore converter platform for helicopter lift drills. This is also typically done on low wind days and thus limits the loss in production. Emergency response drills are coordinated with local first responder teams and marine rescue authorities to ensure that in the event of an emergency, the rescue teams can respond quickly. We have worked with these requirements at our offshore wind farms in the UK and Germany, and extensively at our remote US onshore wind farms.

## 6.4. Operations and maintenance concept

[redacted]

- [redacted]
- [redacted]

[redacted]

[redacted]

### 6.4.1. Operations and maintenance base

[redacted]

Specification of an operations and maintenance base has been undertaken based on experience developing ports into operations and maintenance-ready sites in the past, such as our Arkona Offshore Wind port facility shown in Figure 6-2. [redacted]

[redacted]

The operations and maintenance base will be designed with its own sustainability targets in mind. It will be fully circular and sustainable by utilizing sustainable construction materials and contracts with the local community. The energy requirements of the base will be fulfilled by renewable sources such as solar panels and heat pumps. Moreover, it will be minimized by incorporating energy-efficient design choices.

*Figure 6-2 Arkona offshore wind farm in Sassnitz/Rügen*

[redacted] on technical and logistical topics. Furthermore, a shared warehouse and staging area will accommodate consumables and spares for electrical maintenance and repairs. This will eliminate the need for short term leasing of additional quayside property at a premium.

Each of the above efficiency opportunities will be included as part of the negotiated service agreement with the electrical equipment OEM for the offshore and onshore convertors. With oversight from our experienced operations team, competitive service contracts can be negotiated. This will ensure efficient operations scheduling, reduced risk of vessel procurement delays, and ultimately the increased reliability and decreased downtime of the wind farm.

### 6.4.2. Logistics

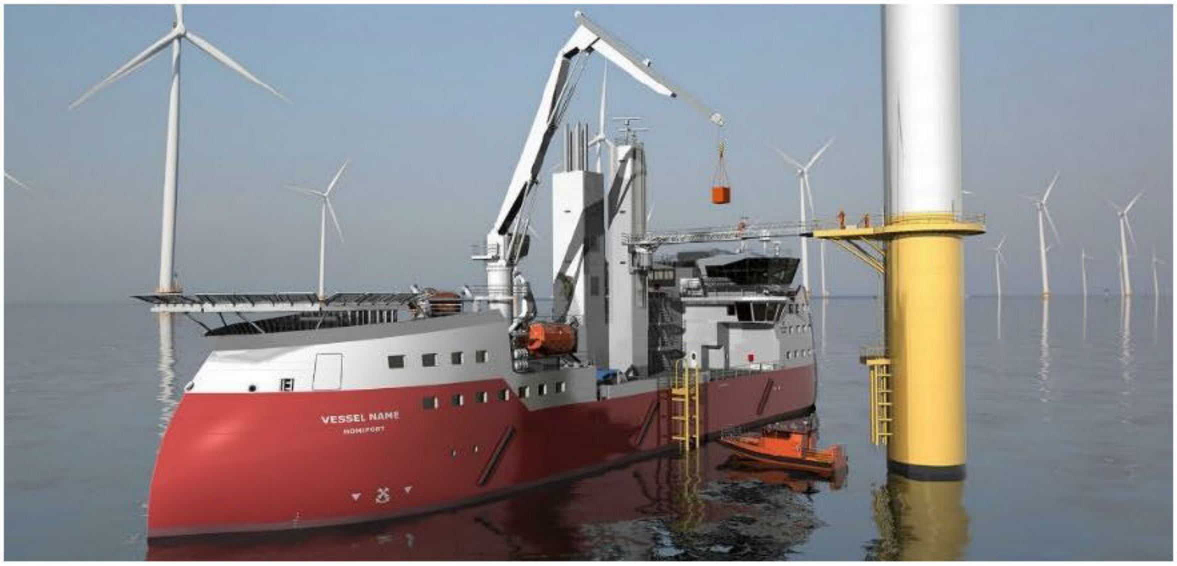
[redacted]

[redacted]


[redacted]

[redacted]

*Figure 6-4 Ulstein service operations vessel with walk to work gangway extended with 3-D compensated crane in use and daughter craft standing by*




[redacted]

[redacted]

### 6.4.3. Operations and maintenance control center

[redacted]

coordination of maintenance activities, monitoring the wind turbine generators and offshore converter platform, and real-time communication with NYISO. The control center will be in constant communication with the service operations vessel to coordinate real time maintenance activities and access to the wind turbine generators. The most important day-to-day responsibilities of the control center will be to remotely monitor and reset turbines, safety control of plant activities (i.e., handing over a turbine to the control of a local technician team after ensuring they have the right risk assessment and method statements to carry out the work safely), and communicating with grid operators and responding to grid commands in real time. The control center will enable remote resets of the wind turbine generators where these are safe to perform, if they are required. This will be communicated to the service operations vessel team for an investigation and reset to be performed locally.

The Community Offshore Wind team views the continuous staffing need of the operations control center as a critical operating constraint. [redacted]

#### 6.4.4. Wind turbine generator maintenance

[redacted]

#### 6.4.5. Balance of plant maintenance

Balance of plant maintenance will include foundation maintenance and inspections, as well as subsea structural and cable integrity inspections. This work will be carried out by the Community Offshore Wind team with any specialist work, such as high voltage maintenance, supported by local third-party technicians. Subsea and above water surveys will be carried out using the service operations vessel as a base, with the option to install survey transducers on the vessel to utilize time between technician deployments. Specialist contractors may be used for statutory and safety inspections where required. In addition, completion of high voltage and other specialist work could incur a limited skilled subcontractor workforce. We see this workforce shortage due to the immature state of offshore wind in the United States as potential operational constraint. [redacted]

[redacted]

### 6.4.6. Transmission system

[redacted]

[redacted]

[redacted] **the operations team will be able to identify components that are susceptible to outages in the near future. In that way, they can dispatch replacements parts with technicians to prevent an outage before it ever happens.**

[redacted]

Drawing on National Grid's decades of experience in New York allows us to avoid constraints imposed on other operators. In the event of maintenance needs on the onshore cables, we can rely on a deep pool of talent technicians who all are employed in-house for rapid deployment. These in-house technicians have unmatched experience in accessing and operating under the streets of the New York area and can rapidly respond to any operational issue that emerges.

## 6.5. Maintenance outage requirements

[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]

11 Results from Operating year 2021, 2022, Internal RWE Report

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

# 7. Business entity and financing plan

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Appendix 7-22 Annual report 2019/20 National Grid Plc

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## NYSERDA solicitation requirements

Our comprehensive financial plan addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP) while emphasizing our commitment to being a sound financial partner. The table below identifies each solicitation requirement.

*Table 7-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| Submit information and documentation that demonstrates that a long-term contract resulting from this RFP process would either permit Proposers to finance Proposals that would otherwise not be financeable or assist Proposers in obtaining financing of its Proposal. | 7.2 |
| Provide a description of the Financing Plan for the Project, including construction and term financing. The Financing Plan should address the following:<br>a. 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, tax or contingent equity, other) including repayment schedules and conversion features<br>b. Project's existing initial financial structure and projected financial structure<br>c. Expected sources of debt and equity financing<br>d. Describe how any such agreements would differ, contingent on NYERDA's selection of a specific Proposal (e.g., Fixed OREC vs. Index OREC, SCIP or Standalone, Inflation Adjusted or not Inflation Adjusted)<br>e. Estimated construction costs, including identification of the costs associated with Meshed Ready design, and identification of costs associated with transmission<br>f. Projected capital structure during construction and operation<br>g. Describe any agreements, both pre and post Commercial Operation Date, entered with respect to equity ownership in the proposed Project and any other financing arrangement. | 7.4.1 |
| Provide evidence that Proposer has the financial resources and financial strength to complete and operate the Project as planned. | 7.3.1 |
| Describe the planned insurance program, including how climate-related physical risks are factored into the insurance deductible and if added resilience measures or design and construction features taken to strengthen the ability of the Project to handle climate shocks or stresses may act to lower insurance premiums or deductibles. | 7.4.5 |
| Proposer's estimate of inflation using an index or indices that are relevant to the Project's construction and operations costs. | 7.4.2 |

| | |
|---|---|
| Describe the role of the Federal Production Tax Credit or Investment Tax Credit (or other incentives) on the financing of the Project, including presumed qualification year and percentage and estimated eligible capital expenditures. Provide an explanation for the assumed ability or inability to qualify for the Federal Production Tax Credit or Investment Tax Credit. The Proposal may not be contingent on receipt of the Production Tax Credit or Investment Tax Credit. Refer to Section 2.1.5 and to Section 5.07 of the Agreement for the Bid Price adjustment related to receipt of Project Qualifying Federal Support. | 7.4.3 |
| Provide complete copies of the most recent audited financial statement and annual report for each Proposer for each of the past three years; including parent companies of Proposer (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 Proposer and any parent companies and development partners. | 7.3.2 |
| Demonstrate Proposer's ability (and/or the ability of its credit support provider) to provide the required security, including its plan for doing so. | 7.3.3 |
| Provide a description of any current or recent credit issues/ credit rating downgrade events regarding Proposer or parent companies raised by rating agencies, banks, or accounting firms. Provide information regarding any exposure of the Proposer and/or parent companies including joint ventures to adverse events related to investments and other activities in Russia. Discuss corporate withdrawals from investments in Russia, the impact of write-offs, write-downs and/or related impairment charges and government sanctions arising from the conflict in Ukraine affecting the Proposer, parent companies and/or joint venture participants, including limited liability corporations. | 7.3.4 |
| Provide the expected operating life of the proposed Project and the depreciation period for all substantial physical aspects of the offer, including generation facilities, generator lead lines to move power to the grid, and transmission system upgrades. | 7.4.4 |
| Details of any events of default or other credit/financial issues associated with all energy projects (other than those under contract with NYSERDA) in which the Proposer (and other equity partners), its parent companies, and directors, officers, and senior managers of those entities, participated over the past three years. | 7.3.5 |

## 7.1. Summary

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

## 7.3. Our project is sponsored by two financially secure companies

### 7.3.1. Financial resources and financial strength

Community Offshore Wind benefits from the financial strength of RWE and National Grid, each of which have commitments to fund the development, construction, and operations of Community Offshore Wind. The parent companies of Community Offshore Wind are indirect, wholly owned subsidiaries of RWE and National Grid and are obligated to advance funds in accordance with the Limited Liability Company Agreement of Community Offshore Wind. A detailed layout of the organizational structures from both RWE and National Grid can be found in Chapter 3 (Figure 3-7 Organizational chart).

#### RWE financing and capital structure

The RWE group has extensive experience in financing the development, construction, and operation of offshore wind projects in Europe, as well as onshore wind farms and solar projects in the United States. [redacted]. Future U.S. offshore wind projects are also intended to be equity-financed in this way. RWE, as the ultimate parent company of the RWE group, is responsible for financing within the group and has a range of tools available [redacted]. The company is also able to rely on cash flow from its operating activities [redacted] By having a variety of financing options at its disposal, RWE can make strategic decisions about how to allocate funds and pursue growth opportunities in a flexible way.

RWE can issue bonds and raise long-term debt in the capital markets [redacted] The company has also issued a €2 billion green bond in 2021, [redacted]. In addition to its bond issuance program, RWE also has a Commercial Paper Program that it can use for short-term financing on the money market, [redacted]. This allows the company to have access to a range of financing options, which can help to fund its operations and pursue growth opportunities. In [redacted] At year-end 2021, RWE had cash and cash equivalents of €5,825 million and a pool of liquid assets with marketable securities of €8,040 million.

RWE has the in-house expertise to deploy non-recourse project finance on competitive terms when necessary and has successfully raised Tax Equity on almost all of its projects in the U.S. as non-recourse financing. In Europe, RWE has also used non-recourse project finance to finance selected offshore wind projects and wind farms that were built or operated in partnership with other companies. At the same time, RWE has the ability to finance projects through its balance sheet, which can be especially useful for large-scale projects such as offshore wind farms. Overall, RWE's wide range of financing options gives it the ability to approach projects in a way that is most appropriate for the specific circumstances and helps to achieve its goals for growth and investment in renewable energy.

RWE has a strong focus on renewable energy and has implemented a long-term investment and growth strategy called "Growing Green" to support this goal. This strategy involves investing a total of €50 billion in RWE's core business, which includes offshore and onshore wind, solar, battery storage, and electrolyzers used for the production of hydrogen. The company has set a target of having 50 GW of installed green generation capacity internationally by 2030, as well as achieving €5,000 million in EBITDA from its core business (compared to €3,650 million in 2021). RWE's offshore wind segment alone contributed €1,110 million to EBITDA in 2021. RWE has also demonstrated its commitment to executing its Growing Green strategy through its entry into the U.S. offshore market with Community Offshore Wind, the acquisition of a second seabed lease in California, and the planned acquisition of Con Edison Clean Energy Businesses, Inc. (Con Edison CEB). [redacted]

### National Grid financing and capital structure

National Grid is a company that is committed to investing in clean energy and enabling the transition to a net zero future in a safe and reliable manner. National Grid Ventures (NGV) is an indirect subsidiary of National Grid and operates as the competitive division of National Grid. NGV has a diverse portfolio of low carbon and renewable energy businesses in the UK, Europe, and the US, including sub-sea HVDC interconnectors, liquefied natural gas, battery storage, wind and solar generation assets and National Grid's interest in Community Offshore Wind. The company has extensive experience in financing and developing a range of energy projects, including six subsea HVDC interconnectors, six competitive transmission projects, nine solar farms, two wind farms, and two standalone storage facilities.

National Grid Ventures is funded primarily through capital contributions from its ultimate parent, National Grid. [redacted]
National Grid has access to multiple equity and debt markets, including the issuance of green bonds, and has significant liquidity, which provides a reliable and competitive source of capital for National Grid Ventures. National Grid can also develop dedicated financing facilities for project-specific financing as needed. Overall, National Grid's access to a range of financing options and its ability to assess and plan for its cash requirements in advance give it the flexibility to fund National Grid Ventures' projects and support its transition to a clean energy future.

National Grid's debt issuance program includes the use of green financing instruments. The company has published a Green Financing Framework, which outlines how National Grid and its subsidiaries (including National Grid Ventures) can issue Green Financing Instruments to fund efforts towards a cleaner energy system. This framework is aligned with the International Capital Markets Association's Green Bond Principles and the Loan Market Association's Green Loan Principles, as well as the EU Taxonomy Regulation and Delegated Acts on Climate Change Mitigation and Adaptation. National Grid has already issued an inaugural green bond in September 2021 for €850 million, which has funded €763 million worth of eligible green projects to support the transition to clean energy. In addition, National Grid has received a strong evaluation score of 82/100 from S&P Global Ratings for its environmental, social, and governance (ESG) practices, reflecting its robust governance structure, strong preparedness for disruptions, and overall effective management of environmental and social risks. These actions demonstrate National Grid's commitment to using green financing instruments and managing ESG risks as it works towards a cleaner energy future.

National Grid Ventures is able to finance its projects using a mix of equity and debt, thanks in part to the strong balance sheet of National Grid. National Grid has a consistent track record of raising finance at competitive rates and is committed to maintaining a resilient balance sheet and stable leverage to fund asset growth [redacted]. As part of this commitment, the company plans to increase its senior debt capacity [redacted] over this time period, while also investing £24 billion in the decarbonization of energy systems, which will make up around 65% of its planned investment between 2021/22 and 2025/26. Overall, National Grid Ventures' financing strategy is focused on maintaining an appropriate mix of debt and equity to prudently manage financial risks, and by generating strong and sustainable cash flows, it is able to invest in growing its asset base over the long term.

### 7.3.2. Annual Reports, Financial Statements, and Credit Rating Reports

Community Offshore Wind does not yet have an annual report or financial statements. The entity was formed in March 2021 and has elected not to prepare any reports and statements at this early stage due to low materiality. Community Offshore Wind is indirectly funded by RWE and National Grid via equity contributions and therefore relies on its shareholders to provide financing and security (pro-rata) as per the Limited Liability Company Agreement between RWE and National Grid.

**RWE Annual Reports, Financial Statements, and Credit Rating Reports**

RWE, as the ultimate parent company of RWE´s direct Community Offshore Wind shareholder, RWE Offshore Wind Holdings, LLC, has overall responsibility to secure and provide financing for RWE´s 72.73% share in Community Offshore Wind as further detailed in the previous Section 7.3.1. For this reason, the following reports issued by RWE or by third-party rating agencies demonstrating RWE´s ability to provide funding and security to the project are attached to this RFP.

- Appendix 7-5 Annual report 2019 RWE AG
- Appendix 7-6 Annual report 2020 RWE AG
- Appendix 7-7 Annual report 2021 RWE AG
- Appendix 7-8 Audited financial statement 2019 RWE AG
- Appendix 7-9 Audited financial statement 2020 RWE AG
- Appendix 7-10 Audited financial statement 2021 RWE AG
- Appendix 7-11 Fitch rating report 2018
- Appendix 7-12 Fitch rating report 2020
- Appendix 7-13 Fitch rating report 2021

- Appendix 7-14 Fitch rating report 2022
- Appendix 7-15 Moody's credit opinion RWE AG 2019
- Appendix 7-16 Moody's credit opinion RWE AG 2020
- Appendix 7-17 Moody's credit opinion technical update RWE AG 2020
- Appendix 7-18 Moody's credit opinion RWE AG 2021
- Appendix 7-19 Moody's credit opinion technical update RWE AG 2021
- Appendix 7-20 Moody's credit opinion RWE AG 2022
- Appendix 7-21 Moody's credit opinion technical update RWE AG 2022

RWE´s adjusted EBITDA and free cash flow increased year over year since 2019 and its Growing Green Strategy, as further outlined in Section 7.3.1, provides RWE with a solid outlook. RWE's outlook for 2022 as of the end of 2021 is an adjusted EBITDA of €3,600 to €4,000 million and an expected EBITDA increase of 80% by 2030 (compared to 2021).

Creditworthiness checks by independent rating agencies have a substantial effect on RWE´s options for raising outside capital. The better the rating, the easier the access to international credit markets and the more affordable the borrowings. The leading rating agencies Moody's and Fitch consistently certify RWE's creditworthiness within the "investment grade" category, not least due to RWE's conservative financial policy. Moody's currently assigns RWE's long-term creditworthiness a rating of 'Baa2' with a stable rating outlook and Fitch rates RWE one grade better at 'BBB+' with a stable rating outlook. In 2021, both Moody's and Fitch upgraded RWE´s rating as per Table 7-2 below. RWE ended its rating by Standard & Poor's (S&P) in 2018 because a triple rating was no longer required.

One of the reasons for RWE's upgrade was the continued success of growing its renewable generation portfolio and also its large and well-diversified generation portfolio. Among the potential risks identified by the credit rating agencies were volatile trading activities and wholesale electricity prices.

*Table 7-2 Senior unsecured long-term debt rating of RWE AG*

| | Current | FY 2021 | FY 2020 | FY 2019 | FY 2018 |
|---|---|---|---|---|---|
| **Moody Rating** | Baa2 | Baa2 | Baa3 | Baa3 | Baa3 |
| **Outlook** | Stable | Stable | Positive | Stable | Stable |
| **Fitch** | BBB+ | BBB+ | BBB | BBB | BBB |
| **Outlook** | Stable | Stable | Stable | Stable | Stable |

**National Grid Annual Reports, Financial Statements, and Credit Rating Reports**

National Grid North America Inc. (NGNA) is National Grid's US intermediate holding company and is the ultimate US parent of National Grid's direct shareholder of Community Offshore Wind, NGV OSW Holdings LLC. NGNA has a relatively stable credit rating over the long run, however, in March 2021, Moody's and S&P downgraded the senior unsecured credit ratings of NGNA by one notch. The downgrade of NGNA was directly linked to the downgrade of National Grid and reflected the combined impacts of the COVID-19 pandemic including cash flow erosion associated with higher accounts receivable and reduced late-fee collections, increased levels of capital investment, delays to rate increases in its US operations, and more pressure on returns following the new regulatory framework for UK regulated networks. According to the latest credit rating report from S&P, risks resulting from NGNA's investments in nonutility businesses, e.g., Community Offshore Wind, are expected to be limited.

*Table 7-3 Senior unsecured long-term debt rating of National Grid North America Inc.*

| | Current | FY 2021 | FY 2020 | FY 2019 | FY 2018 |
|---|---|---|---|---|---|
| **Moody Rating** | Baa2 | Baa2 | Baa1 | Baa1 | Baa1 |
| **Outlook** | Stable | Stable | Negative | Negative | Stable |
| **S&P Rating** | BBB | BBB | BBB+ | BBB+ | BBB+ |
| **Outlook** | Stable | Stable | Negative | Stable | Stable |

The following reports issued by National Grid, NGNA or issued by third-party rating agencies demonstrating National Grid's ability to provide funding and security to the project are attached.

- Annual Report 2019/20 National Grid plc – Appendix 7-22
- Annual Report 2020/21 National Grid plc – Appendix 7-23
- Annual Report 2021/22 National Grid plc – Appendix 7-24
- Consolidated Financial Statement 2019/20 National Grid North America – Appendix 7-25
- Consolidated Financial Statement 2020/21 National Grid North America – Appendix 7-26
- Consolidated Financial Statement 2021/22 National Grid North America – Appendix 7-27
- Moody's Credit Opinion National Grid North America 08/2018 – Appendix 7-28
- Moody's Credit Opinion National Grid North America 05/2019 – Appendix 7-29
- Moody's Issuer Comment National Grid North America 08/2019 – Appendix 7-30
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- Moody's Credit Opinion National Grid North America 05/2022 – Appendix 7-33
- Standard & Poor's Rating Report National Grid North America 09/2018 – Appendix 7-34
- Standard & Poor's Research Update National Grid North America 11/2019 – Appendix 7-35
- Standard & Poor's Research Update National Grid North America 08/2020 – Appendix 7-36
- Standard & Poor's Research Update National Grid North America 03/2021 – Appendix 7-37
- Standard & Poor's Research Update National Grid North America 08/2021 – Appendix 7-38
- Standard & Poor's Rating Report National Grid North America 11/2022 – Appendix 7-39

#### 7.3.3. Ability to Provide Security

As stated in the previous sections, Community Offshore Wind relies on RWE and National Grid to raise and provide funding as well as to provide security. RWE and National Grid have the ability to use their financial strength as demonstrated above to issue required securities, in the form and amount required to advance the development and construction of the project. This applies from the development and construction phase through the operations phase, ensuring sufficient financial capacity for the whole lifetime of the project until decommissioning.

Community Offshore Wind, backed by its shareholders, has already successfully submitted a bond from Liberty Mutual Insurance to the Bureau of Ocean Management ("BOEM") as a condition to execute the lease agreement number OCS-A 0539 with BOEM. In this specific instance, RWE posted this issuance for Community Offshore Wind. It is the general agreement between the shareholders of Community Offshore Wind that any future required security will be provided pro-rata as per the respective shares. In instances where this is not possible because of specific guidelines issued by the guarantee holder, or lessor or NYSERDA, and as it was the case for the financial assurance issued by Liberty Mutual Insurance Company, both shareholders are contractually committed to work together to provide the required securities in the form and amount required to advance the project so that all requirements will be met on time.

Securities can be provided either as parent company guarantees or third-party guarantees. Our shareholders usually prefer to issue parent company guarantees. Where that is not possible because of specific requirements, our shareholders are able to issue securities via third parties (e.g., reputable financial institutions). Both shareholders have several existing agreements in place with financial institutions on the issuance of such securities.

Community Offshore Wind expects the following securities to be required until the anticipated Final Investment Decision:

- Financial assurance issuance as stipulated in the Commercial Lease OCS-A 0539 entered into between the United States of America (Lessor) acting through the Bureau of Ocean Management and Community Offshore Wind Holdings LLC (Lessee). Of which an initial $100,000 has already been issued by Liberty Mutual Insurance Company on behalf of Community Offshore Wind
- All required securities as stipulated in Article XV Contract Security, Section 15.01 and Section 15.02 of the draft Offshore Wind Renewable Energy Certificate Standard Form Purchase and Sale Agreement, Appendix I of the Request for Proposals
- Certain transmission deposits/securities
- Certain real estate securities, including the ones related to the Newburgh opportunity as included in our SCIP proposal
- Certain supplier guarantees
- Decommissioning bond
- Any other securities as required

#### 7.3.4. Credit issue and the Proposer's exposure the Russia-Ukraine conflict

As outlined further above, both RWE and National Grid have a stable outlook from rating agencies due to their good financial standing, confident action against outside stressors, and clearly defined strategies. Apart from the above-mentioned downgrade of NGNA relating to the COVID-19 pandemic in 2021, **there are no recent or current credit issues or credit rating downgrade events regarding Community Offshore Wind or its Parent Companies raised by agencies, banks, or accounting firms.**

### RWE exposure to the Russia-Ukraine conflict

RWE does not have any projects or operations in Russia or Belarus. Like many European utility companies, RWE does have some existing contracts with Russian suppliers (none with Belarus), largely to supply coal and natural gas to Continental Europe. However, since the beginning of the Russian invasion, RWE has terminated all non-energy supply contracts with Russian counterparties with immediate effect and has committed not to enter into any new such contracts. RWE has also ceased all coal imports since March 2022 and has written off all coal offtake contracts with Russian counterparties, in compliance with UK and EU sanctions. With respect to natural gas imports, RWE has written off its offtake contracts with Russian counterparties, fully removed financial exposure to Russian counterparties, concluded financial hedges to reduce risks from such procurement contracts to zero and is taking steps to phase out any ongoing reliance on Russian natural gas; RWE is working to phase out its current natural gas supply contracts in 2023.

### National Grid exposure to the Russia-Ukraine conflict

National Grid does not have any projects or operations in Russia or Belarus. The war in Ukraine is not expected to have a materially adverse impact on National Grid's business.

When the conflict began, National Grid immediately established a crisis assessment team of multi-disciplined leaders to oversee and coordinate our response. The company evaluated the immediate threat, analyzed the risk profile across time horizons including scenario planning and completed a strategic impact assessment. Although the immediate impact to National Grid was minimal, the company increased its focus on risks and strengthened controls associated with cyber and physical security, security of energy supply, political and societal expectations, our supply chains, and sanction compliance.

### 7.3.5. Events of default

As of the end of the fourth quarter of 2022, there are no events of default or other credit/financial issues associated with energy projects in which Community Offshore Wind, its Parent Companies, RWE Offshore Wind Holdings, LLC and NGV OSW Holdings LLC, or the directors, officers, and senior managers of those entities participated over the past three years.

## 7.4. We have a well-defined financing plan

For Section 7. 4 refer to our Financing Plan attachment.

# 8. Interconnection and deliverability plan

## 1 Table of contents



## 2 List of tables

## 3 List of figures



## 4 List of appendices



[redacted]

## NYSERDA solicitation requirements

Our interconnection and deliverability plan addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP) and solidifies our commitment to project reliability. The table below identifies each solicitation requirement.

*Table 8-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| 1. Provide documentation to show evidence of the interconnection request to NYISO or any neighboring Control Area for Capacity Resource Interconnection Service (CRIS) or for Energy Resource Interconnection Service, or similar interconnection standards in the neighboring Control Areas. Evidence that Proposer has a pending, valid interconnection request is sufficient for eligibility under this RFP, but further detail will add to the viability of the proposed plan. Describe the status of any planned interconnection to the grid. | Appendix 8-1 |
| 2. Proposer must provide a detailed plan and a reasonable timeline to complete the interconnection process with NYISO for direct interconnection(s) to the NYCA and, if applicable, for any other interconnecting authority (Regional Transmission Organization, "RTO," or Independent System Operator, "ISO) in an adjacent Control Area, i.e., ISO-NE or PJM. The timeline must be consistent with meeting the overall development schedule and proposed Commercial Operation Date(s). | Appendix 8-2 |
| 3. Provide a copy of an electrical one-line diagram showing the interconnection facilities and the relevant facilities of the transmission provider | Appendix 8-3 |
| 4. Identify and provide an estimate of the expected NYISO Interconnection Cost Allocation, which will be used as the Interconnection Cost Allocation Baseline in Section 5.04 of the Agreement unless revised by NYSERDA as described in Section 4.2.1, and associated confidence intervals for all proposed or anticipated interconnection and transmission system upgrades, including any transmission system upgrades beyond the point of interconnection that are needed to ensure delivery of energy from the Offshore Wind Generation Facility into NYCA. Provide an explanation of how these values were developed, along with any available supporting information. NYSERDA understands that these values will be imperfect and seeks to understand the Proposer's view on interconnection risks. Any additional information that will support this review will be accepted, including further narrative information describing a range of estimates, confidence intervals, or scenarios. | Appendix 8-4 |
| 5. For an Offshore Wind Generation Facility interconnecting in an adjacent Control Area, describe how Proposer intends to fulfill the Electricity Delivery Requirements contained in Article III of the Agreement. | Not applicable |

| | |
|---|---|
| 6. Proposals must provide any information they are aware of regarding the available capacity, at the time of submission, of the proposed Injection Point(s), such as through the Utilities' Revised Headroom Calculations as filed with the PSC. | Appendix 8-1 |
| 7. Provide detailed maps that show the proposed off- and on-shore cable route(s) from the offshore project to the proposed Injection Point including (if applicable) the converter station location and landfall point(s). Include as much supportive detail and information of relevance for an actual or eventual Article VII filing as available at the time of submission. | 8.3 |
| 8. Describe any specific power grid benefits brought by the selection of the interconnection and delivery points such as reduced curtailments, congestion relief, or ability to integrate Energy Storage capacity. | 8.3 |
| 9. Describe any Alternate Proposals which contemplate different Delivery Points. Give details on relative merits of each considering cable routing, interconnection cost, local system upgrades, or other benefits or burdens associated with siting the Project. | 8.2.2 |
| 10. Describe the components that will be installed to meet the Meshed Ready requirements set forth in Appendix G and enable future operability if recommended by the New York State Public Service Commission for interconnection to the Meshed Network. | Appendix 8-5 |
| 11. Provide drafts of the required Meshed Ready deliverables listed in Section G.2.3 of Appendix G. | Appendix 8-5 |
| 12. For any Alternate Proposals that will be excluded from the Meshed Ready system, provide a clear and detailed justification for the exclusion. | Not applicable |

## 8.1. Summary

NYSERDA's goal of interconnecting at least 9 GW of offshore wind by 2035 is a key pillar for New York to cement its decarbonization journey. This level of offshore wind development, and likely future increases in the state goal, require interconnection and transmission planning that facilitate future interconnection options, while minimizing impact on disadvantaged communities and other stakeholders (e.g., fisheries) and contributing to the stability and reliability of the bulk power system and the New York power grid.

We have designed a set of feasible, mature, constructable, and permittable interconnection solutions for our project by leveraging the extensive experience and knowledge of both National Grid and RWE in offshore wind development, HVDC transmission and local knowledge of New York power system dynamics. We have developed a thorough assessment framework to ensure that our solutions align with NYSERDA's ambitions and consider expected future build outs of the bulk transmission system. **Namely, we are proposing points of interconnection (POIs) at [redacted] We believe these POIs are best suited to minimize the cost of green energy to the customers in New York and minimize interconnection risk while limiting impacts for the support of future projects**. Acknowledging that NYSERDA must optimize for not only our project, but other developers as well, we are offering the flexibility to work with NYSERDA on alternate POIs for our project.

All our proposals will incorporate mesh-ready equipment as specified in Appendix G and **we will adopt advanced technologies as mentioned in NYSERDA's Power Grid Study**. We plan to use HVAC mesh equipment installed as a bolt-on to an industry standard HVDC converter station, significantly simplifying the project and reducing installation costs.

The first in-bound section of our offshore cable route stretches 60 miles from our offshore wind farm and is the same for all our POI solutions. The route was developed to minimize cost, risk and environmental impacts.

[redacted]

An important element of our [redacted] solution is [redacted] **and we believe they mark an important step in a fair transition toward renewable energies on Long Island.** Our proposed landfall and onshore cable route will also minimize impact on local disadvantaged communities through mitigation actions such as horizontal directional drilling [redacted] Our solution preserves NYSERDA's optionality to select future projects by completely avoiding offshore cabling through constrained areas, as described in Section 2.1.4 of the RFP. It is well positioned to utilize several potential Long Island Public Policy Transmission Need (LI-PPTN) solutions, making efficient use of ratepayer-funded upgrades to the grid.

[redacted]

Our [redacted] POI solution offers NYSERDA an injection of 1.3 GW of offshore wind directly into Zone J while avoiding the placement of cables through the Arthur Kill, the Narrows, or the Upper Bay/New York Harbor. This solution also enables the future retirement of fossil generation [redacted], with clean renewable energy. The solution connects to the 345kV backbone and is well positioned to utilize future grid expansions [redacted]

### Con Edison Hub

Our [redacted] proposals facilitate NYSERDA's 9 GW offshore wind goal. [redacted] proposal makes efficient use of the New York Harbor and [redacted] Our converter location and onshore routing consider the potential for subsequent Community Offshore Wind projects, or other developers. Assuming receipt of regulatory approvals for CEH, we will build excess conduits in select parts of our route, in consultation with NYSERDA, for other projects to use, to minimize impact to local disadvantaged communities. The [redacted] Moreover, the injection of renewable energy wind [redacted] will allow for the possibility of significant GHG emission reductions and could pave the way for future retirement of fossil generation in Zone J.

[redacted]

[redacted]

[redacted]

## 8.2. We have developed an approach to interconnection and deliverability that aligns with NYSERDA's ambitions

### 8.2.1. We will leverage our parent companies' experience in offshore wind and HVDC transmission, as well as our presence and experience on Long Island, Staten Island, and Brooklyn.

We have combined the extensive experience and knowledge of National Grid and RWE to develop a feasible, constructable, and permittable set of interconnection solutions to NYSERDA. National Grid and RWE have deep knowledge of the NYISO interconnection process from both the transmission owner and developer perspective. **National Grid's generation business on Long Island and over 20 years of experience as a leading energy generation and transmission company in New York give us strong insight into the Long Island power system dynamics, making us confident that our plan is tailored to the local intricacies and challenges in New York** (see Chapter 3 for more details on RWE's and National Grid's experience). National Grid also brings the unique experience of operating underground natural gas infrastructure on Long Island, Staten Island, and Brooklyn. We draw from decades of practice opening streets and relocating utilities.

[redacted]

### 8.2.2. Our final selected interconnection points are those with the best combination of producing a low OREC price, assuring viability, and creating economic benefits

We are committed to enable and support the energy transition of New York. Our interconnection and delivery plan aims at optimizing the delivery of offshore wind, not just for our project, but for other developers now and in the future. To ensure that we have selected the set of interconnection points that maximize the benefit to NYSERDA and customers in New York State, we developed an assessment framework that considered route viability, effects on cost of electricity to customers and emissions, and the economic benefits of each of the POIs - see more detailed description of our assessment criteria in Sections 8.2.2.1, 8.2.2.2 and 8.2.2.3. Based on these considerations, we have selected [redacted] POIs that constitute our interconnection and deliverability solutions, see Table 8-2. Beyond these proposed POIs, our planned commercial operation date in [redacted] enables us to also consider other POIs and offer flexibility to NYSERDA, as described in Section 8.2.3 below.

#### 8.2.2.1. Viability

[redacted]

[redacted]

Our interconnection solutions seek to facilitate NYSERDA's ambition of at least 9 GW of offshore wind capacity by 2035 while **minimizing impact to local communities and the environment, where possible.** The viability of our interconnection and deliverability plan has therefore been assessed on:

- **Offshore cabling routing:** Avoid congested waters or maximize energy delivery through these areas, including shared cable routing with other developers or our own projects. Minimize environmental and biodiversity impact (e.g , for fisheries).
- **Onshore cable routing and landfall:** Minimize impact of cable routing and onshore landfall on disadvantaged communities, including potential sharing of onshore routing and duct bank with own future projects or other developers interconnecting in New York
- **Displaced greenhouse gas (GHG) emission:** Reduce GHG emissions by injecting offshore wind and providing the long-term potential to relieve fossil generating units

12 GHG emissions percentages show the decrease in emissions from the power sector in New York State by the injection of our offshore wind farm, based on B&M study

**To deliver on our ambition of minimizing local community impact, we have proactively identified the potential impacted communities which has enabled us to explore a set of mitigating opportunities (see Chapter 18 for more details).**

### 8.2.2.2. Cost of electricity

Our ambition is to minimize the cost of renewable energy to the customers of New York. In addition to grid benefits and direct price impact, the interconnection and delivery plan significantly affects our project's overall **capital and operating costs**, and ultimately the OREC price and customer costs. Hence, we have considered the following in our POI selection:

- **Price decrease:** Expected decrease in price of energy cost savings for the customers by injecting renewable offshore wind into the grid.
- **Interconnection costs:** Based on expected LI-PPTN solutions, POI upgrade requirements (see Appendix 8-4 for further details), and cost-adjustment solutions.
- **Congestion and curtailment:** Location of the POI and the subsequent impact and potential to relieve existing system congestion and minimize curtailment. Our internal analyses are based on third party studies [redacted] validated by internal studies.

### 8.2.2.3. Economic benefits

We have considered the POIs differentiated potential to add short- and long-term jobs, and capital investments that can contribute to tax revenues for the local communities. Our [redacted] proposals stand out in these [redacted] - see Section 8.3.2 for more details.

### 8.2.3. We are also offering NYSERDA the flexibility to connect to other POIs

[redacted]

We made a set of interconnection requests that will ensure this flexibility. The scale of our lease area allows us to have three active queue positions on the system reliability impact study (SRIS) pathway. By actively advancing multiple studies, we will have insights into more advantageous positions and can switch seamlessly if a more efficient injection point should arise. Beyond this, our initial screening of potential downstate POIs included 16 locations, as listed in Table 8-3 below, giving us a broad understanding of POI alternatives.

*Table 8-3 Long list of considered POIs*

| Zone J | Zone K |
|---|---|
| [redacted] | [redacted] |
| [redacted] | [redacted] |
| [redacted] | [redacted] |
| [redacted] | [redacted] |
| [redacted] | [redacted] |
| [redacted] | [redacted] |
| [redacted] | [redacted] |
| [redacted] | |
| [redacted] | |

## 8.3. We have developed interconnection solutions that optimize for at least a 9 GW offshore wind portfolio, while minimizing impact on the environment and disadvantaged communities

### 8.3.1. We will implement advanced technologies in our solutions, including highly viable mesh solutions for our proposals

#### 8.3.1.1. We have developed viable mesh solutions that will facilitate the future integration of a broader mesh network in the New York Bight

Mesh implementation is a remarkably complex undertaking that will require tailored and innovative solutions to technical, regulatory, and commercial issues. Hence, developers must propose sound solutions that ease and de-risk NYSERDA's broader implementation of a mesh network.

[redacted]

There are several legal structures that could be deployed which would give NYSERDA and us a pathway forward to avoid complex and novel arrangements with FERC. [redacted]

See appendix 8-5 for description of the meshed ready requirements set forth in Appendix G.

[redacted]

### 8.3.1.2. We will also implement advanced technologies mentioned in the Power Grid Study

We recognize that the offshore wind industry is quickly evolving. We are consequently dedicated to incorporating more efficient technology into our project. **We will implement online monitoring for our substations to monitor equipment health and performance. Where we deploy gas-insulated switchgear, we will continue to monitor the technical and commercial viability of non-SF6 equipment as we believe these technologies will allow for a safer and more reliable delivery of our clean energy to New York consumers.** See Chapter 11 for a more detailed description.

### 8.3.2. The initial cable routing is the same for all our POI solutions and is designed to minimize risk, environmental and biodiversity impact

The offshore cable route is crucial to the long-term success and sustainability of any offshore wind project in the New York Bight. Proper planning of the cable route is essential to mitigate impact on fisheries and the environment, as well as to assess and mitigate any potential risks.

Hence, our preferred route is based on [redacted] and is the same for all our POI solutions. It stretches approximately 60 miles from our lease area and is optimized for the following considerations:[13]

- **Minimize fisheries, environmental and biological impact** by avoiding:
    - Biological resources such as coastal wetlands, and recreational and commercial fishing areas
    - Aquatic vegetation, protected habitats, and fishing grounds to preserve marine resources and minimize impact on the communities that rely on them for fishing, tourism, and recreation
- **Minimize risk of cable damage** by avoiding:
    - Navigation channels, anchorage areas, course substrates (such as gravel)
    - Hazardous or contaminated bottom conditions such as shipwrecks and disposal sites, unexploded ordinances (UXOs) and contaminated areas
    - Where possible, constrained waterways, and areas of high vessel traffic to avoid utility congestion and to prevent damage to cables from anchor strikes

We will need to conduct more thorough studies of the seabed conditions of this route to make sure it is a technically feasible route. If the seabed conditions prove unviable, we plan to use the alternative route. **The preliminary nature of our routes allows for flexibility to work with marine communities and local stakeholders to incorporate their input when refining the routes. This approach will help us minimize possible impact on these communities.** Additional information regarding our stakeholder outreach and engagement is included in Chapter 16.

13 Mott MacDonald

[redacted]

[redacted]

[redacted] **Our solution preserves NYSERDA's optionality to select future offshore wind projects and offers a BESS and potential to partner on a hydrogen electrolyzer at** [redacted]

We believe our [redacted] proposal will be a centerpiece in the transition towards more renewable energy on Long Island and NYSERDA's build-out towards at least 9 GW of offshore wind capacity by 2035. By our cable route, onshore landfall and converter station solutions, and [redacted] we will bring several benefits to NYSERDA, as shown in Table 8-4.

[redacted]

[redacted]

#### 8.3.3.1. Viability

**Offshore cabling: Our route avoids the New York Harbor and all constrained waterway areas outlined in the RFP**

Properly designed offshore cable routing is critical to enable NYSERDA's goal of at least 9 GW of offshore wind capacity by 2035 by maximizing the power through congested areas or avoiding where possible.

As such, our offshore cabling route completely avoids any constrained waterways of the New York Harbor and consequently reduces routing and construction complexities. The route to the planned landfall, [redacted] It will follow the export cable corridor as described in 8.3.1 but will deviate after approximately 60 miles offshore as shown in Figure 8-3. In addition to the hazards identified in the figure below, we are also aware of the route proximity to the Cholera Bank, a popular area with local fishermen. We will work with fishing communities and NOAA as this route option matures.

[redacted]

[redacted]

### Landfall and onshore cable routing: We are committed to minimizing the footprint of our project

To ensure that we find the landfall and onshore cable routing that minimizes associated environmental, disadvantaged communities and traffic impacts, we have developed two alternative landfall and onshore cable routing approaches on Long Island. [redacted] **is our base alternative as it de-risks the landfall the most,** [redacted]

- [redacted] This landfall area is currently open space, limiting any potentially adverse impact on existing infrastructure. We will use horizontal directional drilling (HDD) to curtail any negative effects for the boardwalk. To limit any nuisance to neighboring residential area, we will conduct thorough noise studies in due time and follow best management practices during construction. As per Article VII and to de-risk our project plan, we are also considering alternative landfalls [redacted]

[redacted]

[redacted]

[redacted]

**Our proposed onshore route minimizes disadvantaged community impact and includes mitigation initiatives where unavoidable.** The proposed onshore HVDC route to the converter station at [redacted] While the route involves one water body crossing [redacted] we will use horizontal directional drilling (HDD) installation at this crossing to avoid habitat and species impacts.

[redacted]

**Our proposal is positioned to minimize the routing impacts of the greater offshore wind development initiative by NYSERDA.** By leveraging National Grid's position as a generator-owner on Long Island, [redacted] can be utilized for the HVDC converter power equipment. **By placing the onshore converter station [redacted] we will provide long-term additional property tax revenue for the surrounding communities and its constituen [redacted] These communities currently rely on dwindling tax revenues generated by fossil assets that will be going away per New York's 2040 commitment to retire all fossil generating capacity by 2040.**

[redacted]

[redacted]

Our proposed onshore HVAC route from the converter station to the POI (shown in Figure 8-6) is sensitive to the surrounding communities and environment, while preserving corridors for future projects. National Grid's close relationship with local communities allows us to route the cables in the most efficient way to [redacted] Due to the constrained onshore geography of the area, this route would likely cause impacts to traffic during construction, [redacted] We plan to minimize these impacts through early outreach to the New York State Department of Transportation (NYSDOT) and to stakeholders. We are confident in our ability to facilitate effective stakeholder outreach [redacted] due to National Grid's unique institutional knowledge of operations on Long Island and our robust stakeholder engagement as outlined in Chapter 16.

[redacted]

[redacted]

### Injecting 1.3 GW of offshore wind [redacted] will lead to substantial greenhouse gas emission reductions

Our project aims to help NYSERDA lower carbon emissions and facilitate the energy transition in New York. Based on modeling conducted by consultants [redacted] our injection of clean energy into the East Garden City POI will **significantly reduce the greenhouse gas emissions associated with supplying the NYCA system**. By injecting 1.3 GW of offshore wind into [redacted] our project will displace **over 140 tons of nitrogen oxides (NOx) and almost one million tons of carbon dioxide in 2031 alone, a 4.0% reduction in nitrogen oxide emissions and a 4.8% reduction in carbon dioxide emission in the NYCA system compared a scenario without our wind injection**.

#### 8.3.3.2. Cost of electricity

Our interconnection to the [redacted] POI seeks to reduce the cost of electricity for the households and businesses in the state of New York. The POI is an ideal injection point for new offshore wind resources, as it makes full use of several proposed LI-PPTN solutions and will transfer [redacted] of offshore wind capacity to the bulk power grid system on Long Island and into Westchester. Moreover, virtually any LI-PPTN solution opens additional exit paths to Zone J and K for the wind farm power generation.

### Connecting [redacted] of offshore wind [redacted] will benefit customers state-wide through lower cost of electricity and minimal curtailment

**Interconnecting at [redacted] is expected to lead to a total savings for the customers of $25M annually, [redacted]**

**maximizing the delivery of clean energy to customers, and delivering savings.**

### Interconnection costs

[redacted]

[redacted]

[redacted]

14 Scenario 7 of the BM report

[redacted]

[redacted]

[redacted]

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

#### 8.3.3.3. Economic benefits

**We want to facilitate the transition towards renewable energies on Long Island and establish a renewable energy hub at [redacted]**

For our [redacted] proposals that include storage, we will establish a renewable energy hub at [redacted] by building [redacted] battery energy storage system and explore the potential to co-locate a [redacted] hydrogen electrolyzer at the site. This will contribute additional property tax revenue [redacted], and add local jobs for the construction period. We believe these initiatives can mark the beginning of a broader adoption of renewable energy, as they enable us to gain key insights in how to best use storage and electrolysis in conjunction with offshore wind. See Chapter 20 for further details.

[redacted] **Our proposal will be a cornerstone in the energy transition in New York by facilitating future retirement of fossil generating units while limiting cabling through constrained areas**

Our solution for [redacted] enables the connection of offshore wind into Zone J of the New York grid. Our solution will provide the following benefits to NYSERDA and the communities in New York.

[redacted]

[redacted]

#### 8.3.4.1. Viability

**Offshore cable routing: Our solution optimizes the interjection of renewable offshore wind to Zone J by limiting the use of constrained waterways**

Optimizing delivery in Zone J is essential to NYSERDA's ambition of deploying at least 9 GW of offshore wind capacity by 2035. However, access to Zone J POIs is made difficult by natural geographic bottlenecks vis-à-vis constrained waterways. To meet its targets NYSERDA must carefully plan the allocation of the constrained waterways in the Narrows and Upper New York Bay, among other waterways.

Our offshore route to [redacted] POI is unique among Zone J POIs as it largely avoids routing through constrained waterways, particularly the Arthur Kill, the Narrows and Upper New York Bay. This reduces construction complexity and concerns about inhibiting future routing options for other developers through the already constrained New York Harbor. The offshore route to [redacted] landfall is about 86 miles long, [redacted] The route follows the export cable corridor as described in 8.3.1. but will bend west towards [redacted] after approximately 60 miles as shown in Figure 8-7 below.

[redacted]

[redacted]

### Landfall and onshore cable routing: We seek to minimize environmental impact and choose a landfall that does not constrain the Narrows and Upper New York Bay

The proposed onshore route to the [redacted] POI has its landfall at [redacted] which is currently an open space[15], as shown in Figure 8-8. **The [redacted] is advantageous as it avoids offshore routing through the constrained waterways of the Arthur Kill, the Narrows, and Upper New York Bay and has lower associated environmental impacts compared to alternative**

15 Mott MacDonald, see appendix 8-8

**landfalls.** To mitigate any potential negative impacts on surrounding environment and residential buildings, we are committed to conducting thorough noise impact studies ahead of construction, performing extensive community outreach to voice local concerns and considering using HDD (as the site is only 3,200 feet away from deep water).

[redacted]

[redacted]

The onshore route [redacted] **To mitigate habitat and heritage concerns**

[redacted]

**in this area, we will work with environmental stakeholders such as the Regional Wildlife Science Collaborative for Offshore Wind (RWSC),** as described in Chapter 16. As an alternative, we are also considering an onshore route from the [redacted] landfall to an alternative converter location then to the [redacted] POI. This route does not cross [redacted] but will require stakeholder outreach and early communication with New York State Department of Transportation (NYSDOT) to navigate crossings of roadways, water bodies, and residential neighborhoods[17] while mitigating traffic impacts.

[redacted]

[redacted]

We have submitted letters of intent with the landowners for both primary and alternative converter station locations and are proceeding with due diligence towards executing lease options.

17 Mott MacDonald

### Injecting 1.3 GW of renewable offshore wind at [redacted] will lead to substantial greenhouse gas emission reductions and facilitate a longer-term transition away from fossil generation

As validated by external consultants at [redacted], our injection of 1.3 GW of clean energy into [redacted] POI will significantly reduce the greenhouse gas emissions associated with supplying the NYCA electric grid by **displacing over 100 tons of nitrogen oxides and almost one million tons of carbon dioxide in 2031 alone. This amounts to a 3.7% decrease in nitrogen oxide emissions and a 4.4% reduction in carbon dioxide emissions for the NYCA system compared to a baseline without our wind injection.** Longer term, injection at [redacted] will support the future transition from legacy thermal generation at Arthur Kill and Linden that deliver power to the [redacted] POI.

#### 8.3.4.2. Cost of electricity

**Our interconnection at the Goethals POI will reduce the cost of electricity for the benefit of the customers in New York.** Our interconnection, and accompanying grid upgrades, will further strengthen Staten Island's connection to the largest load centers in New York.

[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] |

### Our cost adjustment proposals unlock a [redacted] offshore wind capacity injection to Zone J at an attractive price point for the customers of New York

We are offering alternative [redacted] proposals with a cost adjustment mechanism designed to share the risk of the required upgrades and lower the cost of renewable electricity. Our work [redacted]

From that set of scenarios, we ran analysis to find cost adjustment levels that improve risk adjusted NPV for both Community Offshore Wind and OREC payments for NYSERDA. Accordingly, we have designed interconnection cost threshold values[18] [redacted]. Further description of associated confidence levels can be found in appendix 8-4.

18 Only app ies to the Goethals interconnection cost as per the Generator Interconnection Agreement (GIA)

[redacted]

[redacted]

#### 8.3.4.3. Economic benefits

Our [redacted] solution adds additional tax revenue and local jobs. **We are bolstering local tax bases and supporting local school districts by placing onshore converter stations** [redacted] Moreover, we are planning to hire and contract exclusively local firms for transport and installation of the onshore converter station, onshore cabling and onshore landfall works.

[redacted] **Our solution is uniquely positioned to help NYSERDA in reaching their 9 GW offshore ambition by 2035 and maximize the use of rate payer funded upgrades to the grid.** [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

#### 8.3.5.1. Viability

**Offshore cable routing: Our solution maximizes the carrying capacity through constrained areas**

We are committed to maximizing the delivery through the New York Harbor through our offshore cable routing solution. By coordinating the interconnection of a potential future project as enabled by the size of our lease zone, or alternatively co-locating cables with other developers, our interconnection [redacted] will help NYSERDA achieve its 9 GW minimum target of offshore wind capacity by 2035.

Our offshore cable route is about 93 miles long, [redacted] The initial route will follow the same export cable route as described in 8.3.2. but will deviate after approximately 60 miles offshore and go through the New York Harbor as shown in Figure 8-11.

[redacted]

[redacted]

### Landfall and onshore cable routing: Our solutions seek to minimize impact to local communities

Our planned landfall at [redacted] enables us to reduce our footprint on land and minimize impact on local communities as this area is currently a parking lot and a former industrial site. We will draw from National Grid's decades of experience in operating and maintaining underground natural gas infrastructure to manage the complexities of work in Brooklyn. We will also conduct noise impact studies, significant community outreach, and specialized best management practices to limit the impact on surrounding disadvantaged community - see Chapter 16 for more details on our effort towards community outreach and engagement.

We will conduct further studies and use best management practices to clean and contain the site prior to construction as needed to prevent the spread of contaminated soil and water. If required, we will use horizontal directional drilling to minimize impact of our landfall and will coordinate with State and Federal regulators to arrange for access through the Federal Navigation Channel.

We have also evaluated three other alternative landfalls and associated onshore routes as per Article VII requirements, shown in Figure 8-12.

[redacted]

[redacted]

**Our onshore cable route is designed to minimize disruption and impact any surrounding areas and disadvantaged communities.** The proposed converter station is connected to [redacted] We would design the onshore conduit to accommodate both our own HVAC interconnection cables and space for future projects. A shared approach **minimizes DAC impacts by only requiring that streets are opened once. It also paves the way for other developers** [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

### Injecting at [redacted] has the highest potential to reduce GHG emissions

Our injection of clean energy into the [redacted] POI has the greatest potential of any of the studied POIs to reduce the greenhouse gas emissions associated with supplying the NYCA electric grid[19]. **Injecting only [redacted] of offshore wind into the [redacted] will displace 4.8% of nitrogen oxide and 5.0% carbon dioxide emissions in the first year of operation out of power system related emissions in the NYCA system, or a total of over 150 tons of nitrogen oxides and almost one million tons of carbon dioxide in 2031 alone**.

19 Based on modeling conducted by consultants at Burns and McDonnell

#### 8.3.5.2. Cost of electricity

[redacted] The system modifications being proposed in this area will help to enable the utilization of current system capacity. Bolstering the 345kV system will help to provide additional interconnection capability into the largest load center in the NYCA which may help enable an effective future transition from nearby legacy thermal generation.

[redacted]

[redacted]

**Interconnection costs**

[redacted]

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### 8.3.5.3. Economic benefits

Our [redacted] solution will add tax revenues and local jobs in New York. We are contributing tax revenue to the communities in New York by placing our onshore converter [redacted] We plan to exclusively use New York local firms and employees for the transport and installation of the onshore converter station, landfall and onshore cabling works.

# 9. Fossil repurposing proposal

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## 2 List of tables

No tables in this chapter.

## 3 List of figures



## 4 List of appendices

No appendices in this chapter.

## NYSERDA solicitation requirements

We are committed to properly responding to all NYSERDA's requirements from the Request for Proposal (RFP) document to ensure full compliance and proper project execution. [redacted]

## 9.1. Summary

New York State has committed to producing electricity with zero emissions by 2040, a goal that will require significant adoption of renewable-generating assets in place of existing fossil-fueled generators. However, the grid currently relies on fossil energy for its ability to be dispatched when needed, so an overly aggressive fossil ramp-down would interfere with reliability. Moreover, fossil asset retirements can have uneven consequences or cause abrupt changes to the local tax bases and communities. In helping New York State achieve its emission target, offshore wind developers must, therefore, ensure that their project plans align with grid requirements, help local communities to adapt economically to the changing energy landscape, and test newer technologies that may ease the transition.

Consequently, we will establish a groundbreaking hub for renewable assets at [redacted] that will lay the foundation for a future energy transition on Long Island and across the State. We intend to construct a [redacted] battery energy storage system (BESS) and explore the potential for a [redacted] hydrogen electrolyzer at [redacted] These facilities will provide significant synergies and benefits to the offshore wind farm, the grid, New York State customers, and to the local economy and communities. The proposed facilities are further described in Chapter 20.

Our proposal marks the starting point for the transition of the [redacted] site from a fossil-fueled power station to a renewable energy hub. **As one of the pioneering battery storage projects, and possibly a hydrogen electrolyzer, connected to offshore wind in the US, it will serve as a unique platform for integrating multiple technologies that are contributing to the clean energy transition**. The learnings from such a pilot will also serve as a baseline for future battery and hydrogen projects.

Importantly, **the local communities will benefit from the project.** We are committed to making sure the energy transition benefits local communities through increased tax revenue, added jobs, economic development, and long-term reduced emissions. This will boost the energy transition, benefit disadvantaged communities, and put Long Island at the forefront of renewable energy development.

[redacted] That said, the deployment of a battery storage system and hydrogen electrolyzer would lay the foundation for a long-term repurposing of the fossil-fueled units at [redacted] and reduce carbon emissions by 40,000 tons per year during the project operation, supporting environmental justice. Moreover, the investments will contribute to local economic growth and create a new source of assessable property to fund local communities through potential investments of over [redacted] capital expenditures by 2030. Additionally, it will create a platform for retraining the local workforce on these technologies throughout the clean energy transition.

> This chapter exclusively applies to the proposals that include a battery energy storage system solution.

## 9.2. The clean energy hub at [redacted] will contribute to a fair and just energy transition

As it stands, [redacted] With New York State's ambitious climate targets in mind, the transition from fossil to renewable energy is a top priority, which should be reflected in the future use of [redacted]

### 9.2.1. Our proposal provides significant benefits to the grid and New York customers

Our proposal includes building a battery, [redacted] for the benefit of the NYISO grid and New York State, as described in Figure 9-1 below. The technological details, system benefits, and synergies with the offshore wind farm are further described in Chapter 20.

[redacted]

### 9.2.2. We will build a platform for knowledge on energy transition

[redacted] be the first step towards the retirement and long-term shut down of fossil assets

[redacted]

**can become an industry leading example for future offshore wind projects co-located with battery energy storage systems**. The learning points from our project can be replicated for the benefit of other offshore wind and storage projects, effectively accelerating NYSERDA's climate goals for energy storage and emission reductions. This will also position New York State as a nationwide leader in integrating these technologies as one cohesive solution. [redacted] These efforts effectively turn [redacted] into a hub for learning about the renewable energy transition.

### We will establish a platform to share knowledge and insights from integrating BESS and hydrogen with offshore wind

Consequently, we seek to make [redacted] a source of knowledge [redacted] connected to an intermittent energy source like offshore wind. We commit to share learnings from the [redacted] facility with the energy industry, including regulators and relevant authorities. [redacted] this lays the foundation for significant synergies and further underlines the significance of the potential learning opportunities at [redacted] The development will put Long Island at the forefront of green energy development and can boost the development of future battery storage projects and support NYSERDA's ambitious targets.

## 9.2.3. We will initiate a fair and just energy transition

The renewable energy hub at [redacted] will support a **fair and just energy transition,** as the investments will benefit local and disadvantaged communities and New York State through tax benefits, jobs, economic activity, and minimal local burdens.

### Our proposal will expand the local tax base

**Our battery storage [redacted] projects represent potential investments of [redacted]** The added tax base from these investments will benefit both local and disadvantaged communities. Further details can be found in Chapter 20.

### Constructing and operating the project will contribute to local economic activity and jobs

Constructing the battery storage facility is likely to contribute more than 20 new short-term construction jobs, with some additional long-term workforce required in the battery operations as well. If an electrolyzer is included, this would further increase the number of jobs.

**Furthermore, we are investing in training programs and reskilling fossil fuel workers at [redacted] and in New York to enable the energy transition, while giving back to the local communities**. These projects will bring considerable benefits to the regional workforce and economy by adding BESS and hydrogen expertise, experience, and new skilled jobs in New York State. Additionally, these projects will support disadvantaged communities by developing long-term clean energy jobs [redacted] We will offer reskilling opportunities to [redacted] to ensure we have a proper foundation for the energy transition.

### We will minimize local incremental burdens while cutting local long-term emissions

**The new installations will impose minimal incremental burdens on the local community in terms of viewshed, noise, traffic, or use of local infrastructure**, as mentioned in Section 20.2.5. The operations of the battery storage will not contribute to any increase in local emissions, noise, or viewshed, and from a long-term perspective, **the energy transition at [redacted] is expected to reduce local emissions for the benefit of the surrounding communities**. The same goes for installation and operation of the hydrogen electrolyzer, if it is built.

To initiate a fair and just energy transition, it is vital to ensure that the local and disadvantaged communities are positively affected by the construction and operations of the energy hub. The mitigation aspects for the [redacted] hub are described in detail in Chapter 20.2.5, while Chapter 16 explains how local communities and stakeholders will be engaged in the process. Moreover, the specific impact and mitigation for disadvantaged communities is elaborated on in Chapter 18.

## 9.3. [redacted] will still cut greenhouse gas emissions

[redacted]

[redacted] the project will still contribute to a greenhouse gas emissions reduction of 790 thousand tons with the [redacted] interconnection point and overall green energy contribution from our proposed offshore wind farms. See Chapter 21 for further details on our assumptions.

# 10. Environmental assessment and permit acquisition plan

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## 2 List of tables



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## NYSERDA solicitation requirements

Our environmental assessment and permit acquisition plan addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP). The table below identifies each solicitation requirement.

*Table 10-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| Demonstrate a plan for environmental assessment and permit acquisition for the Offshore Wind Generation Facility. | 10.1 |
| Provide a comprehensive list of all the permits, licenses, and environmental assessments and/or environmental impact statements required to construct and operate the Project. | 10.3 |
| Identify the governmental agencies that are responsible for issuing approval of all the permits, licenses, and environmental assessments and/or environmental impact statements. | 10.3 |
| If the Proposer has secured any permit or has applied for a permit, please indicate this in the response. | 10.3 |
| Provide the anticipated timeline for seeking and receiving the required permits, licenses, and environmental assessments and/or environmental impact statements. | 10.1<br>10.3 |
| Include a Project approval assessment which describes 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. | 10.3 |
| Provide the SAP and COP, if completed. If the SAP and/or COP are not completed, provide the status of development of these plans and a proposed plan and timeline for completion. | 10.3.2 |
| Describe the extent to which support or opposition to the Project may materially affect the Project's permitting approval timelines. | 10.1 |

## 10.1. Summary

At Community Offshore Wind, we recognize that the permitting of an offshore wind farm in the US is a complex and challenging process which continues to evolve. This is in large part due to the many federal, state, and local approvals required, in addition to the level of coordination needed among all stakeholder groups, including agencies, local communities, fisheries, and other ocean users. **We recognize these intricacies and have the experience and expertise needed to successfully navigate this process in a timely manner.**

Community Offshore Wind has a clear ambition to complete all required permitting by [redacted] To achieve this ambition, we have developed a permitting strategy that relies on:

- **A detailed permitting plan:** [redacted]
- **Full coverage survey strategy:** We will maximize upfront data collection using a full coverage approach to minimize the need for future survey campaigns (further described in Section 10.3). This approach will further strengthen stakeholder support by minimizing disruptions to fisheries and other marine users.
- **Proactive engagement with key project stakeholders:** We have an "early and often" stakeholder engagement approach to help ensure that the project is developed in an environmentally, socially, and culturally sustainable manner for all (further described below and in Chapter 16: Stakeholder Engagement).
- **An experienced team:** Our team has experience permitting all aspects of an offshore wind project off the coast of and within New York State. The team is further strengthened by a team of consultants who support the permitting process (further described in Section 10.2).

**A detailed permitting plan.** We have developed and continue to refine **a thoughtful and effective environmental assessment and permit acquisition strategy**. This plan details the data, information, and assessments required to support the development of sufficient and complete applications, the strategy to navigate the processing of the federal, state, and local authorizations and consultations required, and the timeline required to receive all approvals needed to support the construction and operations of the project.

**Survey strategy.** We are prioritizing the collection of geophysical and geotechnical data, recognizing that data **collection is one of the most time consuming and important milestones in the development** of an offshore wind project. This survey strategy **maximizes initial up-front data collection, minimizes the total number of campaigns, and allows for the prompt development of the more complex assessments**. We will **leverage innovative data collection systems to minimize and avoid disruptive impacts of our survey**, leading to increased support from our community and fishery stakeholders.

**Proactive engagement with key project stakeholders.** We believe that coordination and engagement with all stakeholders is crucial to the success of an offshore wind project. We are committed to an "early and often" approach to help ensure that the project is developed in an environmentally, socially, and culturally sustainable manner for all. Starting even before lease execution, we began to identify and engage with key stakeholders, which will allow us to incorporate feedback from the start and minimize the potential for challenges to arise in the future, to the extent practicable. Our permitting team works closely with our Strategic Engagement and Fisheries teams, and we plan to **address potential conflicts of interest head-on**.

**An experienced team.** In support of the project, we have assembled an experienced team who understands the permitting requirements in the US. Our experience will allow us to **adjust for challenges that may arise throughout the process so that we can deliver offshore wind power within the proposed timeline**. We are prepared for known challenges, such as delivering environmental assessments associated with the geophysical and geotechnical survey data, and we are ready to efficiently handle unforeseen challenges, [redacted] In addition to our permitting team, we have brought on a team of consultants to support our permitting strategy in various capacities.

[redacted]

[redacted]

We continuously **leverage the wealth of experience from both RWE and National Grid to develop and refine our viable permitting plan**. RWE's experience in constructing and operating offshore wind farms all over the world provides certainty in the feasibility and viability of the proposed project.

National Grid also has extensive onshore experience with Article VII and Article 10 permitting and has been involved in the construction and operations of Block Island Sea 2 Shore cable, supporting the first commercial offshore wind farm in the US.

## 10.2. Past permitting experience

Our approach to managing the environmental assessment and permitting process is to leverage the expertise of the individuals on our permitting team as well as the extensive permitting experience of our parent companies. Our goal is to apply best practices learned from those collective experiences to create an ambitious yet realistic permitting plan that works to avoid unexpected delays or roadblocks. To ensure we have all the bases covered, we have also hired external consultants to support the development of our permitting strategy, reinforcing and supplementing our existing expertise where needed.

In our permitting approach, we will build upon:

- The expertise of our permitting team
- The experience of our parent companies
- Lessons learned from ongoing US offshore wind projects

[redacted]

We have assembled a strong permitting team with experience that spans decades in developing, constructing, and operating large-scale infrastructure projects, including offshore wind. Together, our team has extensive experience permitting all aspects of an offshore wind project off the coast of and within New York State which will allow us to be strategic throughout the permitting process in a manner that eliminates or reduces delay to the greatest extent.

- **Katherine Miller**, Federal Permitting Lead, RWE: Katherine Miller has over eight years of experience in permitting coastal and offshore projects, with five years of experience focusing on the permitting of offshore wind in the US. She previously worked as a Project Manager for a consulting firm, supporting federal and state permitting of the Empire Wind project, in addition to many other offshore projects along the East Coast of the US.
- **Prescott Hartshorne**, New York State Permitting Lead, and Director of National Grid Ventures: Prescott has over 25 years of experience conducting development and transaction-related work regarding renewable and fossil generation assets. His recent permitting experience in New York State includes a successful State Environmental Quality Review Act (SEQRA) process, working with the Town of Riverhead, NY in the 23 MW Calverton Solar Energy Center, where he was the project manager representing National Grid Ventures.
- **Daniel Sieger**, Head of Development, RWE: As the Head of Development, Daniel oversees all permitting for Community Offshore Wind. Daniel has over 13 years of experience in permitting, public policy, and environmental affairs, serving as the Massachusetts Undersecretary of Environmental Affairs until 2020. Dan was responsible for overseeing permitting and environmental review of all large-scale Massachusetts energy projects, including the first grid-scale offshore wind project in the United States. Dan also worked as an environmental consultant leading permitting for the first US based offshore wind supply chain project.

- **Patrick McCarthy,** Director of Environmental Affairs, RWE: Patrick is responsible for the oversight and management of environmental studies, civil/environmental permitting, and due diligence for RWE's onshore wind, solar and BESS portfolio, including projects in the US and Canada. Patrick has over twenty years of experience in New York State, including managing, permitting, and compliance for the first project to be constructed under New York State Article 10. Prior to his time at RWE Renewables North America, Patrick held various permitting related roles in several New York companies, focused on renewable energy and large utility projects.
- **Cynthia Pyc,** Director of Permitting and Environment, RWE: Cynthia has been working in offshore wind since 2018, first as a consultant contributing to the construction and operations plans, impact analyses, permit authorizations, and site characterization surveys for numerous offshore wind projects in the US Atlantic, and then as the Director of Environmental Affairs for Vineyard Wind 1 and Avangrid Renewables. Cynthia's areas of expertise include NEPA, MMPA and ESA permitting, identification of regulatory and other non-technical risk, long term and baseline environmental monitoring studies, underwater sound & the effects on marine life, oil spill response, community and indigenous engagement, and environmental and social impact assessment.

We recognize that the permitting of an offshore wind farm is complex, challenging, and requires a dedicated team. [redacted]

[redacted]

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Together, the permitting team has a firm understanding of what is required to support the development of the required applications, the challenges anticipated with the permitting of a large-scale project, as well as experience working with all federal and state agencies. These foundations will **enable us to overcome challenges that will be faced throughout the process** and **to successfully receive the approvals and authorizations required** in a timely manner.

### 10.2.2. The experience of our parent companies

As one of the world's leading renewable energy companies, RWE brings extensive offshore wind experience, with RWE subsidiaries and projects found in over 25 different countries. National Grid brings extensive onshore infrastructure experience, with assets owned and operated throughout New York. The collective experience of these two companies sets us up for success by **providing us with positive working relationships with regulatory agencies, best practices from prior project permitting in offshore wind development as well as in the state of New York, and a thorough understanding of the potential challenges** to our permitting plan and how to overcome them. Additional details around the experience and qualifications of Community Offshore Wind and our parent companies are described in Chapter 3.

10.2.2.1. RWE

**Global experience developing offshore wind.** RWE is one of the world's leading renewable energy companies with a large portfolio of offshore wind developments.

- With their "Growing Green" investment and growth strategy, RWE is expanding their green generation international capacity to 50 GW by 2030. To this end, RWE will invest €50B within this decade. RWE subsidiaries and projects can now be found in over 25 different countries, with 18 wind farms in operation. Recent projects include Triton Knoll, an 857-MW offshore wind farm producing clean energy off the east coast of England, a floating offshore wind farm in partnership with the University of Maine, and the Sofia Offshore Wind Farm (1.4 GW), the largest offshore wind project in RWE's current portfolio. Additionally, in 2021, RWE was awarded the contract to build Denmark's largest offshore wind farm with plans to be built by 2030.

**Local experience in New York**. RWE has developed and constructed three utility scale onshore wind projects in New York, all of which are currently operating, and includes Baron Winds I Farm in Steuben County, the Munnsville Wind Farm in Madison County and the Cassadaga Wind Farm in Chautauqua County.

- RWE's Cassadaga Wind Farm was the first onshore wind project to receive authorization under Article 10. Through that process, the team worked closely and built strong relationships with the agencies as they navigated regulations that had not been implemented before. The team built on the lessons learned and was successful in permitting the Baron Winds I Farm, a NYSERDA contracted project currently in operation (additional details on these two cases can be found in Appendices 10-1 and 10-2).

10.2.2.2. National Grid

**Strong track record of approvals.** National Grid has a consistent track record of approvals from Article VII applications as well as from other local and state agencies.

- **Article VII experience:** Since the mid-1970s, National Grid and its predecessor companies have submitted more than 50 Article VII permit applications for new electricity and natural gas transmission projects to New York State agencies. Table 10-3 lists applications submitted in the last ten years, along with key approval and project in-service dates. Additionally, National Grid Ventures has undertaken two successful Article VII applications since 2019, the New York Energy Solution Segment B project and the Rock Tavern to Sugarloaf project (more details in Appendix 10-3). The team built on the lessons from the first application, ensuring that the Rock Tavern to Sugarloaf application was fully compliant with no deficiencies three months after submission. Both projects have since commenced construction.

**Positive working relationships.** Throughout years of experience on numerous projects, National Grid has maintained strong, positive working relationships with the issuing agencies as well as local municipalities and community groups.

- **Regulatory agencies:** National Grid maintains positive working relationships with many of the regulatory agencies in the Downstate New York region, including NYSDEC Regions 1 and 2, the US Army Corps of Engineers NY District and the various local municipalities in which the

Company operates. On a regular basis, the company procures required approvals to support marine construction and dredging projects from DEC and the USACE, as well as the Towns of Huntington, Brookhaven and Hempstead.

- **Local municipalities:** For development projects requiring local approvals from a town planning board, zoning board of appeals, board of trustees, or for those likely to generate significant public interest, National Grid's Customer and Community Management and Government Relations teams are engaged early in the project planning process. These teams build on years of experience and positive relationships to work with local agencies, elected officials and community organizations to identify and address significant issues proactively to ensure positive outcomes.

Additional details related to the permitting experience of our parent companies can be found in the case studies provided in Appendices 10-1, 10-2, 10-3, and 20-5.

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While this is the first offshore wind lease area in the US for both RWE and National Grid, our permitting teams and the experience of our supporting consultants provide a solid foundation for Community Offshore Wind's success.

### 10.2.3. Lessons learned from on-going US offshore wind projects

Our team has been closely following offshore wind projects that are currently in the middle of the permitting process to identify lessons learned and potential challenges. By identifying lessons learned from other projects, we can adopt successful strategies and improve upon various aspects of the process. By identifying challenges faced by other projects, we can develop a strategy on how to avoid or mitigate them and be prepared to address them quickly and efficiently should they arise during our development. For example, we incorporated the timeline for certain permitting milestones based on recent schedules posted to the FAST-41 dashboard[20] into our own project schedule and consequently adjusted expectations for submittals to avoid future challenges and potential cascading delays.

## 10.3. Permitting plan

A development of this size has many components and interdependencies which is why a thorough and detailed permitting plan is crucial to achieving planned timelines and avoiding costly project delays. To ensure the success of our permitting plan, we are proposing a realistic timeline that provides for some flexibility should we encounter delays but will also allow us to expedite elements of the schedule when possible. Though our team is working hard to preemptively avoid any potential delays, experience has taught us that these issues are sometimes unavoidable. Therefore, we will closely track our progress throughout the process and leverage support from our experience and our expert consultants to ensure a seamless assessment and permit acquisition plan.

The description of our overall permitting plan contains three central elements:

- Site assessment and characterization activities
- Federal permitting (including SAP and COP)
- State and local permitting

The authorizations anticipated to be required and associated submittal dates and timelines for acquisition shared throughout this Chapter are based on our experience with the permitting agencies and the timelines outlined for offshore wind projects on the FAST-41 Dashboard. These authorizations and dates are subject to change based upon the final design of the project and agency needs at that time.

### 10.3.1. Site assessment and characterization activities

During the site assessment and characterization phase, we will develop strategies and commence plans for site assessment and characterization activities, such as geophysical and geotechnical surveys (G&G surveys), benthic surveys, other offshore surveys, and terrestrial surveys. We will continue to collect project-specific data which will be used to support the development of the COP, other federal permit applications, and state permit applications. Our site characterization survey mitigation includes **proactive communication and coordination with the fishing industry to minimize disruptions** from survey related activity.

#### G&G surveys

We recognize that data collection is one of the most important milestones in the development of an offshore wind project. In support of this, we have developed **a survey strategy which maximizes initial up-front G&G data collection, minimizes the number of campaigns, and allows for the prompt development of the more complex assessments**. In developing the survey strategy, we mapped out the geophysical and geotechnical data requirements, as outlined in the BOEM guidelines.[21] All offshore survey work being conducted or proposed falls within the set of activities assessed in the

20 https://www.permits.performance.gov/projects/fast-41-covered
21 Guide ines for Providing Geophysical, Geotechnical, and Geohazard Information, BOEM. 2020.

environmental assessment completed by BOEM in support of leasing OCS-A 0539 and the other New York Bight lease areas.[22]

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22 Commercial and Research Wind Lease and Grant Issuance and Site Assessment Activities, BOEM. 2021

The first survey campaign commenced in January 2023 under the BOEM approved High-Resolution Geophysical Survey Plan (2022 Survey Plan) and is collecting initial geophysical survey data across the entire lease area and the export cable corridors.

[redacted]

[redacted]

### Other site assessment and characterization activities

As the data collected during this phase is analyzed, we will further develop the project, including refining the location for the export cable corridors, landfall, and onshore facilities. We will also **initiate other environmental, cultural, and social resource studies** which will support the development of the COP and other federal and state permit applications, including:

- Benthic habitat characterization
- Sediment sampling and analysis
- Terrestrial archaeological resources
- Historic resource identification

Throughout this phase, we will provide regular updates to the federal and state agencies and seek feedback and recommendations on potential alternatives that could reduce impacts to or deconflict with environmental, social, or cultural resources. In addition to these regular updates, our fisheries team will be actively engaging with staff within state and federal agencies.

### Anticipated timeline

[redacted]

[redacted]

- [redacted]
- [redacted]

[redacted]

[redacted]

### 10.3.2. Federal permitting

Since Lease OCS-A 0539 became effective on May 1, 2022, we have been working diligently on the site assessment and characterization work, as described above in 10.3.1, which will support the preparation of applications and submissions required. [redacted]

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Descriptions of the agencies, their jurisdiction, and the respective permitting requirements associated with their permits, licenses, and environmental assessments or environmental impact statements are detailed in this section. The timeline associated with each authorization in each phase of the project is also provided below.

23 We are currently evaluating whether the deployment of metocean buoys, and therefore a SAP, is required to support the development of the project. If required, a SAP will be submitted, or an extension requested, by April 30, 2023.

24 Through the review of the COP, BOEM will satisfy their requirements as the lead federal agency under NEPA and issue a Notice of Intent (NOI) to conduct an EIS. As part of this process, BOEM will also request the initiation of various consultations with cooperating federal agencies. Additional information is included within part of this process, BOEM will also request the initiation of various consultations with cooperating federal agencies. Additional information is included within Section 10.3.2.1.

25 Based on final design, the USFWS ITA may or may not be required.

#### 10.3.2.1. BOEM

The Bureau of Ocean Energy Management (BOEM) has jurisdiction under the Outer Continental Shelf Lands Act (OCSLA). **The OCSLA gives BOEM the jurisdiction to issue leases** (e.g., Lease OCS-A 0539) **and right-of-way grants for the development of renewable energy.** BOEM authorizes the development of the leases through the review and approval of:

- Site Assessment Plan (SAP)
- Construction and Operations Plan (COP)

BOEM will also be the lead federal agency, in charge of leading the **National Environmental Policy Act (NEPA)** review for the project.

##### Site assessment plan (SAP)

As required in Lease OCS-A 0539, a SAP must be submitted, or an extension requested, within 12 months of the effective date of the lease (i.e., by the end of the Preliminary Term). The SAP describes the activities proposed to characterize the lease, such as the deployment of meteorological buoys.

[redacted]

##### Construction and operations plan (COP)

Next, we will begin to prepare the COP. The COP provides a description of all planned facilities, as well as a description of proposed construction activities (the Project Design Envelope), commercial operations, and a conceptual decommissioning plan. The COP also summarizes the results of the site assessment and characterization phase, including the results of the G&G data and biological, geotechnical, socioeconomic, and cultural resources studies, provides an assessment of the project's potential impacts, and the proposed measures for avoiding, minimizing, reducing, eliminating, mitigating, and monitoring impacts.

We are currently in the process of collecting data to support the development of the COP. [redacted] to be issued by BOEM. We will submit a copy of the COP to NYSERDA and the designated Consulting Agencies at the time of submittal to BOEM. We also intend to engage with New York State agencies throughout the development of the project to provide an overview of the proposed project and timeline.

[redacted]

[redacted]

### National Environmental Policy Act (NEPA)

Once the COP is deemed sufficient and complete, BOEM will issue a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) to conduct its NEPA environmental and technical reviews. As the lead federal agency, BOEM will initiate various consultations as required under NEPA, including:

- Section 106 of the National Historic Preservation Act (NHPA)
- Section 7 of the Endangered Species Act (ESA)
- Section 305 Essential Fish Habitat (EFH) Consultation under the Magnuson-Stevens Fishery Conservation and Management Act

BOEM will also work with the cooperating agencies, including the USACE, US EPA, NOAA, USFWS, and USCG, to ensure compliance with all obligations under NEPA. The NOI acts as the federal action which triggers the need for Coastal Zone Management Act (CZMA) consistency review, and it is our intention to submit the CZMA consistency determination request to NYSDOS. At the conclusion of the NEPA review period, BOEM will decide whether to approve, approve with modifications, or disapprove the COP. BOEM's decision will be presented in a Record of Decision (ROD) to complete the NEPA review. After the ROD is signed, BOEM will issue a formal COP approval.

Following COP approval, a **Facility Design Report (FDR)** and **Fabrication and Installation Report (FIR)**, will be submitted to BOEM and the Projects Certified Verification Agent (CVA). BOEM and the CVA will review the FDR/FIR and provide comments within 60 days. While BOEM does not formally issue an approval of the FDR/FIR, no additional comments are needed before the project can officially commence construction activities.

### Anticipated timeline for federal permits

**SAP:** [redacted]

**COP:** [redacted]

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

[redacted]

#### 10.3.2.2. The US Army Corps of Engineers (USACE)

The USACE has jurisdiction under Section 10 of the Rivers and Harbors Act (RHA) and Section 404 of the Clean Water Act (CWA). The **Section 10 permit** from the RHA requires a permit for activities that involve the construction of structures or obstructions in navigable waters. The **Section 404 permit** of the CWA requires a federal permit for activities that involve the discharge of dredged or fill materials into navigable waters of the US, including wetlands. The USACE also has jurisdiction under Section 14 of the RHA, which has since been amended and is codified at 33 USC 408 (Section 408). **Section 408 authorization** is required when the proposed project may use or alter a Civil Works project (ex. USACE maintained channels).

The USACE is expected to become a cooperating agency and adopt the EIS prepared by BOEM to fulfill its own NEPA requirements. Therefore, we expect to apply for a Section 10/404 permit with the USACE in line with the timeline agreed upon in the CPP. Based on review of publicly available timelines posted on the dashboard, we anticipate this will be tied to the timing of the DEIS.

#### 10.3.2.3. The US Environmental Protection Agency (US EPA)

The US EPA has jurisdiction under the Clean Air Act (CAA). Section 328(a) of the CAA requires the US EPA establish air pollution control requirements on the OCS. An **OCS Air Permit** will be required to comply with the EPA's requirements under the CAA, as we anticipate the potential emissions from the construction and operations of the project will exceed "major source" thresholds set forth in 40 CFR Part 55.

The US EPA is expected to become a cooperating agency and adopt the EIS prepared by BOEM to fulfil its own NEPA requirements. Therefore, we expect to submit a Notice of Intent and associated application for an OCS Air Permit with the US EPA in line with the timeline agreed upon in the CPP. Based on review of publicly available timelines posted on the dashboard, we anticipate this will be tied to the timing of the DEIS.

#### 10.3.2.4. National Oceanic and Atmospheric Administration (NOAA) Fisheries

NOAA Fisheries has jurisdiction under the Endangered Species Act (ESA), Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), and the Marine Mammal Protection Act (MMPA). The MMPA prohibits the "take" (to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal) of marine mammals, including from acoustic harassment. We expect to submit an **Incidental Take Authorization** (ITA) for the harassment of marine mammals under the MMPA resulting from construction activities, such as pile driving. NOAA is expected to become a cooperating agency and use the EIS in support of issuance of the ITA.

Through the NEPA process, BOEM is expected to request the initiation of the Section 7 and EFH consultations to assess the potential impacts of the project on ESA listed species and their habitats. Section 7 of the ESA requires consultation to assess the impacts of the project on ESA-listed species and designated Critical Habitats and prohibits the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of ESA-listed species. The Magnuson-Stevens Act requires an Essential Fish Habitat (EFH) Assessment consultation to assess the impacts to designed EFH. These consultations will be used to support the final EIS.

### 10.3.2.5. The US Fish and Wildlife Service (USFWS)

The USFWS has jurisdiction under the Endangered Species Act (ESA) and Migratory Bird Treaty Act (MBTA). Section 7 of the ESA requires consultation to assess the impacts of the project on ESA-listed species and designated Critical Habitat. The MBTA prohibits the take of protected migratory bird species. We may request an **Incidental Take Authorization** (ITA) for the take of an ESA listed species, if determined to be necessary.

### 10.3.2.6. The US Coast Guard (USCG)

The USCG has jurisdiction under maritime traffic and national security out to 12 nm from shore. Part of the USCG responsibilities include issuing permits for **Private Aids to Navigation (PATON)** for the placement of temporarily or permanently fixed structures such as buoys and foundations. We will submit a PATON application towards the end of the NEPA process, once the locations of the foundations are finalized and once other federal approvals, such as the UASCE authorization, are issued.

The USCG also issues **Local Notice to Mariners (LNM)**, which provides weekly updates to the mariner community on activities occurring offshore. We will submit the information required to support the publication of the LNM two weeks prior to the start of that activity (ex. survey activities, foundation installation, etc.).

Through the NEPA process, the USCG is expected to work with BOEM to review **the Navigation Safety Risk Assessment** completed in support of the project. We will engage with the USCG to receive input and comments to support the development of the Navigation Safety Risk Assessment prior to its submittal in the COP.

### 10.3.2.7. The Federal Aviation Administration (FAA)

The FAA has jurisdiction over U.S. territorial airspace (12 nm offshore). Authorization in the form of a **Determination of No Hazard** from the FAA is required for activities that occur over 200 feet in height within U.S. territorial airspace. As lease area OCS-A 0539 is located more than 12 nm offshore, BOEM will be responsible for determining the marking and lighting requirements for the project. We may be required to coordinate with the FAA for activities within 12 nm, such as transportation of project components which exceed 200 ft to the lease area or for nearshore survey activities. Additional coordination with the FAA may be required based upon the results of an Obstruction Evaluation and Radar Study in support of COP development.

### 10.3.3. State and local permitting

[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] |
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| [redacted] | [redacted] | [redacted] | [redacted] |
| | [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] | [redacted] |

26 In the review of the Article VII application and prior to issuing the CECPN, NYSDEC and NYSPHO (Section 106 of the NHPA, Section 14.09 of the NYS HPA of 1980) will be consulted.
27 The US EPA has delegated authority to administer NPDES permits to New York State. Therefore, this authorization will be issued by NYSDEC.

Our state and local permitting strategy involves submitting permit applications and consultations to several governing agencies and municipalities. Descriptions of these governing bodies and the respective permitting requirements associated with their jurisdiction are detailed in this section.

#### 10.3.3.1. The New York State Public Service Commission (NYSPSC)

The NYSPSC will oversee, and the New York State Department of Public Services will process, the review of the offshore transmission cable and ancillary onshore facilities within New York State territory under Article VII of the New York State Public Service Law (PSL, §§120-130). This process will also include review and approval of the Section 401 Water Quality Certification (WQC).

##### Certificate of environmental compatibility and public need (CECPN)

Our transmission cable is expected to have a design capacity that exceeds 125 kV and extends more than 1 mi (1.6 km); therefore, it is considered a major electric transmission facility (16 NYCRR Subpart 85-2.1). As such, the portion of the offshore transmission cable in New York State waters, the onshore transmission cable and the converter station are subject to review and approval by the NYSPSC under Article VII of the PSL (16 NYCRR Parts 85 through 88), which authorizes the Siting of Major Utility Transmission Facilities. The culmination of the Article VII proceeding will be the issuance of a Certificate of Environmental Compatibility and Public Need.

Through the Article VII process, several state regulatory agencies will be identified as statutory parties, including the NYSDEC and NYSOPRHP. Given the pre-emptive nature of PSL §130, these agencies will apply their regulatory oversight through the Article VII proceeding, with their program requirements to be addressed through the Certificate.

##### Water quality certification (WQC)

The NYSPSC will also consider the impacts of the transmission facilities on water quality and compliance with New York water quality standards and will issue the required WQC, pursuant to Section 401 of the CWA and implementing regulations (6 NYCRR Parts 701, 702, 704, 754 and Part 800 to 941).

##### Environmental management and construction plan (EM&CP)

Following issuance of the Article VII Certificate, an EM&CP describing the practices during construction that will demonstrate compliance with the Certificate will be submitted. The EM&CP must be filed with other regulatory agencies and local officials with an opportunity for public comment and must be approved by the NYSPSC prior to the start of construction.

##### Section 68 petition

Under PSL §68, the NYSPSC must verify that an applicant has received approval for use of municipal property or rights-of-way, has the economic resources to provide safe, adequate, and reliable service at just and reasonable rates, and that issuance of a Certificate of Public Convenience and Necessity is in the public interest. We will file a Petition demonstrating the project meets these requirements.

#### 10.3.3.2. The New York State Department of Environmental Conservation (NYSDEC)

The NYSDEC has been delegated authority from the USEPA to administer approvals under the **State Pollutant Discharge Elimination System (SPDES).**

1) **General Permit for Stormwater Discharges from Construction Activities:** Under Section 402 of the CWA as implemented by New York State under ECL Article 17 (6 NYCRR Part 750-757), stormwater discharge(s) from construction activities that disturb one acre or more are required to be covered under the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities (GP-0-20-001) or its successor issued by the NYSDEC.

2) **Existing Industrial SPDES Permit Modification:** The current Industrial SPDES Permit for the [redacted] will need to be modified to reflect the new converter station, even though the new facility is not expected to contribute any process wastewater discharges to existing outfalls. According to the instructions, facility upgrades or expansions require Application Form NY-2C to be submitted and a SPDES permit issued prior to the start of construction. It is suggested that the application be submitted at least 180 days before the date on which construction is to commence to allow time for processing.

#### Other NYSDEC reviews or consultations

Through the Article VII process, the NYSDEC will, as a statutory party, review the project to ensure consistency with their program requirements under the Environmental Conservation Law (ECL). These programs include, but are not limited to:

- Protection of Waters, pursuant to ECL Article 15 (6 NYCRR Part 608 and 621)
- Freshwater Wetlands, pursuant to ECL Article 24 (6 NYCRR Part 663 – 665)
- Tidal Wetlands, pursuant to ECL Article 25 (6 NYCRR Part 661)
- Endangered and Threatened Species, pursuant to ECL Article 11 (6 NYCRR Part 182)
- Invasive Species, pursuant to 6 NYCRR Part 575
- Consultation with Municipal Stormwater Authorities (MS4)[28]

### 10.3.3.3. New York State Office of General Services (NYSOGS), Department of Land Management

The Department of Land Management in the NYSOGS manages the state's real estate interests in lands underwater. As we are proposing to install transmission assets in New York State waters, a **NYSOGS easement** will be required. An application will be submitted following certificate issuance.

### 10.3.3.4. New York Department of State (NYSDOS), Division of Coastal Resources

Review of the project by the NYSDOS, Division of Coastal Resources relative to the New York State CZMP will be coordinated as part of the larger, comprehensive effort required by BOEM. The **Federal Consistency Determination** required by BOEM and the USACE to issue their authorizations will satisfy the review requirements under Article VII of the PSL. The Consistency Determination will be submitted as part of the COP and will formally be submitted to NYSDOS concurrent with the issuance of the NOI. We expect NYSDOS to request a stay, to allow for review of the DEIS before making a final determination.

28 Dependent on final route and affected MS4s

#### 10.3.3.5. Metropolitan Transportation Authority (MTA) and the Long Island Railroad (LIRR)

The MTA is a state agency that operates and maintains rail lines in the greater New York City area. The LIRR is an agency within the MTA, and is responsible for all rail service, maintenance, and operation on Long Island. Our proposed route includes rail crossings, which will require a **railroad ROW entry permit** as well as a **railroad ROW construction authorization** from these agencies.

#### 10.3.3.6. Local ordinances and approvals

Due to the pre-emptive effect of PSL § 130, the procedural requirements to obtain any local approval, consent, permit, certificate or other condition for the construction and operation of the project components subject to Article VII do not apply. Nevertheless, Article VII requires the identification of applicable local ordinances and requires justification for their requested waiver by the NYSPSC.

While local ordinances and approvals are addressed through the Article VII process, we will still be required to obtain right-of-way easements from the municipalities in which our export cable route crosses.

## 10.4. Additional permitting considerations

[redacted]

[redacted]

[redacted]

### 10.4.2. Newburgh permitting

[redacted]

### 10.4.3. Battery energy storage solution and hydrogen electrolyzer permitting

[redacted]

### 10.4.4. NYISO permitting

We have significantly matured **three NYISO queue positions** to support delivery of our offshore power into the grid, and extensively explored solutions to facilitate future expansion of offshore wind delivery capability. This includes several elements in our design that will significantly reduce the costs of future interconnections, reduce the risks in permitting and construction delays as well as environmental and stakeholder impacts. A more in-depth description and explanation of our NYISO process can be found in Chapter 8.

# 11. Engineering and technology

## 1 Table of contents



## 2 List of tables

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## 4 List of appendices

[redacted]

## NYSERDA solicitation requirements

The engineering and technology aspects of our project address each requirement laid out by NYSERDA in the Request for Proposal (RFP). The table below identifies each solicitation requirement.

*Table 11-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| 1a. Type of foundation, Offer Capacity, and generator lead line transmission technology | 11.4, 11.5 |
| 1b. Primary Components to be used | 11.3 |
| 1c. Equipment specification and description | 11.4, 11.5 |
| 1d. Manufacturer of each of the equipment components as well as the location of where each component will be manufactured | 11.3 |
| 1e. Status of acquisition of the equipment components | 11.3 |
| 1f. Status of any contracts for the equipment Proposer has or Proposer's plan for securing equipment and the status of any pertinent commercial arrangements | 11.3 |
| 1f. Equipment vendors selected/considered | 11.3 |
| 1g. Track record of equipment operations | 11.4, 11.5 |
| 1h. How climate-related risks across the different components and asset classes of the Project have been considered | 11.7 |
| 1i. Design considerations (technology selection, layout) for climate adaptation and resiliency such as sea level rise and dynamic flooding events, potential impacts from increased frequency and severity of storms (i.e., superstorms, hurricanes), seismic activity, etc. | 11.7 |
| 1j. Design considerations that help to support responsible disposal and or recycling of components after the end of their useful life and equipment plans that generally aim to consider the precepts of the circular economy. | 11.8 |
| 1k. In the event the equipment manufacturer has not yet been selected, identify in the equipment procurement strategy the factors under consideration for selecting the preferred equipment, including alignment with the considerations above, as well as the anticipated timing associated with the selection of the equipment manufacturer, including the timing for binding commercial agreement(s). | 11.3 |

| | |
|---|---|
| 2. Describe the lightning controls that will be utilized on the Offshore Wind Generation Facility and explain how these controls comply with the minimum contract standards and the Offshore Wind Orders | 11.6 |

## 11.1. Summary

NYSERDA has a stated goal of reaching an offshore wind portfolio of 9 GW by 2035. It is therefore essential that developers make prudent technology choices, backed by a sound and mature procurement plan. The choice of technology and design of components must ensure robustness against the onset of more variable and severe future environmental conditions driven by climate change. To minimize the cost of green electricity to the customers in New York State, the developers must also consider the total cost of the procurement, design, and technology choices.

We have developed a comprehensive design and procurement approach to the major components of the offshore wind farm (wind turbine generator, foundation, and inter-array cables) and transmission system (off- and onshore converter stations, mesh facilities, export cables, and interconnection cables). An overarching design principle is that our components must be able to accommodate conditions attributable to climate change while optimizing for circularity and minimal environmental impact, which is further described below. We will use a proven procurement process by leveraging the extensive experience of RWE as a leading global offshore wind developer and National Grid as a leading transmission and energy company.

### Our approach to the offshore wind farm components

[redacted]

[redacted] Additionally, we can leverage RWE's extensive experience currently operating 5.8 GW of offshore wind capacity supported by monopiles.

[redacted]

### Our approach to the transmission system components

For the design and procurement of transmission components, we will leverage National Grid's expertise in HVDC transmission and over 20 years of experience as a leading energy and transmission company in New York. Additionally, RWE provides more than 20 years of experience in operating and developing offshore wind transmission assets. **We will apply the collective learnings from our parent companies' experience in HVDC and HVAC to provide reliable and resilient transmission solutions both on- and offshore.** Our substations, transmission cables, and HVDC equipment will consist of technologies that are widely used throughout the industry and that have been proven by numerous comparable National Grid HVDC projects. Our decisions have been informed by extensive dialogues with engineering companies and HVDC suppliers, enabling us to arrive at a well-proven concept that we are firmly committed to.

### Our design considerations for climate resiliency, circularity, and environmental impact

We are committed to guaranteeing the safety in and around the wind farm for both maritime and airborne vehicles. To curtail potential risks related to offshore navigation, we will use and incorporate state-of-the-art lighting controls and markings in compliance with local standards and regulations. We plan to use well-tested navigation lighting systems to our offshore wind farm to reduce the risk of maritime and aviation interference.

Climate change will bring harsher and more unpredictable conditions than what is currently normal for offshore wind farms. To de-risk and future-proof our project, we apply industry standard safety margins and apply our industry knowledge in the design of our wind farm components. We have developed a set of specific mitigation actions for each of the components at risk, as informed by NYSERDA's Offshore Wind Climate Adaptation and Resilience Study and our experience. **For example, our capital budget includes robust flood mitigation measures to ensure system resilience.**

To reduce environmental impact from this project, we plan to reach the highest possible level of circularity compatible with our other technology design choices. By leveraging the rapid development of circular technologies and recent experiences of RWE and National Grid projects, we are confident that the major components of the wind farm can be recycled, such as the wind turbine blades, tower and nacelle components. RWE's participation in the Circular Economy for the Wind Section (CEWS) project substantiates this point.

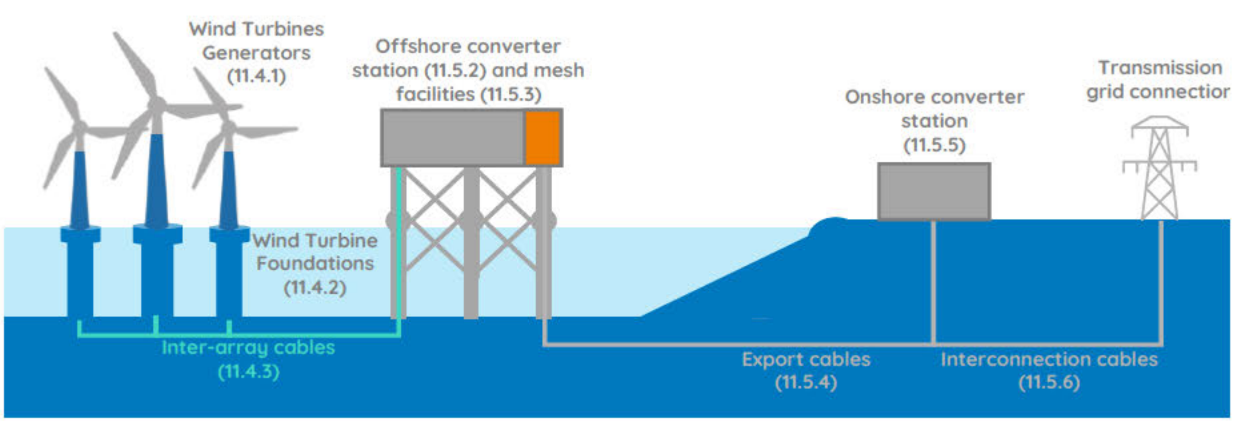
## 11.2. Introducing the Community Offshore Wind farm

Wind is one of the most powerful natural forces on planet Earth and is consequently a strong source for generating climate-friendly energy. To capture and transmit this energy to the electrical grid, the offshore wind farm requires the following set of components:

- Wind turbine generators (Section 11.4.1) to harness the energy
- Wind turbine foundations (Section 11.4.2) to uphold and provide stability to the generators
- Inter-array cables (Section 11.4.3) to transfer electricity from the wind turbine generators to the offshore substation
- Offshore converter station (Section 11.5.2) to convert the high-voltage alternating current to high-voltage direct current (HVDC) for transmission
- Mesh facilities (Section 11.5.3) to provide further grid stability and flexibility by connecting multiple export facilities
- Export cables (Section 11.5.4) to efficiently transfer electricity to the onshore substation
- Onshore converter station (Section 11.5.5) to convert power into high voltage alternating current (HVAC)
- Interconnection cables (Section 11.5.6.) to transfer the electricity from the onshore converter station to the grid

The process described above is illustrated in Figure 11-1 below.

*Figure 11-1 Arrangement and layout of the offshore wind farm components*



## 11.3. Our approach to technology and procurement of the major components

The equipment procurement approach is indispensable to the execution of our project. A properly conducted plan can help ensure the successful implementation and delivery of the wind farm project, while providing significant economic benefits to New York.

Our procurement approach is built upon four pillars:

- **Maximizing New York State content:** We will partner with suppliers that are committed to New York State content and can provide a SCIP proposal that brings substantial economic value and localization efforts. Where possible and feasible, we will always strive to procure components produced locally in New York State and to use domestic steel produced in the United States.
- **Tried and tested procurement plan:** For the components that are not locally available, we will conduct a bid process that will lower costs and provide further competitive advantage to our pricing commitment, while ensuring supply of the components for our wind farm.
- [redacted].
- **Leverage RWE as a global leader within offshore wind and National Grid as a leading transmission and energy company:** We will utilize RWE and National Grid's market position to acquire binding commitments from the vendors and mitigate potential supply chain constraints

Our procurement process and strategy for all the major components of the offshore wind farm are shown in [redacted] **We are confident that we have a sound approach to the procurement, leveraging decades of experience within both offshore wind and grid experience from our parent companies, National Grid and RWE**. As mentioned above, the approach is centered around minimizing cost to New York customers while maximizing New York State content where possible, by using predominantly local supply. Our procurement plan is aligned with our overall project schedule, taking into account potential delays or supply chain issues that may arise.

[redacted]

[redacted]

Anticipating the risk of a constrained future offshore wind supply chain, we have a procurement plan with a clear view of the potential suppliers and manufacturing locations, as shown in [redacted] All the vendors listed below are global leaders in their industry with solid track records and the ability to perform the scope of work competently and professionally. The final choice of the respective supplier will ultimately depend on the market availability and competitiveness of the offers.

[redacted]

29 Non-exhaustive

[redacted]

[redacted]

[redacted]

[redacted]

To underline that local New York State content is a key priority in our bid process, we have included several NYSERDA documents along with our RFIs that are sent to our supply chain partners before bids are submitted. These documents include the New York Local Content Requirements for New York (ORECRFP22-1), the Offer Data Form (ORECRFP22-1_K), and the NY Economic Benefit from NY Local Content Commitment.

To achieve the local content goals, we are running a procurement process that prioritizes bringing local suppliers into the process so that they can compete on better terms with the larger suppliers. The following list sums up the key measures we are taking in this regard:

- We are actively using the New York Offshore Wind Supply Chain database maintained by NYSERDA and will use this to provide New York companies with the opportunity to provide goods and services if we are awarded
- [redacted] We will use that database to share with tier 1 suppliers to encourage them to tap into local supply chains where possible
- We have written into letter of intents (LOIs) with tier 1 suppliers that they must procure a share from local tier 2-4 sub-component suppliers.
- We have embedded a preference for small local suppliers in our procurement strategy and approach
- We will invest in New York's workforce and community development programs to build the skills needed locally. This is further described in Section 19.2.
- We will empower tier 2-4 suppliers (subcontractors and subvendors) with awareness and access to capital
- We will be complying materially with the New York State Supplier Opportunity requirement, which is described in Section 2.2.13 of the RFP
- Post-contracting, we will publish biannual reports to show compliance with the New York State Supplier Opportunity requirement for any package of work on our or our supplier's behalf

## 11.4. The design and choice of our offshore wind farm components

All main components of our project are described below.

### 11.4.1. Wind turbine generator

A wind turbine generator is the cornerstone of any wind farm and the component where kinetic wind energy is converted into green renewable electricity. Driven by the need to lower the levelized cost of energy (LCOE) the capacity and size of wind turbine generators is continuously increasing in size. Correct selection is critical in terms of cost for the rate payer, technical and commercial viability, and economic benefits for New York State.

We are committed to a de-risked procurement of wind turbine generators that maximizes New York State local content and project viability while minimizing costs for New York residents. We have engaged discussions with the three leading wind turbine generator suppliers, General Electric (GE), Vestas, and Siemens Gamesa Renewable Energy (SGRE), to localize the production of wind turbine generators and leverage NYSERDA's SCIP mechanism. All three OEMs are world-leading wind turbine generator suppliers with a large global market share and extensive track records, making us confident that each would be a reliable partner for the project. **Considering local economic benefits, price, and commercial viability, we have chosen GE as our wind turbine generator of preference, as introduced in Chapter 1** [redacted] below describes our offer capacity and number of wind turbines for our projects:

[redacted]

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

#### 11.4.1.1. <u>Costs: [redacted] lowers the cost of our project which ultimately benefits the customers</u>

[redacted]

Additionally, we have leveraged RWE's position as a global leader in offshore wind to ensure a commercially viable agreement with [redacted]

#### 11.4.1.2. <u>Viability: We are confident the [redacted]</u>

[redacted]

[redacted]

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

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

The turbine will consist of an upwind rotor with three blades, a nacelle housing the mechanical and electrical drive train and a tubular steel tower. [redacted] with this type of turbine design, giving us confidence in production and performance modelling. Leveraging our industry insights, we anticipate the characteristics for a [redacted]ease note that this remains a hypothetical design at this stage and that the final rated power will likely slightly vary from [redacted]

[redacted]

[redacted]

For more details on the technical specifications and design consideration of our wind turbine generators, see appendix 11-3.

#### 11.4.1.3. Economic benefits: [redacted] will be central in building the New York offshore wind supply chain

The nacelle, hub and blades in the wind turbine generator will be procured through our SCIP facility agreement. The tower will also be procured locally but outside of the SCIP facility agreement. This will be a major step in building the offshore wind supply chain in New York and will bring tremendous local economic benefits in terms of capital investments and long-term jobs (see Chapter 19 for further details).

If our SCIP proposal is not awarded, we are committed to working with other potential wind turbine generator SCIP recipients.

[redacted]

[redacted]

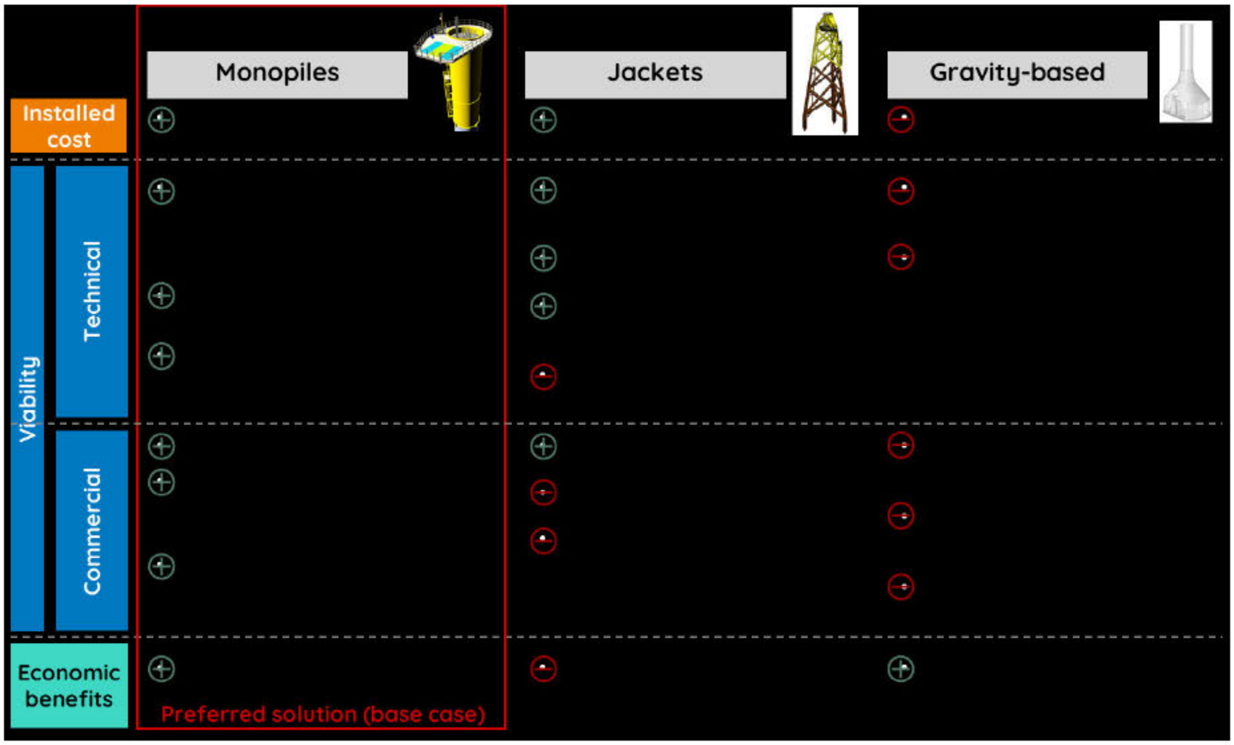
### 11.4.2. Wind turbine foundations

The wind turbine foundation plays a critical role in securing the wind turbine generator to the seabed over its design life and under extreme environmental conditions. Careful consideration is necessary during the design and selection of wind turbine foundation to ensure structural and turbine integrity.

We plan to use foundation technology that maximizes New York local content while minimizing technical risk and cost to the customers of New York State. We have considered cost, technical viability (water depth, soil, environmental conditions in combination with turbine loads), commercial viability (supplier capability limits, production capacity, and logistics), and economic benefits (addition of local jobs and SCIP facilities) in determining the suitable foundation type for the project. In our selection, we have leveraged RWE's experience in installing all three foundation types in previous projects to inform our considerations.

A monopile with a transition piece has been selected as the foundation of choice for our project. In our assessment, we considered three different foundation technologies: monopiles, jackets and gravity-based foundations. We have assessed the alternatives based on the costs, technical viability, commercial viability, and economic benefits, as described in Figure 11-6 below

*Figure 11-6 Assessment of foundation technology*




**11.4.2.1. <u>Costs: The monopile design enables us to lower the price of green electricity to New York customers</u>**

At the sizes relevant for our project, the steel & manufacturing costs are largely equal between monopile and jacket foundations. However, the monopile is cheaper to transport and install (T&I). The monopile has a small footprint which makes the marshalling of the monopiles easier with feeder barges. Monopiles also require a single step installation process thereby reducing overall offshore foundation installation vessel time. Moreover, by choosing a TP-less monopile, we save further costs for the benefit of electricity customers. Consequently, the monopile design offers a cheaper solution compared to the jacket or gravity-based foundation which takes longer time to fabricate, marshal, and install.

**11.4.2.2. <u>Viability: The monopile design is both technically and commercially viable and has an extensive track record</u>**

**The monopile is the most used foundation type for offshore wind projects globally.** [redacted] Monopiles have found acceptance across geographic regions and in various soil conditions, covering RWE offshore wind farms in the North Sea, Irish Sea, Baltic Sea, and English Channel. [redacted]

[redacted] We will utilize this experience and lessons learned from RWE's comprehensive portfolio so the project team can deliver a safe and successful monopile foundation for the project.

Monopile design for our project has been established through a concept design exercise for the given water depth, soil profile and environmental conditions of the lease area. Foundation design is primarily influenced by the water depth and in-situ soil conditions. The monopile design will be determined by depth and soil clusters shown in [redacted] below. The dimensions of monopile foundations are dependent on bathymetry and seabed conditions specific to the location of installation. The foundation is designed for [redacted] years of life. The project will utilize Condition Monitoring Systems (CMS) to monitor the foundation performance in addition to other operation and maintenance activities. CMS allows the windfarm operator to make real time measurements of dynamic changes, natural frequency (eigenfrequency) of the wind turbine generator tower and foundation, mechanical displacement, corrosion, cathodic protection potential and scour at the seabed. CMS functions as an early warning system and allows operators to perform proactive maintenance instead of reactive maintenance. This reduces maintenance costs and extends the life of foundation structures.

A clustering strategy was developed to group the lease area into [redacted] based off soil conditions and water depth, see [redacted] below. Our final design cluster is informed by the soil (which is informed by the borehole data) and the depth.

[redacted]

[redacted]

[redacted] Further optimization and refinement of monopile design will be performed once the preliminary site characterization is completed and location specific geotechnical data is available.

[redacted]

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

To assure the robustness of the monopile over the design life, it is necessary to provide proper corrosion and scour protection. Corrosion protection assures the performance of the foundation over its design life while scour protection assures the foundation remains effective by protecting the embedment.

### Corrosion protection

The wind turbine foundations are exposed to a significant amount of corrosion throughout their lifetime. [redacted] Additionally, an epoxy paint coating system will be utilized for the atmospheric and splash zone sections of the structure. Epoxy paint coating systems have proven to be capable of protecting against splash zone corrosion in operating wind farms in harsh North Sea environments.

### Scour protection

A key part of establishing and maintaining the design boundary of wind turbine foundations is to ensure the embedment depth of the foundation. Scour protection provides assurance of embedment depth by preventing sediment from washing away and deepening the seabed surrounding the foundation, known as scour.

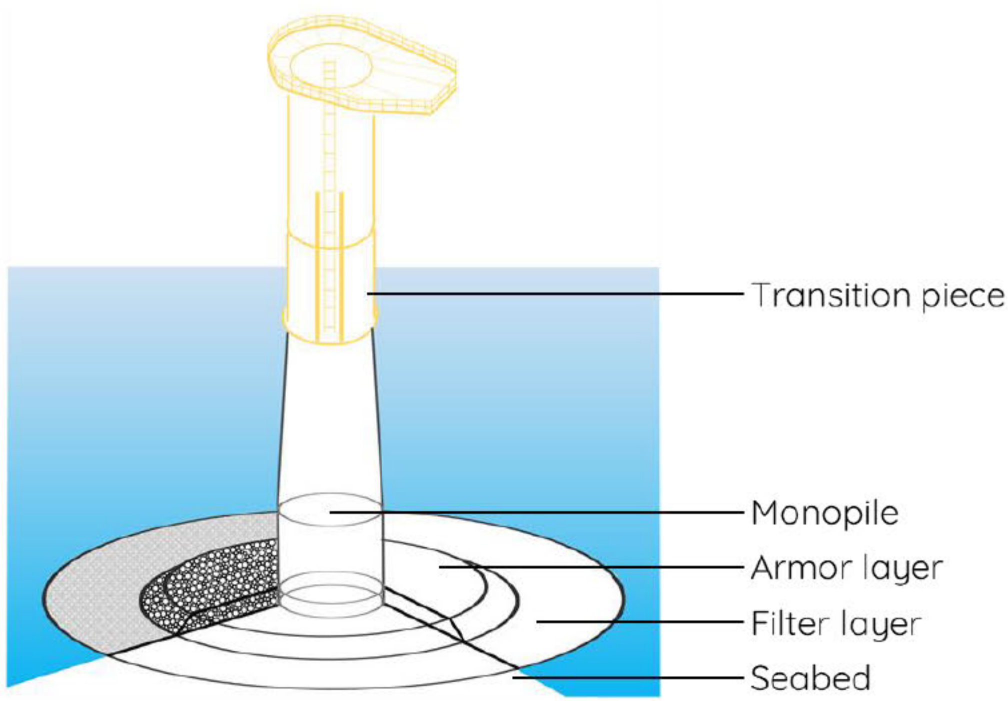
In choosing scour protection technology, we have a clear ambition to commit to the most efficient solution that is environmentally friendly, brings economic benefit to New York State and guarantees protection against scour.

[redacted]

[redacted]

While a rock berm has proved to be an effective scour protection solution for similar projects, alternative methods, such as the use of geotextile sand containers, are also being assessed as a potential cost-saving solution. [redacted] offer the advantage of standalone installation prior to monopile installation and therefore reduce installation schedule risk as well as risk of damage to monopile and cable from armor rock placement post-installation. Regardless of the chosen solution, we will prioritize both the integrity of scour protection and the economic benefits to New York State resulting from sourcing the necessary raw materials in-state.

*Figure 11-8 Typical scour protection for a monopile foundation*




## Commercial viability of the foundation typology

After having established the technical viability of monopile foundations for our project, we then evaluated the commercial viability of the foundation typology by evaluating supplier capability, production capacity and manufacturing cost.

[redacted]

[redacted]

[redacted] shows a comparison of supplier capability and our concept monopile design. From the figure below, you can see that our concept is well within supplier capability, with up to three suppliers capable of producing monopiles of the required diameter and weight.

[redacted]

[redacted]

#### 11.4.2.3. Economic benefits: The SCIP will lead to many economic benefits and support the offshore wind supply chain

[redacted]

[redacted]

---

[redacted]

[redacted]

#### 11.4.2.4. <u>We will consider alternative foundation technology if necessary</u>

We strive to provide a comprehensive foundation solution that is technically feasible, commercially viable, and maximizes the economic benefit to New York State. However, we do recognize the limitation of soil characterization and environmental information available to us. Consequently, we are prepared to pivot our foundation design, if deemed necessary.

The soil conditions are highly variable across the lease area and comprise a top-layer of Holocene sediments, atop Pleistocene units of different thicknesses across the site. This is founded on a deep layer of coastal plain deposits. The Pleistocene units are a thick layer of predominantly clay-rich deposits which provides low-stiffness to a foundation structure.

Based on these conditions, we expect a monopile foundation to be feasible. If additional site investigation demonstrates more onerous soil conditions, there are alternative typologies which we have assessed. As an alternative to monopiles, we will continue to progress the design and feasibility assessment of using steel jackets. The final choice between jackets and monopiles will be made based on more detailed soil information at the site, as well as costs, technical viability, local feasibility, and execution with respect to the project schedule.

### 11.4.3. Inter-array cables

The inter-array cables enable in-field transmission of power generated by wind turbines to offshore converter stations by connecting the wind turbines in multiple array circuits. Cable design, grid layout, transmission voltage, and ampacity rating play a crucial role in limiting transmission losses, assuring turbine availability, and reducing cable count.

We have considered cost, technical viability (cable ampacity and transmission voltage), commercial viability (supplier capability limits, production capacity, and logistics), and economic benefits (addition of local jobs and SCIP facilities) in determining the suitable inter-array cables for the project.

We will utilize 66 kV AC inter-array cables as a base case to connect each of the [redacted] wind turbines via a series of five. We will also explore the option of utilizing 132 kV inter-array cables to further reduce the number of array circuits and increase AEP due to reduced cable losses.

[redacted] These world-leading cable manufacturers have impressive track records and are currently investing in expansion facilities. They should thus expect to have sufficient production capacity to supply inter-array cables for the project. Cable installation will be performed by the marine contractor as described in Chapter 13.

[redacted] cables from OEMs at highly competitive prices, for the ultimate benefit of customers in New York.

## 11.4.3.2. Viability: We have chosen a technically and commercially viable inter-array cable design

We are confident in the viability of the 66 kV AC inter-array cables as they are the most widely used inter-array cables across offshore wind projects globally.

We have performed a cable sizing exercise using an in-house cable calculation tool to define cable layout and cross-section size. This exercise resulted in an alternating current (AC) three-core 66kV cable design with aluminum or copper conductors. The cross-section ranges from [redacted] and uses cross-linked polyethylene (XLPE) insulation.

Our cables will be manufactured according to IEC 63026, and we will utilize oil-free cable designs to avoid leaks into the local environment. We plan to use a wet cable design with each core of the three cores made of aluminum or copper conductors. These will be encased within a steel armor layer and sheathed in an outer cross-linked polyethylene (XLPE) insulation layer. Additionally, our inter-array cables will have an integrated optical fiber cable with 48 fibers for communication with the control system in each wind turbine. This is a part of the SCADA system for the wind farm.

*Figure 11-10 Inter-array cable diagram*

Inter-array cables can be supplied by either [redacted] from facilities located in the US or Europe. [redacted] plans to build an additional cable manufacturing facility in Brayton Point, Massachusetts in addition to its facility in Europe, while [redacted] plans to expand its manufacturing capacity by building a second facility in [redacted] has facilities in [redacted] which can supply the inter-array cables for our project.

All three suppliers have an extensive track record supplying [redacted] and sufficient lengths to meet our requirements.

#### 11.4.3.3. We will consider alternative inter-array technology as needed

We are working jointly with the wind turbine generator manufacturers, cable suppliers, and the cable accessory industry to determine if a 132kV array cable voltage system is feasible. RWE is part of the [redacted] In that group, the industry works on future technologies and developments in the supply chain. We will investigate these technologies further and decide at a later stage whether we can use this technology for our wind farm, if deemed feasible.

## 11.5. The design and choice of our transmission system components

### 11.5.1. The HVDC transmission system

The HVDC transmission facility is a critical element linking the offshore wind farm to the onshore transmission network. This enables the energy generated by the wind turbines to be delivered to the New York State transmission grid with minimal losses. **A major design decision is the HVDC system voltage class and corresponding power delivery capability, which determines the voltage of the off- and onshore substation, and interconnection cables. These components are typically procured in a bundled package to ensure compatibility.** The HVDC voltage class is thus critical to ensure reliable power delivery to the grid and will ultimately have significant impact on the cost of electricity to New York State customers.

We will use HVDC technology that optimizes for technical viability (proven technology, NYISO single-contingency limit, and system component maturity) and commercial viability (supplier capability limits, production capacity, and logistics) while minimizing the cost to New York customers.

We have considered three different voltage options: 320kV symmetric monopole, 400kV symmetric monopole and 525kV bipole. We have leveraged National Grid's and RWE's HVDC expertise and close relationships with leading OEMs to evaluate each of the three potential voltage technologies.

[redacted] also consider other voltage classes that can help NYSERDA reach its offshore wind goal if circumstances change (e.g., if the NYISO single-contingency limit changes) or if prompted by NYSERDA.

*Table 11-5 HVDC voltage class assessment*

| | | 320 kV sym-monopole | 400 kV sym-monopole | 525 kV bipole |
|---|---|---|---|---|
| Delivery capability | | • ~1,300 MW | • ~1,600 MW | • ~2,000 MW |
| Installed Cost | | ⊕ Low | ✓ Some overbuild for 1.3 GW | ⊖ Overbuild for 1.3 GW |
| Viability | Technical | ⊕ **Most commonly used** for offshore wind globally<br>⊕ **Capable of delivering to the current NYISO single-contingency limit** of 1,310 MW | ⊕ **Additional injection capacity available** if NYISO limits are expanded<br>⊖ **Not yet used for offshore projects**<br>⊖ Added installation risk<br>⊖ May require new NYISO interconnection request | ⊕ Proven viability in European offshore projects<br>⊖ Limited onshore parcels available |
| Viability | Commercial | ⊕ Proven manufacturing and installation process currently supplied by GE, Siemens, and Hitachi/ABB | ⊖ **OEMs are generally not interested in developing this intermediate voltage**<br>⊕ Growing interest form developers in the Northeast US | ⊕ Proven manufacturing and installation process currently supplied by GE, Siemens, and Hitachi/ABB |
| Economic benefits | | ⊕ Smallest land impact from smaller onshore substation<br>⊖ Limited New York state production | ⊖ Limited New York state production | ⊖ High land impact from large parcel required for onshore substation<br>⊖ Limited New York state production |

#### 11.5.1.1. Costs: The 320 kV HVDC voltage class minimizes cost of green energy to New York State customers

The 320kV system is the most cost-efficient solution to deliver power with NYISO's current single-largest contingency of 1,310MW. Larger systems do not yield cost efficiencies after accounting for real estate and cabling costs.

#### 11.5.1.2. Viability: The 320 kV HVDC voltage class significantly de-risks our transmission solution

The 320kV HVDC voltage class is used on most offshore wind installations worldwide.

Moreover, the solution is also capable of delivering up to the NYISO single-contingency limit. Comparatively, deploying the 400kV or 525kV systems to their maximum potential into a single POI (~1600MW and ~2000MW, respectively) would imply interconnection requests above the current NYISO limit to make economic sense, which would add considerable risk to our interconnection plan given the required study delays.

The 320 kV and 525kV HVDC voltage class are each currently supplied by three major OEMs, namely GE, Siemens, and Hitachi. The suppliers have well proven manufacturing and installation processes. Comparatively, we have seen little interest from the same OEMs in developing 400kV offshore solutions. Global demand for 320kV and 525kV system is large enough that the OEMs would prefer not to spend resources to develop a 400kV solution.

We plan to contract the procurement of the electrical HVDC equipment with the OEMs, while topside and foundation will be done either through a consortium agreement or other separate contracting with the OEM's preferred partner.

#### 11.5.1.3. Economic benefits: We are committed to building the New York offshore wind supply chain

Building the offshore wind supply chain in New York and maximizing the local economic benefits for New York residents are among the highest priorities for us. As such, we are committed to procuring HVDC components from local New York OEMs where possible. Currently, none of the suppliers that can produce HVDC systems have supply chains located in New York. However, we will continue our efforts in co-operating with New York State suppliers to establish New York production capacity until we need to enter a binding supplier agreement.

#### 11.5.1.4. We will implement advanced technology considered from power grid study

We recognize that the offshore wind industry is quickly evolving, and we are consequently dedicated to incorporating more efficient technology into our project as it becomes viable. Therefore, we are excited to incorporate certain particularly advanced technologies into our transmission solution. We anticipate that these technologies will allow for safer and more reliable delivery of our clean energy to New York consumers.

**We will install online monitoring for our substations which will allow more efficient operations**. Online condition-based monitoring is implemented on transformers, breakers, switchgear, and other equipment to provide continuous data on the condition of the assets. An asset monitor collects historic data and sends an alarm when something looks out of place. This data identifies issues early in the failure process and allows for proactive maintenance during planned outages. This method saves time and money while keeping the crew safe.

**Additionally, we will use gas-insulated switchgear, combining vacuum switching technology with clean air insulation.** It operates without harmful greenhouse gases, such as the SF6 gas, with no toxic decomposition products during handling and maintenance.

### 11.5.2. Offshore converter station

The primary function of the offshore converter station (OCSn) is to collect, stabilize and transform electricity generated from the wind turbines into a higher voltage to reduce electrical losses prior to exporting the power to land via export cables.

[redacted]

11.5.2.1. <u>Costs: We have optimized for minimizing the cost of green energy for the customers</u>

The OCSn will be procured in a bundled package together with the onshore substation. Hence, the total cost of the OCSn is determined by the overall choice of our HVDC solution, which can be seen in detail in Section 11.5.

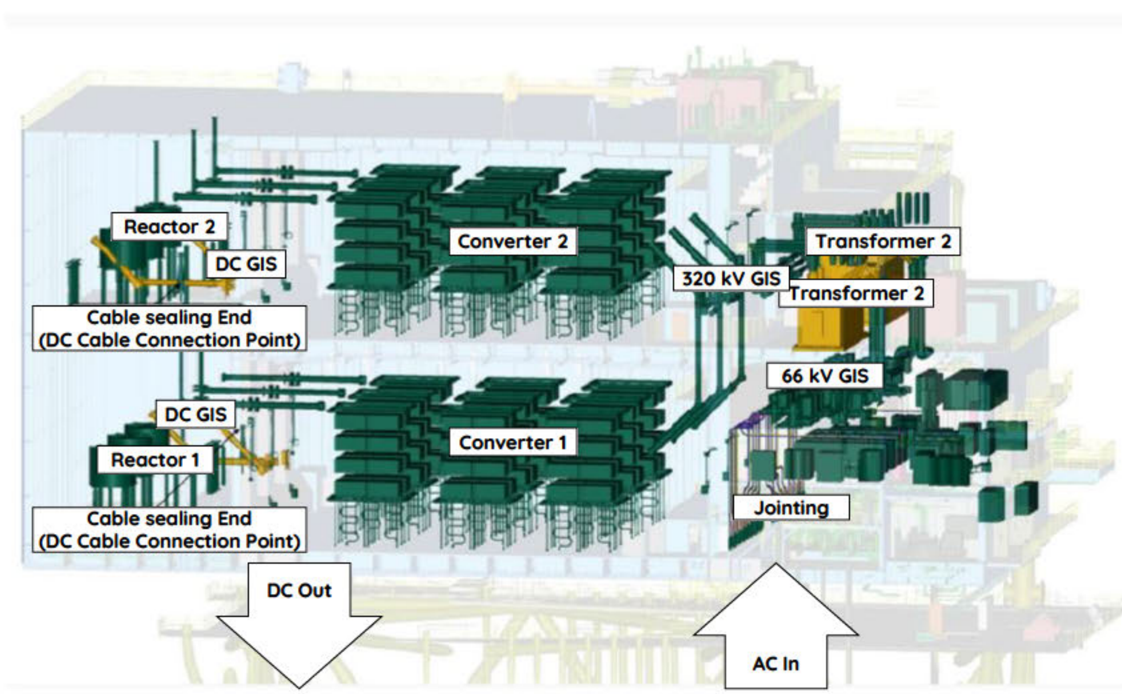
11.5.2.2. <u>Viability: We will ensure technical viability through a tried and tested offshore substation design</u>

### Our topside will house key facilities that ensure secure operational capacity

We will use an industry standard configuration of the offshore converter station topside, reducing the risk of unforeseen technical issues. It will house all the main equipment and services, including utilities, emergency and mechanical handling equipment, HVDC and HVAC electric equipment, and support equipment. The topside will also house key operational facilities (e.g., control room, welfare facilities suitable for a normally unmanned platform), as well as critical systems such as navigation and aviation light control, fire suppression, rainwater separation and communication antennas.

Figure 11-11 below depicts a representative profile view of our planned topside configuration.

*Figure 11-11 Offshore substation topside[31]*




In case of unplanned disconnection from the onshore transmission network, diesel-powered back-up generators, or battery/UPS, will be available to power essential services on the substation platform. In

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the case of diesel-powered generators, the substation will be installed with containers for collecting oil and diesel spillages in the event of leakages.

The OCSn will be procured in a bundled package with other HVDC transmission components, see section 11.5 for more details. The topside will be manufactured according to the manufacturer's standard without significant alterations, minimizing risk of production issues.

**A post-piled jacket will be used for the foundation with dimensions tailored to the site conditions**

We will use a post-piled jacket for the OCSn foundation with J-tubes equipped with messenger wires. The dimensions of the jacket foundation supporting the substation platform will depend on the specific seabed conditions and water depth - between 85ft (26m) and 98ft (30m) - at the substation location.

The jacket foundation will be procured with the preferred supplier of the HVDC equipment OEM, as described in Section 11.5.1.

#### 11.5.2.3. Economic benefits: We strive for New York content in our OCSn procurement

We strive to maximize the New York State local content in the procurement of all our components. There are currently no HVDC topside suppliers capable of producing in New York, however we will work continuously with the suppliers to facilitate the adoption of a facility in New York. More details can be found in Section 11.5.1

### 11.5.3. Mesh facilities

A critical element in reaching NYSERDA's goal of at least 9 GW of offshore wind capacity by 2035 is that transmission solutions allow for power flow flexibility to effectively deliver clean energy where it is most needed, without adding to electric congestion.

To help achieve this goal, we are dedicated to offer innovative mesh solutions that will accelerate and simplify the adoption of a broader mesh network in the New York Bight. We will ensure a de-risked implementation through designing well-founded solutions informed by National Grid's experience within offshore transmission networks and informed by Keystone, an external transmission consultancy. Our plan is optimized to maximize the technical and commercial viability and economic benefits, while minimizing the cost for customers in New York State.

**We ensure de-risked mesh adoption through highly viable mesh technology**. Our project will be developed using a 320kV HVDC symmetric monopole configuration, where the mesh technology is placed immediately adjacent to the OCSn topside on its own foundation. See appendix 8-5 for more details.

#### 11.5.3.1. Costs: We will implement a cost-effective mesh solution to lower the cost of green electricity

We will leverage National Grid's position as a leading transmission and energy company to negotiate and contract favorable terms for the mesh equipment. We will use the 230 kV HVAC configuration that require less space for installation, which enables us to install the equipment as a bolt-on addon on a standard configuration of the offshore converter station. By doing this, we avoid incurring costly modification upgrades.

#### 11.5.3.2. Viability: Our solutions have been validated by external parties

We have developed our mesh solutions through extensive conversations with HVDC OEMs and offshore design experts. To test and validate our designs, we have hired external consultants to conduct loadflow and economic modeling.

Table 11-6 below lists the technology needed to implement each of our proposed solution.

*Table 11-6 Mesh technology*

| Equipment | Technology |
|---|---|
| Equipment location | All necessary equipment to be located on the mesh platform. Additional 400kV GIS bay on HVDC platform for requisite connection. |
| Gas-insulated buswork | Expanded 400kV bus for the mesh MPT connections<br>230kV bus for neighboring mesh connections |
| Main Power Transformer (MPT) | 400/230kV on mesh platform |
| Shunt reactor | 230kV reactors located on mesh platform. |
| Gas-insulated switchgear | GIS breakers and switches at 400kV and 230kV for mesh connections |
| Protection and control | Standard remote and local protection packages |
| Metering | Revenue quality metering points on neighboring mesh connections capture energy and demand quantities |

Our planned mesh equipment can be provided in a bundled package together with the HVDC components, as further explained in Section 11.5.

#### 11.5.3.3. Economic benefits: We are committed to maximizing the economic benefits where possible

We strive to maximize the local content in the procurement of all our components where possible. Consequently, we will procure New York manufactured HVDC mesh equipment if commercially and technically viable at a reasonable cost and timeline.

[redacted]

### 11.5.4. Export cables

The export cables play a key role in ensuring the safe and reliable transmission of electricity from the offshore substation to the interconnection point of the transmission grid. A good robust design choice is required to ensure efficient delivery up to the NYISO single-contingency limit while minimizing electricity loss.

We are confident that our choice of export cables is both technically and commercially viable and will reduce the cost of electricity for customers in New York State.

[redacted]

#### 11.5.4.1. Costs: The 320 kV XLPE design minimizes costs for customers in New York State

The 320 kV export cable is capable of delivering energy up to the NYISO single-contingency limit without any substantial overcapacity, making it a cost-optimized choice. Moreover, as this cable is the most widely adopted technology in offshore wind projects, it enables a highly efficient supply chain that facilitates lower cost.

#### 11.5.4.2. Viability: Our choice helps eliminate project risk given the extensive track record of the technology

The 320 kV XLPE cable has a long track record of operations of at least 10 years and is the most used voltage in offshore wind projects worldwide. The cables will be manufactured to the latest version of CIGRE TB852 and TB623 (for underwater) and IEC 62895 (for underground) standards, ensuring that our cables comply with the highest quality standards available.

The 320kV voltage reduces the current and subsequent power losses associated with transmission over long distances.

The subsea portion of our cables will be protected with inter-armoring made from galvanized steel wire.

We have a narrowed list of suppliers, including Prysmian, Sumitomo, Nexans, NKT, or LS, which all have an extensive track record of producing HVDC XLPE cables.

#### 11.5.4.3. Economic benefits: We are striving to maximize New York State local content

We will try to maximize the New York State content of the export cables. However, none of the listed suppliers currently have production facilities located in New York. However, for the installation labor we plan to use local contractors to the extent available.

### 11.5.5. Onshore converter stations

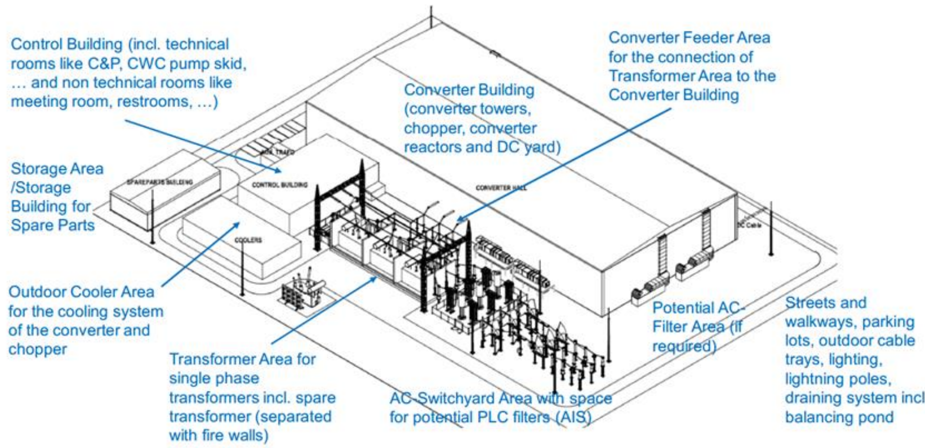
The onshore substations are vital to efficient wind farm operation, as they convert electricity from DC to AC waveforms and ensure transmission with minimal electrical loss, given a sufficiently high voltage level. **As New York City and much of Nassau County are densely constructed and populated with inflated costs of real estate, the substations will need to have a low footprint that minimizes spatial impact on residents and communities.**

We seek to build onshore substations that are technically and commercially de-risked to the greatest extent possible, while maintaining low costs and maximizing economic benefits. In our selection of onshore substation components, we have therefore considered installed costs, technical viability (power delivery capability and voltage level), commercial viability (supplier availability, supply chain risk, local content) and economic benefits (local installation jobs, physical footprint).

We have chosen a base case proposal for the HVDC converter with a 320 kV HVDC symmetrical monopole configuration, which is the most mature and deployed HVDC solution globally. Together with contracting local construction companies for transport and installation, we intend to achieve a de-risked and commercially viable solution that maximizes local economic benefits while reducing the cost of green electricity to customers in New York State. We will also explore the possibility to design the onshore substation to suit the local architecture (e.g., with the use of local bricks, plants, trees).

The following subsections will explain the components of the onshore substation in detail, as illustrated in Figure 11-12.

*Figure 11-12 Overview of onshore substation site*[32]




### 11.5.5.1. [redacted]

### 11.5.5.2. <u>Viability: Our solutions are technically viable and informed by National Grid's extensive experience in transmission</u>

The technical viability of the onshore substation components rely on the maturity of the technology, power deliverability capability and voltage levels. We are confident in our technical reliability by leveraging National Grid's considerable experience with offshore substations, having developed an extensive number of substations worldwide.

As the technology for the HVDC converter, AC switchyard and DC equipment is in widespread use across the world, they are widely available. The onshore HVDC components will be sourced in a bundled contract with the other HVDC components. Close coordination between offshore and onshore legs will thus be needed due to the interdependence of the different components. For a detailed description of HVDC component procurement considerations and commercial viability, see Section 11.5.1

The onshore HVAC components can be sourced from several vendors and are widely commercially available. For simplicity, our base case assumes that both AC and DC equipment will be provided by the same manufacturer to mitigate overall project complexity and supply risk. However, we are evaluating which subcomponents could be made available from New York-based manufacturers.

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**The project is significantly de-risked by using a tried and tested HVDC converter**

We will use a 320 kV HVDC symmetrical monopole converter. This technology is one of most widely used HVDC converter on the market.

**We will be using industry standard DC equipment that minimize technical risk**

The onshore substation will also include a DC area that houses the necessary equipment between the converter valves and the HVDC power cables. Here we will use industry standard DC equipment, such as switches to allow for the disconnection of the DC cables, DC reactors and capacitors to reduce ripple (DC electrical noise) to the cable.

**Our AC station will match the voltage at the Point of Interconnection**

The onshore HVDC station will convert to 345 kV AC to align with the interconnection voltage. This will eliminate the need for additional transformers at the POI. We will evaluate whether to use gas-insulated switchgear, based on physical characteristics and limitations of the onshore stations site as well as potential increase to system reliability.

#### 11.5.5.3. Economic benefits: We strive to procure from New York State and our design minimizes adverse local impact

In the procurement process, we will use components produced in Europe, unless New York State-produced onshore substation components become available to the market and are economically viable. For installation and construction, we are committed to using local firms and contenders, maximizing the economic benefits for New York-based businesses.

In constructing the AC switchyard, we will use gas-insulated switchgear, which minimizes the size of the HVDC converter station. By doing this, we minimize the physical footprint and impact on real-estate in highly populated areas in New York, while also avoid adding pressure to the real estate market.

### 11.5.6. Interconnection cables

The interconnection cables are the final component of our project, enabling the transfer of electricity from the onshore substation to the point of interconnection to the grid. These cables will primarily be run in concrete encased underground ducts to mitigate risk of damage from subsequent public works. To minimize the risk of power delivery failure and repeatedly digging up of the ground, it is therefore critical that these cables are designed with reliability and quality in mind.

We are committed to procuring and installing state-of-the art interconnection cables. In our plan we are optimizing for technical and commercial viability, while minimizing the cost of green energy and maximizing the local economic benefits in New York State.

We will use 345 kV HVAC cables. In our selection of this technology and procurement, we have leveraged National Grid's over 20 years of experience in onshore transmission in New York. By optimizing for technical and commercial viability, we are confident that this solution will contribute to a de-risked interconnection of the wind farm to the transmission grid. Beyond this, our solution is set to minimize cost of electricity while maximizing the potential local benefit for New York State.

#### 11.5.6.1. Costs: We will utilize National Grid's market position to negotiate favorable terms to lower the OREC price

The 345 kV HVAC interconnection cables will be procured in a bundled package together with the HVDC cables. See Section 11.5 for more details on this matter.

#### 11.5.6.2. Viability: Our cable choice de-risks the overall project

The 345 kV HVAC cables are among the most widely used interconnection cables industrywide. Furthermore, National Grid has experience with using these cables, having installed and operated them for several years in New York State.

To ensure sufficient capacity, we will use 1400 $mm^2$ single core cables rated at 1456 MVA.

#### 11.5.6.3. Economic benefits: We are striving to maximize New York State content and will exclusively hire locally

In our choice and procurement of the interconnection cables, we strive to maximize the New York State content. While currently no facilities are viable in New York, we are committed to procure from such a facility if commercially and technically viable within our project timeline.

In the construction and installation of the interconnection cables, we intend to hire predominantly, if not exclusively, from New York State to maximize the local economic benefit.

## 11.6. The offshore markings and lighting controls of our components

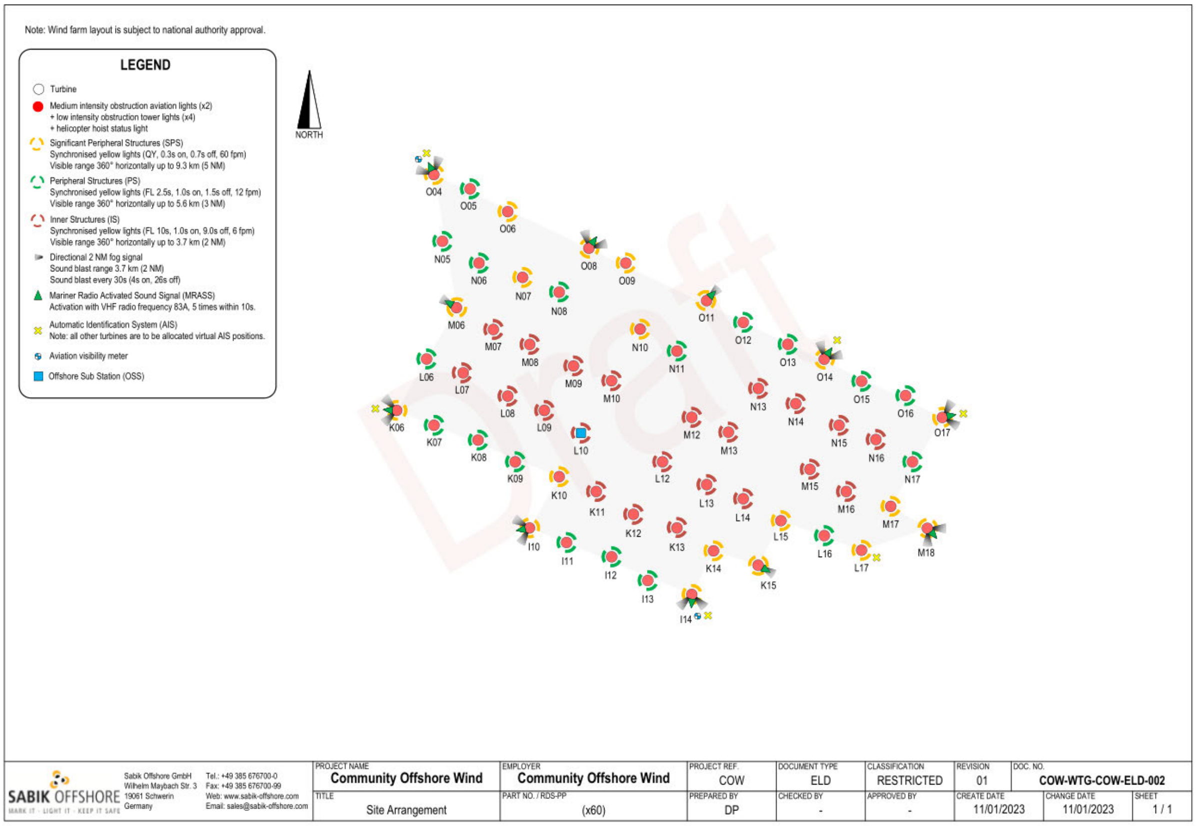
Offshore markings and lighting controls are important parts of the offshore wind farm design, as they ensure reliable operations through safe navigation for all vehicles passing through and around the lease area.

**We are committed to guaranteeing the full safety in and around the wind farm for both maritime and airborne vehicles.** Subsequently, our goals entail compliance with local standards and regulations for lighting controls and markings to minimize risk related to offshore navigation.

We will utilize and incorporate state-of-the-art lighting controls and markings in compliance with local standards and regulations. The lighting controls will be implemented on the site's outer, intermediate, and inner structures with an operational range spanning from two to over five nautical miles, depending on how peripherally the lighting is located within the lease area. All lighting will have 360-degree visibility, adapted to both aviation and maritime traffic. The different wind farm components will have colors in accordance with industry standards, and each wind turbine generator will be alphanumerically marked to ensure quick recognition by the appropriate agencies for search and rescue and law enforcement purposes.

We are planning to use a solution provided by Sabik, with a configuration as depicted in Figure 11-13 below.

*Figure 11-13 Sabik aviation and navigation system*




### 11.6.1. Regulations

Lighting and markings of any new structures on the outer continental shelf are subject to approval by the Bureau of Ocean Energy Management (BOEM), Federal Aviation Administration (FAA), the U.S. Coast Guard (USCG), and other relevant agencies. Lighting and marking of wind turbine generators will be in accordance with:

- USCG First District Local Notice to Mariners (LNM) entry 44-20
- FAA Advisory Circular 70/7460-1L
- BOEM's Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development (2021)
- International Association of Marine Aids (IALA) to Navigation and Lighthouse Authorities Recommendation O-139 on The Marking of Man-Made Offshore Structures (IALA 2013).

Lighting and marking will be implemented as described above unless new guidance is issued or an alternative lighting and marking scheme is approved by the applicable agencies prior to construction.

### 11.6.2. Lighting

We will mark the perimeter structures, located on the corners or other significant peripheral points, with quick flashing yellow marine lanterns with 360° visibility and an operational range of at least five nautical miles. Intermediate perimeter structures, located along the outside boundary, will be marked with 2.5-second flashing yellow marine lanterns with 360° visibility and an operational range of at least two nautical miles. Inner boundary structures will be marked with six or ten second yellow flashing marine lanterns with 360° visibility and with a two nautical mile operational range. Lights servicing the same structure designation will be synchronized.

Aviation safety lighting will consist of:

- Two medium intensity flashing red obstruction aviation lights, mounted atop the wind turbine generator nacelles
- Four low-intensity flashing red obstruction lights mid-tower, mounted around the tower in a ring
- One helicopter hoist status light

The aviation lights will flash simultaneously at 30 flashes per minute (FPM). The aviation safety lights will be visible in all directions in the horizontal plane.

We are committed to implementing an aircraft detection lighting system (ADLS) as required by the NYSERDA's 2022 Offshore Wind Solicitation requirements. We will use ADLS that is technically feasible, commercially available, and approved for use by FAA, BOEM, and USCG. With an ADLS, FAA obstruction lighting on the wind turbine generators will only illuminate when aircraft are approaching the lease area. When ADLS is activated upon detection of a nearby aircraft, obstruction lighting will be illuminated, but would otherwise be turned off. This would help minimize the nighttime visibility from shore and risk to wildlife, aligning with NYSERDA's requirements on lighting controls.

In accordance with USCG guidance, wind turbine generators will be marked conspicuously and distinctly for both day and night recognition. Amber flashing navigation beacons of different intensities will be installed on all wind turbine generators. The amber flashing navigation lights will be energized from sunset to sunrise and from sunrise to sunset in restricted visibility. Navigation lights will be visible in all directions in the horizontal plane.

### 11.6.3. Marking

The foundation of all wind turbine generators will be painted yellow (RAL 1023) from the level of Mean Higher High Water (MHHW) to 50 feet above MHHW. All major upper wind turbine generator components, including nacelles, blades, and towers, will be painted with color no lighter than RAL 9010 Pure White and no darker than RAL 7035 Light Grey. RWE is also studying the effect of black blades to mitigate bird strikes, and we are therefore considering implementing this, depending on the effect. The wind turbine generator paint color will be determined in consultation with BOEM, FAA, and USCG. Moreover, we will ensure that the seamarking and navigational aids are certified to the local, regional, and national requirements in New York and the United States.

Each wind turbine generator will be designated, marked, and charted with a unique alphanumeric designation for quick recognition and reference by mariners and agencies for search and rescue, law enforcement, and other purposes. The bottom of the alphanumeric designation will be at least 30 feet and no more than 50 feet above MHHW. They will be as near to 9.8 feet in height as practicable, will be visible above any service platforms in a 360-degree arc from the water's surface, and will be applied with retro-reflecting paint to enhance visibility under low light conditions. Each wind turbine generator's unique alphanumeric designation will be duplicated below the service platforms.

## 11.7 Design considerations for technical robustness and climate resiliency

Offshore wind farms are designed and constructed to withstand many climate hazards and harsh environments. With the onset of potentially harsher and more variable environmental conditions driven by climate change, future wind farm designs and constructions must consider conditions that are even more extreme than exhibited historically.

We will design and construct an offshore wind farm that is resistant to potentially more variable and harsher conditions by applying stronger safety margins and utilizing RWE and National Grid's industry knowledge. This will be done with a particular emphasis on components that are at high risk.

**We will take precautions in our design parameters with focus on wind turbine generators, onshore stations, and ports**. Table 11-7 below describes our risk assessment of climate stressors on the major wind farm components, which is based on the combined experience of our parent companies and NYSERDA's "Offshore Wind Climate Adaptation and Resilience Study".

*Table 11-7 Assessment of climate stressors and risk assessment of major components*

| Climate stressor | | Wind turbine generators | Foundations (WTGs, transformer and converter stations) | Cables (Inter-array and export) | Onshore stations | Ports |
|---|---|---|---|---|---|---|
| Wind | Low velocity | Low risk | Low risk | Low risk | Low risk | Low risk |
| | High velocity | Medium risk | Low risk | Low risk | Low risk | Low risk |
| | Turbulence | Medium risk | Low risk | Low risk | Low risk | Low risk |
| | Shear | Medium risk | Low risk | Low risk | Low risk | Low risk |
| | Geographic distribution | Medium risk | Low risk | Low risk | Low risk | Low risk |
| Air | Temperature | Medium risk | Low risk | Low risk | Low risk | Low risk |
| | Moisture | Low risk | Low risk | Low risk | Low risk | Low risk |
| Ocean | Waves | Medium risk | Medium risk | Medium risk | Medium risk | Medium risk |
| | Sea level rise | Low risk | Low risk | Low risk | Medium risk | Medium risk |
| Precipitation | Rain | Low risk | Low risk | Low risk | Low risk | Low risk |
| | Ice / frozen | Medium risk | Low risk | Low risk | Medium risk | Medium risk |
| Extreme storms | Extreme wind | High risk | Low risk | Low risk | Medium risk | Medium risk |
| | Storm surge | Medium risk | Low risk | Low risk | High risk | High risk |
| Human stressors | Cyber threat | Medium risk | Low risk | Low risk | Medium risk | Low risk |
| | Vandalism | Medium risk | Low risk | Low risk | Low risk | Low risk |

Low risk Medium risk High risk

### 11.7.1. Design considerations for the wind turbine generator

The wind turbine generator is subject to most risks associated with climate change and external actors by the nature of its design and function. We broadly agree with NYSERDA's assessment of each stressor. **However, contrary to NYSERDA's report, we consider climate stressors from temperature to be a medium risk (as opposed to low risk) due to the increase in disruptions due to the polar vortex resulting in more frequent and less predictable extreme cold weather events.** These events increase electrical demand while simultaneously stressing older, unwinterized generators and limiting access for emergency repairs. It is critical that new wind turbine generators added to the grid are designed and equipped to remain in operation during these events.

We are taking the following steps with our project design, turbine solicitation and O&M strategies to mitigate the risks of these stressors, as shown in Figure 11-14 below.

*Figure 11-14 Wind turbine generator: Key climate risks and solutions*

**Wind conditions** *Medium risk*

**Risk factors**

Extreme wind events can **cause turbine generator damage**

**Key solutions**

- Engage with GE and third-party suppliers to **deploy innovative solutions to production and availability on existing projects** such as retrofitting in ultracapacitors in place of lead-acid batteries or deploying new pitch control strategies.
- GE is offering **IEC certified turbines**, which are suitable for extreme wind conditions.

**Air temperature** *Medium risk*

**Risk factors**

Extreme low temperatures at the hub height of the wind turbine can cause **operational failure**.

**Key solutions**

- **Engage with GE to attain similar capabilities as seen onshore on future offshore projects (i.e., cold weather packages** allowing operation in temperatures down to -22F/-30C)

**Ocean waves** *Medium risk*

**Risk factors**

Extreme waves may cause **damage on the tower structure** and **prohibit operations and maintenance services.**

**Key solutions**

- Engage **with GE, foundation suppliers and inhouse experts** to holistically assess the appropriate design structures.
- Leverage RWE's experience in operating offshore wind farms, including **planning maintenance to adapt to daily and seasonal weather conditions**
- **Structural loading to minimize the fore-aft and side-side movements of the nacelle and tower**

**Precipitation** *Medium risk*

**Risk factors**

Ice fall and ice throw from wind turbines can result in **production losses** and present a **risk to technicians and the public** if not managed properly.

**Key solutions**

- Utilize **RWE's considerable experience in operating wind turbines in regions prone to ice forming on blades.**
- Adopt strategies to reduce production loss due to icing, such as **advanced pitching algorithms that adapt to the ice build-up and blade coatings that resist the adhesion of ice.**

**Extreme storms** *High risk*

**Risk factors**

Historical data for the New York Bight indicate the possibility of a category 2 or low category 3 hurricane, potentially resulting in **breakdowns and down-time**.

**Key solutions**

- Use turbines designed to industry standards.
- Add Tropical Class specifications to withstand a 10-minute extreme wind gust of 57m/s, **covering most of the range of category 3 hurricanes** (50-58m/s).
- **Utilize experience from RWE with older, onshore turbines successfully surviving extreme wind,** such as Corpus Christi turbines surviving Hurricane Hanna (> 35 m/s) or wind projects surviving the 2020 Midwest derecho (>35 m/s)

**Human stressors** *Medium risk*

**Risk factors**

Downtime, disruptions and asset damage due to hacking and vandalism

**Key folutions**

- Apply well-known security frameworks such as ISO27000 and National Institute of Standards and Technology
- Monitor malicious activity on the operational technologies, **assisted by a managed Security Operations Centre**

### 11.7.2. Design choice for our onshore converter stations

We largely agree with NYSERDA's assessment of the climate stressors, except with respect to human stressors where we've taken a more conservative assessment, and have thus designed the substation, yard, and equipment accordingly. To ensure the future reliability of wind farm, we will implement a set of measures as specified in Figure 11-15 below.

*Figure 11-15 Onshore converter stations: Key climate risks and solutions*

**Ocean** — *Medium risk*

**Risk Factors**

Sea-level rise and floods presents a risk to the **operationality of onshore facilities and substations.**

**Key Solutions**

- We will leverage **National Grid's extensive knowledge in flood mitigation techniques** and assessments of flood risks
- **Allocated mitigation cost allowance for a flood mitigation strategy built upon the redundancy principle**, combining the following measures of protection:
  - Raising of the yard,
  - Raising of the equipment
  - Building permanent or temporary flood barriers.

**Precipitation** — *Medium risk*

**Risk factors**

Frozen precipitation can impact the onshore substation assets, accordingly, **pose a risk to critical electrical components.**

**Key Solutions**

- A range of protections mechanisms, including **insultation of the equipment, closed off housing and sealing protections of electrical conduits**

**Extreme Storms** — *High risk*

**Risk factors**

Risks associated with extreme storms and high winds can **obstruct functionality of onshore converter stations.**

**Key Solutions**

- **Most prevailing risk factors are accounted for in the design of the converter stations,** which includes insulation of the equipment, closed off housing and sealing protections of electrical conduits.

**Human stressors** — *Medium risk*

**Risk factors**

Downtime, disruptions and asset damage due to hacking and vandalism

**Key Solutions**

- **Apply state of the art security protocols and framework**
- Leverage best practice security procedures based on National Grid and RWE experience
- Monitor malicious activity on the operational technologies, **assisted by a managed Security Operation Centre**

### 11.7.3. Design choice for our marine port

We are committed to a de-risked deployment of the offshore wind farm, and we have designed our marine terminal, the Staten Island Marine Terminal, according to United States Army Corps of Engineers (USACE) guidelines. We have developed specific mitigating actions to reduce risk for rising sea level, frozen precipitation, and storms, as described in Figure 11-16 below.

*Figure 11-16 Marine port: Key climate risks and solutions*

**Ocean** *Medium risk*

**Risk factors**

Flooding of marine terminal that can **damage equipment and components, hinder installation and pose a safety threat to personnel**

**Key solutions**

- **Elevated port infrastructure**, putting the Staten Island Marin Terminal at an ample margin above mean sea level to give sufficient margin above historically recorded extreme values

**Precipitation** *Medium risk*

**Risk factors**

Frozen precipitation can cause damage to key components and equipment, thereby, **impeding port operations.**

**Key solutions**

- **Incorporated a set of measures in our design of Staten Island Marine Terminal and port infrastructure**. Some of these measures include equipping the terminal with drainage/stormwater systems, applying routine procedures for clearing any snow and ice

**Extreme storms** *High risk*

**Risk factors**

Extreme storm poses a significant risk of **incurring damage to key port components and equipment,** while also presenting a **risk to the safety of personnel.**

**Key solutions**

- **Utilize two independent weather forecast** for the construction period, and in the event of storms:
  - Move critical equipment to alternate harbour located further inland
  - Secure and fasten key equipment
  - Relocate personnel
  - Perform maintenance and dredging activities to clear debris and build-up following severe storm and elevated platforms
- **Implement drainage systems** to minimize industrial runoff and prevent rainwater from entering local sewer systems
- **Build waterproof rooms** that house critical infrastructure
- **Protection by natural and nature-based features**, such as engineered wetlands and oyster reefs

### 11.7.4. Design choice for our foundations and cables

The marine environment in which wind turbine generator foundations and cables are installed pose a constant threat to the integrity of these components. Therefore, design for environmental loading conditions is essential to ensure these components continue to perform as designed, even under extreme environmental load conditions. **We plan to design the foundation for operation in a 50-year weather event and to survive a 1000-year weather event.** The foundations will have a Condition Monitoring System (CMS) to provide online monitoring of the foundation performance after a weather event. Furthermore, the inter-array cables will be protected sufficiently by burying them six feet (two meters) beneath the surface, while supplementing with other forms of protection, such as rock placement, where the burial technology cannot be used.

#### 11.7.4.1. <u>Wind turbine generator foundations</u>

The wind turbine generator foundations are designed for their operational life including extreme events in accordance with recognized international standards for offshore wind. Additionally, the foundations are designed to survive a 1000-year weather event. The environmental conditions are derived from historic data of wind and sea-state conditions. The approach of using historical MetOcean data allows us to capture the mean, average and extreme environmental conditions accurately.

As environmental conditions worsen due to climate change, the impacts on serviceable life and fatigue will be critical. Wave damage has been identified as a medium risk environmental factor for wind turbine generator foundations. **Therefore, we are planning to use a Condition Monitoring System (CMS) to monitor the environmental conditions as well as the strain, loading cycles and performance of the foundation systems.** This will allow the wind farm operator to monitor that the foundation performance stays within design limits and perform proactive mitigation if necessary. The use of appropriate design codes and standards with sufficient factors of safety and the implementation of CMS enables us to assure the wind turbine generator foundation the necessary climate resiliency for its design life.

#### 11.7.4.2. Inter-array cables

The inter-array cables are critical to ensure the production capacity of the wind farm. Here, the cable burial is the primary means for protecting inter-array cables from environmental damage. The deeper water depths of 100 – 138 feet in our lease area offer some protection to inter-array cables from environmental conditions. The inter-array cables are protected on the seabed by burying them six feet under the sea bottom or through supplemental protection methods such as rock placement to achieve burial depth. The inter-array cables are protected in the monopile and substation through J-tubes. The most critical location for the protection of cables is in the interface between the seabed and the monopile or substation J-tube. Therefore, inter-array cables are generally well protected against environmental damage.

#### 11.7.4.3. Export cables

The export cables transfer electricity from the wind farm to the onshore converter station and must be robust to avoid downtime or loss of power transfer. To protect the cables from environmental conditions underwater, we will use a jetting technique to achieve suitable burial depths of the cables. We will also consider a combination of alternative trenching methods and/or cable protection systems (e.g., rock or concrete mattress installation, pre-trenching) for areas where suitable burial dept proves challenging from the jetting technique.

## 11.8. Design considerations for circularity and environmental Impact

### 11.8.1. Design considerations for circularity

Most wind farms constructed up until today only have limited optionality for component circularity due to restricted technical viability. As component production is a resource-intensive process with significant emissions, it is vital to ensure the circularity of components to lower the climate impact of the production and decommissioning process. The components are also made up of expensive materials, which are desirable to reuse. The technology has progressed significantly in recent years.

We seek to reach the highest possible level of circularity, leveraging matured technology practices, cutting-edge technology and contribute to further R&D of circularity, as illustrated in Figure 11-17 below.

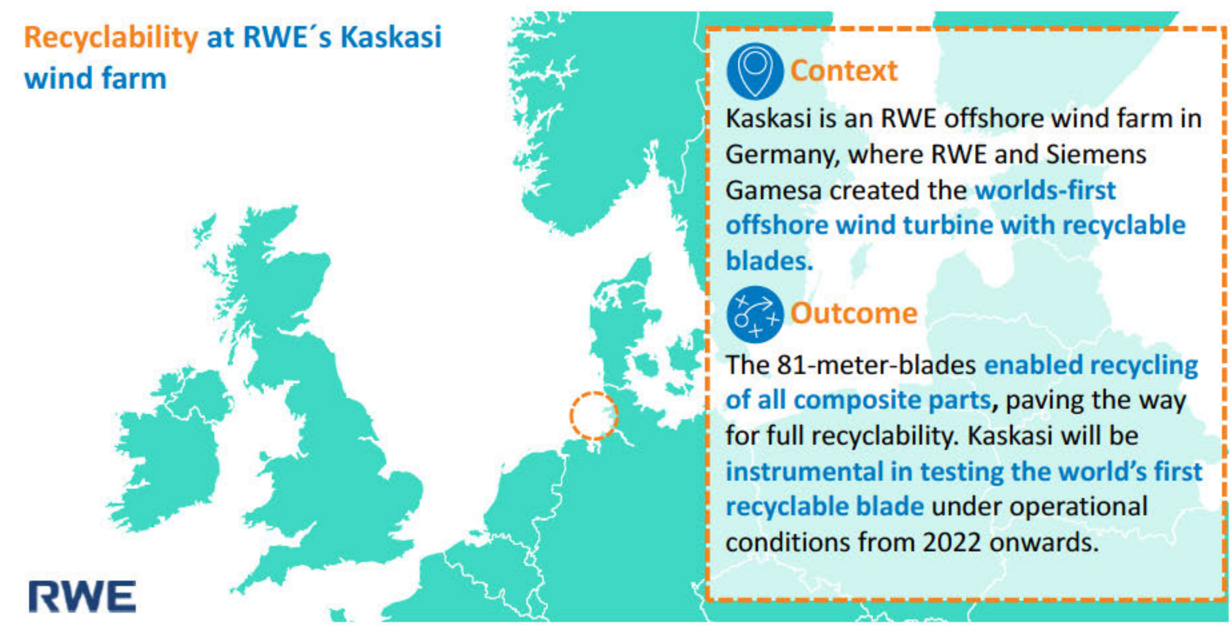
*Figure 11-17 How we will maximize circularity*

| Leveraging matured technological circularity practices | Incorporating cutting-edge RWE technology and innovation | Contributing to further environmental R&D to drive future practices |
|---|---|---|
| Existing **circular initiatives** and **matured technological practices** exist for certain components such as the **tower** and the **nacelle**, which we will leverage to lower climate impact. | **Cutting-edge technology pioneered by RWE** will be incorporated to ensure **full recyclability** for all composite parts such as the **turbine blades** | Supporting R&D to **further promote circular practices** and develop our disposal and recycling plans for all infrastructure **in line with latest research**. |

### 11.8.1.1. Recyclability of the components

We are dedicated to minimizing our project's environmental impact by using recyclable materials wherever possible. One example is the wind turbine blades which can be recycled after their useful life as experienced by RWE at the Kaskasi site in Germany, see Figure 11-18.

*Figure 11-18 Kaskasi recyclability case example*




Many components of a wind turbine, such as the tower and nacelle components, already have established recycling practices. For recyclable blades, GE is already developing recyclable wind turbine blades[33].

33 Zebra project achieves key milestone with production of the first prototype of its recyclable wind turbine blade. GE News. (n.d.). Retrieved November 29, 2022, from https://www.ge.com/news/press-releases/zebra-project-achieves-key-milestone-with-production-of-first-prototype-of-recyclable-wind-turbine-blade

We will closely monitor technological developments and encourage suppliers to use innovative manufacturing technologies which are improving the sustainable design, such as 3D printing of wind turbine parts which is currently being investigated by GE.

#### 11.8.1.2. Research and development

RWE is participating in the circular economy for the wind sector (CEWS) research project, under the aegis of ORE Catapult. This five-year project aims to deploy new solutions to support the scaling up of existing recycling processes. Research also focuses on the development of techno-economic analyses to assess the possibilities of re-commercialization at the end of the chain. It will also drive research and innovation in waste prevention and advanced circular economy concepts, such as life extension, refurbishment, reuse, recycling and repowering of old turbines and components[34], especially regarding blade recycling, monopile remaining useful life and end of life material mapping for offshore wind[35].The solutions elaborated within the research project will enhance the sustainability of our solutions.

### 11.8.2. Design considerations for environmental impact

Wind turbines can have considerable environmental impact on local ecology and biodiversity. The scale of the environmental impacts is not fully determined in contemporary science but is potentially significant. The impacts can be mitigated by taking careful environmental measures and optimizing the installation of the asset to reduce disturbance of the seabed.

We have a clear ambition to protect marine, coastal, and onshore environments, and the species that depend on them, while constructing and operating the wind farm. Moreover, we hope to contribute to research that advances the best management practices within this area.

We will deliver our project's onshore and offshore components with a strong emphasis on protecting wildlife and its natural habitats. **The key measures we will implement are related to introducing specific alterations to the scour protection, making noise-reducing alterations and a wide range of mitigation efforts.** We stress the importance of environmental impacts in our design approach. We have thus partnered with Advisian to develop an Environmental Mitigation Plan, which can be found in detail in Chapter 15. Here, all the mitigation solutions for environmental impact can be found.

34 Meet the circular economy pioneers in the wind sector. ORE. (n.d.). Retrieved November 29, 2022, from https://ore.catapult.org.uk/blog/meet-circular-economy-pioneers-wind-sector/#:~:text=Circular%20Economy%20for%20the%20Wind%20Sector%20%28CEWS%29%20starts,at-scale%20wind%20farm%20blade%20recyc ing%20within%20five%20years.
35 Circular economy for the Wind Sector (CEWS). ORE. (2021, July 8). Retrieved November 29, 2022, from https://ore.catapult.org.uk/stories/cews/

# 12. Project schedule

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## 4 List of appendices

## NYSERDA solicitation requirements

Our examination of the project schedule and the processes to assemble the schedule address each requirement laid out by NYSERDA in the Request for Proposal (RFP). The table below identifies each solicitation requirement.

*Table 12-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| 6.4.12.1. Identify the elements on the critical path. The schedule should include, at a minimum, preliminary engineering, financing, acquisition of real property rights, Federal, state and/or local permits, licenses, environmental assessments and/or environmental impact statements (including anticipated permit submittal and approval dates), completion of interconnection studies and approvals culminating in the execution of the NYISO Interconnection Service Agreement, financial close, engineer/procure/construct contracts, start of construction, construction schedule, and any other requirements that could influence the Project schedule. | 12.3 |
| 6.4.12.2. Describe the anticipated permissible offshore construction windows, and how the construction milestones will be accommodated within these windows. | 12.5 |
| 6.4.12.3. Detail the status of all critical path items, such as receipt of all necessary siting, environmental, and NYISO approvals | 12.4 |
| Provide a detailed plan and timeline for the acquisition of any additional rights necessary for interconnection and for the generator lead line right-of-way. | 12.6 |

## 12.1. Summary

Looking towards New York State's goal of at least 9 GW of offshore wind generation capacity by 2035, Community Offshore Wind affirms that its project can contribute to this capacity goal years before the mandated deadline. **We commit to developing, financing, and constructing our project in an efficient manner, allowing the start of Commercial Operations by the end of 2030.**

The Community Offshore Wind Project Scheduling Team is composed of experienced individuals from RWE who have helped bring over 18 offshore wind farms to commercial operation. They utilize industry leading techniques and supporting software to prepare project schedules. They utilize a two-pronged approach to scheduling, first they are comprehensive in mapping out granular details of the project, leaning on learnings from the development of 18 offshore wind farms. Parallel to this effort, the team completes our critical path analysis, identifying the pathway to the Commercial Operations Date (CoD).

To assemble the Critical Path, our project schedule team works directly with the engineering, finance, and permitting teams to identify and map Critical Path items. Community Offshore Wind views it as vital to integrate the efforts of these teams into our project schedule team, and their feedback is constantly fed back into our Critical Path analysis.

Finally, we recognize that our project does not sit in isolation but impacts several important stakeholders in the New York Bight. Our schedule takes heed of these concerns and adapts in a manner that does not slow down our progress. Working with local, state, and federal regulators, we encompass all required environmental protections into our schedule, blocking out certain windows for disruptive construction processes. With our transmission plans, we acknowledge the need to acquire rights through the busy streets of New York and have a put together a plan to effectively complete this step of the project.

A high-level summary of the Community Offshore Wind project schedule is provided below in Figure 12-1.

*Figure 12-1 Summary of project schedule*

[redacted]

## 12.2. Planning methodology and tools

The current dedicated project scheduling team includes a staff of scheduling professionals from RWE and National Grid Ventures. The team is highly experienced in the planning processes required for challenging locations and environments, with expert knowledge of key interfaces, necessary assumptions, and planning constraints.

The project scheduling team utilizes Oracle Primavera P6 (P6) to develop and update the project schedule. P6 is an industry-standard tool which consists of a computer-based system to perform the Critical Path Method (CPM) calculations and report results. The ubiquity of P6 within the project scheduling community allows the team to easily work with and integrate inputs from third parties including contractors and consultants. The team also has access to Microsoft Project to coordinate with smaller contractors and suppliers who may not have access to enterprise systems like P6.

Community Offshore Wind has developed a robust and efficient process for developing and updating the project schedule. This combines schedules of all contractors and internal work leads. The scheduling team works with the full project team to develop initial inputs and update timelines as key decisions are made. Inputs and updates are collected on a monthly basis using an Excel extract from P6, incorporated into the master schedule, and reported out to the leadership team for a monthly review

This process culminates with the development of the critical path. Critical path is the longest logic path through the schedule. **To identify the critical path the team identifies the duration of the entire activity in sequence and adds up all task durations to calculate the time to complete each path; the path that has the longest duration is the critical path.** In practice, the team defines the interface milestones with comprehensive interlinks between packages and performs critical path calculations in P6, **with consideration of the most significant delay risk impact on project timeline and costs.** The critical path identified for this project is elaborated on in subsection 12.2 and Appendix 12-1.

We believe the early involvement of project scheduling support allows for adequate development planning management through early team integration and regional synergies. It also allows the team to proactively anchor the schedule around key milestones and optimize between different packages.

### 12.2.1. Comparison to the other parent company project schedules

The project scheduling team has also [redacted]

[redacted]

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## 12.3. Critical path elements

[redacted]

### 12.3.1. [redacted]

[redacted]

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The Final Investment Decision will be the last decision to take place before we can issue Final Notice to Proceed (FNTP) to our extended list of EPC contractors, followed by the commencement of development for the entire project. Our Final Investment Decision is scheduled to follow the completion of the Construction and Operations Plan (COP), receipt of all required approvals and finalizations of supply contracts and budgets.

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## 12.5. External factors

### 12.5.1. Construction windows

Community Offshore Wind anticipates that the project lease site will likely be subject to several constraint regarding to the scheduling of certain construction activity, including whale migration pile driving time of year restrictions, Atlantic Sturgeon time of year restrictions for ground disturbing activities in New York State waters, winter weather hazards, and vessel/construction equipment limitations.

[redacted]

[redacted]

**The most significant of our offshore restrictions during construction is likely to be a seasonal restriction from approximately December 1 through April 30th**. Another risk to schedules associated with our project, both during construction and operations, is related to vessel speed restrictions that are likely to limit vessel speeds to less than 10 knots at certain times of year. These restrictions are imposed by NOAA Fisheries to protect the North Atlantic right whale as it migrates through the waters off the northeastern United States. The start of offshore construction is proposed to begin after this period lapses on May 1, 2029, with foundation installation. Cable installation will follow roughly two months later, on or around July 1, 2029, which coincides with the end of the anticipated Atlantic

Sturgeon ground disturbing restriction window in New York State Water on June 30th. This buffer allows sufficient time to accommodate any potential delays in foundation construction.

Construction windows are also impacted by winter weather conditions in the northeastern United States. Sub-zero temperatures, increased frequency of severe weather, and higher average wave heights all **impact our ability to conduct offshore construction activities from December 1st through March 31st.** We will aim to halt all construction activities by November (while noting the chance that cable trenching could run into December and January) and commence no earlier than April of the following year.

[redacted]

[redacted]

## 12.6. Acquisition of rights for the interconnection and the generator lead-line right-of-way

Through our parent company, National Grid, Community Offshore Wind has extensive experience working in and with the communities of New York to identify routes and acquire the rights necessary to develop transmission infrastructure (see Chapter 3 for additional information regarding NY Transco experience). While early in the development process, Community Offshore Wind has already begun our due diligence identifying potential offshore and onshore transmission routes, preparing a short list of potential siting locations for converter stations, and developing processes to work with communities to minimize impacts for each potential POI (East Garden City, Con Edison Clean Energy Hub, and Goethals).

[redacted]

Onshore transmission routes have been selected to utilize public rights-of-way in all instances except where technically infeasible or where disruption from construction or potential community impacts may be too great. To date, no technically infeasible routes have been identified. Community Offshore Wind is committed to working with communities to identify potential conflicts and pursue private options as we progress in the route selection process. We will be engaging with local municipalities immediately upon award and continually throughout the process. Final permitting and siting approvals will come through the Article VII process (which is tentatively anticipated to conclude by Q4 2026).

Community Offshore Wind will begin surveying routes and will initiate community outreach upon bid award in preparation for the completion of the necessary constraint and interference assessments. [redacted]

# 13. Construction and logistics

## 1 Table of contents



## 2 List of tables

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## 4 List of appendices

No appendices for this chapter.

## NYSERDA solicitation requirements

The construction and logistics aspects of our project address each requirement laid out by NYSERDA in the Request for Proposal (RFP). The table below identifies each solicitation requirement.

*Table 13-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| List the major tasks or steps associated with deployment of the proposed Project and the necessary specialized equipment (e.g., vessels, cranes) | 13.2 |
| List the party or parties responsible for each deployment activity and describe the role of each party. Describe the status of Proposer's contractual agreements with third-party equipment/service providers. | 13.4 |
| Identify the marine terminals and other waterfront facilities that will be used to stage, assemble, and deploy the Project for each stage of construction. | 13.3.3 |
| If available, evidence that Proposer or the equipment/service provider have right(s) to use a marine terminal and/or waterfront facility for construction of the Project (e.g, by virtue of ownership or land development rights obtained from the owner). | Not applicable |
| 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 in Section 6.4.12. | 13.3.3, Appendix 13-1 |
| Identify any joint use of existing or proposed real property rights for marine terminal or waterfront facilities. | 13.3.3 |
| Describe the proposed approach for staging and deployment of Primary Components to the Project site. Include a description and discussion of the laydown facility/facilities to be used for construction, assembly, staging, storage, and deployment. | 13.4 |

## 13.1. Summary

Developing the Community Offshore Wind lease area by 2030 requires developers that can manage the complexity and project risks associated with large offshore wind projects to safely construct the wind farm while avoiding delays. This demands a detailed and robust deployment plan as well as the experience to coordinate over 20 suppliers and contractors to execute the project. The plan must include a clear approach on how to obtain key resources for the project deployment, such as marine terminals and vessel compliance with the Merchant Marine Act of 1920 (Jones Act).

We have addressed **risks in our construction and logistics plan by leveraging the combined experience of our parent companies**. The plan, which includes an offshore transport and installation approach in accordance with the Jones Act, ensures the reliable procurement of critical vessels for major deployment tasks while maximizing local economic benefits for New York.

To de-risk our deployment plan while maximizing New York content, we have developed a procurement strategy with a preference for local sourcing. The strategy includes back-up options with procurement from Europe, in case of supply chain constraints, immature local supply chains or other unforeseen events.

[redacted]

We have taken a holistic approach to the procurement for our vessel plan to ensure that we will have obtained all the necessary vessels in time for our project schedule. A central part of our deployment plan involves the **use of a feeder-barge concept for the installation of the wind turbine foundations and generators**. The plan is consistent with the Jones Act, alleviates vessel supply constraints in the United States, and promotes a reliable wind farm installation and deployment. At the same time, the solution minimizes the cost of our project, for the ultimate benefit of the customers in New York State.

Our plan includes a clear and detailed approach to each of the major deployment tasks. Central to the plan is **minimizing the environmental impact** (e.g., noise mitigation actions) while ensuring a safe and de-risked completion of the eight major deployment tasks. These include offshore wind farm activities, with scour protection, wind turbine foundations, inter-array cables and wind turbine generators, offshore transmission activities, with the offshore converter station, mesh facilities, and export cables, and onshore activities, with the onshore landfall, cable routing, and converter station.

## 13.2. We have deep experience across the major deployment tasks required to develop an offshore wind farm

### 13.2.1. RWE & National Grid have deep experience across all activities required to build an offshore wind farm for New York

We are confident that we can deliver a de-risked and sound construction and logistics plan for this project, as we can leverage the extensive in-house experience of our parent companies in developing offshore wind farms:

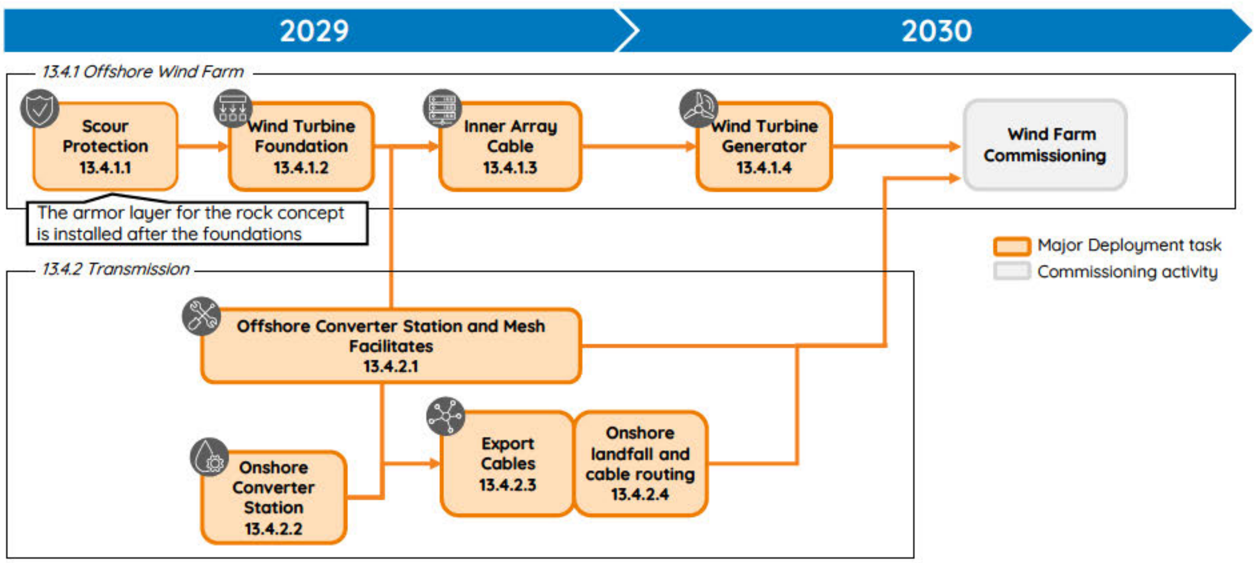
- RWE has experience developing and commissioning 18 offshore wind projects over the past 23 years, with an additional 14 GW in the development and construction pipeline. Additionally, RWE has experience from over 40 projects in the interconnection and transmission of wind projects since 2002.
- Complimenting RWE's offshore experience, National Grid has extensive offshore HVDC transmission experience as the UK's leading developer and operator of interconnectors with a portfolio of 6.4 GW. National Grid brings a deep understanding of New York and Long Island transmission, which further ensures that our approach is tailored to New York State-specific conditions (e.g., bridge constraints, congested waters, and disadvantaged communities).

Through this experience, we can use proven development and procurement processes and best practices, such as well documented routines for internal reporting and tracking, standard contract and interface guidelines, and supplier relationships. See Chapter 3 for more details on National Grid and RWE's experience.

### 13.2.2. Based on the experiences of RWE and National Grid, we have outlined sequencing for the major deployment tasks for our offshore wind farm

Each of the major tasks will have a separate installation contract with specialized contractors. These activities are highly interdependent, and we will track each contract separately to continuously benchmark the progress against the installation schedule. An overview of the major deployment tasks is provided in Figure 13-1 below, while a detailed explanation of each development task can be found in Section 13.4.

*Figure 13-1 Installation flow chart*




## 13.3. We have developed a robust time schedule for our transport and installation approach, locking in the ports and vessels needed early on

For the transportation and installation (T&I) of the offshore wind farm, the development must acquire the required resources to deploy the major components of the project. Consequently, we have developed a clear approach to all the installation packages, including the marine terminal and a mature procurement strategy across the required packages. **A pillar to this approach is a vessel plan that complies with the Jones Act to reducing risk in the deployment plan, leveraging a feeder-barge concept for the wind turbine generator and foundation installations.**

### 13.3.1. We have issued RFIs for all critical packages across the eight installation packages, prioritizing New York economic benefits while ensuring the availability of the required equipment

We have developed a detailed procurement approach to the critical packages needed to deploy our wind farm, where the number one criterion is to have local New York State suppliers for the T&I packages where possible. At the same time, we have ensured a de-risked approach to the deployment of the wind farm, with already issued RFIs for all our major deployment tasks. We will secure the required contracts well ahead of transport and installation start, as shown in [redacted] below. In particular, we are focusing on procuring contracts for the deployment activities where there is a material risk of vessel constraints (see Section 13.3.4.). We have a clear view of the market as RWE has an extensive offshore wind pipeline and have quarterly check-ins with all the major suppliers.

[redacted]

[redacted]

We will enter a reservation agreement with a down payment for the procurement of the vessels for the foundation, wind turbine generator, export cables (to secure vessels equipped with a larger sized turn table), offshore converter station and mesh facilities, and scour protection (dependent on future market constraints) in [redacted] Under current precedent, cable laying vessels are eligible to receive a waiver that allows cable laying activity with some exceptions from the Jones Act. Because of the availability of this waiver, we are not currently expecting vessel shortages for inter-array cables installations. However, we will monitor the worldwide market and local availability of wind support vessels continuously to ensure timely securing of the inter-array cable vessels.

### 13.3.2. We have developed preferred and backup strategies for our installation and commissioning concept and supplier base

To maximize the local content while ensuring that we do not risk the project plan, we have developed a preferred and a backup plan for our installation and transportation, including the vessel procurement. Where possible, we will source locally, unless constrained by the Jones Act or other supply chain constraints.

- Preferred strategy: Local New York procurement to build out the offshore supply chain, maximize the benefits to New York State residents, and minimize reliance and risk related to international procurement (e.g., marine terminals and wind turbine generator installations)
- Backup strategy: European transportation and installation contracts for select packages where needed to ensure a de-risked project deployment (e.g., a European jack-up vessel as part of our feeder-barge concept)

The marine terminal is one of the centerpieces in any offshore wind farm development, and where we have selected to go with our preferred approach.

### 13.3.3. We have selected [redacted] as our marine terminal due to its high technical viability, [redacted]

Marine terminals hold a key role in the development of offshore wind farms (OWF) and are essential for successful installation and construction operations. They are the main turnover point for equipment and personnel required to build the wind farm.

In our marine terminal selection process, we have optimized for solutions that satisfy the technical requirements (length of quays, storage space, pre-assembly space and bearing capacity), commercial viability and low installation costs through onshore assembly while maximizing economic benefits.

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### 13.3.3.4. Economic Benefits: [redacted] will significantly boost the New York State offshore wind supply chain

We are committed to maximizing the economic benefits for New York State taxpayers. The development and operation of the offshore wind marine terminal will lead to significant investments in new infrastructure, as well as short- and long-term jobs. We have therefore exclusively considered terminals located in New York State.

[redacted]

[redacted]

38 Equinor, 2022

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Our number one priority, in addition to ensuring a de-risked project development plan, is to maximize the economic benefits of our deployment solutions. As we continue to develop our approach, we will actively seek to utilize companies that are able to deliver and develop New York State vessels, equipment, and personnel.

## 13.4. We have defined specific plans for each installation and commissioning package

### 13.4.1. Offshore wind farm installation

#### 13.4.1.1. Scour protection

**Our approach**

One of the first larger activities of the offshore wind farm implementation is the installation of a scour protection around the wind turbine foundations. As mentioned in Section 13.3.4.2, we have considered two scour protection concepts: the rock concept and the geotextile sand container concept.

**The rock concept**

Our installation of the rock concept will be conducted in four main steps:

- **Pre-installation surveys:** We will conduct a pre-installation survey to assess the water depth that will define the volume requirements of both the filter layer and armor layer.
- **Applying the filter layer:** After the pre-installation survey, we will use a fall pipe vessel to apply the filter layer. We will equip the fall pipe vessel with an online measurement tool to ensure that a sufficiently thick layer is installed.
- **Applying the armor layer:** We will use a fall pipe vessel (see Figure 13-11 below) to install the armor layer and real-time measurements to ensure a sufficiently thick layer. A prerequisite to starting this step is that the wind turbine foundations (see Section 13.4.1.2. on wind turbine foundations for more details) are installed.
- **Post-installation surveys:** After each layer, we will perform a post-installation survey to confirm that the filter and armor layer was correctly installed according to the required thickness specifications.

*Figure 13-11 Fall pipe vessel example for scour protection installation*

**Geotextile sand container concept**

An alternative to the rock concept is using geotextile sand containers. This system consists of two layers of sand containers placed on the seabed, where the wind turbine foundations will be piled through the geotextile. Our approach to installing the geotextile sand container concept consists of four main steps:

- **Pre-installation surveys:** We will assess the seabed within to define the sand volume requirements specific to our lease zone
- **First layer of sand containers:** We will install the sand containers by a crane and place them on the seabed (see Figure 13-12). To avoid any local scour and damage to the scour protection, we will limit the distance between the sand containers to 5 cm. The placement of the sand containers will be monitored by a survey system mounted on the crane of the vessel, which will log every installed sand container and allow documentation of the work.
- **Second layer of sand containers:** The installation process of the second layer of sand containers will follow the same process as the first layer. However, to avoid larger gaps in the scour protection, the orientation of the second layer will be offset relative to the first layer by 45°.
- **Post-installation surveys:** We will conduct a post-installation survey to confirm that each layer was correctly installed.

*Figure 13-12 Example of sand container installation from RWE Amrumbank West wind farm, 2013*


## Our transport plan

### Rock concept

We will use a fall pipe vessel to install the scour protection at the lease site after loading the rocks by the dock with conveyer belts (see Figure 13-13 below). We will source the scour protection material at a rock staging location in New York State along the Hudson River or outside the United States (determined by vessel availability), pending further negotiations with the potential contractors.

*Figure 13-13 Example of loading rocks for scour protection*

**Geotextile sand container concept**

We will load the sand containers, each weighing about 3000 lbs. (1.35 metric tons), from a port in New York. For each foundation we will need ~1,000 sand containers. We will leverage RWE's experience in applying geotextile sand containers in other projects (see Figure 13-14).

*Figure 13-14 Example of filling and storing of sand containers from RWE Amrumbank West, 2013*

**Relevant suppliers**

We have reached out to all relevant top-tier suppliers for T&I of both of our scour protection concepts, see [redacted] below.

[redacted]

| [redacted] | | [redacted] | [redacted] |
|---|---|---|---|
| [redacted] | [redacted] | [redacted] | [redacted] |
| | [redacted] | [redacted] | [redacted] |
| | [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] | [redacted] |
| | [redacted] | [redacted] | [redacted]racted in 2024 |

### 13.4.1.2. Wind turbine foundations

After the scour protection installation is initiated (rock concept) or finalized (geotextile sand container concept), we will install the monopiles for the wind turbine foundations.

#### Our approach

**Installing the monopiles**

The monopile installation will be performed by a jack-up vessel with a 2,000 to 3,000 metric ton crane, depending on the final weight of the monopiles and the lifting equipment. The position of the monopile will be monitored by surveyors ensuring not only the position but also the orientation of the monopile. When the monopile is in the correct position and secured by the gripper, the hydraulic hammer on the deck will be lifted by the main crane and placed on top of the pile.

The jack-up installation vessel will be equipped with survey equipment, such as board cameras and total stations. Combined with visual inspection, this will enable us to ensure that the monopile is installed with the required depth, inclination, and altitude.

**Installing the transition pieces**

After the monopile has been successfully installed, the transition piece will be lifted onto the monopile. Guide pins and a video surveillance system will support the positioning of the transition piece. During this step, we will also apply the corrosion protection (as described in Chapter 11). This activity will be done in parallel to tensioning the bolts at the flange from the jack-up installation vessel.

#### Our transport plan

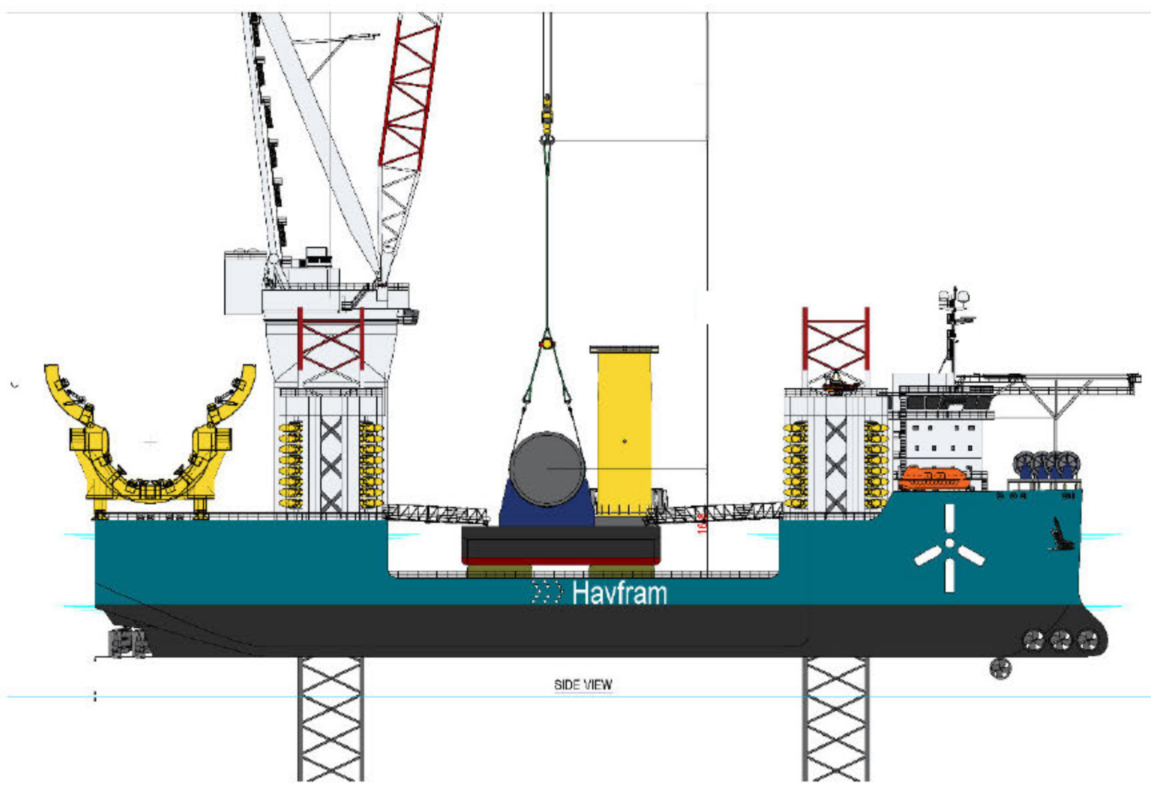
As described in Chapter 11, we plan to source the monopiles from [redacted] Once assembled, the monopiles will be transported [redacted]

For the transition pieces, various sub-components will be transported and assembled by the supplier. Once assembled, they will be transported to [redacted] for marshalling and storage at the pre-planned staging area.

As the manufacturing process of the foundation components (producing about two to three per week) is slower than the installation process (completing about five per week), we will start the manufacturing process in advance and store about 50% of the total required monopiles and transition pieces at [redacted] **This will minimize the risk of delays during the foundation installation process.**

The monopiles and transition pieces will be transported from the [redacted] to the offshore lease site by US-flagged feeder-barges. These barges will be equipped with the required sea fastening for monopiles and transition pieces (see Figure 13-15 below) and follow the marine rules and navigational channels as outlined by the US Coast Guard marine.

*Figure 13-15 Lifting of the monopile from Havfram concept, 2022*




## Environmental and ecological protection measures

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

### Relevant suppliers

We prefer the technical solutions provided by [redacted] As our project timeline allows, we will also consider other potential contractors with same or similar concepts to minimize the cost to ratepayers and de-risk the wind farm deployment.

[redacted]

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

#### 13.4.1.3. Inter-array cables

### Our approach

After deploying the wind turbine foundations, the next step in our offshore wind deployment is installing the inter-array cables. Our installation process follows four main steps:

- **Pre-installation activities:** A grapnel run will be performed to remove any potential debris (e.g., old steel ropes, boulders) in our cable paths. Additionally, a bathymetric survey will be conducted of the cable route to understand the specific conditions of our lease site. This will cover a 300 ft (90 m) wide corridor along the cable route and a 1000 ft (~300m) diameter around the foundation locations.
- **Installation:** The inter-array cables will be installed with a cable-laying vessel. The cables will be lowered to the seabed using a dynamic positioning system, supported by monitoring from a remotely operated vehicle. To ensure suitable tension and bending radius of the cables, we will monitor the installation in real time. As there are four active communication cables in our lease zone, we will need to perform cable crossings where necessary. We plan to use a concrete mattress concept and will coordinate the exact requirements and coordination with the respective cable owners.
- **Cable protection:** The cables will be prepared for the pull-in by installing the cable protection system (Figure 13-16, LHS). To ensure the that the inter-array cables are protected, we plan to trench the cables and ensure a seabed coverage of 5 ft (1.5 m) using a cable trencher (Figure 13-16, RHS) and use additional rock dumping as required.
- **Post-installation activities**: When the cables are installed by the cable installation vessel and the support of the tower crews, the cables will be tested by a testing and termination team to ensure the integrity of the cable. We will conduct a trenched survey to document the position and seabed coverage of the cables.

*Figure 13-16 Example of a cable protection system test and cable trencher by RWE*


### Our transport plan

The cables will be stored at the manufacturer facilities and directly loaded to the cable laying vessel. By loading the cables directly from the manufacturer's facilities, we avoid repeating the cable loading process and thereby curtail risk of cable damage from exceeding the bend radius or pulling forces of the cables.

The cables will be stored in a carousel, as shown Figure 13-17 below.

*Figure 13-17 Example of inter-array cable storing by RWE*

### Environmental and ecological protection measures

We are committed to minimize any adverse impact of the installation of our inter-array cables. Hence, we will actively consider alternate cable protection methodologies based on input from local fishermen and any other studies or data that may become available.

### Relevant suppliers

We are confident that we will be able to procure the required T&I contract for the inter-array cables, as the inter-array cables can be installed by a wide range of vessels (e.g., cable-laying vessel or converted platform supplier vessel) which are eligible for a waiver from the Jones Act. Hence, we have a strong list of potential providers, as illustrated in [redacted]

[redacted]

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

### 13.4.1.4. Wind turbine generators

After the wind turbine foundations and inter-array cables are installed, we will install the wind turbine generators in three stages:

- **Pre-installation activities:** A sea area survey will be carried out to determine the seabed properties of our lease zone, which will be used to determine a safe position for jack-up vessel.
- **Installation:** We will install the wind turbine tower on the transition pieces using the jack-up vessel crane. After the installation the two pre-assembled sections of the tower, the nacelle with the hub is placed on top of the tower using the crane of the installation vessel. Finally, the blades will be installed in a single-blade manner by the jack-up vessel crane (shown in Figure 13-18 below). During the construction work, automatic identification system, GPS and warning vessels are used to prevent accidents with ships in the vicinity. To avoid failure due to dust, the nacelles, hubs, and blades are subject to thorough dust control, before, during and after transport.
- **Post-installation:** After the installation of the nacelle, the dehumidifier will be operated immediately by the power supply of the wind turbine to dehumidify and prevent corrosion inside the turbine, including the tower.
- **Commissioning:** Once the wind turbines are installed, [redacted] will commission the turbines in two phases:
    - In the first phase of commissioning, all mechanical and electrical components (e.g., ladders and cables) will be connected before the turbine is energized and connected to the grid.
    - During the second phase of commissioning, the turbine is configured and tested. Afterwards, the turbine will enter the test-run phase. Finally, the turbines will be handed over to our operations team after receiving approval from both [redacted]

*Figure 13-18 Havfram concept installing the blade using a jack-up vessel*

### Our transport plan

As described in Chapter 11, the tower segments, nacelles, and blades will be manufactured by [redacted]. As the manufacturing process of the wind turbine generator parts is slower than the installation process, we will initiate the manufacturing process in advance and store approximately 20 sets of wind turbine generator components at [redacted]

As described in 13.3.4.1, we plan to use three feeder-barges, where each can transport one set of wind turbine generator components (tower sections, nacelle and three blades) and a jack-up vessel for the installation.

The commissioning work will be conducted by a service operation vessel supported by three crew transfer vessels.

### Relevant suppliers

[redacted] As described in 13.3.4.1., we plan to use the feeder-barge concept supplied by [redacted] A summary of the contract scopes and parties is described in [redacted] below.

[redacted]

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

### 13.4.2. Transmission components installation

#### 13.4.2.1. Offshore converter station and mesh facilities

**Our approach**

The offshore converter station and offshore mesh collector will be installed in a two-step process, as described below. We will use mesh equipment installed as a bolt-on add-on on the converter station, requiring a heavy lift vessel with at least 10,000 ton lifting capacity for the topside and 5,000 ton lifting capacity for the jacket foundation.

- **Installation:**
  - **Foundation**: There are two ways for the jacket to be installed. The jacket could either be placed on pre-installed pin-piles with a heavy lift vessel, where the pin-piles are installed with a template before the jacket arrives on site. The other way is where the jackets is lowered to the seabed and the piles are installed through the legs of the jacket. The piling windows will anyway be highly dependent on marine mammal migratory patterns and weather conditions. The timing of jacket installation windows will be dependent on the weather conditions.
  - **Topside**: We will use a heavy lift vessel to install the offshore converter station and mesh collector. The timing of installation windows will be dependent on the weather conditions.
- **Commissioning:** The HVDC systems will be properly commissioned to ensure that the HVDC systems work as intended and to verify that the transmission facilities meet the grid code requirements of the NYISO and Connecting Transmission Owner.

### Our transport plan

The offshore converter station and mesh collector foundations will be transported from Europe during a time window with suitable weather, depending on the weather forecasts and project schedule. The components will be brought to the installation site either via a barge or a float-over vessel:

- If transported by a barge, a heavy lift crane vessel will also be brought to the site for placing the jacket onto the foundation piles and lifting the topside onto the jacket.
- If transported by a float-over vessel, the topside would be transported to the site and placed on the jacket without the need of other vessels.

At time of submittal of this proposal, these details are being further evaluated with jacket fabricators and HVDC OEMs.

### Environmental and ecological protection measures

To protect biodiversity and minimize ecological impact, we are planning to use similar noise mitigation procedures as the wind turbine foundations (e.g., bubble curtains and pile driving), where applicable. However, as the substation jackets are smaller than the monopiles, the noise levels will be lower and therefore require fewer noise mitigation measures.

### Potential suppliers

The manufacturing, installation, and transportation will be coordinated by the HVDC OEM as part of an EPCI contract, see [redacted] below for further details.

[redacted]

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

13.4.2.2. <u>Onshore converter station</u>

### Our approach

Our approach for deploying the onshore converter station follows four steps:

- **Preparation activities:** The site for the station will require clearing and grading to prepare for construction activities. This work may include climate resiliency and robustness initiatives, as further described in Chapter 11.

- **Construction:** Concrete foundations will be required for the buildings and electrical equipment on-site. Once these have been installed, support for electrical equipment and buildings can initiate construction. Support structures will be assembled on-site with components transported from various manufacturers by local skilled trades.
- **Assembly:** All components of the onshore converter station are modular and will be assembled by construction personnel ranging from general laborers to specialized technicians.
- **Commissioning:** Upon completion of construction activities, the asset will be commissioned to ensure it meets the operational requirements of the project.

### Our transport plan

Equipment and materials will be transported to the onshore converter site. For equipment such as the main power transformers and switchgear, this will require specialized heavy transport vehicle and a tailored transport approach (including required permits). As this requires intimate knowledge and experience with the transportation of large equipment through constrained areas, we will leverage National Grid's over 20 years of experience in developing and operating transmission assets in New York.

### Potential suppliers

The onshore converter station will be procured in a bundled package together with the remaining HVDC equipment due to the control system coordination requirements. For installation, we see that there may be some efficiencies gained by decoupling certain onshore construction activities from the OEM scope of works, as described in [redacted] below. We will continue developing our approach, making full use of National Grid's experience of construction work in the area while utilizing local labor where possible.

[redacted]

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

#### 13.4.2.3. Export cables

Our export cable installation approach includes four main steps:

- **Pre-installation activities:** As with the inter-array cables, a grapnel run will be performed to ensure that the cable route is cleared from debris. A bathymetric survey of the seabed along the cable route will also be conducted to understand the seabed conditions and optimize the final cable corridor.
- **Cable laying:** The cable laying procedure will start from the landfall and continue towards the offshore converter station by using the simultaneous lay and burial method to avoid unnecessary transload from freight vessel to a storage yard. Since several active communication cables are located within the export cable route, we will need to perform cable crossings. We plan to use the concrete mattress concept and will coordinate the exact requirements with the respective cable owners.
- **Cable protection:** To ensure the proper protection of the cables, we will target burying the export cables 15 feet below the seabed. We will consider a combination of alternative trenching methods and/or cable protection systems (e.g., rock or concrete mattress installation, pre-trenching) for areas where achieving the required burial depth proves challenging.
- **Terminations and testing:** After cable laying is concluded, the cable ends will be terminated at the onshore and offshore converters. Testing of the cables will be conducted to ensure integrity and fitness for operation. This will be completed prior to commissioning activities of the HVDC converters and utility backfeed. After the cables have been laid, tested, and trenched, a survey along the cable route will be conducted to document the position and the seabed coverage of the cable.

## Our transport plan

We plan to transport the export cables directly from the manufacturing facilities to the installation site for installation, minimizing risk of cable damage through an extra set of on- and offloading of the cables at our marine terminal.

## Potential suppliers

We plan to combine the manufacturing and installation of the export cable in one engineering, procurement, construction, and installation (EPCI) contract. As the number of purpose-built cable installation vessels is limited, we will sign a preferred supplier agreement in Q1 2023, as described in [redacted] below.

[redacted]

| [redacted] | [redacted] | [redacted] |
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| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | |
| [redacted] | [redacted] | [redacted] |

13.4.2.4. Onshore landfall and cable routing

### Our approach

For the interconnection between the offshore HVDC export cables and the onshore HVDC export cables, we will use horizontal directional drilling to minimize cable exposure due to storms or seabed movements. Our onshore landfall approach follows two steps:

- **Pre-installation activities:** A survey of the drill site will be reviewed to ensure all field personnel understand their responsibilities, which is critical for timely reporting in case of a frac-out release. A conductor casing will be installed prior to the start of drilling, to aide in support of overburden soils, allow an enclosed passage for the drilling fluid, and to cut back on travel time back to the surface.
- **Installation:** Once the export cable approaches near the shore, the cable will be pulled through conduits prepared by the horizontal directional drilling method. During installation, a gravity-based cofferdam, also known as a gravity cell, will be installed at the offshore exit point of the drill to capture drilling fluid exiting to the ocean floor.

The onshore cable routing is the next step after the onshore landfall process is completed. Our installation method follows a four-step process:

- **Route planning:** We have developed initial onshore cable routes, informed by National Grid's extensive experience in transmission in New York, along with expertise from specialized consultants from Mott MacDonald (see Chapter 8 for more details). This enables us to avoid, where possible, any sensitive areas such as wetlands, existing infrastructure, constricted space, and disadvantaged communities.
- **Permitting:** Our current cable routes prioritize the use public right of ways. We will coordinate the final construction permits and traffic management plans with New York State and local authorities through the Article VII process. We will also involve stakeholder input to reflect public concerns in our process.
- **Installation:** Cable installation methods will vary based on the topography, geology, and load conditions of the target area. For example, overhead lines or propulsion method will be used in areas where general underground line excavation is not possible, such as railroad crossings. We will work towards ensuring that installation processes (excavation and installation of the cable protection pipes, the installation of the connection manhole, the backfilling, the cable installation and the interconnection connection) are carried out in a safe and reliable manner by leveraging National Grid's experience with onshore transmission in New York and RWE's experience within offshore wind.
- **Testing and commissioning:** Equipment and interconnection tests will be conducted in accordance with the voluntary inspection items before use. Subsequently, we will ensure that a system load test is conducted to ensure that the installation has been completed correctly.

### Environmental and ecological protection measures

To minimize impacts in culturally or environmental sensitive areas such as landfalls and potentially in high-traffic roadways, we will use alternative installation methods such as horizontal directional drilling. **Moreover, where possible we will propose construction of use ductwork that includes extra**

**conduits (e.g., to [redacted] see Chapter 8 for more details), that will allow future project phases or other developers to pull their cables in at a later date, minimizing future disruptions in areas along these cable paths.**

### Relevant suppliers

Contracting the equipment and T&I contracts for the onshore land fall and cable routing packages will follow the same approach as for the onshore converter station (see Section 13.4.2.2.). We see potential possibilities for efficiencies in decoupling certain onshore construction activities from the OEM scope of works, as described in [redacted] below.

[redacted]

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

### 13.4.3. We will set up a marine coordination center for the safety and efficiency of our operations

The deployment of the offshore wind farm will require extensive monitoring and coordination to avoid accidents and delays. During our deployment, we will conduct over 1,000 offshore transfers of personnel spread over more than 20 vessels. These vessels will move to and from the offshore lease site during the construction of the wind farm (e.g., to perform inspections and final installation of turbine foundations and substations).

To ensure safe working conditions, we will establish a marine coordination center that will operate continuously (i.e., 24 hours a day and 7 days a week) during construction. The marine coordinator has experience in coordinating offshore wind turbine construction and knowledge of the natural environment in the US. The main functions of the Marine Coordination Center are described below:

- Safety management of the lease area
- Management of vessel movements and access permissions to wind turbines
- Emergency response
- Registration and customs formalities for returning and departing ships, including passenger registration
- Checking the progress of the installation

# 14. Fisheries mitigation plan

## 1 Table of contents

## 2 List of tables



## 3 List of figures



## 4 List of appendices

### NYSERDA solicitation requirements

Our fisheries mitigation plan addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP) while also introducing novel approaches to achieve a net-positive impact for fishery stakeholders and other marine users. The table below identifies each solicitation requirement.

*Table 14-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| Briefly present philosophy and approach to avoiding, minimizing, restoring, and offsetting the potential fisheries impacts of the proposed Project. | 14.1 |
| Present how the Proposer will use research, data, and stakeholder feedback to support decision making with respect to pre-construction surveys, site design, construction, operations, and decommissioning. | 14.1 |
| Describe how to identify relevant stakeholders and describe communication during survey work, and design, construction, operation, and decommissioning of the Project. | 14.2.1 |
| Describe how the Proposer will communicate with active vessels during site assessment and construction activities and facilitate proper notification to vessels and resource managers including coordination with F-TWG and New York State agencies. | 14.2.2 |
| Describe how the Proposer will work with the fishing industry to collect data, publish their own work in scientific journals, and coordinate with scientists and regulators. | 14.3 |
| Describe plans to conduct studies to establish baseline data. | 14.3.1 |
| Describe plans to conduct studies to determine how the proposed Project area is used by commercial and recreational fisheries in the region. | 14.3.1 |
| Describe plans to conduct studies to monitor for impacts. | 14.3.2 |
| Describe plans to conduct studies to assess changes attributable to Project activities. | 14.3.2 |
| Identify opportunities to develop or invest in collaborative research with the fishing industry. | 14.3.3 |
| Describe coordination with members of the F-TWG during data gathering and assessment. | 14.3.3 |
| Identify collaborative efforts by which the industry plans to standardize scientific methods, surveys, and monitoring plans across the region to enhance data compatibility and utility. | 14.3.3 |

| | |
|---|---|
| Coordinate with third-party scientists to provide Project data and access to the Project area for studies examining environmental and fishery sensitivities and impacts of offshore wind development. | 14.4.1 |
| Describe how data requests will be processed and any restrictions on data provision or access that may be required to protect trade secrets or maintain site security. | 14.4.1 |
| Identify ways to enhance site accessibility for the advancement of scientific and technological study. | 14.4.1 |
| Identify any financial commitment to third-party environmental research funding. | 14.4.2 |
| Describe how the Proposer will consider the potential adverse impacts of infrastructure design elements on fishing in the proposed Project area. | 14.5.1 |
| Demonstrate that the Project area and proposed site design allows for reasonable flexibility in the site layout to accommodate changes that may be needed in the future. | 14.5.2 |
| Outline how the Proposer will engage with stakeholder groups such as the F-TWG and other regional fishermen and shipping and navigation to determine Project layouts that address stakeholder concerns. | 14.5 |
| Identify the use of benthic habitat enhancement techniques that are applicable to promote added beneficial ecological improvement while offsetting adverse impacts. | 14.5.2<br>14.7.2 |
| Describe planned operational protocol to avoid, minimize, and mitigate impacts to fish, invertebrates and fisheries during Project construction and operation phases. | 14.6.1 |
| Describe how the Proposer will minimize potential loss of fishing gear due to interactions with structures deployed as a result of offshore wind energy development. | 14.6.1 |
| Describe the approach to claims of lost gear in the event of a snag that provides for a fair and timely review of the claim and appropriate compensation of impacted parties. | 14.6.1 |
| Describe the process for determining when mitigation strategies are insufficient and under what conditions to rehabilitate or restore fisheries in an alternative location or when the provision of compensation of some form may be appropriate. | 14.6.2 |
| Identify the potential fish and fisheries impact of activities associated with subsea cable routes. | 14.7 |
| Describe how the Proposer will develop a decommissioning plan, including coordination with fisheries stakeholders and any elements of the plan that can be identified at this stage. | 14.8 |

| | |
|---|---|
| Describe how the Proposer will determine where fisheries compensation is warranted. | 14.9.1 |
| Describe how the fisheries compensation plan was developed. | 14.9.1 |
| Describe how the Proposer will coordinate with the F-TWG and other entities in the design or review of the fisheries compensation plan. | 14.9.1 |
| Describe how the compensation plan will be administered by a non-governmental third-party to provide reasonable and fair compensation for impacts not sufficiently addressed through other means. | 14.9.1 |
| Outline any additional mitigation strategies not otherwise described that would improve the Plan and reduce impacts on the fishing community. | 14.9.2 |
| Outline any additional mitigation strategies not otherwise described that would improve the Plan and reduce impacts on the fishing community. | 14.9.2 |

## 14.1. Summary

We recognize the significant economic value of commercial and recreational fisheries, and the important role fisheries have in garnering stakeholder support across the region, leading to successful permitting and community engagement. Based on the most recent national fisheries economics reports available, 23.6M pounds of fish and shellfish, worth over $42M, were landed in New York State in 2019, harvested by about 1,300 commercial fishermen supporting over 42,000 total jobs in the seafood industry. In addition, in 2019, an estimated 13.4 million recreational fishing trips took place in New York, supporting about 4,700 jobs and over $400M in related sales.[40] Furthermore, fishery stakeholders are among the groups most directly impacted by offshore wind development and early offshore wind projects in the United States have been challenged by fisheries participants as they have raised concerns about safety, access, navigation, environmental impacts, and the loss of fishable areas.

To address these concerns, we have had over 330 direct engagements with over 500 fishery participants and stakeholders to date. Our fisheries mitigation plan has a core focus on collaboration with fisheries, partner institutions, independent researchers, and other marine users to ensure we contribute to successful outcomes for offshore wind development and fishery stakeholders (Section 14.2).

[redacted]

[redacted]

[redacted] Our Plan revolve around three main pillars:

1. Support research [redacted]
2. Design, construct, and operate with an avoidance-first strategy
3. Compensate [redacted]

Figure 14-1 below illustrates our holistic fisheries mitigation plan and the various partners we will engage with to develop a successful project. We have begun to communicate with experts in the region and have compiled an initial list of potential partners (see Appendix 14-2). We are also pleased to

[redacted]

already have commitments (e.g., letters of support and MOUs) from several organization and research institutions with whom we will collaborate (detailed in Appendix 14-3).

[redacted]

[redacted] Despite recent developments, significant knowledge gaps of the impact of offshore wind on fisheries remain. We will invest beyond the standard practice to ensure the pace of research keeps up with that of development in the region. [redacted]

**Site Characterization Survey Mitigation:** This program will go beyond the standard site assessment survey requirements by including additional monitoring [redacted] Our site characterization survey mitigation also includes proactive communication and coordination with the fishing industry to minimize disruptions from survey related activity. A

**Lifetime Environmental Monitoring:** [redacted] committing far beyond the minimum standard of two years post-construction. [redacted] B

[redacted]

[redacted] C

2. **Design, construct, and operate with an avoidance-first strategy.** We are developing our project with the goal of minimizing negative impacts on fishing in our lease zone, applying the mitigation hierarchy approach outlined in the BOEM guidelines for Fisheries Mitigation: avoid, minimize, rectify, reduce, and offset (Sections 14.5-14.8).[43]

**Minimal Impact Lease Area:** Our lease area met specific selection criteria in support of our goal to avoid impact to fishery activities where possible. [redacted] D

**Collaborative Design Solutions:** Our approach to project design involves collecting input from commercial and recreational fishermen regarding the layout and design elements of the project to mitigate impacts and support continued fishing within the lease area. [redacted] E

[redacted] F

[redacted] G

3. **Compensate** [redacted] We are committed to providing a compensation plan that accounts for direct effects of our development [redacted]

43 Guide ines for Mitigating Impacts to Commercial and Recreational Fisheries, BOEM. 2022. [redacted]

**Fisheries Compensation Plan:** Our comprehensive compensation plan aims to offset the direct losses that fisherman and shoreside businesses may experience due to the construction, operation, and decommissioning of our project. Our financial commitment to this program will be consistent with BOEM's guidelines on fisheries mitigation and compensation. We are supportive of the development of a regionwide compensation system among coastal states to help promote consistency and transparency and reduce uncertainty regarding compensation. H

[redacted] I

[redacted] J

Our parent company, RWE, has already developed 18 offshore wind projects globally including extensive experience collaborating with stakeholders on fisheries mitigation strategies. [redacted]

## 14.2. Communication and collaboration

Communication and collaboration are at the core of our mitigation plan. We are committed to **working towards meaningful co-use of our lease site**. In line with our inclusive project development, we aim to create a two-way feedback loop with fisheries and eliminate or reduce uncertainty about potential impacts and opportunities our project will bring to commercial and recreational fisheries. The core of our approach is to: **1) Identify key stakeholder groups, 2) Ensure effective communication with fisheries and 3) Drive continuous collaboration with the fishing industry**

### 14.2.1. Identify key stakeholder groups

As further detailed in Chapter 16, **we prioritize proactive stakeholder engagement** [redacted] We have identified relevant fisheries and other maritime stakeholders that may be impacted by our project. [redacted]

Relevant fisheries stakeholders to our project are **Commercial fisheries** whose operations contribute to the local and regional economy, **Recreational fisheries** who use our project area for charter, private, and party boat fishing and **other marine interest groups** who may be impacted by our project in various ways

**Commercial fisheries.** [redacted] According to federal Vessel VTR data, the primary species harvested from commercial fisheries in the lease area are Atlantic sea scallop and Atlantic surf clam. Key commercial ports with landings from within the lease area include Atlantic City, Barnegat Light, Point Pleasant, and Cape May, New Jersey. Other ports with commercial harvest include Long Beach and Montauk, New York; New Bedford, Massachusetts, and ports in the Hampton Roads area of Virginia. See Appendix 14-4 for maps of commercial activity in and around the lease area.

[redacted]

**Recreational fisheries.** Available data on recreational fisheries operating in and transiting through the New York Bight [redacted] Recreational fishing areas adjacent to the lease area include the Fingers, Triple Wrecks South, and the Corvallis wreck, and recreational vessels transit through the lease area to fish in areas farther offshore. The ports with recreational boaters most likely to transit through or fish within the lease area are Barnegat Light, Point Pleasant, Cape May, Little Egg Inlet, and Ocean City, New Jersey, Jones Inlet, New York, and other local ports.

**Other marine interest groups.** In addition to fishery stakeholders, our project may impact whale and dolphin-watching businesses, shore-based wildlife viewing, diving, recreational boating, sailing, surfing, and kayaking who currently use our lease area or potential export cable routes for their activities. Our project may also impact fishing organizations, fish dealers and processors, bait and tackle shops, fishing tournaments, marinas and boat ramps, marine tourism businesses, environmental organizations, as well as state and federal agencies and management entities.

[redacted]

### 14.2.2. Ensure effective communication with fisheries

We have a well-developed communication plan to ensure active communication that meets fishery needs and is mindful of stakeholder fatigue (see Appendix 16-8). We recognize that fisheries stakeholders have many demands on their time and want to ensure each engagement is meaningful. In all our communications, [redacted] Additionally, vessel activity within the area will be managed using a safety management system (SMS), and our survey and support vessels will maintain bridge-to-bridge communications with vessels in the area.

[redacted]

[redacted]

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

### 14.2.3. Drive continuous collaboration with the fishing industry

Throughout each stage of our development, our engagement with fishery stakeholders will involve active and continuous collaboration. [redacted]

[redacted].

[redacted]

## 14.3. Monitoring and research

As offshore wind develops in the US, there are opportunities to better understand the effects it may have on the ecological communities in the region. [redacted]

[redacted]

[redacted] Our monitoring and research plan has three main objectives: 1) **Establish credible baselines,** 2) **Monitor, assess and quantify impacts throughout project lifetime** and 3) **Collaborate with fisheries and research partners and coordinate with other developers.** A summary of our monitoring and research activities throughout the different phases of the development can be found in the table below:

[redacted]

[redacted]

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

### 14.3.1. Establish credible baselines

[redacted]

[redacted]

Our site characterization survey mitigation activities [redacted] to reduce survey impacts to fisheries and wildlife, while we establish credible baselines:

A Site Characterization Survey Mitigation. [redacted]

51 Scoping comments on the Notice of Intent to Prepare a Programmatic Environmental Impact Statement (Appendix A), NOAA. 2022.
52 Includes number of trips, number of vessels, and basic geographic information such as fishing port and homeport state

[redacted]

We have **proactively engaged with our local fisheries advisors** to identify fisheries and participants that may be operating in the lease area when surveys are planned. [redacted] Furthermore, our team is **actively working with fishermen to avoid and minimize interactions during the survey campaign through accommodation.** [redacted]

### 14.3.2. Monitor, assess, and quantity impacts

We will monitor for impacts of our project development on the baselines established pre-construction. [redacted] we will **isolate impacts from our development versus those from other sources**, [redacted] We will work closely with NOAA Fisheries and our research partners, in consultation with ROSA, F-TWG, the fishing industry, and other developers to develop the most appropriate sampling strategies and monitoring plans.

[redacted]

We have developed **specific programs to monitor the impacts** of our project in different ways:

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

### 14.3.3. Collaborate with fisheries, research partners, and other developers

Given the limited number and relative infancy of offshore wind developments in the Northeast region to date, there has historically been a lack of monitoring and research coordination amongst existing sites. Multiple regional sites working together in a consistent manner would bring additional value to the scientific understanding of how offshore wind development is affecting regional resources. [redacted] We are **committed to working with other developers and scientific partners to promote a coordinated approach to environmental monitoring** in the New York Bight region, [redacted]

**Collaborative research.** Offshore wind development is a huge opportunity for collaborative research with the fishing industry to both collect data, and more importantly, to inform what research is most valuable and essential for long-term sustainable fisheries in this region. To answer the multitude of research questions surrounding the effects of offshore wind development, we must have close collaboration between researchers, fishing industry members, developers, and regulators to address concerns and promote effective coexistence. Fortunately, there are numerous regional entities that have already identified key research priorities. [redacted]

[redacted]. Our team will engage with F-TWG to solicit input and recommendations early in the development of our fisheries monitoring plan. We will also seek their recommendations on our efforts to promote a more coordinated approach to monitoring fisheries resources in the New York Bight. We will prepare and present summaries of our monitoring results at regional scientific and fishery management meetings.

**Regional standardization.** Another challenge facing researchers is the lack of standardization in terms of data collected as well as collection methods. [redacted]

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[redacted]

[redacted]

We are also committed to working with other developers to pursue the development of a coordinated fisheries monitoring program within the New York Bight. [redacted]

## 14.4. Supporting other research

Offshore wind sites can play an important role in supporting other research by serving as fixed platforms for research opportunities. The development of our wind farm will result in a tremendous amount of data and resources that can advance research in offshore wind development in the US. [redacted] Our lease area is centrally located and could serve as an important area to link research on migratory species and oceanographic patterns throughout the region. **Our team is committed to leveraging additional research within the lease area and supporting research partnerships that will enhance our understanding of this ecosystem.** [redacted]

### 14.4.1. Coordination with independent researchers

There are numerous oceanographic and atmospheric research institutions in the region that may want to attach research equipment to offshore wind foundations. To support these efforts, we are prepared to engage in the following activities:

- Explore utility of project data to ecosystem and other resource assessments.
- Collaborate with researchers and educators [redacted]
- Provide public access to research and monitoring data within the bounds of federal confidentiality requirements necessary to protect individual fishing entities.
- Develop a data sharing and confidentiality policy [redacted]

[redacted]

[redacted]

To enhance site accessibility for the advancement of scientific and technological study, we will collaborate with independent researchers on their needs and solicit feedback on ways to improve their interaction with our development resources.

[redacted]

[redacted]

[redacted]

[redacted]

## 14.5. Site design considerations

[redacted]

[redacted]

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[redacted]

[redacted]

[redacted]

[redacted]

D [redacted]

E [redacted]

[redacted]

| [redacted] | | [redacted] |
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| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted]<br>[redacted] |
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| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] |

F **Safety and fishery adaptation program.** Promoting safety for commercial and recreational fishermen and other mariners operating in the project area is a top priority. **Marine safety will be integrated collaboratively with the input of the fishing and maritime industries throughout our project design process and development of supporting program** [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

G [redacted]

[redacted]

### 14.5.3. Enable collaboration between the industry and our project team

[redacted]

We are sensitive to feedback from commercial fishermen that their input should be considered early in the design process. Our team is resolving this issue by working proactively to bring our engineers together with fishermen to create a two-way dialogue that ensures our engineering team understands the bottom-tending fishing gear and the needs and concerns of the fishing industry. We are also engaged with recreational fisheries to understand their transit patterns and use of the project area. **Our fisheries team is continuously active across the project's workstreams and meets regularly with project engineers to provide sustained fisheries input on design elements** such as turbine spacing and layout, use of transit lanes, axes of turbine orientation, and cable layouts.

We have also facilitated direct communication between fishery participants and our technical team. In May 2022, we organized a site visit on commercial scallop and clam vessels in Cape May, NJ for fishing industry members to meet directly with project engineers, promoting technical understanding of scallop and clam dredge gear configuration and operation. This direct communication and opportunity for fishermen to engage with project engineers will continue to improve our overall design and project layout throughout the pre-construction phase.

## 14.6. Construction and operation

[redacted] Our approach during construction and operation has two main objectives: (1) Develop effective mitigation protocols to minimize impact, and (2) Monitor key performance indicators to assess impact.

### 14.6.1. Develop effective mitigation protocols to minimize impacts

**Fish, invertebrates and fisheries.** We are committed to avoiding, minimizing, and mitigating impacts to fish, invertebrates, and fisheries during construction and operations. [redacted]

[redacted]

[redacted]

**Fishing gear.** While every effort will be made to avoid and deconflict fisheries impacts prior to construction and operation, the project has established a gear loss claim procedure for loss or damage to fishing gear. The procedure establishes the reporting process for fishermen who experience a gear loss or damage associated with the project's offshore operations. A Survey Fishing Gear Incident Form will be used by contracted survey vessels to report any gear interactions, and a Gear Loss or Damage Claim Form is available to fishermen who experience a gear loss or damage associated with vessels contracted to the project. We will assist fishermen with gear loss claims. An annual claims' summary will be shared with BOEM.

We acknowledge the concerns expressed by fishermen regarding the need to manage different claim processes for gear loss across developments. **To increase consistency, we are committed to working with other leaseholders to develop consistent procedures and minimize the burden to those fishermen.**

[redacted]

[redacted]

[redacted]

## 14.7. Considerations for subsea cables

Subsea cable routing poses several complex issues that are important to address to achieve compatibility with fisheries. Our goal is to achieve a cable design that accounts for external hazards, constraints, and design objectives while also upholding our commitment to the mitigation hierarchy pyramid. Our approach to subsea cables has three main components: (1) Responsible cable management, [redacted] Industry expertise and collaboration.

We are committed to following the guidelines recommended by NYSERDA's Draft Offshore Wind Cable Corridor Constraints Assessment and will optimize for minimizing and mitigating impacts while also looking for opportunities to go beyond the standards set from prior projects to address the unique constraints, opportunities, schedule, and costs for siting offshore wind cables.[59]

### 14.7.1. Responsible cable management

[redacted]

[redacted]

[redacted]

[redacted]

### 14.7.3. Industry expertise and collaboration

[redacted]

59 NYSERDA's Draft Offshore Wind Cable Corridor Constraints Assessment (Attachment A), NYSERDA. 2022.

[redacted] These efforts will enable us to implement an avoidance-first strategy regarding the subsea cable plans.

## 14.8. Project decommissioning

Given the nascent stage of offshore wind development in the United States, uncertainty remains around what decommissioning in the region should look like in roughly 40 years. However, we have the requisite know-how from decommissioning experience [redacted] We will **engage with the fishing industry to understand decommissioning considerations** to ensure that our decommissioning plan [redacted]

### 14.8.1. Considerations for decommissioning

We will embrace a proactive approach to avoiding and minimizing impacts throughout the decommissioning process. Though the details of our decommissioning plan will come together as we approach the end of the project's lifetime, **we will continually account for key considerations such as regulations, impact assessment, safety, stakeholder engagement, and evolving best practices**.

[redacted]

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

### 14.8.2. Decommissioning experience

Our parent company, RWE, has developed 18 offshore wind projects globally and has many more in the development pipeline. [redacted]

[redacted]

## [redacted] Compensation [redacted]

[redacted] (1) Fair and timely compensation, [redacted]

### 14.9.1. Fair and timely compensation

**Fisheries Compensation Plan.** [redacted]

Our fisheries compensation plan will be developed in consultation with the commercial and recreational fisheries, the respective state agencies, and fisheries working groups, including F-TWG. Our marine affairs team is closely following the ongoing dialogue between nine Atlantic coastal states, BOEM, and the Special Initiative for Offshore Wind (SIOW) focused on the development of a third-party administrator to manage

60 Guidelines for Mitigating Impacts to Commercial and Recreational Fisheries, BOEM. 2022.

a claims process for fisheries compensation. We anticipate that the states' pending request for information on this issue will result in an independent process that will bring consistency and transparency to the process for fisheries compensation and reduce uncertainty around compensation. We are supportive of a consistent, regionwide compensation system if one is developed among coastal states.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

## 14.10. Additional considerations

One of the key differentiators and strengths Community Offshore Wind brings to this project proposal is our highly experienced Fisheries team. Our Fisheries team members are extremely knowledgeable of the industry, having been collectively involved in all the NYSERDA and BOEM recommended working groups and industry organizations. [redacted]

61 Executive Order 14008: Tack ing the C imate Crisis at Home and Abroad. 2021.

# 15. Environmental mitigation plan

## 1 Table of contents

## 2 List of tables



## 3 List of figures



## 4 List of appendices

There are no appendices for this chapter.

## NYSERDA solicitation requirements

Our environmental mitigation plan addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP) while confirming our commitment to low environmental impact. The table below identifies each solicitation requirement.

*Table 15-1 Solicitation requirements*

| Solicitation requirement | Section |
| --- | --- |
| Present philosophy and approach to mitigating offsetting environmental impacts. | 15.1 |
| Present how research, data and stakeholder feedback support decision making. | 15.1 |
| Describe how we will work with the State-supported E-TWG. | 15.2.2 |
| Describe how we will identify stakeholders relevant to onshore and offshore environmental issues describe. | 15.2.1 |
| Describe how communication with stakeholders, incl. E-TWG and NYS agencies. | 15.2.2 |
| Describe how publication of work in scientific journals, or other scientifically rigorous products, and coordination with interested scientists and regulators. | 15.3.1 |
| Describe how research transparency and peer reviewed publication of results. | 15.3.1 |
| Describe approach to pre-, during- and post-construction monitoring and research. | 15.3.1 |
| Describe coordination to standardize monitoring and research in the region. | 15.3.1 |
| Describe plans to make environmental data available in accordance with Section 2.2.8. | 15.3.1 |
| Describe how, for large whales (particularly the North Atlantic right whale), other marine mammals, sea turtles, birds, bats, fish, sturgeon, and invertebrates, we plan to conduct scientifically sound, statistically rigorous studies to establish baseline data, assess and quantify changes and monitor for impacts during each phase. | 15.3 |
| Describe use of collaborative monitoring models with fishing community to develop trusted baseline data. | 15.3 |
| Describe our approach to requests for Project data and access to Project Site and any relevant restrictions. | 15.4.2 |
| Identify ways to enhance site accessibility for advancement of third party scientific / technological study. | 15.4.2 |
| Describe financial commitments to third party environmental research. | 15.4.1 |

| | |
|---|---|
| Describe what is known about the proposed site in terms of marine mammal and sea turtle assemblage, temporal and spatial use of the site, and which species we believe to be of greatest concern and why. | 15.5.1 |
| Describe how we will work to understand and minimize risk to marine mammals and sea turtles, with special attention to highly vulnerable and endangered species such as the North Atlantic right whale. | 15.5 |
| Describe proposed measures to minimize impacts of sound on marine mammals and sea turtles. | 15.5.2 |
| Describe how we will seek to minimize the risk of ship strikes through timing speed restrictions, use of shipping lanes and conformance with NOAA guidance to avoid collision. | 15.5.3 |
| Describe what is known about the proposed site in terms of bird and bat assemblages, temporal, and spatial use of the site by key species and which species we believe to be of greatest concern and why. | 15.6.1 |
| Describe approach to evaluate risks to birds and bats generally, and those of greatest concern specifically. | 15.6.1 |
| Describe steps the Proposer will pursue to minimize risk to birds and bats (e.g., lighting). | 15.6.2 |
| Identify technological approaches to assess impacts or other research or mitigations relating to birds or bats. | 15.6.3 |
| Describe what is known about the proposed site in terms of fish and invertebrate assemblage, temporal and spatial variations and which species we believe to be of greatest concern and why. | 15.7.1 |
| Identify fish and invertebrate species the Proposer believes to be of greatest concern and why. | 15.7.1 |
| Describe how we will work to understand and minimize risks to fish and invertebrates and their habitats. | 15.7.1 |
| Describe steps we will pursue to minimize risk to fish, invertebrates, and their habitats. | 15.7.2 |
| Describe other research or measures taken to reduce risk or impact to fish, invertebrates, or their habitats. | 15.7.3 |
| Describe potential environmental impacts of activities associated with subsea and overland cable routes. | 15.8 |

| | |
|---|---|
| Outline any additional mitigation strategies not otherwise described herein that would improve the Plan and reduce impacts on the environment. | 15.9 |
| Describe how we will develop a decommissioning plan in coordination with environmental stakeholders. | 15.10 |

## 15.1. Summary

The siting, construction, operations, and decommissioning of offshore wind projects have the potential to impact the marine mammal, sea turtle, birds, bats, fish, and invertebrate species and their habitats that are found within the New York Bight. Specific concerns include underwater noise from survey and activities and pile driving, marine mammal collisions with vessels, bird and bat collisions or displacement. The New York Bight is one of the most studied regions along the Atlantic coasts, however, continued efforts will improve our understanding of direct, indirect, and cumulative biological impacts from offshore wind development.[62]

[redacted]

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

We have developed a range of proposed solutions to support these objectives, which are further detailed throughout our Environmental Mitigation Plan (Sections 15.2-15.10). We are committing [redacted] towards activities and programs that support our Environmental Mitigation Plan and our Fisheries Mitigation Plan. These activities revolve around three main pillars:

1. **Avoid, minimize, mitigate, restore, and offset potential environmental impacts.** To address the environmental issues resulting from our project that affect species above and below waterline, we commit to the following:

   A. **Protect marine mammals, sea turtles, and other protected species** by minimizing disturbance and collision risk using noise abatement techniques, exclusion zones, training, and targeted and collaborative monitoring (see Section 15.5)

   B. **Minimize attraction and other risks to birds and bats** by reducing artificial lighting, exploring the installation of perching-related deterrents and through targeted and collaborative monitoring (see Section 15.6)

   C. **Strive for net-positive effects on fish, invertebrates, and their habitats** through thoughtful foundation design, nature-based solutions, strategic cable routing and burial methods, and periodic surveying of subsea and onshore cables (see Section 15.7-15.8)

   D. **Mitigate impacts from decommissioning** by developing a living decommissioning plan and leveraging the latest research, technological advances, and lessons learned (see Section 15.10)

62 Environmental Stratification Workgroup Report, NY E-TWG. 2020.

[redacted]

2 **Apply and advance research to study impacts and mitigation efficacy.** To further supplement and refine data and research on the potential impacts of offshore wind developments on taxa and their habitats in the New York Bight region, we commit to:

[redacted]

3 **Use a transparent and collaborative approach.** Robust stakeholder engagement is important to building an inclusive development process that targets key priorities defined by research and regulatory communities. We intend to leverage a transparent and collaborative approach to support regional research and monitoring and integrate outcomes of studies and stakeholder feedback into project planning. To achieve these goals, we commit to:

- **Identification of key contacts within stakeholder groups** [redacted]
- **Detailed communication and collaboration plan with key stakeholder groups** [redacted]

63 Section 2.2.7 of the NYSERDA RFP requires proposers to support regional monitoring of wildlife, fish, and invertebrates through a minimum contribution of $10,000 per MW of Offer Capacity. This $10M is in addition to that required commitment

[redacted]

## 15.2. Communication and collaboration

Coordination and engagement with all stakeholders are crucial to the success of an offshore wind project as outlined in the NYSERDA's Guiding Principles for Offshore Wind Stakeholder Engagement.[64] The lack of collaboration between offshore wind developers and stakeholders can lead to projects that do not adequately account for stakeholder concerns, miss opportunities to benefit people and communities, exclude voices of disadvantaged or underrepresented groups, and do not develop and apply the best available science. This in turn could risk the viability of the project, through opposition, permitting delays, or other roadblocks. [redacted]

- [redacted]
- [redacted]

### 15.2.1. Identification of key contacts within stakeholder groups

We will **continue to build relationships through outreach and establish collaborations that result in meaningful engagement** related to our project. We will identify key contacts within relevant stakeholder groups through four concrete actions:

- Assess existing relationships formed through previous and ongoing engagement work
- Review i) public comments on BOEM's and New York State's actions associated with offshore wind in the region, ii) scientific literature, iii) projects sponsored by NYSERDA, the New York State Department of Environmental Conservation (NYSDEC), the Bureau of Ocean Energy Management (BOEM), the National Marine Fisheries Services (NMFS), National Offshore Wind Research and Development Consortium (NOWRDC) and other agencies
- Use census data and public records to identify Environmental Justice, Underserved, and Disadvantaged communities and businesses and reach out directly to such stakeholders
- Engage with industry organizations such as American Clean Power Association and the Business Network for Offshore Wind, to take advantage of their networks, outreach opportunities, and working groups

BOEM's ongoing Programmatic Environmental Impact Statement process will also continue to draw out stakeholders. We will continue to update stakeholder lists and contacts throughout project development, construction, operations, and decommissioning.

### 15.2.2. Detailed communication and collaboration plan with key stakeholder groups

We have **developed communication procedures specific to key stakeholder groups** for correspondence throughout survey work, design, construction, operation, and decommissioning of the

64 Guiding Principles for Offshore Wind Stakeholder Engagement, NY E-TWG. 2021.

project. As part of this Proposal, we have also developed a Stakeholder Engagement Plan (Chapter 16) and Fisheries Mitigation Plan (Chapter 14). We will do this through three key activities:

- **Participate and communicate regularly key organizations.** As an active member of the organizations, we will coordinate regularly with the Environmental Technical Working Group (E-TWG), the Fisheries Technical Working Group (F-TWG), the Maritime Transport Working Group (M-TWG), the Responsible Offshore Science Alliance (ROSA), and the Regional Wildlife Science Collaborative (RWSC). Communication will also occur via engagement with New York State agencies during each phase of the project as part of consultations and permitting.
- **Frequently provide information to stakeholders through a variety of channels.** Our website and social media pages will continue to act as an avenue for stakeholders to engage with our company and review key information related to our development. In-person meetings, community workshops, and open houses will be used to seek face-to-face engagement, and other tools, such as print media and virtual meetings, will be used to further expand our reach.
- **Collaborate with other developers in the New York Bight area.** We understand the importance of collaborating with other developers in the New York Bight area, particularly those with nearby lease areas. We have already engaged with other New York Bight lessees and are committed to seek opportunities for collaboration to reduce stakeholder burden.

## 15.3. Environmental monitoring and research pre-, during- and post-construction

The New York Bight is one of the most studied regions along the Atlantic Coast, in large part due to the work started by NYSERDA as part of the first Offshore Wind Master Plan initiated in 2016. While this information, along with other publicly available data sets, serves as great baseline data on the presence of wildlife in and around the New York Bight, additional research can fill data gaps on environmental impacts and the efficacy of mitigating actions.[1] We recognize the importance of collecting data to further assess how the development of offshore wind in the region may impact species. We will support this ambition through three key activities:

- Review available data and identify data gaps
- Work with stakeholders to develop monitoring and research opportunities
- Support research that studies species of interest in our project area

### 15.3.1. Review available data and identify data gaps

To start, we will review the best available science and working group outcomes to understand data gaps and research priorities identified by experts. We will also collaborate with RWSC, ROSA, E-TWG and other groups to stay apprised of research and monitoring priorities and data standards as they evolve, including participation in the State of the Science Workshops supported by NYSERDA. We already closely follow the short-term and long-term priorities identified by NYSERDA's Environmental Technical Working Group (E-TWG) as well as the Responsible Offshore Development Alliance (RODA) and will incorporate them into our research and monitoring plans on an evolving basis.[65]

65 State of the Science Workgroups, NY E-TWG. 2020; Research Priorities 2022, RODA. 2021.

If it is not feasible to collect sufficient data to address identified data gaps, we will look to support the development of models, the assessment of proxy systems, or the implementations of offsets that will address potential impacts. Regional modeling efforts can be improved through the collection of data that better inform sensitive variables in modeling. Such models can allow for predictions that account for climate change and other external variables within the ecosystem. Thus, collecting data that will improve model predictive power will be valuable to better understanding the underlying drivers of change and what role offshore wind plays in the ecosystem.

#### 15.3.2. Work with stakeholders to develop monitoring and research opportunities

Development of rigorous scientific inquiry-based studies with statistically robust results must be developed in collaboration with technical experts. Achieving statistically meaningful outcomes that reduce the level of uncertainty around impacts and the efficacy of mitigation can be difficult, particularly in remote and challenging environments like the ocean. [redacted]

We will use risk assessment (e.g., impact severity and likelihood) and scientific experts to determine when, where, and how data collection can better inform baselines, be used to quantify changes, and be applied to impact assessment for adaptive management. [redacted]

In addition to impact research, we seek to understand the efficacy of mitigation measures, develop technologies that will collect more robust data, and understand how unavoidable impacts can be offset and remediated. Further, we will prioritize a percentage of research funding to support researchers who are from under-represented groups in science or focusing research on topics that affect Environmental Justice, Underserved, and Disadvantaged communities and businesses.

[redacted]

There are several migratory species that temporarily occupy waters in our lease area and potential cable routes, such as sea turtles and highly migratory fish including sharks, tunas, striped bass, and Atlantic sturgeon that are relatively data limited and could benefit from additional research for a variety of reasons. Some of these species are protected, ESA-listed or below target biomass levels, some may be more vulnerable to offshore wind development, and some are of particular commercial and/or recreational interest.

[redacted]

[redacted]

There are some data collection systems that exist for these species through other sources, but more funding can support studies that increase understanding of the impacts of climate change and offshore wind on these migratory species. We propose to build on these successful research programs by supporting similar projects that improve understanding of these species. [redacted]

## 15.4. Supporting other environmental research

Offshore wind sites can play an important role in supporting research by serving as a fixed platform for research opportunities and by sharing existing data to further independent research initiatives. At Community Offshore Wind, **we aim to build upon and support existing environmental research efforts** that can benefit from this type of access, especially those which target the research priorities identified by RODA[66] and the NYSERDA technical working groups.[67] Our support of independent third-party environmental research will focus on two main components:

- Regional and local research projects
- Site and data accessibility for researchers

We will leverage our involvement with RWSC, ROSA, E-TWG, and F-TWG, develop further engagement with the research arms of agencies, and participate in academic conferences to expand our direct outreach and exposure to researchers outside of the existing regional organizations.

### 15.4.1. Regional and local research projects

[redacted]

66 Research Priorities 2022, RODA. 2021.
67 State of the Science Workgroups, NY E-TWG. 2020.

[redacted]

The administration of these funds will include both contributions to established collaborative funding sources, such as RWSC and ROSA, and potentially will include some directly funded projects with a focus on providing opportunities to historically under-represented groups, such as women and minorities, and development of research that benefits Environmental Justice, Underserved, and Disadvantaged communities and businesses (more details on this funding in Chapters 14 and 16).

#### 15.4.2. Site and data accessibility for researchers

We share NYSERDA's strong focus on getting the maximum value from data collected during offshore wind development which means granting third-party researchers access to our sites as well as our data collections. Our plan to support site and data accessibility for researchers, including identifying ways to enhance accessibility overall, revolves around four main points:

- Timely sharing of data
- Considerations for sensitive data
- Commitment to regional coordination
- Development of a data sharing plan

**Timely sharing of data.** We are committed to making data available as soon as practicable in publicly available data portals and sharing data for contribution to larger studies, models, technical reports, and peer-reviewed publications. We commit to examining opportunities for regional data collection, such as passive acoustic monitoring (PAM), Motus receiver deployment, and surveys for protected species. To understand cumulative impacts and implement adaptive management over time, regional efforts will be necessary. We commit to engaging with regional lease holders to discuss how resources may be pooled to develop networks of sensors, autonomous systems, and other ongoing, long-term data gathering and analyses across the platforms of opportunity created by wind farms while maintaining commercial competition in the marketplace and properly handling proprietary information.

**Considerations for sensitive data.** It is our priority to collect data with appropriate metadata and quality controls, remove commercially sensitive information, and make data publicly available as soon as practicable. Although some data have commercial sensitivity and cannot be shared immediately upon obtaining them, we are willing to put such data in a neutral repository where it will be kept private until such time as it can be released to the public. To promote mutual respect and trust, we are committed to keeping any sensitive information shared by Tribes or Tribal Nations during engagement activities confidential.

**Commitment to regional coordination.** We commit to membership and active participation with ROSA, RWSC, the E-TWG, the F-TWG and other applicable working groups to develop data collection, sharing, and management processes that standardize data and make them available as quickly as practicable for public use. This commitment includes putting funds toward data sharing and management internally and assigning an individual position to have responsibility to serve as a point of contact and allow for the timely release of data to portals and the public. We will curate its data to ensure that data can be packaged and shared upon request in a timely manner.

**Development of a data sharing plan.** We will develop a Data Management and Availability Plan that will detail methods related to data standards, metadata, management, quality control, packaging, and sharing to apply to the life of the project. This plan will continue to be updated as organizations like RWSC, ROSA, the E-TWG, and the F-TWG continue to develop data standards and BMPs and data repositories become available. At present there are several potential repositories for data and data products, including the Mid-Atlantic Data Portal, Marine Cadastre, and OBIS SeaMap. The data sharing plan will include a commitment to sharing scientific, economic, and cultural data with Tribes. [redacted]

## 15.5. Marine mammals and sea turtles

The siting, construction, operations, and decommissioning of an offshore wind project has the potential to impact the marine mammal and sea turtle species that are found within the New York Bight. We have **identified the variety of marine mammal and sea turtle species in our project area**. We **understand the key risks and concerns to these species**, including underwater noise resulting from surveys and pile driving activities and increased vessel collision risk. In particular, we recognize the endangered and declining status of the North Atlantic Right Whale. Our approach to mitigating impacts to this species as well as to other marine mammal and sea turtle species consists of three main components:

- Minimize disturbance and collision risk with exclusion zones and training
- Reduce noise impact from geophysical survey activities and pile driving
- Support monitoring pre- and post- construction

### 15.5.1. Marine mammal and sea turtle species in the New York Bight[68]

We understand the work being conducted to track the distribution and patterns of marine mammal and turtle species in the New York Bight area. We are familiar with the agencies and organizations conducting survey work and the tools being used, as summarized with examples in the table below.

*Table 15-2 Summary of study and survey activities*

| Organization | Surveys and tools to study distribution and patterns |
|---|---|
| NYSERDA | • Digital and aerial surveys |
| NYSDEC | • Large whale aerial surveys |
| NMFS & BOEM | • Regional vessel and aerial surveys as part of the Atlantic Marine Assessment Program for Protected Species (AMAPPS) |
| Wildlife Conservation Society<br>New York Aquarium<br>Woods Hole Oceanographic Institution | • Autonomous fixed and mobile PAM systems that send signals to satellites for acoustic monitoring |
| Other | • Non-systematic surveys to evaluate whale presence<br>• Passive acoustic monitoring (PAM) to detect whales<br>• Stationary recorders near entrance to New York Harbor<br>• 15 bottom-mounted marine autonomous recording units |

68 Zoidis et al. 2021; Zeh et al. 2021; Muirhead et al. 2018; Estabrook et al. 2021; King et al. 2021; Hayes et al. 2022; Roberts et al. 2016; Curtice et al. 2019; NYSERDA 2021b; NYSERDA 2021c; Robinson Willmott et al. 2021; Winton et al. 2018; US Navy 2018; Montello et al. 2022.

Over thirty marine mammal and sea turtle species have been known to reside in or transit through the New York Bight. Cetaceans (whales, dolphins, and porpoises) are typically grouped into three hearing categories: high-frequency, mid-frequency, and low-frequency.

**High-frequency mammals.** High-frequency mammals in the region include porpoises, dwarf whales and pygmy sperm whales. For high-frequency cetaceans, seasonal predicted density in New York Bight is highest in the winter and spring across the continental shelf. This pattern is driven by seasonal harbor porpoise movements, with dwarf and pygmy sperm whales typically in low densities in deep-water offshore environments year-round.

**Mid-frequency mammals.** Mid-frequency cetaceans in the region include toothed whales and dolphins. For mid-frequency cetaceans predicted concentrations in the New York Bight are highest along the Hudson Canyon and continental slope and Hudson Valley in winter, summer, and fall and dispersed across the continental shelf in spring.

**Low-frequency mammals.** Low-frequency mammals in the region include baleen whales, such as the Atlantic Right whale, and seals. For low-frequency cetaceans (excluding North Atlantic right whales), density is predicted to be the highest in the spring and summer along the Hudson Valley and continental slope, though surveys by NYSERDA found year-round presence of these species. Seals are dispersed in highest density in the northeastern corner of the New York Bight in fall, winter, and spring.

The latest models updated from Roberts predicted the highest winter density of North Atlantic Right Whales in New York Bight to be in the nearshore edge of the New York Bight; summer density estimates indicate distribution along the continental shelf in summer; and spring and fall density estimates suggest distribution along the eastern edge of the New York Bight in spring and fall.

**Sea turtles.** Sea turtles occur in the New York Bight from late spring to fall, with the highest densities in summer and concentrated in shelf waters less than 70m in depth. Loggerhead sea turtles are the most common sea turtle found in the New York Bight, followed by Kemp's ridley and Leatherback Sea turtles. Small juvenile green sea turtles are also known to occur but are relatively rare. Leatherbacks have been observed in summer with variable spatial distributions across the New York Bight. Sea turtles do not currently nest along the shores of New York or New Jersey.

Key concerns for these species are related to underwater noise and the risk of collision with vessels. Large whales tend to be at higher risk for vessel collision and baleen whales are low-frequency hearing specialists at higher risk of disturbance from low-frequency survey and pile-driving sound. Harbor porpoises may also be sensitive to pile-driving (see Sections 15.5.3-15.5.4 for more details).

Species listed under the Endangered Species Act (ESA) and those recognized by New York State (endangered or Species of Greatest Conservation Need) are considered of greatest concern. In particular, we recognize the endangered and declining status of the North Atlantic Right Whale, and we will support technological advancements and research projects focused on reducing adverse impacts to this species and others in the region.

### 15.5.2. Minimize disturbance and collision risk with exclusion zones and training

Sizes of exclusion zones will be determined in collaboration with agencies and stakeholders and will at minimum be compliant with ESA consultation outcomes and Marine Mammal Protection Act permitting requirements. The following tools will be used to understand the presence and absence of marine mammals and sea turtles in exclusion zones:

- Monitoring by Protected Species Observers and vessel captains and crew as appropriate
- PAM as appropriate
- Use of night vision and thermal imaging equipment for night operations

- Collaboration in sharing North Atlantic Right whale sightings across the region
- Citizen science efforts for reporting on real-time animal observations
- Modern software for recording protected species observations
- New technologies such as drones and autonomous vessels

Seasonality of construction activities will take into account potential seasons of high presence or vulnerability of marine mammals and sea turtles in combination with human safety risks, logistical constraints, and other resources or human use conflicts. We expect that NMFS may require seasonal restrictions on construction activities associated with ESA-listed species. We will also examine available sound reduction technologies, including those utilized in support of construction of some of RWE's wind farms in Europe, and support research that develops new technologies for reducing sound from survey and construction activities.

Further, to reduce the likelihood of vessel collision, we will:

- Train vessel personnel in animal identification and sighting protocols
- Follow conditions developed through ESA consultation
- Follow NMFS recommendations for avoiding vessel strike
- Adhere to speed limits as required by law and as determined to be safe
- Consider seasonal limitations risks in the context of marine mammals and sea turtles and risks to other resources and human uses.

### 15.5.3. Reduce noise impact from geophysical survey activities and pile driving

Sound is one of the major stressors of concern for marine mammals and sea turtles. For sound-producing activities such as geophysical surveys and pile-driving, we seek to **balance minimizing disturbance from sound and minimizing potential for vessel collisions**. Mitigation such as shutdown and clearance periods for marine mammals and sea turtles are anticipated as part of minimizing impacts and meeting statutory requirements.

We will also seek to **support research that helps improve understanding of these impacts** and technologies that will achieve the logistical needs of the project while reducing the sound generated. In addition, we will work to balance seasonal mitigation measures across different taxa and human uses (e.g., fisheries) which may be seasonally present at different times of year. Additional engagement with stakeholders will be needed to find this balance and determine the appropriate seasonal activity for effective mitigation. Offset mitigation opportunities will also be examined through engagement efforts.

[redacted] [69] [redacted]

As required by NYSERDA, if we use pile driving or other installation methods that result in high underwater sound, we will **monitor underwater acoustics during foundation installation** in order to:

69 Research project investigates innovative installation technique for offshore foundations, RWE.com. 2021.

- Measure changes in sound pressure levels
- Record sound levels in the water column and vibrations in the sediment
- Detect particle motion
- Assess effectiveness of noise mitigation system during pile installation

We will provide NYSERDA, at least six months prior to Construction and Operation Plan submission, an Underwater Acoustic Monitoring Plan detailing how data will be collected and made available as soon after collection as is practicable for use by third parties. As required, the Plan will include commitments to allow raw and metadata to be publicly available no more than six months after installation completion.

#### 15.5.4. Support monitoring pre- and post- construction

Pre- and post-construction study techniques and literature review to establish an ecological baseline and assess potential change post-construction will be developed in collaboration with scientific researchers, agencies, and other lease holders for a holistic, regional approach to implement methods that are comparable and statistically robust. We will rely on collaboration with RWSC, ROSA, E-TWG, F-TWG and scientific experts to inform these methodologies. We are committed to establishing pre- and post-construction survey methods that will focus on collecting the data necessary to support question-driven science. We also commit to ensuring that funds are available to analyze scientific data collected during monitoring.

Some examples of technologies under consideration by our team for assessing impacts and mitigation efficacy include Motus receivers, tagging, radar, acoustic detectors, terrestrial surveys, aerial and vessel surveys, drones with detection equipment, satellite imagery, and collection of metocean and environmental data. We acknowledge the difficulty in detecting change and connecting change to variables and to particular consequences for individuals and species. Efforts to successfully detect and quantify change will by necessity be collaborative and involve long-term commitments that require significant expert scientific input.

### 15.6. Birds and bats

The siting, construction, operations, and decommissioning of an offshore wind project has the potential to impact the species of birds and bats that are found within the New York Bight. We have **identified a variety of bird and bat species in our project area.** We **understand the specific risks and concerns facing these species**, including collisions and displacement. Our approach to mitigating impacts to these species involves two main objectives:

- Minimize attraction and other risks to birds and bats
- Support monitoring pre- and post- construction

#### 15.6.1. Bird and bat species in the New York Bight[70]

Most recent studies of the distribution and use patterns of birds in the New York Bight include digital aerial surveys conducted by NYSERDA and Equinor in its New York Bight Lease Area (OCS-A-0512) and

70 Robinson Willmott et al. 2021; NYSERDA 2021d; Winship et al. 2018; Stenhouse et al. 2020; NYSDEC; Peterson et al. 2016; Solick and Newman 2021; Sjollema et al. 2014; Hatch et al. 2013; Baerwald and Barclay 2011; Baerwald et al. 2008

regional vessel and aerial surveys conducted by NMFS in partnership with BOEM as part of AMAPPS that have been ongoing since 2010 and have more recently targeted Wind Energy Areas and Call Areas for directed survey work.

**Birds.** NYSERDA identified 76 species of birds in the New York Bight based on observation of 140,372 individuals, with lowest densities overall in summer. NYSERDA also calculated flight heights for birds relative to the expected rotor swept zone of offshore wind turbines. Winship modeled the spatial distribution and relative density of 47 marine bird species along the East Coast of the US. The likely occurrence of species within the project area is highest in birds targeting the Hudson Valley Shelf and flying over to the shelf break. Stenhouse analyzed the temporal, spatial, and movement use patterns of red-throated loons, surf scoters, and northern gannets to quantify their exposure to offshore wind in the New York Bight.

**Bats.** There are nine bat species known to occur in New York. Bats rely on land for summer and winter roosts and often forage for insects over water. At least six of the nine species have been detected over the Atlantic Ocean. Peterson reported bats four to 47 nautical miles offshore and in rare cases up to 70 nautical miles from the mainland (east of New Jersey). The maximum distance Myotis species have been detected offshore is six nautical miles. Eastern red bats were the most frequently identified bat species in the offshore space in proximity to the project area, followed by silver-haired bat and hoary bat. These species are considered long-distance migrants.

Peterson determined that bat occurrence in offshore waters was relatively low and concentrated during migratory periods; however, migrating bats are wide ranging, and can often be observed offshore, with Peterson reporting two observations of bats in the New York Bight 110 and 130 kilometers from shore in August and September 2014. Bat activity patterns in the offshore space are known to be mostly seasonal across all species with peak activity occurring in spring, late summer, and early fall. Nightly patterns of bat activity have been correlated with warm temperatures and low wind speeds, though bats can fly at relatively high wind speeds offshore and may take advantage of tailwinds during migration.

Fatalities to bats from terrestrial wind turbines are either caused by collision with the rotor blades or by barotrauma. Baerwald found that 90% of bat fatalities at their study sites had internal hemorrhaging consistent with barotrauma. The air pressure change at the turbine blades is undetectable by bats and even a small change in pressure can cause the small lungs of bats to collapse.

Avian and bat species listed under ESA and species listed as High Priority of Conservation Need by the New York State are considered of greatest concern because of potential for population-level impacts from displacement or collision. Long-distance migrant bat species are also at higher risk because they are recorded over the water more often that non-migratory species.

### 15.6.2. Evaluating risks to birds and bats in the New York Bight

For birds, understanding the probability of colliding with turbines is integral for quantifying the level of potential impact of offshore wind infrastructure. To quantify this risk, Collision risk models (CRMs) are used and parametrized with technical specifications of the turbines, bird densities, morphology and flight behavior of existing bird populations present on site. To obtain realistic risk estimates, the CRM is subsequently corrected to take account of behavioral responses of birds to the presence of wind farms (i.e., avoidance); however, there is considerable uncertainty over the scale of such impacts due to the relatively few offshore monitoring studies that have gathered empirical evidence. A study by Skov used a monitoring system to detect and track bird movements at the species level in and around an operational offshore wind farm.[71] The study was able to estimate highly accurate empirical

71 Skov et al. 2018

avoidance rates for the northern gannet, black-legged kittiwake, herring gull, greater black-backed gull, and lesser black-backed gull to better inform CRM.

### 15.6.3. Minimize attraction and other risks to birds and bats

Wind turbines can attract birds and other flight species due to the artificial lighting and opportunity for perching, increasing the chance of collision. To avoid and minimize attraction-related impacts to these animals, **artificial lighting on offshore wind projects will be reduced** to the extent practicable while adhering to respective regulatory requirements. We will examine the latest studies on bird and bat collisions with wind turbines to understand the best lighting accommodations to minimize the risk to birds and bats (e.g., colored lights, blinking lights). Monitoring shall be conducted to determine if there is **a need for perching-related deterrents to reduce attraction** and minimize potential perching and loafing opportunities for birds. Acoustic or other monitoring will be conducted to characterize potential bird and bat patterns and to evaluate the need for adaptive mitigation measures. In addition, as introduced in §11.6.3 RWE is also **studying the effect of black blades to mitigate bird strikes**, and we are therefore considering implementing this, depending on the effect, and in consultation with BOEM, FAA, and USCG.

### 15.6.4. Support monitoring pre- and post- construction

Pre- and post-construction study techniques and literature review to establish an ecological baseline and assess potential change post-construction will be developed in collaboration with scientific researchers, agencies, and other lease holders for a holistic, regional approach to implement methods that are comparable and statistically robust. We will rely on collaboration with RWSC, ROSA, E-TWG, F-TWG and scientific experts to inform these methodologies. We are committed to establishing pre- and post-construction survey methods that will focus on collecting the data necessary to support question-driven science. We also commit to ensuring that funds are available to analyze scientific data collected during monitoring.

Some examples of technologies under consideration by our team for assessing impacts and mitigation efficacy include Motus receivers, tagging, radar, acoustic detectors, terrestrial surveys, aerial and vessel surveys, drones with detection equipment, satellite imagery, and collection of metocean and environmental data. We acknowledge the difficulty in detecting change and connecting change to variables and to particular consequences for individuals and species. Efforts to successfully detect and quantify change will by necessity be collaborative and involve long-term commitments that require significant expert scientific input.

## 15.7. Fish, invertebrates, and their habitats

We acknowledge that the siting, construction, operations, and decommissioning of an offshore wind project has the potential to impact fish, invertebrates, and their habitats within the New York Bight. We have **identified a variety of fish and invertebrate species in our project area**, and **we understand the risks facing them and their habitats**. Specific concerns for fish, invertebrates and their habitats are disturbances due to the introduction of human-made structures on and around the seabed. Our approach to mitigation impacts to fish and invertebrates focuses around two main objectives:

- Optimize for environmental considerations in design choices

- Support monitoring pre- and post- construction, and through operation

### 15.7.1. Fish, invertebrates, and their habitats in the New York Bight[72]

In order to develop effective solutions to mitigate negative impacts to fish, invertebrates, and their habitats, we have done a thorough review of existing data to determine the presence of these species in and around our project area.

**Fish and invertebrates.** Over 300 species of fish and invertebrates move across the estuary, coastal, and offshore space in the region. Due to the value of some fisheries, management-related research provides substantive baseline information on species, for example Atlantic Sea scallop, longfin squid, American lobster, ocean quahog clam, and surf clam. Fisheries are managed through the fisheries management councils within nine Fishery Management Plans. Stock assessment reports for commercially fished species are available online.

**Habitats.** Essential Fish Habitat (EFH) has been designated for every federally managed fish stock identified on the East Coast. The New York Bight has designated offshore EFH for 52 species, and 17 of these species have EFH for every life stage. There are five Habitat Areas of Particular Concern (HAPC) within the New York Bight: three are coastal and could impact cabling to shore, and two are further offshore than the wind lease areas. EFH and HAPC information is provided in Fisheries Management Plans and on the NOAA EFH Mapper. The most current available seagrass maps from the Long Island Sound Study, Peconic Estuary Program, and the South Shore Estuary Reserve have been integrated to create one map for New York seagrass habitat. New York State's Seagrass Protection Act protects seagrass habitats, which have been declining in New York Bight waters[73]. Wetlands are also protected under New York State law.[74]

Species listed under ESA and species listed as High Priority of Conservation Need by New York State are considered of greatest concern because of potential for population-level impacts. NMFS also designates Species of Concern, and those species may have elevated risk because of that status. Further, major commercial fish species are a concern because of the relationship of these species to fisheries and food security.

### 15.7.2. Optimize for environmental considerations in design choices

Potential impacts to fish and invertebrates and their habitats include damage to the seabed, localized increases in sound and turbidity, electromagnetic fields (EMF), scour, vessel collision, and contaminant release. To minimize these risks to fish, invertebrates, and their habitats, **we will optimize for environmental considerations in our design choices** [redacted]

[redacted]. We are also

72 NYSDEC 2017; Stock Assessment Review Index (SARI) Search, NOAA Fisheries; Essential Fish Habitat Mapper, NOAA Fisheries; NYSDEC Statewide Seagrass Benthic Habitat Data, 2021.

73 https://www.dec.ny.gov/lands/110813.html

74 https://www.dec.ny.gov/docs/wildlife_pdf/wetart24a.pdf

actively studying other forms of mitigation for cable crossings, including frond mattresses and other mattresses with nature inclusive design elements. We have committed additional resources to support habitat improvement research and technology. [redacted]

Additional details and mitigation activities related to our commitment to reducing impacts to fish, invertebrates, and their habitats can also be found in the Fisheries Mitigation Plan (Chapter 14).

### 15.7.3. Support monitoring pre- and post- construction

Pre- and post-construction study techniques and literature review to establish an ecological baseline and assess potential change post-construction will be developed in collaboration with scientific researchers and agencies to implement methods that are comparable and statistically robust. We are **committed to establishing pre- and post-construction survey methods that will focus on collecting the data necessary to support question-driven science.** [redacted]

[redacted]

[redacted]

[redacted]

## 15.8. Considerations for subsea and onshore cables

We recognize the challenges in developing the routing and installation of subsea and onshore cables in a manner that avoids or minimizes impacts to the marine and terrestrial environment, and various ocean and onshore stakeholders. We are committed to avoiding and minimizing these impacts to the extent practicable. We have **identified the impacts of both subsea and onshore cables** in order to develop effective solutions. Our approach to subsea and onshore cables involves three main components:

- Early and often stakeholder engagement
- Strategic cable routing and burial methods
- Periodic surveying of subsea and overland cables

### 15.8.1. Identification of cable-related impacts

Both subsea and onshore cables have potential impacts to marine and coastal taxa as described in the taxa-focused sections above, including temporary disturbance associated with pre- and post-installation surveys, cable installation, cable maintenance activities, and cable removal or decommissioning in place.

> **Subsea cables.** Stressors associated with subsea cables include potential contaminant release and turbidity associated with bottom disturbance; sound associated with surveys, installation, maintenance, decommissioning, and associated vessels; and potential EMF, heat, and vibration that can result from transmission of electricity through cables. If unburied or insufficiently buried, cables can pose a risk to fisheries, mariners, and anchoring activities on the bottom. Finally, monitoring subsea cables can be disturbing to wildlife and ocean users through underwater sound and additional vessel traffic.
>
> **Onshore cables.** Stressors associated with onshore cables include potential habitat fragmentation, sound, emissions, ground disturbance, short-term increases in traffic or effects to traffic flow, and potential EMF, heat, and vibration that can result from transmission of electricity through cables. Sensitive habitats in coastal regions, such as wetlands and beaches, have the potential to be disturbed, and habitats that support wildlife, including state and federally listed endangered species, may also be disturbed.

### 15.8.2. Early and often stakeholder engagement

We will **engage early and often during the development process to determine the best subsea and onshore cable route alternatives** that work from both a technical and stakeholder perspective. The proposed route for the onshore cables will navigate through various residential, commercial, and industrial neighborhoods, potentially impacting residents. Local stakeholder engagement in the form of notices in local papers, local public meetings, and clearly described activities and timing on our website and social media accounts with the opportunity to receive feedback online will help engage residents and community members and assist in planning onshore cable routes and associated activities, such as survey work.

We **commit to engagement with local governments to work toward compliance with local ordinances** and to reach a larger constituency of stakeholders at the local level starting during planning and early development phases. Mitigation and monitoring measures will continue to be added to the Environmental Mitigation Plan as stakeholder engagement processes and the regulatory environmental review process continues through development of the design and implementation of the project. Article VII and federal permitting will play a large role in assessing and mitigating impacts and developing long-term monitoring of transmission cables, and we understand the substantive public engagement necessary to meet the needs of this permitting, including engagement with communities in alternative cable route areas.

### 15.8.3. Strategic cable routing and burial methods

We have a comprehensive understanding of how responsible cable management can reduce impacts to surrounding ecosystems, habitats, and communities. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

### 15.8.4. Periodic surveying of subsea and overland cables

We will work with New York State to **develop a regular, periodic survey approach to verify the integrity of subsea cables** and stability of their locations and burial depth or otherwise report on any shifts in subsea cable locations, as buried subsea cables can move, particularly with heavy storms or other such disturbances. Although no problems are anticipated, we commit to addressing any problem with subsea cables becoming exposed as quickly as practicable.

New autonomous technologies are being developed, such as Woods Hole Oceanographic Institute's REMUS 600 Autonomous Underwater Vessel, to minimize disturbance during subsea cable monitoring and maintenance. We **commit to supporting research on technologies that will help to improve the ability to effectively monitor subsea cables while minimizing disturbance** to wildlife, habitats, and ocean users. The specifics of this support will be developed through collaborations with local fisheries, the RWSC, ROSA, and academic partners.

## 15.9. Additional considerations

In addition to the other elements of our Environmental Mitigation Plan, we are focused on two additional objectives:

- Support collaborative research on potential mitigation strategies
- Actively enhance habitats and communities in and around the lease area

### 15.9.1. Support collaborative research on potential mitigation strategies

We commit to supporting collaborative research on potential mitigation strategies and BMPs with other developers, agencies, and stakeholders. We seek to develop strong collaborations with agencies, researchers, non-government organizations, Environmental Justice, Underserved, and Disadvantaged Communities and Businesses, Tribes/Tribal Nations, fisheries, and other stakeholders to support research and mitigation that addresses priorities, focuses on question-driven science, fills both fine-scale and broad-scale data gaps, and delivers robust actionable outcomes.

The NYSERDA State of the Science Workshop 2022 has provided a substantive list of potential collaborators for environmental research and monitoring, and we are **also committed to advancing technologies that will improve mitigation and monitoring and minimize impacts of offshore wind on the environment**. Our overarching strategy for refining the Environmental Mitigation Plan is to leverage ongoing work and the frameworks of scientific and stakeholder engagement developed by NYSERDA, RWSC, ROSA, the E-TWG, the F-TWG and others.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

## 15.10. Project decommissioning

While decommissioning may be over 40 years away, we take a holistic approach to the development of the project and recognize that is never too early to start planning for this phase. We aim for net positive biodiversity outcomes above and below the water line and believe that decommissioning of the project will also play an important role in achieving this goal. Our approach to project decommissioning focuses on two main objectives:

- Develop a living decommissioning plan
- Leverage the latest research, technological advances, and lessons learned

### 15.10.1. Develop a living Decommissioning Plan

We believe that developing a living Decommissioning Plan early with updates through the life cycle of the project will improve decommissioning outcomes and reduce impacts. To streamline decommissioning, concepts will be integrated into the project infrastructure design. For example, lifting trunnions or pad eyes used to install the substructures, jacket, and topsides deck for the offshore substations will be designed to be left on the relevant structures and maintained with the facilities certified lifting equipment register. Other provisions that can be made during the initial design of the facilities will be to allow permanently allocated "hard points" for winch bases that would be used for the initial pull in of the cables as these will also be used for the final lowering and wet parking, as applicable, at the end of field life.

We will **identify applicable federal, state, and local regulations associated with decommissioning activities** and continue to update this information over the lifetime of the project as regulatory requirements change. The initial Decommissioning Plan will be based on current regulations and outcomes of stakeholder engagement, the COP process, and EIS that will likely complement the COP process.

We plan to **conduct a survey prior to decommissioning to identify the state of marine resources and habitats**, as it is expected that marine life will adapt to, and potentially develop a dependence on, infrastructure during operations of the wind farm. This survey would be conducted in accordance with requirements at the time and in collaboration with expert contractors. The findings of this survey will allow us to refine the project Decommissioning Plan to clearly address impacts on marine wildlife and fisheries in their current state before decommissioning is slated to begin.

**15.10.2. Leverage the latest research, technological advances, and lessons learned**

The **mitigation measures for decommissioning will be developed in collaboration with stakeholders and regulators** using the best available science closer to the time of decommissioning. Ongoing collaborations with RWSC, ROSA, and others will be used to support science around minimizing impacts of decommissioning, developing mitigation, and monitoring, and determining the best decommissioning measures to minimize the disturbance to wildlife, habitats, and fisheries in the short- and long-term.

Ongoing academic and other research collaborations will provide more information about potential decommissioning impacts, opportunities to reuse and recycle materials, and ways to mitigate environmental effects of decommissioning activities. This **research and related innovations will inform the Decommissioning Plan**. [redacted]

We have also already identified potential opportunities to recycle certain equipment. For example, RWE is already using recyclable blades on the Kaskasi wind farm in Germany.[75] We are committed to evaluating and identifying best practices to recycle parts and will examine the potential for recycling and reusing as part of evaluating equipment for use in the wind farm. Parts that cannot be recycled and must be removed will be disposed of in a safe and environmentally responsible manner as determined in collaboration with regulators and stakeholders at that time. Opportunity for future upgrades to physical structures rather than disassembly or replacement will also be considered as technology advances.

75 A description of the recyclable blades used in the Kaskasi Project can be found at https://www.siemensgamesa.com/en-int/newsroom/2022/07/080122-siemens-gamesa-press-release-recycle-wind-blade-offshore-kaskasi-germany

# 16. Stakeholder engagement plan

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Appendix 16-5 Stakeholder engagement activities by group

Appendix 16-6 Marketing Plan

Appendix 16-7 Lease OCS-A 0539 First Progress Report submitted to BOEM

Appendix 16-8 Fisheries Communications Plan

Appendix 16-9 [redacted]

Appendix 16-10 Letters of support

## NYSERDA solicitation requirements

Our stakeholder engagement plan addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP) and emphasizes our commitment to maximizing the positive impact on stakeholders. The table below identifies each solicitation requirement.

*Table 16-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| Present the Proposer's philosophy on prioritizing stakeholder outreach and engagement | 16.1 |
| Describe the key considerations taken among different stakeholder groups. | 16.2 |
| Describe how each step of the stakeholder engagement process may be modified and tailored to the specific needs and accessibility of different stakeholder groups in New York. | 16.4.2 |
| Explain why stakeholders identified are important for overall Project success | 16.2 |
| Describe any engagement with the US steel industry. | 16.2.2 |
| List goals and desired outcomes developed through a collective understanding of shared interests for each stakeholder group | 16.3 |
| Detail options for engagement activities and potential partnerships and how the Project will consider each stakeholder group when giving development updates, communicating education or job opportunities, or undergoing activities in local communities. | 16.4.2 |
| Describe engagement approaches specific to different stakeholder groups | 16.4.2 |
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| Detail how accessibility factors will be considered, especially for Disadvantaged Communities | 16.4.2.2 |
| Detail how Proposer will track and measure the success of the goals | 16.5 |

## 16.1. Summary and philosophy

Broad support for Offshore Wind in New York State is key to accelerating the Green Energy Economy and delivering on New York State's ambitious Climate Agenda. At Community Offshore Wind, we recognize that stakeholders are key to successful and inclusive offshore wind development with value for all. Stakeholder engagement is an essential element for successful implementation of Community Offshore Wind and the project itself.

### Our stakeholder ambitions

Our mission is to deliver local, clean energy for all that is safe, reliable and efficient. At the core of our philosophy is a **commitment to maximize positive impacts for all project stakeholders.** We do this by minimizing burdens, accelerating clean energy opportunities and enabling and empowering New Yorkers**.**

Our Stakeholder Engagement Plan is fully aligned with NYSERDA's guiding principles, BOEM's guidelines and requirements and industry standard protocols and best practices. We invite all New Yorkers to take part in our project development to allow us to fully understand their priorities, concerns, and potential areas of conflict. We aim for meaningful, effective engagement and full transparency to build long-term trusting relationships across project phases:

- **During design, planning and permitting we will be inclusive in project design** by educating and engaging stakeholders with a commitment to implement stakeholder feedback.
- **During construction we will ensure full transparency** on impacts to host communities and work together to mitigate impacts and create economic, health and other community benefits.
- **During operations we will keep stakeholders informed** on job and supply chain opportunities and any additional impacts the project may have.
- At the time of decommissioning, we will repeat our inclusive project design process to get broad feedback and commit to embrace all innovation.

We view stakeholder engagement as an ongoing process and as such, our Stakeholder Engagement Plan is a living document that will be updated and adjusted as the project progresses.

### Our approach to stakeholder identification

**We identify and prioritize stakeholders in line with our overall ambition of achieving a net-positive impact.** Specifically, we prioritize stakeholder groups that are most impacted by our project to address any potential conflict of interest head-on. We focus on putting first those groups who have been historically left behind (DACs, MWBEs, SDVOBs) to ensure a just clean energy transition. Since launching Community Offshore Wind in May 2021, we have engaged extensively with stakeholders at open houses, stakeholder meetings, conferences, speaking engagements as well as sponsorship and volunteer events. These engagements have helped us better understand stakeholder concerns and shape our project and stakeholder engagement strategy. These insights informed our economic and workforce development initiatives, shaped our community investment promises and allowed us to design our wind farm to facilitate co-use. As the project matures, we will continue to engage and hope to find more innovative and impactful ways to deliver upon our net-positive commitments.

### Our commitments to New York's stakeholders

We aim for early, active engagement across all stakeholder interactions. Our Stakeholder Engagement Plan is built upon **four key commitments to New York's stakeholders.** We are confident that these four commitments demonstrate our dedication towards an inclusive project at all phases.

1. **We will be inclusive in our project development and decision-making,** to minimize burdens and maximize benefits. We are creating a direct link between stakeholder engagement, project design and economic benefits programs leveraging continuous feedback loops and our Impact Advisory Committee. This approach is further described in Section 16.4.2.1.

[redacted]

3. **We will use a wide array of stakeholder activities and marketing efforts** to ensure we engage with all stakeholders in a way that suits their needs and preferences. We have already started these efforts to find initial partners, as further described in Section 16.4.2 and 16.4.3.
4. **We are committed to tracking progress.** We will use quarterly surveys, a live stakeholder dashboard on our website, and periodical focus groups to ensure our stakeholder approach is meeting the needs and preferences of our stakeholders as further described in Section 16.5.

[redacted]

## 16.2. Stakeholder identification and stakeholder list

### 16.2.1. Approach to stakeholder identification

To ensure continued dialogue, foster meaningful engagement and build mutual understanding, it is important to identify all relevant stakeholders. **Community Offshore Wind has a clear ambition to identify all groups impacted by our project, both positively and negatively,** to engage in a productive two-way dialogue to minimize burdens and maximize benefits. To identify and prioritize the key stakeholders for our project, we combine best practices from RWE and National Grid into a methodology that identifies relevant stakeholder groups at statewide and local level. We believe it is important to give all stakeholder groups a seat at the table but are especially mindful of ensuring we identify the **right stakeholders to represent groups that have been historically left out of the decision-making processes.** Our three guiding principles for prioritizing our stakeholder engagement and outreach are:

1. **We prioritize local stakeholder groups that are most impacted by our project**: we build a thorough understanding of the communities in our landfall, points of interconnection, cable routing and SCIP facilities. Within these potential host communities, we identify organizations and individuals to represent affected communities best.
2. **We proactively include stakeholder groups historically left behind (DACs, MWBEs, SDVOBs):** we focus on relevant statewide groups and individuals who can help us understand community needs and priorities better and who can be advocates for our project.
3. **We address potential conflicts of interest head-on**: we identify stakeholder groups (both local and at State level) that may have conflicting interests as well as co-users of the lease area to ensure the success of our project and avoid stakeholder conflict which has created delays in previous New York solicitations.

### 16.2.2. Stakeholder list

[redacted]

[redacted]

[redacted]

[redacted]

## 16.3. Stakeholder engagement goals

[redacted]

[redacted]

[redacted]

## 16.4. Stakeholder engagement activities and partnerships

The key to successful stakeholder engagement is to **tailor activities and communications to the needs and limitations of each stakeholder group.** Community Offshore Wind is aligned with NYSERDA's view that it is critical to include a wide range of voices, and at the same time be mindful to direct a concerted effort towards engaging historically marginalized groups that have been traditionally left out of development decisions, such as disadvantaged and frontline communities.

Community Offshore Wind will use a wide range of stakeholder engagement activities to ensure we reach all relevant stakeholders in a way that meets their unique needs. This includes 1) inclusive project development and decision-making, 2) targeted stakeholder engagement activities and partnerships, 3) wide-ranging stakeholder engagement and partnerships, and 4) investments in local stakeholder groups. Each of these elements is further explained below.

### 16.4.1. Inclusive project development and decision-making

To be transparent and inclusive, we have established a continuous feedback loop of stakeholder input into the project's development. In the six months since launching Community Offshore Wind, we have participated in and hosted more than 50 events across New York State to start our feedback loop. Due to our physical location in New York, we can easily execute in-person events with our team.

*Figure 16-2 Inclusive project development and decision-making process*


1. **Seek feedback** and let stakeholders weigh in on Project decisions and milestones
2. **Listen and learn** to understand stakeholder concerns and priorities
3. **Incorporate input where possible** into development decision and design
4. **Report back final outcomes** to those stakeholders While it won't be possible to incorporate stakeholder input on all Project decisions, we are committed to being transparent with stakeholders on where feedback has been implemented and where it hasn't, and in situations where it hasn't been incorporated, providing a justification as to why.
5. **Cultivate strong relations** to enhance meaningful dialogue and continue to get valuable feedback through our outreach activities

### 16.4.2. Targeted stakeholder engagement activities and partnerships

Our feedback loop only works when we have high awareness and engagement of our stakeholders. To increase awareness and participation, we have designed a set of targeted stakeholder engagement activities and partnerships which are further described in this section. In addition, in line with Lease Stipulation 3.1.2 we have developed dedicated communication plans for Fisheries, native American Tribes and Agencies. Through our extensive stakeholder engagement, we have collected letters of support from many individuals and organizations, which are available in Appendix 16-10.

#### 16.4.2.1. Residents

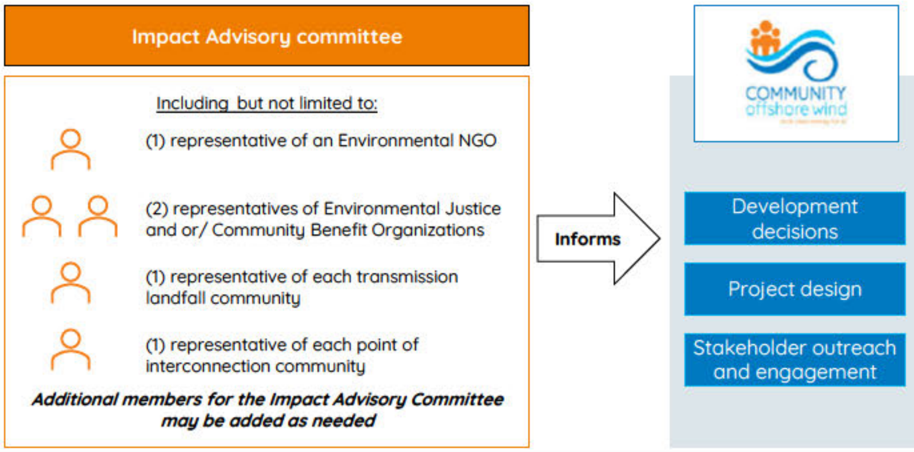
Residents, in particular host communities are the foundations of Community Offshore Wind's success. **We are committed to a transparent partnership that mitigates impacts of the project on these communities.** We do this through:

- Proactive engagement leveraging our Impact Advisory Committee
- Set up a Community Benefits Fund
- Host Community events to create awareness of our joint venture and project
- Promoting awareness and engagement in disadvantaged communities
- Limiting the burden we place on tribes and tribal nations

#### Proactive engagement leveraging our Impact Advisory Committee

**Community Offshore Wind will establish an "Impact Advisory Committee"** that will meet regularly to discuss project updates and upcoming milestones. The purpose of the Impact Advisory Committee will be to establish a mechanism for an continuous dialogue between the project team and representatives of stakeholder groups that are directly impacted by the project.

Figure 16-3 Impact advisory committee setup




### Set up a Community Benefits Fund

[redacted]

[redacted]

[redacted]

We look forward to working collaboratively with host communities to maximize the benefit of local investments to best meet the needs of the municipalities involved. The joint venture of Community Offshore Wind is uniquely positioned to execute on these community benefits through the previous experience of both joint venture partners. National Grid has **extensive experience working with impacted communities** to mitigate the impacts of transmission and associated transmission infrastructure. RWE, as the second largest developer of offshore wind in the world, has an **extensive track record of working with communities to maximize the local benefits that these projects bring**.

Community Offshore Wind will build upon best practices from RWE's UK and Irish Projects which have similar community funds to establish community investments that create jobs, provide workforce development, and ensure that all stakeholders see the benefit of the project.

**Community funds in the UK and Ireland**

Wind farms operated by RWE contributed over **$4.5M to community funds in the UK and Ireland**. In 2021 alone, these funds helped create more than 110 jobs, safeguard an additional 480 jobs and create 8100 skills development and training opportunities.

Example grants include: **Grimsby Food Kitchen:** to provide hot food for the homeless, **Emerge Hub C.I.C:** to help vulnerable women with food parcels, learning to cook healthily and support with independent living, **Tees Valley Wildlife:** to support their barn owl conservation project, **Swineshead St Mary PTA:** to set up a Forest School, **Tŷ Gobaith Childrens Hospice:** to fund a neonatal nurse for two years, **Repair Café Wales:** to set up a community repair and reuse café, **Patcham Memorial Hall:** to fund an Air Source Heat Pump, so that PMH reduces its carbon footprint from three gas boilers, and contributes to local sustainability plans, **The Prince's Trust:** to train for young people to establish new business opportunities

### Host Community events to create awareness of our joint venture and project

We are working with organizations in local communities to build awareness of the project and excitement for the Green Energy Transition. Some examples of these community events and engagement to date include:

- Volunteering at Island Harvest Food Bank, a leading hunger-relief organization with a mission to end hunger and reduce food waste.
- Advancing STEM education in downstate New York schools with Kid Wind by donating offshore wind activity kits for students to learn about our industry.
- Partnering with the YMCA, to make swimming lessons accessible to over 100 children in need of financial assistance from underserved communities throughout downstate New York to prepare our future workforce for careers in offshore wind.
- Partnering with Hudson River Community Sailing to enable over 200 middle and high school students to see a pathway into the profession and jobs that will be needed to transform our energy supply to renewables.
- Partnering with Operation Splash to provide field trips to title one schools to enhance awareness around climate change and what they can do right in their own backyards to help mitigate impacts.
- Partnering with Buy Supply, a woman-owned, small business based in Brooklyn, and seven non-profits across New York, to donate 900 winter coats and 100 pairs of winter gloves to families in need throughout New York State on Giving Tuesday.
- Partnering with New York and New Jersey-based seafood processors on donation of more than 30,000 meals of wild-caught, locally sourced seafood from fishermen and seafood processors to food pantries in Albany, Brooklyn, Buffalo, Hudson Valley, Long Island, Staten Island, and Syracuse. Distributed more than 2,500 pounds of freshly frozen, Long Island-sourced fish fillets and 10,500 cans of New Jersey-sourced clam chowder.

"Every child should have access to high-quality swim instruction, thanks to the generous support of Community Offshore Wind, the YMCA of Greater New York will be able to provide dozens more families across New York City with financial assistance to make swim lessons more affordable. As a result of this partnership, their children will develop life-saving swim safety skills, reducing the risk of drowning and increasing their confidence and comfort in the water."

Sharon Greenberger, President & CEO of the YMCA of Greater New York

Letters of support from organizations we have partnered with to organize community events can be found in Appendix 16-10. Our community impact report is also available in Appendix 16-3.

Promoting awareness and engagement in disadvantaged communities

Community Offshore Wind is committed to providing disadvantaged communities with a seat at the table so they can have a more active voice in decisions directly impacting their livelihood. Our ongoing engagement and activities are targeted to directly benefit disadvantaged communities, while utilizing the opportunity to identify their concerns through NGOs and other representative organizations. In addition, we are proactive in our efforts to remove barriers to participation, as outlined in the New York State Disadvantaged Communities Barriers and Opportunities Report. To do so, we use several accessibility measures to increase participation of Disadvantaged Community members:

- Increase awareness within communities through community events and marketing materials.
- Launch hyper local social media alerts pre and post construction and for community meetings.
- Consider a range of education levels, cultural context and understanding of the process in developing materials and use graphical explanations wherever possible.
- Translate materials into multiple languages (e.g , Spanish, Mandarin Chinese etc.)
- Hold meetings concurrently with other community gatherings to alleviate stakeholder fatigue to meet people where they are and not expect them to come to us.
- Hold meetings virtually or during non-working hours (virtual and physical) to allow all voices to be heard in a way that is convenient for them.
- Provide incentives for attending meetings (lunch, dinner, uber gift cards).
- Hold meetings in community centers that already have childcare centers in them so that community members can participate in meetings without distractions and not have the burden of finding childcare in order to participate.

We are partnering with various community-based organizations to provide economic and workforce development programs and wrap-around services. These include Suffolk County Department of Labor at the National Offshore Wind Training Center in Brentwood, NY, SUNY Maritime College, Alliance of New York YMCAs and Hudson River Community Sailing. You can find their letters of support in Appendix 16-10. All our commitments to disadvantaged communities are further described in Chapter 18: Disadvantaged Communities.

### Limiting the burden we place on tribes and tribal nations

We recognize the burden that the review of multiple projects has placed on Tribes and Tribal Nations. We seek to promote meaningful communication, coordination, and collaboration without being overly burdensome to Tribes and Tribal Nations. To date, we have invited Tribes and Tribal Nations to participate in the development and implementation of the NATCP and held a Pre-Survey meeting with Tribes. **We have complied with BOEM's request for New York Bight leaseholders to pause communications with the Tribes as it relates to the development of the NATCP**, to minimize the unintended burden of the review of six NATCPs on the Tribes.

We have hired a Tribal liaison (Justin Bedard, biography in Appendix 16-2) to **facilitate meaningful dialogue with Tribes and Tribal Nations**. As the project develops, communication methods will be based on Tribal preference and in alignment with our tribal liaison.

[redacted]

[redacted]

> "We are delighted to partner with Community Offshore Wind to bring the Foundation 2 Blade program to New York State and Long Island. Through the generous support of Community Offshore Wind, minority and women-owned businesses can access the offshore wind network. **Building that supply chain, locally, will help serve the workforce needs of Long Island today and into the future.**"
>
> Professor Marj Issapour, Associate Dean of Innovation and Economic Development in Sustainable Energy, Farmingdale State University

### Ongoing engagement with commercial and recreational fisheries

Community Offshore Wind has had over 330 direct engagements with about 500 fishery participants and stakeholders from local commercial and recreational fisheries to develop a detailed understanding of the fisheries within the project area. We are committed to building relationships and working closely with fishermen to ensure successful and sustainable outcomes.

Our website includes a dedicated fisheries landing page where fisheries can get more information about the impacts and opportunities our project may bring. This includes fisheries notices, our fisheries communication plan and a Frequently Asked Questions section. Fisheries can contact our team directly or sign up for opportunities for commercial fishing vessels to provide supporting services to our offshore operations. We have also developed a comprehensive fisheries mitigation plan (Chapter 14).

#### 16.4.2.3. Institutional Stakeholders

We work with institutional stakeholder to create support for our project and offshore wind in general. We also collaborate with institutional stakeholders to ensure New York's institutions support offshore wind and the opportunities it brings to New Yorkers. Specific activities include:

- Create offshore wind career pathways
- Support offshore wind knowledge and skills building
- Update Federal and State agencies and elected state and local officials on a regular basis

### Create offshore wind career pathways

Community Offshore Wind **is developing partnerships with organized labor to ensure our project development aligns the visions of offshore developers and labor unions** and to jointly identify career pathways and address skills gaps, the just transition and offshore wind specific certifications. To ensure New York's workforce is well trained and can fill expected occupational gaps, we will share job numbers, titles, job descriptions, skills, wages and necessary certifications with organized labor to the extent possible. Our Labor Engagement Plan is further described in Chapter 19.3.

**Community Offshore Wind has established a first-of-its kind MOU with NY Building and Construction trades to collaborate on a PLA**. We share a vision for career opportunities, job training, and pay for jobs and careers resulting from any project awarded by NYSERDA. We are in advanced negotiations for a Labor Peace Agreement with the NY Regional Climate Labor Coalition to ensure neutrality for workers organizing in the operation and maintenance, maritime and supply chain sectors. We have also secured letters of support from the International Brotherhood of Electrical Workers (IBEW); Ironworkers; Laborers and other labor unions. The MOU and additional letters of support from these organizations can be found in Appendix 16-10.

[redacted]

> "As a workforce training organization, we're committed to strengthening the green jobs pipeline for our historically marginalized communities. **We're thrilled that with so much wind power coming to New York we will see tremendous growth in opportunities for our trainees soon.**"
> Kaila Wilson, Director of Energy Development - RETI Center

### Support offshore wind knowledge and skills building

We are collaborating with Research Universities to identify knowledge gaps in environmental and fisheries research and monitoring and plan to work closely together to close any observed gaps. More details on our research and monitoring programs with universities can be found in Chapter 14: Fisheries Mitigation Plan and Chapter 15: Environmental Mitigation Plan.

We have also started to engage with community colleges, universities, and local training providers across New York State both in-person, and virtually to **understand the capabilities and resources they need to support the advancement of the offshore wind industry**. We are partnering with Training and Research Institutions to develop workforce development programs targets to fill key occupational gaps in the offshore wind supply chain. More details on our workforce development partnerships with local training and research institutions can be found in Chapter 19.3.

Update federal and state agencies and elected state and local officials on a monthly basis

**All Federal and State agencies within the proposed project area are updated monthly.** We also regularly coordinate with staff at federal and state government agencies virtually, in-person, and by email. As the project develops, we will keep them informed and share feedback with the project team to shape design elements. We expect our engagement activity to increase around major milestones.

**Our Stakeholder Engagement team meets regularly with elected State and local officials.** All officials within the proposed project area will be updated monthly. The Stakeholder Engagement team has been meeting regularly with local elected officials within the state of NY and Orange County to get support for bringing Steel facilities to our Newburgh/New Windsor Property.

#### 16.4.2.4. Environmental organizations

Community Offshore Wind is actively engaging with environmental NGOs, wildlife groups, aquariums, conservationists, and activists to understand concerns, find common objectives and opportunities for collaborative research and monitoring. For example, we have participated in the Waterfront conference and helped preserve the marine ecosystem by collecting more than 900 pounds of garbage and debris at Earth Day cleanups at Spring Creek Park in Queens with the Littoral Society and at Lido Beach with the Marine Rescue Center. As an active member of the organizations, we will coordinate regularly with the Environmental Technical Working Group (E-TWG), the Fisheries Technical Working Group (F-TWG), the Maritime Transport Working Group (M-TWG), the Responsible Offshore Science Alliance (ROSA), and the Regional Wildlife Science Collaborative (RWSC).

### 16.4.3. Wide-ranging stakeholder engagement activities

In addition to targeted events and partnerships, **we use wide-ranging activities and engagement tools to build awareness and engagement in New York State**:

- **Public open houses open** for broad, non-technical information sharing, receiving comments, feedback, concerns and perception of the project. Open houses also enable us to establish relations with stakeholders, in particular impacted communities.

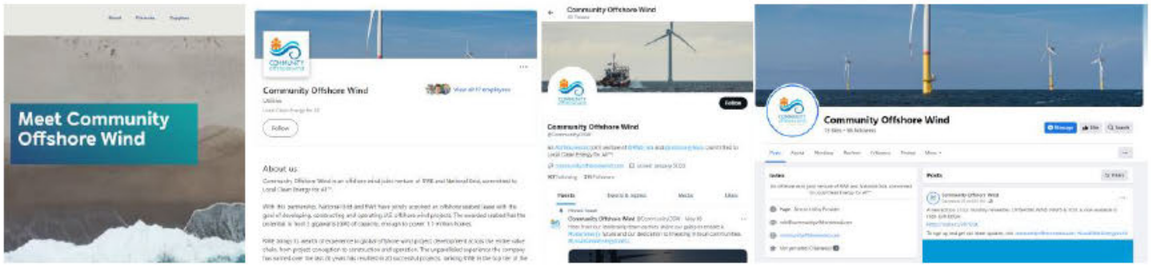
**Stakeholder engagement success story: Open house at Brooklyn Botanic Garden**

In October, area business owners, environmental justice organizations and environmental thought leaders joined the Community Offshore Wind leadership team for an open house at the Brooklyn Botanic Garden. Dozens of organizations shared feedback on offshore wind and how community investment can positively impact local communities. Of note were the opportunities to build stronger communities together and how to serve the underserved to create a better tomorrow through offshore wind. The conversations focused on the challenges facing the region with the goal of identifying potential community investment opportunities to ensure that local needs are understood and met through the proposal.

- **Targeted meetings** to promote awareness of the project with presentations and Q&A. At these meetings we will also share contact information of the Community Offshore Wind team for follow up. Targeted meetings allow us to share information on project requirements and impacts and receive feedback.
- **Forums and workshops** to create pathways to enter the offshore wind industry through training in technical and non-technical careers.
- **In-person 1 on 1 meetings** to establish an open line of communication, collect information and speak freely about sensitive issues with stakeholders. These types of meetings also help us establish personal connections with key stakeholders and monitor project impacts and activities on an individual basis.
- **Focus group discussions** to inform our feedback loop, share information on specific topics to get their feedback and concerns. These types of meetings also allow us to monitor project impacts and activities on a group basis.
- **Community van** to engage with and in New York communities. With our community van, we provide brand awareness and information at community events and public engagements.

**The inspiration for our Community van:** RWE's Axel y Mor is a proposed offshore wind farm off the coast of North Wales. The project deployed a community van with various materials and resources for the project and brought the van to impacted communities. This engagement intended to advance education and engagement around the project and its various components. The community van significantly increased community engagement. We have been using a similar community van since November 2022 to engage with New York communities.

- **Community Offshore Wind website and social media** has accessible, real-time information and progress update. On our website we disclose relevant project documentation, such as our communication plans and we announce key events and project updates.




- **Fact sheets and door hangers** to share brief project information on topics such as land acquisition, land entry and exit, points of interconnection, project time schedule and other site-specific project information, particularly when in-person meetings are not feasible.
- **Monthly newsletter** to provide information on relevant events and project updates.
- **Branded correspondence** such as postcards, one-pagers and emails to share information on project requirements and impacts, invite stakeholders to meetings and key events.

*Figure 16-4 Photos from various Community Offshore Wind stakeholder engagement activities*[76]

### 16.4.4. Investments in local stakeholders

We are committed to financially investing in our key stakeholder groups. Our key investment programs are further detailed in Chapters 14, 15, 18 and 19 and recapped below.

[redacted]

76 Top-left: Foundation 2 Blade offshore wind industry training, top-right: Governor Kathy Hochul's 12th Annual NYS MWBE Forum in Albany, bottom-left: Seafood donation event in New York with Community van, bottom-right: Donation event on Giving Tuesday

## 16.5. Tracking progress and communications

Community Offshore Wind recognizes the existing and anticipated consultation burden on stakeholders and hence the need to ensure stakeholder engagement is efficient and effective. **Community Offshore Wind is leveraging a set of key metrics as well as best-in-class tools to track progress on stakeholder engagement as well as marketing efforts.**

### 16.5.1. Tracking stakeholder engagement

We will measure leading (process) and lagging (KPIs) to ensure we have the right impact. We will report on these metrics through quarterly progress reports, a live stakeholder dashboard, periodical focus groups [redacted]

[redacted]

77 Additional details described in the Agency Communication Plan submitted to BOEM

### Quarterly progress reports

Consistent with NYSERDA requirements, Community Offshore Wind will track attendance for virtual or in-person open houses, community meetings, and public information round tables. Our quarterly progress report will also include information on the stakeholder groups we have engaged with, activities included in the engagement, the goal and outcome of the engagement, overall sentiment of the stakeholder, and proposed next steps or goals for the upcoming quarter. As part of our quarterly progress report to BOEM, we submitted a stakeholder report to BOEM in November 2022.

### Live stakeholder dashboard

Community Offshore Wind will post a live stakeholder dashboard to our website. This dashboard will display the number of stakeholders we are engaging with, the amount of event we are participating in and stakeholder sentiment. This will allow for transparency and ownership of our practices.

### Periodic focus groups

Community Offshore Wind will conduct regular focus groups comprised of individuals from targeted communities based on our project area. The purpose of these focus groups will be for Community Offshore Wind to understand the issues, actions, and types of engagement that are important to the stakeholders in key geographic areas.

[redacted]

#### 16.5.2. Tracking stakeholder marketing efforts

As Community Offshore Wind moves forward with development, we will ensure our marketing efforts generate sustained momentum in reaching our stakeholders. Through our marketing efforts, we will look to amplify four fundamental messages about our company. Our initial marketing efforts focused on introducing the company, highlighting community investments, and creating a drumbeat around the support we receive from key communities.

[redacted]

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

## 16.6. Our joint venture's stakeholder engagement experience

### Local roots

National Grid has operated in the Northeast for decades and employs more than 11,000 personnel in New York State. Brooklyn Union Gas is the company's oldest legacy franchise dating back to 1895. RWE also has a team of professionals with strong relationships through their renewables development.

### Global best practices for responsible offshore wind development

We will be leveraging lessons learned and best practices from our past stakeholder engagement experiences. Examples of lessons learned we are leveraging are:

- Our **community van** was inspired by the Awel y Mor RWE offshore wind project in Wales
- We are building on our learnings from the design and implementation of **Community Benefits Agreements** in the United Kingdom and Ireland
- We have experience incorporating variety of voices in our project and outreach strategies.

### A track record of local engagement and investments

Both RWE and National Grid have extensive experience collaborating with and investing in communities over the years. National Grid has provided over $100M in assistance for local investments with experience redeveloping buildings and brownfields in NY and helping to create or retain over 50,000 jobs. National Grid's Grid for Good program offers mentorship to young people, ages 16-24 from disadvantaged backgrounds, upskilling and preparing them for careers in energy. Across New York State, the company contributes more than $5M million annually to community-based organizations. With more than 30 projects in nine states, RWE has made significant investment in local economies, created local jobs, and increased tax revenue for mostly rural areas in the US. RWE also recently assisted more than 45 local organizations, such as first responders, regional and local food banks and food pantries, in response to the coronavirus pandemic in those communities in RWE operates.

# 17. Visibility and viewshed impacts

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## NYSERDA solicitation requirements

Our visibility and viewshed study address each requirement laid out by NYSERDA in the Request for Proposal (RFP). The table below identifies each solicitation requirement.

*Table 17-1 Solicitation requirements*

| Solicitation requirement | Section |
| --- | --- |
| Identify the distance in statute miles between the nearest shoreline point and the nearest Offshore Wind Generation Facility turbines. | 17.1 |
| If a Project is proposed to include turbines less than 20 statute miles from the nearest shoreline point of any state, Proposers must explain: how the Project will minimize adverse impacts related to visibility of turbines, including potential impacts on the local and state economy and historic and visual resources, such as publicly accessible viewsheds. | N/A |
| If a Project is proposed to include turbines less than 20 statute miles from the nearest shoreline point of any state, Proposers must explain: how consideration of economic and environmental concerns contributed to the proposed distance from shore. | N/A |
| All Proposals must include a visibility study that presents visual simulations of the proposed Offshore Wind Generation Facility. | App. 17-1<br>App. 17-2 |
| Visibility studies must include a map or maps along with supporting GIS shape files that depict the nearest coastline, the boundary of the proposed site to be developed and any other reasonable reference points (e.g., coastal cities, historic sites, other wind energy areas). | App. 17-1 |
| The visibility study must also include analysis of the percentage of time during which different visibility conditions are expected to occur based on past meteorological data. | 17.3.2 |

## 17.1. Summary

At Community Offshore Wind, we recognize that the visibility of offshore wind farms can have an economic, historical, and cultural impact on local communities. We are committed to developing our project in a manner that **minimizes visibility and incorporates stakeholder feedback to the extent practicable.** Our lease area OCS-A 0539 is located a minimum of 37 miles (59 km, 32 nm) east of New Jersey and more than 20 statute miles from the nearest shoreline point. Therefore, **project visibility will be limited in New Jersey and largely avoided in New York given the distance from shore, curvature of the Earth, and meteorological and atmospheric conditions.**

We further minimize visibility through the following measures:

- The project will be located entirely within lease area OCS-A 0539, which has been sited by BOEM a minimum of 37 miles from the closest point to shore.
- The layout will arrange wind turbine generator structures in a near-uniform grid pattern and maintain consistency in dimensions, color, and design.
- The wind turbine generators will be an FAA-recommended paint color, which generally blends well with the sky at the horizon, for any wind turbine generator components visible from shore. The paint color will be determined in consultation with BOEM, FAA, and USCG.
- We will utilize FAA warning lights with the longest off-cycle permitted by the FAA and will incorporate radar-activated aviation obstruction lights (such as ADLS) to minimize the amount of time the lights are on, if permitted by the overseeing agencies.
- We will utilize USCG warning lights with appropriate visible range for mariners (2 to 5 Nautical Miles) and locate USCG lighting on lower structures that will not likely be visible from coastal vantage points.

In support of this proposal, we commissioned a visibility study to assess the potential impacts to the local viewshed resulting from the construction and operations of our project. The visibility study also includes visual simulations which represent clear, partly cloudy, and overcast conditions during early morning, mid-afternoon, and late day, as well as one simulation at night with the turbines lit under clear conditions. A summary of the findings is included in this chapter.

The simulations are provided in a format **suitable to be printed or viewed electronically** by the public and the OREC scoring committee. However, **the simulations are designed to be printed on an 11x17 landscape layout viewed from 18 inches away** for the most realistic representation of scale and size. The complete study, along with visual simulations, is included within this proposal as appendix 17-1.

## 17.2. Visibility assessment

Our visibility assessment includes an overview of the methodology used and an evaluation of the visibility impact from selected locations in New Jersey and New York. The assessment also summarizes the impact of varying meteorological and nighttime conditions.

### 17.2.1. Methodology

To address project visibility from visually sensitive resources, a visual study area (VSA) was established. [redacted]

[redacted] While offshore electrical substation platforms will be included as part of the project's energy delivery system, these structures are not anticipated to be visible from shore, [redacted] and have not been included in the simulations and will not be discussed further.

[redacted]

The viewshed analysis was then conducted over the entire VSA to refine the study area to include only those areas that would likely have visibility of the wind turbine generators and to provide a geographic extent of visibility. [redacted]

[redacted]

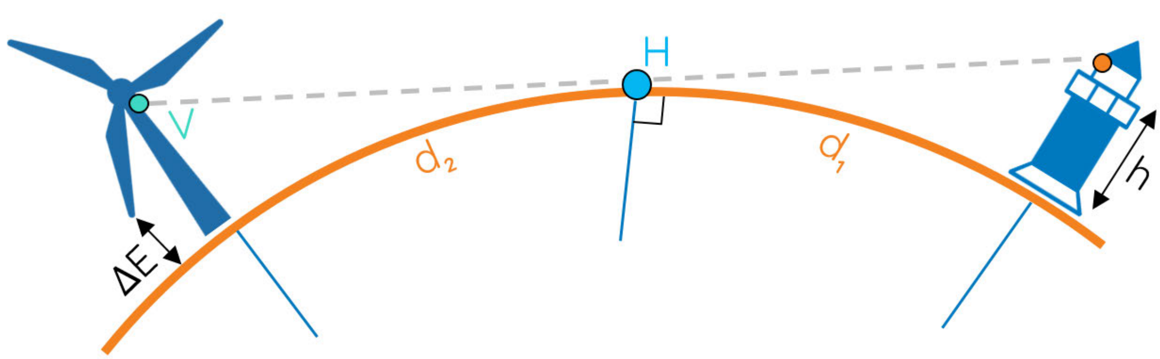
[redacted] meaning **potential turbine blade visibility from the coast or from points between the coast and the development is extremely limited**.

It is important to note that **being within the project viewshed is not synonymous with project visibility**, as areas of actual visibility are anticipated to be more limited. This is due to the narrow profile of the individual wind turbine generators and screening from intervening vegetation and smaller structures not large enough to be accounted for in the viewshed analysis. **Actual visibility also depends on curvature of the earth and weather and lighting conditions,** which is especially prevalent when seaward objects are greater than 16 kilometers (10 miles) from the viewer.

From an earth curvature standpoint, **the wind turbine generators will be largely obstructed by the horizon**. Figure 17-2 demonstrates this effect at an exaggerated scale. To determine how much of the turbines would be obstructed by the horizon (h on Figure 17-2), a numerical spherical model based on the Haversine formula was developed to establish the relationships between each observation point, the horizon, and each wind turbine generator. The inputs to this model include the geodesic distance between the viewer and the turbines (d1 + d2 on Figure 17-2), the elevation of the viewer (h on Figure 17-2), and various fixed inputs including the radius of Earth and the refraction index of the atmosphere. The output of this curvature model is a vertical distance value that equates to the lowest observable elevation at each WTG site (shown as ΔE in Figure 17-2). This is used in the visibility assessments and simulations to account for the earth curvature effect.

Although the turbine blades in our project will technically be visible in clear conditions from sea level at just under 45 miles, their **visibility will be greatly diminished beyond the point at which the nacelles and towers drop below the horizon** at a viewing distance of approximately 34 miles.

*Figure 17-2 Earth curvature model diagram*




### 17.2.2. Project visibility

To further assess the potential impacts associated with the visibility of the project within the VSA, visual simulations were developed. The review of visual simulation images, along with photos of the existing view, allow for comparison of the aesthetic character of each view with and without the project. The two nearest points to shore from Lease OCS-A 0539 are located in New Jersey at the northern tip of Long Beach Island within the Barnegat Light Borough, followed by the southern tip of the Barnegat Peninsula, part of Island Beach State Park within Lacey Township. Based on the results of the viewshed analysis, the following locations were selected to develop simulations of the anticipated visibility of the project:

- **Barnegat Lighthouse State Park, Barnegat Light, New Jersey:** This location is the closest location to the lease area, located approximately 43.2 miles west of the nearest proposed wind turbine generator location. The photo location, approximately 250 feet east of the lighthouse[79], provides a vantage point from which a viewer can observe the dunes, beach, jetties, and ocean beyond. The location is popular amongst tourists and recreationists, particularly for birdwatching, picnicking, trail walking, and fishing along the elevated walkway on the southern jetty.
- **Lifesaving Station, Island Beach State Park, Lacey, New Jersey:** This location represents a beach-level view and is located approximately 44.3 miles northwest of the nearest wind turbine generator location. The photo location is from the beach entrance adjacent to the US Lifesaving Station No. 14 National Register Site[80]. The location is typical of many other beach locations in the area in terms of lighting, visual elements, and expansive (180-degree) ocean views.

Our proposal does not include simulations from New York State as the two nearest points to shore fall in New Jersey. Due to the location of lease OCS-A 0539, the project is located 64.7 miles to the closest point in New York and will therefore **not visible from the New York coast** given the curvature of the earth and the meteorological and atmospheric conditions.

#### 17.2.2.1. New Jersey

Based on the results of the visibility study and associated simulations, **visibility of the project in New Jersey is expected to be minimal**. Although the project is relatively small compared to the open ocean area, the introduction of man-made moving structures can create a visual contrast to the expanse of the ocean and sky, depending on distance and meteorological conditions. Difference in color and contrast between the wind turbine generators, the sky, and the ocean is the main source of visual prominence. From coastal vantage points, the wind turbine generators will appear low on the distant horizon and would be difficult to perceive. For any ground level observer, no part of the tower or nacelle would be visible above the horizon. At elevated viewpoints within the visual study area, such as the Barnegat Lighthouse observation deck, the vertical form of the tubular towers, when detectable, would contrast with the horizontal form of the water and sky horizon (Figure 17-3). Time of day and weather conditions will also play an important role in the level of perceived visibility of the project, with backlit conditions in the morning increasing the contrast between the WTGs and the background sky.

The proposed wind turbine generators would be the tallest permanent elements visible on the horizon, albeit from a far distance. Ships passing closer to shore could appear taller than the wind turbine generators against the horizon and may often obstruct the view against the horizon. From most foreground and mid-ground vantage points (e.g., vessels on the ocean), the wind turbine generators would be perceived as the main visual element. When viewed from far background vantage points on

79 Note: the lighthouse is currently closed to visitors as it undergoes restoration, therefore, an elevated view from this location, while preferred, was not feasible to acquire

80 Note: the NRHP site itself would not have ground-level views of the Project due to screening by the dunes but may have views of the Project from upper floors and towers

land, the perceived scale would be considerably reduced. [redacted]

The level of visibility also depends on the perceived contrast between the neutral white color of the turbine tower, nacelle, and blades and the background sky. When the wind turbine generators are backlit, the degree of visual contrast is heightened and thus somewhat more visible against the background sky than if viewed in a more illuminated front- or side-lit condition. Front- or side-lit conditions would cause the turbines to stand out more against a bluer sky, primarily occurring in clear conditions. For most viewpoints along the eastern shores of New Jersey, there is lower visibility in the mornings (i.e., backlit conditions), with slightly increased visibility in the evenings (i.e., front-lit conditions). The winter months have slightly increased visibility for viewers facing east (i.e., side-lit conditions) and reduced visibility for viewers facing north (i.e., backlit conditions).

Color contrast decreases as distance increases and would diminish or disappear completely during periods of haze, fog, or precipitation. Visibility due to meteorological conditions is addressed below and in Appendix 17-2.

Visibility anticipated from the locations depicted in the simulations is further detailed below:

- **Barnegat Lighthouse State Park, Barnegat Light, New Jersey:** [redacted] Any significant wave activity would obscure views from ground level. Compared to other vertical elements in this view (e.g., railings, jetty markers, people, vessels, wildlife), the apparent height of the visible blades will be extremely small. The motion and color of the blades may draw an observer's attention, particularly in the late afternoon when the sky and ocean appear darker blue in color as compared to the white turbines. During morning and midday periods and overcast or cloudy conditions when the sky appears lighter, the turbine blades will be much more difficult to observe. When backlit by the sun during early morning, it is unlikely that the blades would obscure the sun's light enough to be visible to the naked eye.

[redacted]

- **Lifesaving Station, Island Beach State Park, Lacey, New Jersey:** [redacted] These blades would only be observable under clear, calm conditions. When observable, the blades would stand out against the horizon in the absence of competing visual elements such as vessels, strong wave activity, or wildlife, especially in the later parts of the day when the ocean and sky appear darker and the turbines are strongly front-lit. Fishing and other vessels would periodically dominate views even with wind turbine generators visible, due to the much larger size, similar color contrast, and distinct horizontal motion.

#### 17.2.2.2. <u>New York</u>

The nearest point to the project in New York State is at Short Beach in Jones Beach State Park, approximately 64.7 miles north of the nearest wind turbine generator location. **At this distance, the wind turbine generators proposed as part of the project will not be visible**. To view the nearest wind turbine generator from Jones Beach, an observer would need to be at an elevated viewpoint, approximately 345 feet above sea level. For reference, the closest elevated viewpoint, the Fire Island Lighthouse, is approximately 168 feet fall. In either case, the scale and atmospheric effects would likely make the wind turbine generators imperceptible to viewers. As such, this study considers visual impacts to New York State from structures in the lease area to be negligible.

### 17.2.3. Meteorological conditions

Color contrast decreases as distance increases and would diminish or disappear completely during periods of haze, fog, or precipitation. An analysis of the meteorological conditions associated with the lease area was therefore also conducted to better understand the meteorological conditions experienced in this area and how they may influence the visibility of our project. The meteorological analysis shows that clear weather conditions occur for greater than 50% of daylight hours approximately 236 days per year. On an hourly basis, clear conditions occur an average of 62% of daylight hours over the course of the year. Table 17-2 shows the prevalence of each weather condition in each season.

*Table 17-2 Typical meteorological conditions*

| Distribution of daylight observations (hourly, 2012-2022) | | | | | |
|---|---|---|---|---|---|
| **Condition** | **Winter** | **Spring** | **Summer** | **Autumn** | **Annual** |
| Clear | 56% | 60% | 70% | 61% | 62% |
| Foggy | <1% | <1% | <1% | <1% | <1% |
| Rainy/snowy | 18% | 14% | 10% | 14% | 14% |
| Hazy | <1% | <1% | <1% | <1% | <1% |
| Cloudy | 25% | 25% | 19% | 24% | 23% |
| **Days/year with 50% or more daylight observations** | | | | | |
| **Condition** | **Winter** | **Spring** | **Summer** | **Autumn** | **Annual** |
| Clear | 57 | 58 | 69 | 52 | 236 |
| Foggy | <1 | <1 | <1 | 1 | 3 |
| Rainy/snowy | 17 | 17 | 12 | 20 | 66 |
| Hazy | 0 | 0 | 0 | 0 | <1 |
| Cloudy | 16 | 17 | 10 | 16 | 59 |

### 17.2.4. Nighttime conditions

Nighttime conditions were considered to address the potential for nighttime impacts associated with the aviation safety lighting. Observations of existing offshore facilities suggest that night visibility of aviation hazard signals are visible at distances greater than 24 miles[81] and onshore wind turbines aviation lighting seen at distances greater than 36 miles.[82] However, due to the curvature of earth at the key observation points (KOPs), all FAA lights would be entirely screened from view in nighttime simulations. LED L-864 and L-810 FAA beacons are not bright enough to create visible light above the horizon when the lights themselves are obstructed by earth curvature. The FAA lights would potentially be visible from elevated structures such as Barnegat Lighthouse observation deck, which is closed to the public at night.

[redacted]

81 Sul ivan et al. 2013
82 Sullivan et al. 2012

# 18. Disadvantaged community impacts

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### NYSERDA solicitation requirements

Our approach to disadvantaged communities impact addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP). The table below identifies each solicitation requirement.

*Table 18-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| All Proposers are expected to explore how they can design their Project and associated investments to provide benefits to and reduce burdens on Disadvantaged Communities in accordance with the 2020 CES Modification Order and the Climate Action Council's Draft Scoping Plan | 18.3.1 |
| All Proposers are required to fully detail the benefits and burdens associated with the impacts of the Project's development on any hosting and/or proximate Disadvantaged Communities, as identified through engagement with Disadvantaged Communities, and in accordance with the most recent relevant guidance per the Climate Action Council and Climate Justice Working Group | 18.2<br>18.3 |
| Benefits of project development may include establishment of education and training opportunities for members of Disadvantaged Communities, the hiring of residents from Disadvantaged Communities, or other investments identified as priorities for the community through documented engagements. | 18.3.3 |
| Proposers must include in their proposal specific, quantifiable commitments to providing benefits to Disadvantaged Communities | 18.1<br>18.3 |
| If awarded a contract, Proposers must agree to coordinate with NYSERDA throughout implementation of the Project to reasonably align the investments and associated benefits claimed with NYSERDA's broader approach for the delivery, measurement, tracking, and reporting of benefits to Disadvantaged Communities, pursuant to the provisions of the Climate Act | 18.1 |
| The Proposer must provide a complete description of the benefits and burdens associated with the development of the Energy Storage on any host communities or proximate communities designated as Disadvantaged Communities | 18.2<br>18.3.2 |

## 18.1. Summary

As New York transitions to a clean energy economy and looks out towards the future of offshore wind, it is pivotal to do so in a way that holds disadvantaged communities at the forefront of decision making. Throughout history, disadvantaged communities have been overburdened by the siting of power plants and other polluting facilities and have been left out of the economic opportunities that have been created in the process. As the development of renewable energy advances, and the new economic opportunities that it provides grows, it is imperative that this occurs with a lens on how these opportunities and benefits can not only be open to disadvantaged communities, but can be structured in an equitable way that provides these communities a seat at the table and an opportunity for economic success.

An overarching philosophy of Community Offshore Wind is putting communities first and maximize positive impact on all our stakeholders, as evidenced by the name of our joint venture. Though the project overall will bring clean energy, jobs, and economic opportunities to New York, we understand that our host disadvantaged communities may be impacted in different ways by the project. [redacted] To mitigate these impacts to the extent possible, the first step is awareness in making sure that we are aligned with the communities in understanding of these impacts and their implications. [redacted]

[redacted] These benefits will be delivered through our three-pillared approach of community benefits which include five signature initiatives that prioritize disadvantaged communities and have been detailed based on our stakeholder engagement as well as priorities indicated in the Climate Justice Working Group report. The initiatives are listed below:

1. [redacted]

2. [redacted]

[redacted]

3 [redacted]

4 [redacted]

5 [redacted]

[redacted]

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[redacted]

[redacted]

With the foundation of these commitments, in addition to the experience of our joint venture, Community Offshore Wind is best suited to develop a project that prioritizes the needs of disadvantaged communities. National Grid is a New York company that knows how to engage with communities, minimize impacts, and ensure that their concerns are addressed. RWE is the second largest offshore wind developer in the world with a proven record of engaging and partnering with impacted communities, and making sure that stakeholders are not only heard, but also see the results of their inclusion. Now it is a priority of our joint venture to develop an offshore wind project for the State of New York that delivers on the promises of transparency, inclusion, and equity; to truly live up to the name, Community Offshore Wind.

*Across this chapter economic benefits correspond to net expenditures for Categories 1, 2, and 4. For categories 3 and 5, economic benefits reported account for additional benefits beyond only net expenditures.*

## 18.2. Our philosophy on engagement with disadvantaged communities

The Climate Leadership and Community Protection Act (CLCPA) has defined Disadvantaged Communities (DACs) as "communities that bear burdens of negative public health effects, environmental pollution, impacts of climate change, and possess certain socioeconomic criteria, or comprise high concentration of low- and moderate-income (LMI) households[84]. The CLCPA is primarily centered on the intertwined issues of equity and climate change and asserts that the actions taken by the State of New York to mitigate the impact of climate change should prioritize the allocation of public investments to disadvantaged communities. As we usher in a new era of clean energy, **Community Offshore Wind is committed to ensuring equitable economic opportunities, as well as minimal additional burden to these disadvantaged communities.** We have utilized the draft criteria published by the Climate Justice Working Group and the maps published by NYSERDA[85] to identify these communities and will make necessary adjustments in our outreach efforts and allocation of our investments, as required, once the final criteria are released.

### 18.2.1. Disadvantaged communities affected by our project

[redacted] This has helped us in exploring mitigation opportunities, while also starting a dialogue to develop future partnerships. We have conducted an initial set of community engagement efforts, including both one-to-one meetings with local elected officials as well as larger community outreach activities, to understand their needs and establish Community Offshore Wind as an approachable, transparent, and responsible developer. [redacted]

84 New York State Climate Action Council (2022). Scoping Plan: Executive Summary.
85 https://www.nyserda.ny.gov/ny/disadvantaged-communities

[redacted]

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As we look to the development of our project, our goal is to give communities, NYSERDA, and other state agencies a seat at the table. We aim to avoid impacts where possible, and make sure that when impacts occur the community is left with a net positive impact. This is especially important for disadvantaged communities, where it is incumbent upon us to facilitate dialogue and participation to the extent possible. We have proactively achieved this by identifying the potential impact of our project's construction and operation activities on local communities which we mitigate through our design, [redacted]

#### 18.2.2. Our engagement with disadvantaged communities

Since our inception, Community Offshore Wind has been involved in several community outreach efforts to directly address the socioeconomic inequities faced by low- and medium-income households, including environmental justice and disadvantaged communities. We have conducted activities to directly support and alleviate the everyday struggles of these communities, ranging from donation of fresh seafood and winter coats to conducting informative events for school students to empower the next generation. See Appendix 16-3 for the full list of community engagement activities conducted and our impact, some of which are listed below:

- **Food security:** We donated an equivalent of 30,000 seafood meals, purchased from New York and New Jersey processors to nine food banks that assist disadvantaged communities throughout New York.
- **Access to resources:** We donated 900 winter coats and 100 pairs of gloves to seven NGOs that serve disadvantaged communities throughout the state.
- **Swimming and sailing lessons:** We partnered with the YMCA to offer swimming lessons to 100 disadvantaged children living in New York City and Long Island, and are now funding sailing lessons in partnership with Hudson River Community Sailing program (see case study below).

**Community engagement success stories: Hudson River Community Sailing STEM Program**

Community Offshore Wind and Hudson River Community Sailing have partnered to provide lessons in wind through sailing to over 200 New York City public school students from underserved communities. The program is designed to provide math, science, and leadership skills through sailing.

"Lessons in the power of wind energy and water navigation are critical for future careers in offshore wind. By enabling students with STEM education and on-water accessibility, Community Offshore Wind seeks to build the workforce of tomorrow."

**Doug Perkins,** Project Director Community Offshore Wind

**Community engagement success stories: Spring Creek/Howard Beach clean-up**

At Community Offshore Wind, we have developed a 'Wave of Change' Program to directly engage with disadvantaged and environmental justice communities to address the public health concerns caused by historic marginalization and inequity in opportunities. The goal of this program is to identify and prioritize initiatives that can provide measurable environmental and public health benefits to these communities, in partnership with our partners (i.e., Waterfront Alliance, Atlantic Marine Conservation Society, and Marine Rescue Center).

One such initiative was a beach clean-up conducted in partnership with Jamaica Bay Rockaway Parks Conservancy, in which Community Offshore Wind employees spent a day at Spring Creek Park picking up over 900 lbs. of trash and debris to help revitalize the beach for everyone to enjoy.

As we continue developing our project, we will continue to engage with these communities through different engagement methods, including public open houses, informative forums and workshops, and through social media channels, as detailed in Section 16.4.1.

## 18.3. Community Offshore Wind commitments to disadvantaged communities

We have developed a customized approach for addressing the challenges faced by disadvantaged communities, both caused directly by our project, and by historic inequity of economic opportunities, to ensure they are positioned to succeed in the clean energy transition. [redacted] These benefits will be delivered through five signature investment initiatives focused on disadvantaged communities, which have been identified to address the concerns we have heard during our engagements and those highlighted in the Climate Justice Working Group report and CLCPA:

[redacted]

Our disadvantaged community benefits also seamlessly link to the category of benefits requested in Appendix C.3 of the NYSERDA RFP, with all our initiatives corresponding to project-specific expenditures (category A), while initiative 2 on host community payments/investments also fall under community focused investments (category B). For category C of intrinsic benefits to disadvantaged communities from reduced fossil fuel generation (category C), we will continue the dialogue with NYSERDA on measuring impact on host communities once our project is awarded, based on initial calculations detailed in Chapter 21 and Chapter 8.

**Community Offshore Wind will leverage the expertise of its parent companies, in delivering community impact**. National Grid has a long legacy of positively impacting the lives of New Yorkers while RWE has developed, constructed, and operated several wind farms in collaboration with its host communities. We are committed to coordinating with NYSERDA in delivery and verification of these economic benefits once the project is awarded and the final criteria for disadvantaged communities are published. We will utilize our defined tracking and monitoring mechanisms for investments, as well as success metrics used to measure stakeholder engagements, to communicate updates and progress of our impact to NYSERDA.

### 18.3.1. Design and invest to minimize burdens

At Community Offshore Wind, we are committed to maximizing benefits to the disadvantaged communities affected by our project activities during development, construction, and operations phases. We have taken proactive steps in our project design to minimize disruption to host communities, and where disruption is inevitable, we have designed specific investment initiatives to maximize positive impacts.

#### 18.3.1.1. <u>Responsible project design</u>

As the onshore components of the project transmission are developed, including landfall, converter station location, and underground transmission; a key consideration has been minimizing the impact on the communities they affect. [redacted] However, the impact is anticipated to be minimal, given careful selection of our onshore cable route that avoids crossing densely populated disadvantaged communities, except for a few streets, [redacted] In addition, these routes will be further refined by public input through the NYS Article VII process.

[redacted]

In addition, we have developed and prioritized an initial list of mitigating measures to ensure minimal disruption from our onshore construction activities:

[redacted]

[redacted]

As the project develops, Community Offshore Wind will continue to engage with local communities, [redacted]

[redacted]

A key reason for disadvantaged communities being disproportionately impacted by climate change and air pollution is due to unequal access to clean energy. The Climate Act classifies certain clean energy services and commodities as inaccessible to disadvantaged communities, including distributed renewable energy generation, energy efficiency investments at home, and zero- and low- emission transportation options, among others. Community Offshore Wind understands the challenges disadvantaged communities face due to poor air quality from fossil fuel emissions as well as poor access to resources given their historic marginalization and have therefore designed direct investments to alleviate everyday struggles of these communities. [redacted]

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Community Offshore Wind is committed to keeping disadvantaged communities at the forefront of the clean energy transition and is proactively delivering on this ambition by creating equitable economic opportunities for these communities. [redacted]

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Disadvantaged communities are primarily hindered by four key barriers in accessing clean energy services prescribed by the Climate Act. These include limited access to physical and socio-economic structures, lack of financial and knowledge-related resources and capacity, lack of awareness, and complex programmatic design[86] further limiting their participation and success. Community Offshore Wind aims to address such barriers through our third pillar: 'Enable and empower communities' to ensure equitable economic progress instead of only providing economic opportunities to these communities. We will fund workforce development programs to enable individuals to also meaningfully benefit from employment opportunities created while removing potential barriers and go beyond to invest in building the workforce of the future by funding of youth employment programs.

[redacted]

The offshore wind industry presents a unique opportunity to shape the creation of a new and growing industry, with a 4.7% growth rate in clean energy jobs in between 2020 and 2021[87]. [redacted]

Our framework of program [redacted] has been developed in collaboration with our training partners and is meticulously designed to address the most critical occupational gaps and needs of tomorrow's offshore wind workforce. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

86 NYSERDA, NYSDEC, NY Power Authority (2021). New York State Disadvantaged Communities Barriers and Opportunities Report.
87 NYSERDA (2022). Governor Hochul Announces Record-Level of Clean Energy Jobs Reached in New York State

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## 18.4. Our legacy and expertise

Community Offshore Wind will leverage the expertise of our parent companies, RWE and National Grid, in ensuring an equitable transition. We have the collective experience for executing successful large infrastructure and clean energy projects and have familiarity with the people that live and work in New York. RWE is one of the world's leading companies in offshore wind and has constructed 18 wind farms. National Grid serves over 20 million people throughout the Northeast, including New York, and has developed large-scale infrastructure projects across the US and UK.

### National Grid

National Grid has a long track record of supporting communities in New York State. National Grid supports programs designed to help improve the way people live, work, and play, with social responsibility at the core of its DNA. In 2021, National Grid donated $6M throughout NYS communities via its Corporate Citizenship, Jurisdiction, and Customer and Community program; and an additional $1.4M in NYS communities through the National Grid Foundation.

Most recently in October 2022, National Grid launched "Winter Customer Savings Initiative" to help customers reduce their energy use and save money, manage bills, and secure available energy assistance. One of the bill management programs offered by National Grid includes the Budget Plan, which is designed to reduce uncertainty and volatility in monthly energy bills by having a fixed monthly payment schedule based on annual consumption. This helps in offsetting high seasonal bills and makes it easier to anticipate monthly energy costs while planning household budgets. As part of this effort, National Grid allocated $10M in payment-assistance funding opportunities to New York State customers (out of a total funding of $17M) through federal agencies and regional non-profits. In addition, National Grid has designed special initiatives for low-income families and customers needing special assistance to meet their energy needs (see details at **ngrid.com/heretohelp**). Other programs include but are not limited to:

- **The Home Energy Assistance Program (HEAP),** or the Fuel Assistance Program, helps income-eligible households to pay their heating bills via federally funded grants
- **Discount Rates** provides qualifying income-eligible customers to receive a discounted rate on electric and gas service, as well as no-cost energy efficiency upgrades.

Our track record, strong relationships, and partnerships in these communities proves that our commitment to DACs goes much further than what is proposed here. Numerous National Grid employees sit on various non-profit boards throughout the State, volunteering their time and talent to ensure that the missions of statewide NGOs are brought to life. We at Community Offshore Wind intend to do the same and carry on that legacy.

### RWE

RWE has been developing and operating windfarms for 20 years and is responsible for providing clean and green energy to households across Europe and US. One of the **core tenets of RWE is making sustainable impact on the local communities in which it operates**, which is evident across all projects, as indicated in selected example initiatives below from some offshore wind projects:

- **Development of a local community fund worth $22 million in** Gwynt y Mor (Wales) to make sustainable impact on the development of Northern Wales throughout the lifetimes of its project. The fund will be administered by a local NGO in collaboration with local officials, and aims to reduce inequality in local community, develop strong growth, and build sustainable communities
- **Funding of decarbonization projects** in local communities to promote energy efficiency and facilitate clean energy transition in an equitable manner, e.g. Brechfa Forest Wind Farm Community Fund is funding community buildings to make infrastructural improvements to reduce carbon footprint and electricity costs, providing sustainable transportation, and other local benefits.

With more than 30 projects in nine states, RWE has also made significant investment in rural communities around the US, where they have provided local jobs and increased tax revenue with every clean energy project. RWE recently assisted more than 45 local organizations, such as first responders, regional and local food banks and food pantries, social services for senior citizens and local schools with student food programs, in response to the coronavirus pandemic in those communities in which we live and operate.

# 19. New York economic benefits

## 1 Table of contents



## 2 List of tables

[redacted]

## 3 List of figures

[redacted]

## 4 List of appendices

Appendices are referred to and included in the related Economic Benefits Plan, Supply Chain Investment Plan and New York Jobs and Workforce Plan attachments.

## NYSERDA solicitation requirements

Our approach to economic benefits, Supply Chain Investments, New York Jobs and Workforce and MWBE and SDVOB opportunities addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP). The table below identifies each solicitation requirement.

*Table 19-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| Include a high-level summary of the Economic Benefits Plan for each Proposal included in the Submission | 19.1 |
| Include a high-level summary of each Supply Chain Investment Plan included in the Submission | 19.2 |
| Include a high-level summary of the New York Jobs and Workforce Plan. | 19.3 |
| State the amount of Incremental Economic Benefits that will accrue to MWBE and SDVOB contractors and subcontractors | 19.4 |

## Summary

New York State's nation leading offshore wind program is expected to deliver billions of dollars of investments and thousands of well-paying clean energy jobs throughout the State, with a special emphasis on disadvantaged communities. To realize these ambitions and ensure all New Yorkers benefit from the growth in offshore wind, NYSERDA has expressed an ambition to become the supply chain hub of the East Coast. This ambition is supported by Governor Hochul's 2022 commitment to invest an additional $500M in offshore wind ports, manufacturing, and supply chain infrastructure as part of this solicitation.

**Our project will help New York achieve its ambition**. We will do so by working with a strong group of world-renowned companies and organizations. Together, Community Offshore Wind and this group are committed to fill important gaps in the New York supply chain by the mid-2020s while contributing to the development of a capable workforce. This approach will enable New York to provide the US East Coast with competitive supplier opportunities in most major categories of offshore wind development. In doing so, our project will create economic benefits and well-paying jobs in New York that persist long after the commissioning of our project in a way that supports a just transition and favors disadvantaged communities. Our approach is built on four pillars, which are further described below and in dedicated chapters.

1. Invest in New York's Offshore wind supply chain (detailed in Section 19.2)
2. Maximize New York Economic Benefits (detailed in Section 19.1)
3. Unlock offshore wind economic opportunities for New Yorkers (detailed in Section 19.3)
4. Create equity-driven opportunities for those historically left out (see Section 19.4 & Chapter 18)

[redacted]

88 Standalone proposals do not include economic benefits related to SCIP faci ities

[redacted]

[redacted]

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## 19.1. Economic benefits plan

### NYSERDA solicitation requirements

Our Economic Benefits Plan addresses each requirement laid out by NYSERDA in Appendix C1 (RFP). The table below identifies each solicitation requirement.

*Table 19-3 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| Document the approach to fulfilling the economic benefit claims in the Offer Data Form | 19.1.3, 19.1.4, Attachment |
| Describe how we will identify economic development opportunities for New York State based businesses, and how we will engage the business community to realize opportunities. | 19.1.2 |
| Describe the actions the Proposer intends to take to further diversity, equity, and inclusion principles, including good faith efforts to contract with MWBEs and SDVOBs. | 19.4 |
| Discuss the anticipated price to be paid by the Proposer for goods and/or services procured from the SCIP Facility, how that price conforms to the Proposer's Supply Chain Investment Plan representations regarding contracted and uncontracted anticipated revenue streams | 19.2 |
| Describe the manner in which we will comply with the New York State Supplier Opportunity requirement described in Section 2.2.13 of the RFP | 19.1.2 |
| Summarize any engagement with third-party organizations that would be involved in the successful delivery of claims and commitments. | 19.1, 19.2, 19.3, 19.34 |
| Explain the strategic importance of economic benefits and Jobs and Workforce commitments and how they fit into overall regional offshore wind market development and identify the duration of any commitment. | 19.3 |
| Specify how the claimed Incremental Economic Benefits will be documented for contract compliance | 19.1.5 and Attachment |
| Describe or list the documents, reports, contracts, invoices, or other information that will allow NYSERDA to verify the actual economic benefits that accrue to New York State. | 19.1.5 and Attachment |
| State the amount of Incremental Economic Benefits that will accrue to MWBE and SDVOB contractors and subcontractors. | 19.4 |

| | |
|---|---|
| Agree to communicate supplier opportunities to MWBE and SDVOB using the MWBE Certified Database maintained by Empire State Development (ESD) and the Directory of New York State Certified Service-Disabled Veteran Owned Business (SDVOB) maintained by the Office of General Services (OGS) for goods with anticipated contract value of over $250,000, and for services with contract value expected over $100,000. | 19.1.2 |
| Agree to consult the New York Offshore Wind Supply Chain Database, the ESD MWBE Database, and the OGS SDVOB Database for sub-contracting goods and services associated with Project development, manufacturing, construction, maintenance and operations | 19.1.2 |
| Agree to undertake efforts to maximize contract and subcontract opportunities for MWBEs and SDVOBs. | 19.4 |
| Agree to report commitments and expenditures to MWBE and SDVOB firms as part of the Contract Quarterly Report in an electronic format designated by NYSERDA. | 19.1.2 |

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## 19.2. Supply Chain Investment Plan

*Note: Throughout this section, we use "Category 2 and 4 Economic Benefits" to refer to the Economic Benefits created through Construction and the first five (5) years of the SCIP facility's operation. The SCIP Data Form further describes the Economic Benefits created following the first five (5) years of SCIP facility operation.*

### 19.2.1. Summary

New York has already taken important strides towards the ambition of being the supply chain hub for the East Coast. Following two successful solicitations, NYSERDA has successfully secured investments into towers, foundation components and ports. With this solicitation, and Governor Hochul's commitment to invest an additional $500M of New York state funding, NYSERDA seeks to close remaining gaps in the supply chain capabilities that New York can offer and thereby capture the bulk of investments and jobs in the sector. For this reason, NYSERDA has placed an emphasis on projects with SCIPs that can bring blades, nacelles, foundations, cables, ports, steel and related sub-components to the state (see Table 19-16 below for our detailed understanding of NYSERDA' s objectives).

*Table 19-16 Overview of supply chain investment plan priorities*

| Criteria | Supply chain investment plan priorities |
|---|---|
| Price | • Ensure investments are made into offshore wind suppliers, technologies and facilities that will **be competitive on a US, and potentially, a global level** and support NYSERDA's multi-port infrastructure development strategy<br>• Fill supply chain gaps with a particular focus on blades and nacelles as well as iron and steel |
| Economic benefits | • Prioritize facilities that bring **high-quality, long-term jobs** and **provide a pathway for diverse suppliers to participate** at various stages of the supply chain buildout<br>• Create **equity driven opportunities** for those historically left out, by prioritizing facilities that enable and empower disadvantaged communities and MWBE/SDVOB |
| Viability | • Ensure facilities can be **operational as early as possible** to create a front-runner position on the East Coast without compromising the viability of each facility |

With NYSERDA's priorities as our compass, we have developed a multi-faceted SCIP with renowned and primarily American companies to solidify New York as the supply chain hub on the East Coast. Our SCIP brings investments in nacelles, blades, ports, foundations, steel manufacturing and various sub-suppliers and thereby enabling New York to supply most of the content needed in offshore windfarms

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92 Economic benefits including jobs for construction and first five years of operations

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[redacted]

"We are enthusiastic about the emerging offshore wind industry and the potential benefits it can bring to the State of New York and, in particular, Staten Island. Investment from the offshore wind industry will bring well-paying jobs to our borough and provide opportunities for Staten Island businesses to become part of the offshore wind supply chain. Community Offshore Wind, along with others in the industry that we have been communicating with, come with a breadth of experience and expertise in New York, and we have confidence in their ability to deliver.

**Linda Baran Staten Island Chamber of Commerce**

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> "The Hudson Valley Economic Development Corporation is excited to help Community Offshore Wind bring a steel fabrication facility to Orange County. This project will afford the Hudson Valley an opportunity to lead in the new, green economy and I am excited to help make this project a reality."
>
> **Mike Oates, President of the Hudson Valley Economic Development Corporation**

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## 19.3. New York jobs and workforce plan

### NYSERDA solicitation requirements

Our New York jobs and workforce plan addresses each requirement laid out by NYSERDA in Appendix H. The table below identifies each solicitation requirement.

*Table 19-28 Solicitation requirements*

| Solicitation requirement | Section |
| --- | --- |
| Proposers are encouraged to source labor and build clear career pipelines for job growth in New York State, as well as identify partnerships with workforce partners such as labor unions and labor management joint training programs | 19.3.2<br>19.3.3<br>19.3.5 |
| Proposers should specifically describe commitments to existing workforce retraining, and engagement of New York's skilled labor force in accord with Appendix H | 19.3.5 |
| Proposers must include a detailed New York Jobs and Workforce Plan that describes the Project's impact and benefit to New York's offshore wind workforce with specific focus on recruiting and collaborating with skilled trades / labor unions, members of Disadvantaged Communities, MWBEs and SDVOBs | 19.3;<br>19.3.3<br>19.3.5 |
| A successful Jobs and Workforce Plan ensures opportunities for union labor, provides necessary skills training, sets high safety standards, reduces timeline risk, and promotes a more diverse workforce | 19.3.3<br>19.3.4 |
| The Plan should further describe the qualitative value of the actions the Proposer intends to take | 19.3.5 |
| The Plan should address health and safety training and commitment to incident reporting and loss prevention. The Plan should describe the actions the Proposer intends to take to further diversity, equity, and inclusion principles, including good faith efforts to contract with MWBEs and SDVOBs | 19.3.4 |
| The Plan should clearly indicate how the Proposer intends to incorporate labor requirements set forth in the RFP, such as payment of Prevailing Wages, negotiating a Project Labor Agreement (PLA), adhering to Labor Peace Agreement (LPA) requirements, and maximizing opportunities for members of Disadvantaged Communities, MWBEs and SDVOBs | 19.3.4 |
| Proposers should distinguish between job creation and job retention in existing manufacturing facilities. Jobs claims must include labor hours, locations, wages, benefits, and training investments. Jobs in Disadvantaged Communities, MWBEs and SDVOBs should be identified as well | 19.3.2 & NY Jobs and Workforce Attachment |

| | |
|---|---|
| Proposers must name a Labor Liaison in the Plan, who is instrumental in the Plan formation, and who will be engaged early in development to help identify and establish relationships with relevant Labor unions. A brief biography of the Labor Liaison should be provided to support an assessment of their subject matter expertise. | 19.3.3 & NY Jobs and Workforce Attachment |
| Plans should detail which labor unions have already been identified and if any partnerships exist presently or are planned. The Proposer must describe how, specifically, it will identify labor union stakeholders relevant to both the onshore and offshore development, construction, and operation of the Project | 19.3.3<br>19.3.4 |
| The Proposer must also describe how it will communicate and work with labor unions and workforce training suppliers throughout project development including appropriate project milestones for labor engagement | 19.3.3 |
| At a minimum, Proposers should detail a plan to engage and begin negotiating a PLA with the unions whose members perform work in transmission and distribution, power generation, as well as the construction, operation and maintenance of power plants and port or marine infrastructure. | 19.3.3<br>19.3.4 |
| Further, within the PLA, Proposers shall include detailed proposed funding or partnerships that will provide access to training, internships, and recruitment for members of Disadvantaged Communities, as well as MWBEs and SDVOBs | 19.3.5 |
| The Plan should articulate and quantify, to the extent possible, the potential cost savings that a PLA could offer to the Project. Detail how incorporating a PLA into the development, construction, and operation of the Project may offer project savings, schedule savings, shift expectations, labor harmony, training opportunities, and other benefits | 19.3.4 |
| Proposers shall identify opportunities for collaborating, developing, investing in, or establishing partnerships with the New York State offshore wind workforce training efforts currently underway or in the planning stages | 19.3.5 |
| The Plan must account for the need to coordinate with members of the Jobs and Supply Chain Technical Work Group (JSC-TWG) and a narrative depicting awareness of the current offshore wind workforce training ecosystem | 19.3.5 |
| Proposers must be aware and detail their plans to recruit and invest in existing workforce training within the state. Plans may include funding to establish a new training center or seek to utilize existing and geographically diverse training centers, schools, and apprenticeship programs | 19.3.5 |
| The Plan should describe how the Proposer is considering providing support for the transition of New York's communities, local unions, and workers impacted by reduced use of fossil fuel electricity generation or repurposing of fossil fuel infrastructure | 19.3.6 |

| | |
|---|---|
| Proposers are encouraged to explore ways of providing new private investments to foster job growth in areas impacted by the closure of fossil fuel, coal energy plants, and nuclear energy plants | 19.3.6 |
| Proposers are encouraged to explore creating advisory boards comprised of community members, workers, and unions representing those workers, to evaluate any transition programs proposed which will help ensure a just transition | 19.3.6 |

### 19.3.1. Summary

At Community Offshore Wind, we are committed to leading this once-in-a-generation opportunity to create an equitable, diverse, and highly skilled clean energy workforce in New York. According to the National Renewable Energy Laboratory (NREL), to meet the nation's goal of 30 GW of offshore wind energy by 2030, the average number of FTE positions needed for a 100% domestic content scenario is 58,000[96]. In order to meet this demand, industry, organized labor, academia, and other workforce entities need to be in lockstep with one another. In our New York Jobs and Workforce Plan (as illustrated in Figure 19-3), [redacted]

[redacted] At Community Offshore Wind, we believe it is central that offshore wind and clean energy jobs are accompanied by strong labor standards across all phases of development to ensure successful implementation of the Climate Leadership and Community Protection Act (The Climate Act). We aim to lead by example on 'Just Transition' principles by securing high-road labor agreements in Project Labor Agreements (PLAs), Labor Peace Agreements (LPAs), Buy- American, and workforce development plans while addressing the intersecting crises of climate change and racial and socioeconomic inequities. [redacted] Moreover, the LPA is not limited to operations and maintenance personnel, which is the only requirement of the RFP, but will also include both supply chain and maritime employees.

[redacted] As identified by NREL[91], "supplying the magnitude of skilled trade workers needed is a critical gap for manufacturing and supply chain factories, ports and staging terminals, and vessel maritime construction crews." In addition, the offshore wind industry must develop uniform training and safety standards along with addressing the safety and manufacturing certification requirements training providers must secure. For this purpose, we will collaborate with existing union training programs, post-secondary education providers, and workforce development programs to fund programs that address critical gaps while also delivering on our priority principles of creating equity-driven opportunities. [redacted]

[redacted]

96 NREL (2022). U.S. Offshore Wind Workforce Assessment.

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[redacted]

### 19.3.2. Jobs commitment

We are a community-focused company, and we **are proud to present our New York Jobs and Workforce Plan that prioritizes hiring from local communities to deliver a triple positive impact from our project activities while also delivering equitable opportunities to all individuals**. The windfarm and SCIP facilities will create a range of manufacturing and construction jobs with skills that can be leveraged from comparable advanced manufacturing and heavy industry jobs, as well as more highly skilled and technical jobs that are more specific to Offshore Wind, e.g., wind turbine service technicians. **See overview on number of jobs in Figure 19-17 in previous page, with a detailed list of job types and role descriptions in the attached New York Jobs and Workforce Plan as well as Order Data Form/SCIP Data Form**.

We will collaborate closely with all relevant stakeholders to deliver on our New York Jobs and Workforce Plan, including organized labor, NYSERDA, community organizations, and workforce training institutes to ensure creation of safe and family-sustaining jobs as well as an enabled workforce that is prepared to deliver on our ambitious target.

### 19.3.3. Labor engagement

**At Community Offshore Wind, we view organized labor as a crucial partner in scaling up New York's workforce to meet offshore wind industry's demand**. By utilizing union labor and investing in, and collaborating, with pre-apprenticeship, apprenticeship, and labor management training programs, we can meet the industry's workforce needs and facilitate the build-out and operations of offshore wind projects promptly and safely through the use of trained and experienced workers. All the while, we can prioritize labor neutrality and the Buy American provisions of public service law signed in 2021 in our SCIP.

It is worthwhile to acknowledge that union training programs are not only a tool to scale up our local workforce to meet offshore wind demand, but also a means for creating equitable career pathways for New Yorkers that lead to jobs that provide family-sustaining wages, fringe benefits, and financial security for our communities. For example, New York City's Building and Construction Trades Apprenticeship Readiness Collective (ARC) has a laser focus on addressing racial, social, and economic representation in the labor movement and continues to realize concrete results. ARC encompasses the following pre-apprenticeship programs that recruit from specific underserved or marginalized populations and provide direct entry into a Building Trades apprenticeship program: NY Helmets to Hardhats; Nontraditional Employment for Women (NEW); Pathways to Apprenticeship (P2P); and Construction Skills (CSKILLS). From 2016 to 2021, the ARC placed almost 2,000 individuals in unionized apprenticeship programs and has a retention rate of 78%.

[redacted] We will continue to utilize our labor liaison's experience in organized labor to build trust and provide certainty that strong labor standards and practices will be utilized throughout the project's life cycle, along with any related SCIP or supply chain investments.

[redacted] These include, but are not limited to:

- **Regional federations and labor coalitions:** New York City Central Labor Council; New York City Building and Construction Trades Council, Long Island Federation of Labor; The Building and Construction Trades Council of Nassau and Suffolk Counties; Hudson Valley Building and Construction Trades Council; Western NY Area Labor Federation; Greater Capital Region Building and Construction Trades Council; North America's Building Trades Union (NABTU); and the Coalition of Black Trade Unionists.
- **Building and construction trades:** Utility Workers Union of America; International Brotherhood of Electrical Workers (IBEW); United Association of Plumbers, Fitters, Welders, and Service Technicians (UA); Laborers International Union of North America (LIUNA); United Steelworkers of America; International Union of Operating Engineers (IUOE); International Association of Bridge, Structural, Ornamental and Reinforcing Ironworkers; International Union of Elevator Constructors; United Brotherhood of Carpenters and Joiners of America; Operative Plasterers' and Cement Masons' International Association; International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers; Sheetmetal Workers International Association; International Brotherhood of Teamsters; and the International Union of Painters and Allied Trades.
- **Non-building and construction trades:** Seafarers International Union; International Longshoremen's Union; Service Employees International Union; United Automobile, Aerospace and Agricultural Workers of America; Communication Workers of America (CWA); Industrial Division of CWA, IUE-CWA; and the International Association of Machinists and Aerospace Workers.

The labor liaison will continue to meet, educate, and consult labor unions, regional federations, and trade councils to identify the skillsets and the local affiliates that fit the needs for the project's onshore and offshore activities. [redacted]

[redacted] While the labor liaison is acutely aware of the labor movement's need to settle most of these jurisdictional matters by itself, her role will be to regularly communicate project-specific updates and provide transparency on the skills; job titles; descriptions, and estimated job figures to arm labor unions with the information they need to determine jurisdiction of work and to create robust offshore wind training programs through their respective apprenticeship programs.

> "The Hudson Valley Building Trades believes Community Offshore Wind's commitments for the Newburgh and New Windsor areas will bring high-road, union jobs to our community. This is a generational opportunity for organized labor to be a key player in ensuring the clean energy industry leads to family-sustaining jobs."
>
> **Todd Diorio, President of the Hudson Valley Building and Construction Trades Council**

[redacted]

We will communicate transparently with labor unions and coalitions, like CJNY and Jobs to Move America, to identify the project's job titles, descriptions and numbers throughout each phase of development while identifying skills gaps, necessary offshore wind specific certifications, and addressing the just transition of displaced and underemployed workers. We have developed a framework of workforce training programs (detailed in next section) and will work with organized labor to scale up pre-apprenticeship, apprenticeship, and other labor-management training programs (see next section).

### 19.3.4. Project labor agreements

Since the 1930s, Project Labor Agreements have promoted productivity, stability, and consistency on construction projects in the United States. This is a tool that has demonstrated success in planning projects, ensuring uniform safety standards and wages, and eliminating strikes or lockouts on a project, and thereby generally promoting efficiency in accomplishing established objectives. As the offshore wind industry matures, PLAs can help reduce risk and provide certainty in project development, especially given the current lengthy permitting milestones and regulations on federal, state, and local levels. In a Hill International cost-effectiveness study, a NYC School Construction Authority PLA from 2005-2009 was scrutinized. The report concluded that over five years, "total of major quantifiable cost savings resulting from utilization of a PLA in construction amount(ed) to $221M[97]." In fact, most of the savings were from uniformity in shifts, and the collective bargaining agreements (CBAs) as construction continued without interruption, despite two unions being on strike. [redacted]

[redacted]

[redacted] Inherent in our PLA, LPAs, and future Collective Bargaining and Community Benefit Agreements (CBAs) is an intentional focus on providing equitable opportunities and reducing barriers for disadvantaged and underserved communities. We will negotiate provisions in these agreements that specifically address Diversity, Equity, Inclusion, and

97 United States Department of Labor (USDOL). (2011). Implementation of Project Labor Agreements in Federal Construction Projects: An Evaluation. U.S. Department of Labor; Hill International.

Justice (DEIJ) goals and help open the conversation to addressing barriers to entry like license and legal conviction history requirements for training programs.

### 19.3.5. Community Offshore Wind training and development programs

Offshore Wind presents a generational opportunity to create a new industry from the ground up to support the clean energy transition. With NY realizing a 4.7 percent increase in clean energy jobs in 2021 over 2020[98] and a projected requirement of up to 58,000 jobs in Offshore Wind towards 2030 to meet 100% domestic content[99], **Community Offshore Wind has created a framework of programs to enable and empower New York's communities to deliver on this immense opportunity.** We have developed these programs based on conversations and feedback from stakeholders in academia, labor, community organizations, workforce development programs, government, and industry. The programs will allow us to partner with local stakeholders not only to support the development, construction and the operations and maintenance activities at the wind farm but also enable manufacturing activities at SCIP facilities and the broader Offshore Wind Supply Chain in New York.

[redacted]

[redacted]

[redacted] At Community offshore wind, we have conducted a diligent process of identifying and soliciting proposals from partners that are most aligned with our philosophy and fulfill the following requirements:

- Creation of skills and/or opportunities that fulfill current critical gaps in the Offshore Wind supply chain
- Ability to provide equitable opportunities, measured by number of individuals historically enrolled from prioritized communities (i.e., disadvantaged and MWBE/SDVOB)
- Leveraging existing workforce development funding streams i.e., Workforce Investment Boards, NYS Empire State Development and NYSERDA
- Engagement with organized labor on facilitating unionized career pathways
- Organizational capacity and market reputation to successfully deliver outcomes
- Agreement to conduct bi-annual reporting based on agreed KPIs for Community Offshore wind to track impact on an ongoing basis
- Located in disadvantaged communities and/or Community Offshore Wind host community (to the extent possible)

[redacted]

[redacted]

98 NYSERDA (2022). Governor Hochul Announces Record Level of Clean Energy Jobs Reached in New York State.
99 NREL (2022). U.S.. Offshore Wind Workforce Assessment.

[redacted]

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

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

There are critical skills gaps within the relatively nascent, yet rapidly accelerating, Offshore Wind industry in New York and we, at Community Offshore Wind, recognize our role as a responsible developer to equip our communities with the required capabilities to succeed in this clean energy transition, in coordination with the organized labor. As reported by NY Workforce Gap Analysis report[100], there are several occupations within Offshore Wind with 'severe' labor shortages: Plant and System Operators, Hoist and Winch Operators, Wind Turbine Service Technicians, and Continuous Mining Machine Operators. In addition, the report asserts that skills related to manufacturing and construction of Offshore Wind projects will account for 56.5% of jobs by 2040 (equating to almost 12,800 jobs in New York). We have prioritized addressing these skills gaps and support the needs of our wind farm across development, construction and O&M phases as well as the SCIP facilities and the broader New York offshore wind supply chain.

[redacted]

100 NREL (2022). U.S.. Offshore Wind Workforce Assessment.

[redacted]

[redacted]

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

[redacted]

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

101 NREL (2022). U.S.. Offshore Wind Workforce Assessment.

102 Based on NAICS 3-digit classification categories: https://www.census.gov/naics/.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

The New York State Department of Labor (NYS DOL) has identified the construction and skilled trades as a high-demand industry. However, due to half of trades workers approaching retirement age during the next decade, there must be an expansion of recruitment and retention to the organized trades. This demand will be compounded by the rapid build-out and deployment of offshore wind and clean energy projects in the coming years. To meet this growing demand, labor union training programs are uniquely qualified to scale up and provide an “earn while you learn” model of on-the-job training, classroom instruction, and safety training to create the pathways to grow from an apprentice to a skilled tradesperson. We believe it is imperative to support the success of the union apprenticeship and pre-apprenticeship models across the State to become a trusted partner in expanding pathways to the labor movement.

[redacted]

[redacted]

[redacted]

[redacted]

103 See the New York Jobs and Workforce Plan attachment

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

### 19.3.6. Just transition

The key to unlocking the promise of an equitable offshore wind industry and green energy economy is ensuring a just transition for workers and communities. According to The Climate Act, "shaping the ongoing transition in our energy sector to ensure that it creates good jobs and protects workers and communities that may lose employment in the current transition must be key concerns of our climate policy."[104] Additionally, the CLCPA recognizes that "setting clear standards for job quality and training standards encourages not only high-quality work but positive economic impacts"[101].

[redacted] This will result in significant impacts on workers and local communities, including members of our coalition. We will prioritize these community groups in targeted training and development opportunities to equip them with necessary skills and knowledge to succeed during this transition phas [redacted]

A holistic sense of a just transition is not only about addressing fossil fuel and displaced workers but reimagining the communities that have hosted this generation for decades and have reaped the consequences. [redacted]

[redacted]

[redacted]

[redacted]

In addition, we will leverage the experience of one of our parent company, National Grid, who has a long history of training and upskilling their workforce for the next generation of energy solutions. Although at this time, this project would not result in the closure of any National Grid energy generating [redacted] National Grid is committed to ensuring those workers will be provided with the necessary training and skills required if they would like to support the Community Offshore Wind project. The adaptability and resolve of the National Grid workforce can be found at their respective power generating facilities, for instance the workforce at these locations had to be retrained as energy generation sources switched away from coal to oil, then later from oil to natural gas. National Grid is committed to using the training programs that will be created using funding from Community Offshore Wind, when and where appropriate, and expects to pay non-discounted rates for the programs to ensure non-discriminatory utilization of funding and impact.

[redacted]

[redacted]

[redacted]

[redacted]

## 19.4. MWBE and SDVOB economic benefits

### 19.4.1. Summary

New York State's leadership to promote diversity is a fundamental pillar to business success and has led to the successful creation of statewide programs that certify and support minority- and women-owned business enterprises (MWBE) and service-disabled veteran-owned businesses (SDVOB). In line with these ambitions, **NYSERDA is committed to fostering the economic development of New York's MWBE and SDVOB suppliers and services in the offshore wind industry and clean energy economy**. Specifically, we understand NYSERDA is looking to promote equity of economic opportunities for MWBE and SDVOBs and to eliminate barriers to participating in state contracting through this offshore wind RFP.

New York has the nation's leading MWBE utilization targets (30%) and exceeded these targets in 2021.[106] Nevertheless, the MWBE and SDVOB utilization in the burgeoning offshore wind industry is still limited. As of November 2022, only 118 NYS MWBE Certified Firms were registered in the NYSERDA Offshore Wind Supply Chain Database across consulting services, offshore construction services, manufactured products, offshore construction and operations, and other categories.[107]

We are dedicated to increasing the capacity of New York's MWBE and SDVOB businesses to ensure their equal participation in the growing offshore wind industry. We commit ensuring 3% of our category 1 economic benefits go to MWBE and SDVOB businesses, [redacted]

[redacted]

Beyond this, we aspire to exceed NYSERDA's requirements to share contracting opportunities to these firms so that 10% or more of the category 1 economic benefits go to MWBE and SDVOB businesses. [redacted]:

- [redacted]

106 https://www.governor.ny.gov/sites/default/files/2022-10/Division_of_Minority_and_Women%27s_Business_Development_FY2021-22.pdf
107 Supply Chain Database - NYSERDA

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

*Figure 19-21 Community Offshore Wind framework for MWBE and SDVOB benefit realization*

[redacted]

Each of these elements of our MWBE and SDVOB Economic Benefit Plan is further described and substantiated in the below sections.

### 19.4.2. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

*Figure 19-24 Community Offshore Wind-sponsored foundation 2 blade training, November 2022*


### 19.4.5. We run a procurement process that favors local MWBE and SDVOB suppliers

In addition to the dedicated initiatives mentioned above, we also ensure that our procurement processes actively prioritize diverse suppliers, including MWBE and SDVOBs.

[redacted]

110 Community Offshore Wind Funding First-Ever Foundation 2 Blade Training at Farmingdale State College for Minority and Women-Owned Businesses

[redacted]

[redacted]

[redacted]

*Figure 19-25 Community Offshore Wind PPE supplied by JetEX*


[redacted]

# 20. Energy storage reducing carbon emissions and embodied carbon

## 1 List of contents



## 2 List of tables



## 3 List of figures

## 4 List of appendices

## NYSERDA solicitation requirements

Our solution for energy storage addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP), while also showcasing possibilities for further green initiatives within our project. The table below identifies each solicitation requirement.

*Table 20-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| Provide a map indicating the proposed location of the Energy Storage. | 20.2.1 |
| Describe prior experience with Energy Storage development | 20.4.1 |
| Describe any community engagement that the Proposer has undertaken related to the Energy Storage. | 20.2.4 |
| The Proposer must provide a complete description of the benefits and burdens associated with the development of the Energy Storage on any host communities or proximate communities designated as Disadvantaged Communities | 20.2.5, 20.5.1 |
| Include and describe the status and development stage of Energy Storage (development, construction, or operation). | 20.2.3 |
| Describe the financing plan for the Energy Storage. | 20.2.4 |
| Identify the required permits and plan to acquire them and provide a development schedule. | 20.2.4 |
| Include information about the specific technology or equipment considered or selected, major equipment to be used, manufacturer or vendors considered or selected, equipment acquisition status, and equipment contract/agreement status | 20.2.1, 20.2.4 |
| The Proposer must provide a complete description and overview of the planned interconnection of the Energy Storage | 20.2.3 |
| Provide all assumptions used in preparing the energy profile provided in Part III of the Offer Data Form, and explain how the energy profile relates to the intended deployment strategy | 20.2.1 |
| Proposer must fully describe the intended deployment and dispatch of the storage system over the contract term, and how the deployment will provide benefits to the downstate electric grid, including advancement of New York State's decarbonization goals | 20.2.1 |

| | |
|---|---|
| Proposers are strongly encouraged to provide an assessment of the Energy Storage's impact on regional transmission constraints and any benefits to local congestion and/or curtailment | 20.2.1 |
| Confirmation of agreeing to participate in Energy Storage Technical Working Group (ES TWG) and its associated activities | 20.2.1 |

## 20.1. Summary

Building energy storage is crucial for New York State to make renewable energy generation viable. This priority underlined by the state's 6 GW energy storage target by 2030 and reiterated in the proposed energy storage roadmap by Governor Kathy Hochul. By charging when renewables generate energy and discharging when they are not, energy storage can play a critical part in supporting the grid by integrating an increasing share of intermittent renewable power resources. Energy storage will also play an important role in allowing portions of the state's aging fossil-fired peaking units to retire as the state's clean energy portfolio continues to grow.

We will support the state's energy storage goals and facilitate a just energy transition by deploying a Battery Energy Storage System (BESS) and exploring the possibility of a hydrogen electrolyzer [redacted] **Together, we believe these initiatives mark the beginnings of a broader energy transition on Long Island by building local expertise and experience within renewable power generating assets.**

We will build a [redacted] energy storage system, which by current standards would be one of the largest storage projects statewide [redacted] by absorbing offshore wind energy that otherwise would have been lost [redacted]. By better utilizing the offshore wind facility's potential energy and by shifting the delivery of clean energy to hours when it better serves load and the grid, the BESS is expected to further reduce on-peak energy market prices (LMPs) locally at the POI in the summer by up to 3.0% and in the winter by up to 0.6%, delivering an additional savings to customers of up to $15M annually. [redacted] facility shifts the delivery of clean energy to hours when it better serves load and the grid, smoothing the intermittency of the wind resource.

[redacted]

Both RWE and National Grid have adopted energy storage as core components of their respective long-term clean energy strategies and have successfully developed energy storage projects. **We will leverage this expertise and experience in designing, procuring, developing, constructing, and operating battery energy storage projects.** National Grid developed, constructed, and is currently operating over eight battery projects across the United States, including East Hampton and Montauk energy storage on Long Island. RWE has done the same for sixteen battery projects globally with an additional six under construction, including a project in upstate New York. Drawing on these considerations, we are acutely aware of the local considerations required to bring the project on-line.

Our proposed investments at [redacted] significantly supports the local economy. The energy storage project represents potential investments [redacted] which will materially support the local tax base. [redacted] In doing so, we will indirectly support nearby Disadvantaged Communities [redacted] At the same time, the level of imposed incremental burdens on the host community will be kept to a minimum.

Our battery storage facility represents the beginnings of a clean energy center [redacted] The BESS will expand OREC deliveries from our project and will be expandable as other areas of the [redacted] site become available through future fossil generation retirement. In doing so, the Community Offshore Wind BESS [redacted] will serve as a model for the industry on how clean energy facilities can be used to improve the efficiency of offshore wind deliveries while stabilizing the grid, reducing greenhouse gas emissions, and giving back to local communities.

This chapter exclusively applies to proposals which include a battery energy storage system solution.

## 20.2. BESS project plan

The following provides a project description for the Community Offshore Wind BESS; details for the site and interconnection; a development plan; and finally, a section on development, construction, and operating risks and how these risks will be mitigated.

### 20.2.1. Project description

[redacted]

[redacted]

[redacted]

[redacted]

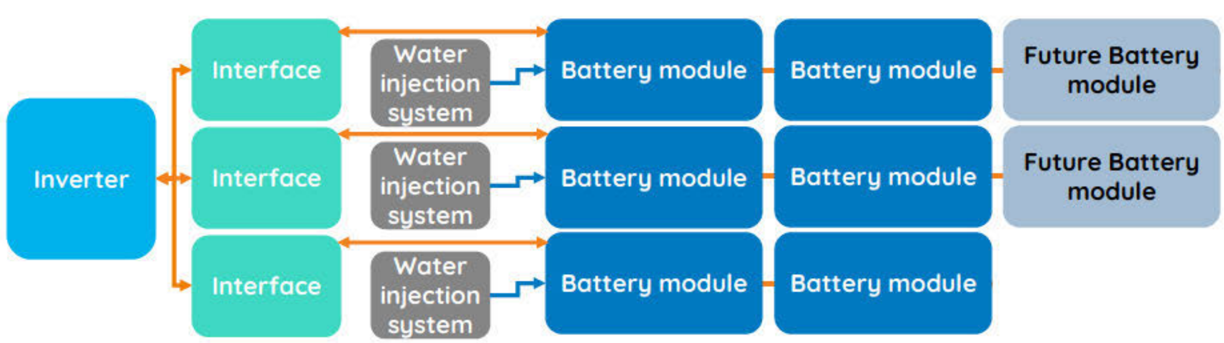
We have selected [redacted] duration because it provides the best balance between low cost and high utilization through daily cycling, which will alleviate curtailment and dispatch energy in key hours. The design basis assumes <365 cycles per year with modest improvements in energy density, to the extent the product will technologically develop prior to the expected commercial operation date (COD).

## We will augment the BESS to uphold the design capacity and facilitate future expansion

As there will be both system degradation and rapid technological developments during the project's life, we will both regularly augment the BESS and incorporate newer and space-saving battery technologies to the extent possible when they arrive to maintain the design capacity of the BESS. The [redacted] **augmentation schedule** [redacted] **is optimized to fit within the project footprint without overbuilding the initial civil structure.** In line with system degradation curves provided by manufacturers, [redacted]. The optimized augmentation schedule will allow the project to minimize upfront civil design costs while maintaining flexibility for currently unknown technological improvements.

Our [redacted] battery energy storage system is composed of three primary components: the modules, an interface cabinet (including the battery management system and communication interface), and an inverter, as shown in Figure 20-1. The interface cabinets are on the left, a water injection system in the middle, and two battery modules to the right. Space is also allocated for future battery modules during the scheduled augmentations. The interface cabinets act as the brain of the system, controlling and safely operating the batteries. The water injection system is in place to extinguish any potential fires and minimize the chance of thermal runaway propagating throughout the modules. The battery modules hold the racks of battery cells, which are the primary components involved in electrochemically storing the energy. A series of these systems is then connected to a common inverter as depicted on the far left. The number of systems that can be connected to a single inverter is dependent on the final selection of both the manufacturer and module and inverter models. The main purpose of the inverter is to convert the DC input from the batteries and output AC to the substation.

*Figure 20-1 Energy storage system technology and design configuration*



This entire energy storage system depicted is then copied to create the desired energy capacity for the project, keeping in mind the need for future module augmentations to maintain the designed capacity as the cells degrade. The output from all inverters will then be collected in the BESS substation before connecting to the overall project [redacted]

[redacted]

[redacted]

The BESS facility will be monitored 24/7 from a remote-control center. The site technical team will undertake routine maintenance work and planned maintenance to support safe and reliable operation of the facility.

### The battery energy storage system will provide significant benefits to the grid

[redacted] There are two situations in which the Community Offshore Wind farm may be curtailed from delivering energy and associated ORECs:

1. **Local transmission congestion**: There will be certain hours when Community Offshore Wind will produce more energy than the local transmission system can accommodate at the point of interconnection, even when there is ample system load.
2. **Supply exceeds demand**: There will be certain hours when Community Offshore Wind will produce more energy than can be accepted due to low system load (curtailment).

During these periods of transmission congestion or low system load, the Community Offshore Wind BESS will store energy until the battery is fully charged. We will then deliver energy when market conditions are appropriate. [redacted]

[redacted] Here, it will deliver energy and associated ORECs, which would not have been delivered to NYSERDA were it not for the Community Offshore Wind BESS.**

The operational plan for the BESS will firm up the offshore wind electricity generation, ensuring more effective utilization of generation capacity to meet demand. The BESS would typically charge in off-peak hours and discharge in on-peak hours, delivering energy when demand is high. [redacted]

We will continue to further refine the operational plan and design considerations ahead of construction start if new technology becomes available, to always ensure maximized energy delivery and system benefits.

[redacted]

[redacted] the battery can relieve congestion on a sample day. This sample day shows strong congestion relief when discharging in the afternoon, coinciding with on-peak hours.

[redacted]

We will also reduce the amount of carbon dioxide emissions since dispatch of the BESS replaces delivered energy that would likely have been generated by gas-fired peaking capacity sources. By displacing fossil-fueled peaking capacity, we estimate that the BESS will reduce carbon dioxide emissions by [redacted] tons per year. This has been accounted for in the methodology to quantify embodied carbon in the overall Community Offshore Wind portfolio. See Chapter 21 for details on this subject.

### We will participate in an Energy Storage Technical Working Group

If an award to Community Offshore Wind includes energy storage, Community Offshore Wind agrees to reasonably participate in an Energy Storage Technical Working Group (ES TWG) and its associated activities.

### 20.2.2. Site plan

### The site design is optimized for the benefit of local communities

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

### Advanced site discussions for site control

[redacted]

### 20.2.3. Interconnection plan

[redacted] Therefore, if selected by NYSERDA, the BESS will have the same interconnection as Community Offshore Wind. [redacted]

[redacted]

[redacted]

[redacted]

As mentioned above, we will leverage the use of the existing infrastructure [redacted] to the greatest extent possible, possibly including:

- Land previously used [redacted]
- Electrical transmission and/or distribution supplies from the existing LIPA substation on-site
- Other possible facilities associated with water/fire main supply, stormwater, roadways, fencing and security

### 20.2.4. Development plan

We will develop the battery according to the schedule depicted in Figure 20-7 below.

[redacted]

#### We have studied the site in depth

We have worked closely with both internal and external resources to develop a preliminary site layout based on current spacing requirements, site-specific design constraints, and expected technology efficiencies. The initial civil design was developed with an external engineering partner, utilizing reports provided by National Grid from recent on-site projects, including wetland delineation, geotechnical studies, and flood hazard reports. The design will continue to be refined as both the technology and civil requirements of the site evolve.

#### Our understanding of permitting and regulatory processes is unparalleled

National Grid is the owner [redacted] and, through National Grid Ventures, is a developer and owner of the East Hampton and Montauk energy storage facilities on Long Island. We, therefore, have unparalleled understanding of the permitting requirements for developing an energy storage facility [redacted] Table 20-3 below provides a high-level sample of identified required permits and steps required to obtain them. [redacted]

[redacted]

### We have a robust engineering, design and construction plan

We have a robust understanding of the engineering, construction, and installation schedule informed by similar battery projects in New York and throughout the country. National Grid's experience with developing and constructing other projects [redacted] will also be vital in successfully completing the storage project at the location within the local community. RWE is also staffed with various subject matter experts in areas such as environmental, permitting, battery engineering, battery procurement, and construction that will support timely and successful project execution. Upon bid award, we will complete updated geotechnical studies and engineering design work to aid in permitting discussions and other development efforts. It is likely the preliminary engineering design would need to be refined prior to the engineering, procurement, and construction (EPC) selection process. The detailed construction schedule will be prepared once the EPC selection is complete [redacted]

[redacted] With [redacted] Given the long development period prior to the commercial operation date, we are confident in meeting the schedule based on the deep understanding of site requirements, the experience of developing and constructing storage projects, and knowledge of procurement timelines.

The battery will be constructed in a manner that is reasonably consistent with NYSERDA's Bulk Storage Incentive Program Manual as specified in section VI, VII and IX.

### We will utilize our existing supplier relationships to optimize the procurement

Both National Grid and RWE have robust pipelines of battery storage projects throughout the United States with expected commercial operation dates from 2022-2030 (see Section 20.4). This will allow us to nurture relationships with key, top tier suppliers throughout the development of this project, while keeping a close eye on macro factors driving the market. This will ease the procurement process, particularly on costs and delivery. RWE and National Grid Ventures have used many top-tier energy storage equipment vendors in past projects. All these suppliers have numerous deployments of their products in both stationary and mobile applications with a strong track record of safely deploying their technologies. All equipment that we select will comply with UL safety test requirements. See Table 20-7 in Section 20.4 for the full list of RWE and National Grid projects. Our close contact with suppliers allows us to have deep insight into technology trends.

Due to the rapid evolution of stationary and mobile battery technology, we will rely on both our current knowledge of market developments and the relationships with top tier-suppliers to run a competitive request for proposal well ahead of the tentative start [redacted] Through our relationships and market position, we will have access to all necessary equipment and components for the construction and operation of the project. Moreover, we will finalize the system design and equipment selection later in the project development to ensure an optimal design that complies with or exceeds the most up-to-date safety standards.

[redacted] Furthermore, due to our position in the market, we are able to monitor global battery manufacturing trends closely and can procure batteries manufactured in a variety of countries, including the United States, Europe, China, South Korea, and Japan. We will select the optimal sub-chemistry, manufacturing location, and supply partner closer to the delivery date. Based on our experience, we estimate that from the start of procurement through to the completion of construction of the Community Offshore Wind BESS [redacted]

Through National Grid's and RWE's recent experience with procuring and commissioning battery storage facilities during the COVID-19 pandemic, we have a solid understanding of the long-lead-time items and their current lead times. On projects currently in development, [redacted] It is also important to note the robust pipelines of storage projects from both RWE and National Grid that will provide us with the most updated information on lead times, as these development projects are commercialized prior to the proposed project.

[redacted]

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

[redacted]

[redacted]

- [redacted]

[redacted]

### Our financing plan is in place and effectively de-risked

[redacted]

### 20.2.5. Risk and mitigation plan

We have clear-cut plans on how to mitigate risks related to the battery and electrolyzer to ensure safe and reliable construction and operations. Firstly, there is a risk that resolving concerns expressed by the local community might delay the development, as they may involve using more time and resources than expected. Such concerns can be related to viewshed alterations, noise levels, and local emissions. Moreover, any new construction is exposed to risk related to potential effects on the environment, which must be taken into consideration. [redacted]

[redacted]

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

An important criterion in site selection and design will also be our ability to minimize the impact of the Community Offshore Wind BESS on the local communities. During construction, the impact on viewshed will be low, while noise levels will be regulated in accordance with [redacted] local noise ordinance, and construction is not expected to have a significant effect on local emissions. After construction, the Community Offshore Wind BESS will have a total height of no more than 20 feet above the existing grade, including the elevated grade and the BESS equipment, approximately the same as a two-story building, keeping viewshed impacts to a minimum. [redacted] Noise impacts on the surrounding community will be minimized through a combination of the selection of a site already in industrial use and conducting noise studies before commercialization of the batteries and after to ensure compliance with local noise ordinances. Sound barriers would be a possible solution to consider, if needed to comply with local ordinances.

As discussed in the Section 20.2.2, the BESS project will be [redacted] Being close to the coast, it is also important to design the project to withstand the appropriate storm surge category. As a critical infrastructure project, the environmental risks must be appropriately addressed to ensure reliable system operation for New York and the surrounding communities.

[redacted] RWE is also actively learning and implementing industry leading safety features into their projects' design. For storage project, RWE is actively engaging the fire department early in the development cycle to meet some of the most progressive local fire codes specific to battery facilities in the state. Accordingly, we will seek to engage with the Long Island fire department to reach the same level of safety.

National Grid has also been actively engaged in optimizing its fire detection and suppression capabilities for its East Hampton and Montauk storage facilities. National Grid and its partners worked closely with DNV-GL and American Fire Technologies on the initial project designs, and more recently worked with Fire & Risk Alliance to conduct a hazard mitigation analysis in accordance with NFPA 855. This analysis was performed on a voluntary basis as the facilities pre-date and are therefore exempt from those standards. National Grid and our partners at the project have had multiple meetings with the East Hampton and Montauk fire departments to ensure that communications and safety protocols are followed. National Grid has also recently implemented signage and exterior controls to facilitate a fire response. Community Offshore Wind would look to apply these best practices as the New York State and Local Fire Codes continue to develop prior to commercial operation.

[redacted]

[redacted]

[redacted]

[redacted]

## 20.3.4. Development plan

[redacted]

[redacted]

Table 20-6 below provides a high-level sample of identified required permits and steps required to obtain them. See Appendix 20-3 for more details.

[redacted]

| Permit | Description | Acquisition plan |
|---|---|---|
| Federal agencies | The U.S. Department of Energy (DOE); the Federal Energy Regulatory Commission (FERC), the Pipeline and Hazardous Materials Safety Administration (PHMSA), and the Environmental Protection Agency (EPA) may have influence over development.<br><br>We will perform a wetland delineation to assess USACE jurisdiction and determine need for EIS, together with HVDC converter station and the Community Offshore Wind BESS facilities. | After selection, we will perform wetlands delineation and will approach USACE with results. |
| New York State permits and approvals | Consultation with NYSDEC to confirm industrial use and review under SEQRA. OPRHP and NYSDOS review would be required, as with the Community Offshore Wind BESS. Compliance with PHMSA regulations, including operator requirements, as administered by NYSDPS. | After selection, we will initiate a meeting with NYSDEC to confirm the appropriate permitting regime. |
| [redacted] | [redacted] | [redacted] |

## We are strongly committed to engaging the local communities

[redacted] can contribute to supporting the local economy [redacted] while imposing minimal incremental burdens on the host community. See Section 20.5 for more details.

COMMUNITY offshore wind

## 20.4. Experience

Building a battery storage facility [redacted] in connection with an offshore wind farm is unique. Prior experience from planning, constructing, and operating similar facilities will be pivotal to ensuring the highest possible degree of project viability and reliability.

Through RWE and National Grid, we have considerable experience with industry-leading projects within hydrogen and **energy storage, where the latter is a key component in the long-term clean energy strategies of both companies.** With several projects on Long Island and in New York State, we are acutely aware of local considerations needed for successful execution. **As National Grid is one of the largest natural gas distributors in the Northeast US,** [redacted]

### 20.4.1. Battery storage

Our BESS project draws on the extensive experience of National Grid and RWE in designing, developing, constructing, and operating battery storage systems. Together, National Grid and RWE own and operate 22 battery energy storage facilities worldwide, including 15 in the United States and four in New York State.

National Grid views energy storage as a critical part of its clean energy strategy, given that storage's rapid response and ramping capabilities are effective for balancing supply and demand, particularly when paired with renewable energy generators. National Grid began developing battery energy storage projects in 2013 and has delivered over 240 MW of operating storage facilities with more than 600 MW of BESS projects in development.

What is more, National Grid's extensive energy storage experience in New York State, and specifically on Long Island, will help reduce development, construction, and operating risk for the Community Offshore Wind BESS. In New York State, National Grid developed, constructed, owns and operates the East Hampton and Montauk energy storage projects though joint venture with NextEra Energy Resources. These two projects began operating under 20-year power purchase agreements (PPAs) with the Long Island Power Authority in August 2018 and February 2019, respectively, serving summer peak load on Long Island. NextEra and National Grid submitted the projects in response to the Long Island Power Authority's (LIPA's) 2015 RFP for South Fork Resources, and LIPA selected the 5 MW/40 MWh energy centers in 2016. National Grid also developed the Pulaski Energy Center in northern New York State to provide peak load reduction and avoid thermal overload on a nearby substation.

Outside of New York State, National Grid developed and operates two paired solar and BESS facilities in Texas that serve corporate buyers with renewable energy. Moreover, National Grid developed and operates the Nantucket battery energy storage system to support growing power deliveries to the island without having to install a third subsea cable. The Nantucket battery won Energy Storage North America's 2019 Innovation Award.

RWE recognized the potential of BESS at an early stage and has been active in system development for more than ten years. By 2030, they have a goal to develop and operate 3 GW of battery storage systems. RWE currently operates over 200 MW of energy storage with more than 350 MW in construction throughout the United States. Over the past six years in the US, RWE has successfully developed, financed, constructed, and now operates 16 energy storage projects to solve various industry related problems, including grid stability and reliability, transmission and distribution deferral, non-wires alternatives (NWA), peak load shifting, and microgrid and renewables integration in both front-of-the-meter (FTM) and behind-the-meter (BTM) applications. The RWE Energy Storage team brings together both the market, system, and technical expertise to deliver cutting-edge solutions. The team brings decades of experience and strong capabilities in areas such as battery chemistry, electrical engineering, application analytics, business development and market design – all backed by a strong, reliable, and forward-thinking organization.

[redacted]

112 50% ownership

[redacted]

[redacted]

## [redacted] Renewable energy hub [redacted]

[redacted]

# 21. Reducing carbon emissions and embodied carbon

## 1 Table of contents



## 2 List of tables



## 3 List of figures



## 4 List of appendices

There are no appendices for this chapter.

### NYSERDA solicitation requirements

Our plan for reducing carbon emissions and embodied carbon addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP). The table below identifies each solicitation requirement.

*Table 21-1 Solicitation requirements*

| Solicitation requirement | Section |
|---|---|
| Discuss how the Project will offset emissions in further contribution toward New York State's decarbonization goals. | 21.2 |
| Demonstrate a commitment to understanding the carbon footprint of the Project overall and a description of how the Project is actively seeking opportunities to reduce the amount of embodied carbon. | 21.3 |
| Describe the efforts undertaken by the Proposer, including any tools or methodologies used, to better understand and consider carbon intensity in design, sourcing and construction, and the steps that have been taken to minimize carbon emissions, including embodied carbon, from the proposed Project. | 21.3.1 |
| Include the proposed process by which the Proposer will validate a final accounting of the Project's embodied carbon, including any methodology and certifiable environmental product declarations, to promote disclosure of the Project's ultimate carbon footprint and the Project's energy and carbon payback periods. | 21.3.2 |
| Proposals must also describe the process and methodology by which the Proposer will account for embodied carbon on an ongoing basis as the Project evolves. | 21.3.2 |

## 21.1. Summary

New York State's groundbreaking Climate Leadership and Community Protection Act (CLCPA) sets ambitious targets to reduce total greenhouse gas emissions by 85% by 2050 and achieve zero-emission electricity by 2040.

**We are committed to supporting New York State in its efforts to decarbonize its economy.** In line with New York State's ambitions to be a national and global leader on climate, RWE and National Grid have bold ambitions to be industry leaders on climate action and reducing greenhouse gas emissions. At Community Offshore Wind, we build on the ambitions of our parent companies and will:

[redacted]

2. Minimize embodied carbon through design, sourcing, and construction
3. Track, verify, and report on the full lifecycle emissions of our project

[redacted] Emissions reductions are primarily driven by replacing fossil-fueled energy production with offshore wind electricity generation and storage, greatly reducing carbon emissions (Figure 21-3). While not accounted for in this section, we would expect additional carbon reduction benefits from any hydrogen production associated with our project. [redacted]

Roughly 83% of embodied carbon in an offshore wind farm derives from greenhouse gas emissions related to the production of steel as well as fuel used by vessels during installation and construction. The majority of remaining emissions come from fuel used in construction, operations, and maintenance vessels. Throughout our development, construction, and operations, we will seek out **the most efficient methods to minimize embodied carbon in our delivered electricity.** Through design, sourcing, construction, and operations, we will employ a series of initiatives that will chart a repeatable playbook for future offshore wind projects. We will strive to deliver best-in-class carbon intensity below today's observed average of 7-11 $tCO_2$/MWh from offshore wind farms.

- We will increase the amount of green electricity in the grid by displacing fossil fuel generation, thereby lowering system emissions that would otherwise be emitted from burning fossil fuels.
- In our own operations, we commit to using only low-emission vehicles and pursuing all commercially reasonable efforts to use low-carbon fuel options for vessels used in installation, operations, and upstream transportation activities.
- We limit emissions from transportation of our key components by sourcing 58% of our project from within New York State. Where New York State sourcing is not feasible, such as for our foundations, we prioritize United States based sourcing to limit emissions from transoceanic transport.
- To help alleviate emissions in the supply chain, we will use all commercially reasonable efforts to source low-carbon steel while setting ambitious carbon intensity targets as part of our procurement efforts.

- If commercially viable, we will use recyclable blades as part of our turbine design to further reduce our carbon footprint.

Accounting for embodied carbon in renewable energy projects at a granular level is complex. We recognize that NYSERDA is looking for developers who can provide basic accountability for embodied carbon in order to better understand, consider, and account for carbon intensity in the design, sourcing, construction, and operation of the offshore wind farm. To address this, we have **developed a granular and robust methodology for carbon accounting and management** using both internal and third-party tools to track, verify, and report on the full lifecycle emissions of our project.

- [redacted]
- We will complement this [redacted] with best-in-class, digital carbon accounting and management through Persefoni, a leading third-party platform. This platform allows us to calibrate and benchmark our baseline, then effectively track and report carbon emissions over the lifetime of the project in line with greenhouse gas protocol—the leading carbon accounting standard—to ensure third-party audition and verification of our baseline and reduction efforts.

This dual-faceted approach enables us to ensure it has high-resolution emissions data available so that the project team can both evaluate and report emissions regularly, as well as seek out opportunities to drive further emission reductions in carbon-intensive aspects of the project.

**Persefoni—Climate Management & Carbon Accounting Platform**

Persefoni is **the market leader in carbon accounting platforms** based on differentiators in carbon calculation, performance monitoring, product vision, strategy, execution roadmap, and market approach according to Forrester, a leading global market research company and consulting agency. The platform uses licensed factors from leading providers and is continuously adding new and updated data. See Section 21.3.2 for more details on our Persefoni partnership.

## 21.2. Driving reduction of greenhouse gas emissions

New York State established a goal of zero-emission electricity by 2040 and 70% renewable generation by 2030[113]. Electricity from renewable sources has near-zero marginal generation costs and produces minimal carbon emissions at the time of operation. **Renewable generators contribute to reducing carbon emissions in electricity systems by displacing thermal generation on a marginal generator basis.**

The final power plant needed to satisfy the balance is known as the marginal generator. Its emission intensity determines the emission reductions from additional renewable electricity. Depending on the time of day and grid conditions, the marginal generator is often a thermal peaking plant, usually fired by natural gas (Figure 21-1). Like renewable generators, battery storage also displaces thermal generation during discharging, usually while charging from renewable electricity when there is a surplus. This is particularly true for a behind-the-meter storage paired with renewable generation. Over the long run, almost all forecasts predict that renewable electricity will displace production from fossil fuels—a more expensive and more carbon intensive generation asset.

*Figure 21-1 Generation stack where renewable generation displaces traditional generation*

[redacted]

Our offshore wind farm's output will increase the amount of green electricity in the grid and, by displacing fossil fuel generation, lower emissions that would otherwise be emitted from burning fossil fuels such as natural gas and oil. By combining offshore wind with battery energy storage, the hybrid asset's dispatch will reduce system costs and carbon emissions. This is further emission reductions potential from the operation of the proposed [redacted] electrolyzer; however, these are not considered in this section as they are difficult to quantify given the early stage of development.

To estimate and forecast the impact on emissions, we have used a detailed model representation of the NYISO electricity system, as developed by Burns and McDonnel (B&M). [redacted]

113 Zero Emissions Study, part of the 2021 New York Power Grid Study for NYSERDA

[redacted]

[redacted]

[redacted]

**Emission reductions from wind farm operation, as shown in this Chapter, are the result of a study from Burns & McDonnell (B&M).** B&M is a market-standard consultant for production cost modeling, and the same study is used to forecast curtailment and congestion volumes for use in the internal financial model. Since this is crucial data for evaluating the investment, the project team selected a reputable and capable consultant and spent considerable effort to align the input data for the modeling runs. [redacted]

[redacted] For the remainder of the wind farm life, we assume that the carbon reductions due to offshore wind production will decline along with NYISO's carbon reduction ambitions, resulting in zero emissions from electricity generation by 2040[114]. This implies that as the system becomes greener over time, the impact of each individual renewable producer declines. However, the wind farm will continue to contribute to New York's renewable targets throughout its lifetime.

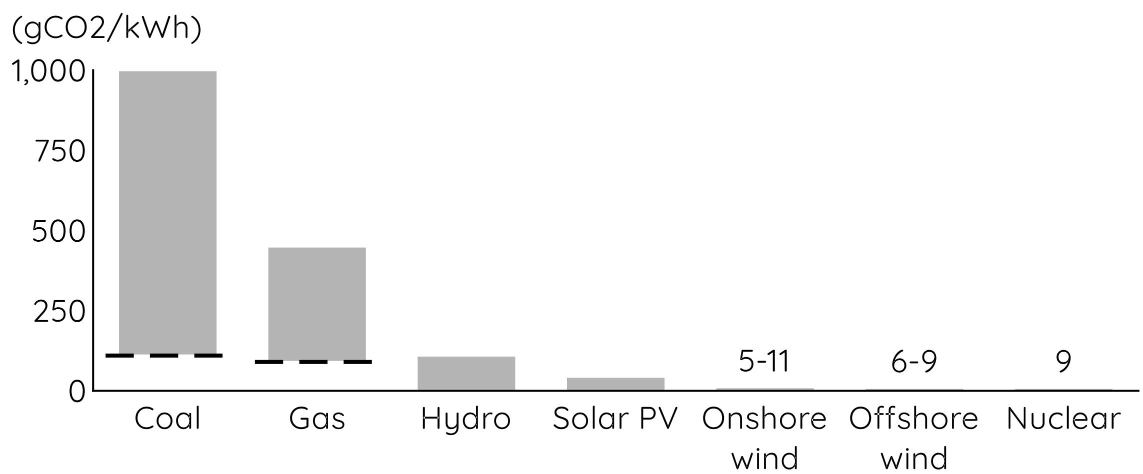
## 21.3. Embodied carbon management and disclosure

**Embodied carbon is an important focus area for our company to further carbon reduction.** While electricity production from offshore wind is emission-free, there are some emissions from manufacturing, constructing, and to some extent, operating the offshore wind project. Lifecycle $CO_2$ emissions from offshore wind are around 6-9g$CO_2$ per kWh. These lifecycle carbon emissions

114 Climate Leadership and Community Protection Act – CLCPA

(illustrated below) from offshore wind are much smaller than emissions from fossil fuels and vastly offset by the emissions saved by using offshore wind instead of fossil fuels (see Section 21.2).

*Figure 21-3 Life cycle $CO_2$ emissions by technology type*




### 21.3.1. Driving reduced carbon intensity in the Community Offshore Wind project

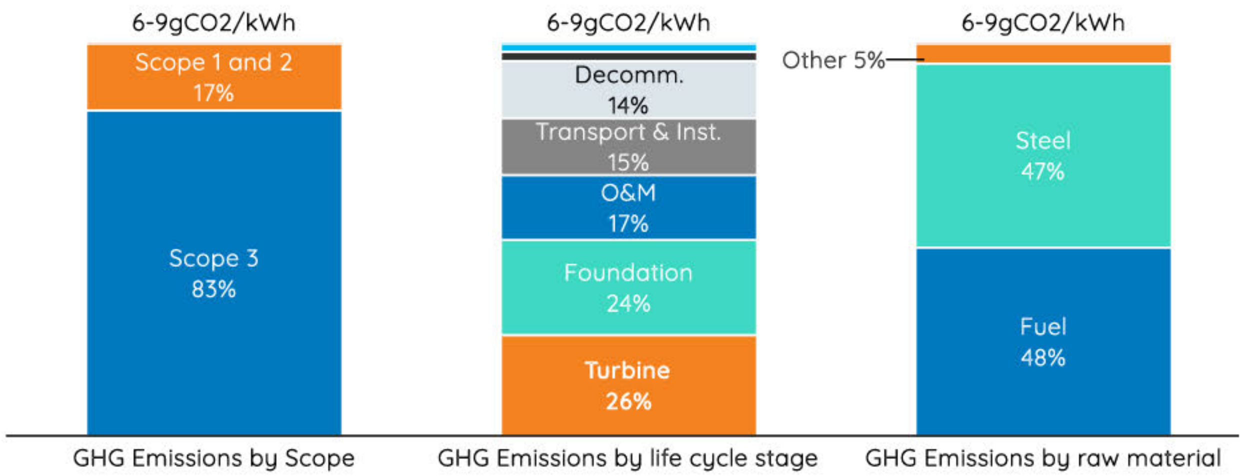
**More than 80% of embodied carbon emissions in offshore wind are indirect scope 3 emissions.** Only around 17% of embodied carbon in offshore wind comes from scope 1 and 2 emissions. Main drivers of emissions within each scope are:

- **Scope 1 and 2 emissions** primarily from fuel from operations and maintenance vessels
- **Scope 3** are primarily coming from the production of steel used for towers and foundations as well as the fuel used for vessels used during installation and decommissioning.

A full overview of the life cycle emissions of a generic offshore wind project can be found below.[115] We have a unique starting point in further reducing these emissions, leveraging established measures to track, measure and identify the most important levers to reduce the carbon intensity of delivered electricity based on RWE's pioneering work.

115 Carbon footprint of offshore wind farm components. Angeliki Spyroudi, 2021.

*Figure 21-4 Carbon stack for typical offshore wind project by life cycle component and material*




**To reduce the embodied carbon emissions, we are exploring several initiatives for embodied carbon reduction** in development, manufacturing, construction, operations, and eventual decommissioning of our project. RWE is a global leader in driving innovation to reduce embodied carbon in offshore wind farms. We will leverage initiatives already developed, as well as initiatives that RWE currently has under development. Innovations and technologies are developing rapidly. We are committed to exploring new innovations and technologies as they become available and expect that by the time our project will be operational, additional carbon reduction initiatives will be added to the list below. We will also work with our suppliers to leverage their efforts in reducing embodied carbon in their supply chains.

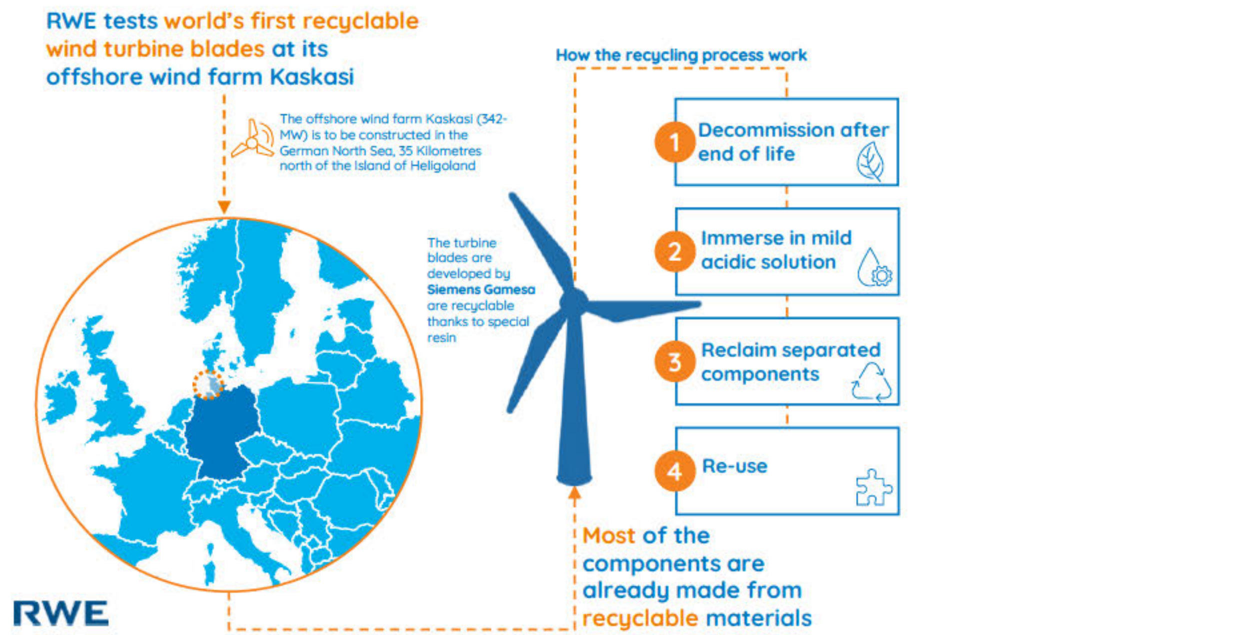
*Table 21-2 Example carbon reduction initiatives*

| Life cycle stage | Solution | Description |
|---|---|---|
| **Scope 1 emissions** | | |
| Turbine | Low carbon steel solutions | Engagement with suppliers to source low-carbon steel, [redacted] |
| Turbine and other key components | Recycling of key components | Exploring opportunities for recyclable blades [redacted] |
| Foundation | Low carbon steel solutions | Engagement with suppliers to source low-carbon steel |
| Transportation and installation | Low carbon fuels | [redacted] |
| Decommissioning | Low carbon fuels | [redacted] |
| **Scope 2 emissions** | | |
| O&M | Maintenance optimization | [redacted] Optimize maintenance schedule t[redacted] |
| O&M | Alternative fuels | [redacted] |
| O&M | Low emission vehicles | [redacted] |

| Scope 3 emissions | | |
|---|---|---|
| Turbine and other key components | Reduced transportation | Source [redacted] of our project from within New York State to limit transportation need and associated emissions, in particular thanks to our SCIP facilities. Where New York State sourcing is not feasible, such as for our foundations, we prioritize United States based sourcing to limit emissions from transoceanic transport. [redacted] |
| Turbine and other key components | Efficiency | Engagement with suppliers to implement high-efficiency manufacturing practices, develop low-emissions facilities |
| SCIP facilities | Low carbon electricity | [redacted] |
| Internal COSW | Efficiency | Encourage and incentivize all Community Offshore Wind team members to engage in low emissions commuting practices; proactively manage business travel to avoid inefficient travel arrangements |

It is important to note that many of these initiatives will have benefits beyond pure embodied carbon reductions. For example, minimizing usage of fossil-based fuels will also help alleviate adverse health and environmental impacts from local pollution during construction and operations. Further, given the early stage of development, it must be acknowledged that some technologies and solutions to reduce embodied carbon are not yet known or available. We will make every commercially reasonable effort to discover and implement the most effective and efficient emissions reductions solutions available to us at the time contract or application.

*Figure 21-5 RWE's work on recyclable blades*




### 21.3.2. Methodology for embodied carbon accounting and management

To enable meaningful reductions in embodied carbon, it is important to have accurate data and analysis underlying carbon calculations. Traditionally, the carbon accounting process has relied on manual input and analysis in disparate spreadsheets. This is cumbersome and can have poor traceability, accuracy, auditability, and security as the raw data and formulas pass from hand to hand. For these reasons, we are **partnering with best-in-class climate management and accounting platform**, Persefoni for accurate, auditable, and efficient accounting and management (Figure 21-7).

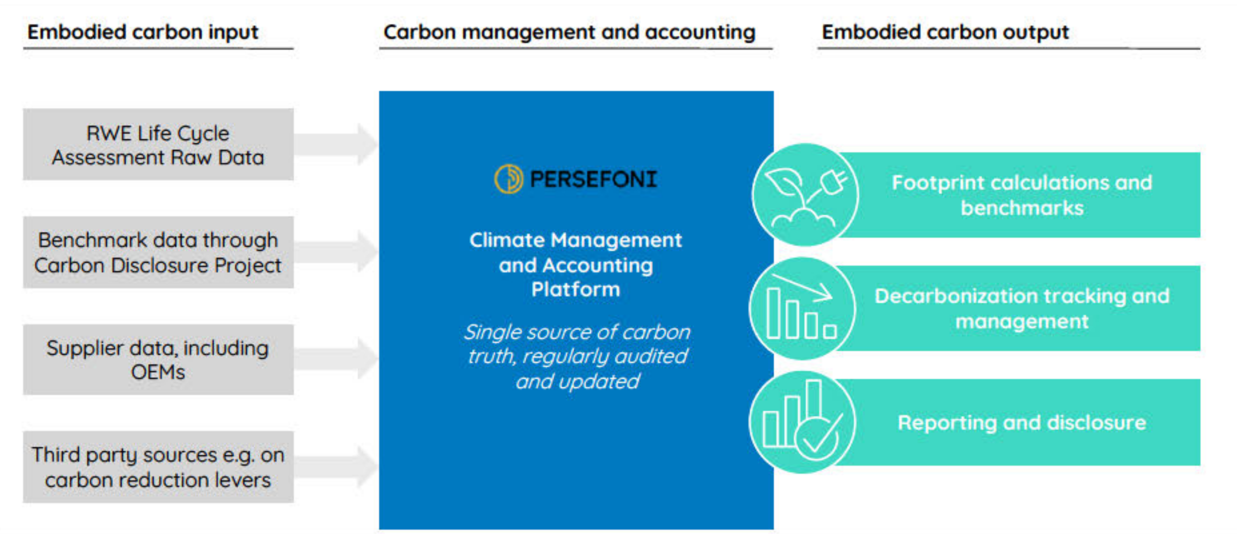
**We are committed to transparency around the embodied carbon footprint of our project.** We are leveraging a wide range of data sources to get a detailed and validated understanding of our carbon footprint. As the enterprise resource planning tool of carbon, Persefoni is a scalable cloud platform that supports large projects in their carbon accounting. The platform calculations are regularly audited and can be visualized with detail and granularity to show footprint calculations and benchmarks, decarbonization tracking and management, and reporting and disclosure.

**Persefoni—climate management & carbon accounting platform**

Persefoni is reviewed on an ongoing basis by the Greenhouse Gas Management Institute to evaluate and confirm that calculations completed in the platform are in line with GHGP standards. Forrester, a leading global market research company and consulting agency, **identified Persefoni as the market leader in carbon accounting platforms** based on differentiators in carbon calculation, performance monitoring, product vision, strategy, execution roadmap, and market approach. The platform uses licensed factors from leading providers and are continuously adding new and updated data.

In addition, **Persefoni has assembled a world-class line-up of experts** to help ensure they innovate quickly in a changing regulatory environment, employ the best methodologies available and supply quality products. Persefoni employs over 300 employees worldwide with over 100 subject matter experts, and over 120 R&D staff. Persefoni is **the only carbon accounting company that has a sustainability advisory board** (SAB), driving not only their product vision, but also keeps them aligned with the advice of global policy makers. Persefoni's **SAB includes several of the leading sustainability experts in the sustainability frameworks field**, including Paul Dickinson (CDP Chairman), Robert Eccles (founding Chairman of the Sustainability Accounting Standards Board), and Curtis Ravenel (current Secretariat of the UK Task Force on Climate-Related Financial Disclosures).[116]

*Figure 21-6 Carbon accounting and management methodology*




## Embodied carbon inputs

We will leverage a wide variety of data sources to fully understand our carbon footprint, including RWE's pioneering work. The latter includes conducting life cycle assessments in offshore wind and benchmarking data through the carbon disclosure project, supplier data and other third-party sources as needed. The Persefoni platform is built on open API and can ingest data from many different sources, including supplier input.

116 www.persefoni.com

**A key input to the Persefoni platform will be RWE's pioneering work conducting life cycle assessments (LCA) in offshore wind.** The initiative PEcoFoo (Projects Ecological Footprint), developed and led by RWE Renewables Offshore in 2021, defined an internal process to track embodied carbon emissions. The initiative is formed by an interdisciplinary team of LCA experts, engineers, project developers, sustainability managers, and IT experts. Our long-term vision is to treat information on environmental impacts for each project comparable to the way we track costs and revenues. Though all environmental impacts are considered in the model, we regard greenhouse gas emissions, measured in carbon equivalents ($CO_{2e}$), as the most relevant dimension of measuring the environmental footprint across a project's life cycle.

The LCA model gives an overview of all environmental impacts over the project's life cycle, including raw materials extraction, manufacturing, transport, installation, operation and maintenance (O&M), decommissioning and end of life. The tool includes wind turbines, foundations, inter-array cables, export cables, offshore substations, onshore substations, and electrolyzers. The model's results can be broken down by lifecycle-stages as well as components. Several calculations can be made to compare different scenarios of a project. Scenarios might include alternative technical or operational designs, e.g , including an electrolyzer plant or increasing the project's lifetime. The results can be further interpreted to draw a comparison with a reference project or to calculate an amortization period.

PEcoFoo is an automated, process integrated, and non-expert approach incorporating used materials (type and weight) and used energy carriers for processes and transport. The tool facilitates 1) the assessment of entire projects or single components, 2) a simplified data collection in alignment with existing processes, and 3) the transfer of know-how. The model follows the ISO 14040/14044 standard and can be reviewed internally or externally as required. The database applied is "ecoinvent 3.7.1 Allocation" at the Point of Substitution (APOS), and the impact assessment method is "Environmental Footprint 3.0" from the European Commission.

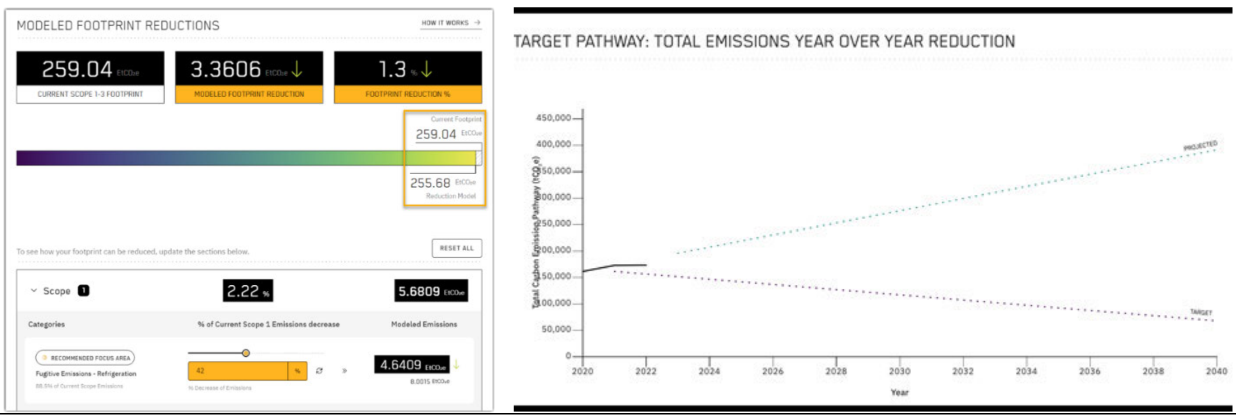
Carbon management and accounting

We will be using Persefoni's cloud-based carbon management and accounting platform for embodied carbon calculations and benchmarks, decarbonization tracking and management, and reporting and disclosure. We plan to use the tool to benchmark the outcomes of our LCA study and track embodied carbon pre- and post-commercial operation date.

- **Embodied carbon calculations and benchmarks:** The Persefoni platform allows for accurate baseline embodied carbon calculations, leveraging a comprehensive database of over 25,000 unique emission factors across scopes 1, 2 and 3. Scope 1 coverage includes stationary combustion, mobile combustion, fugitive emissions and process emissions. Scope 2 coverage includes electricity, heat and steam, and cooling using both the location and market-based accounting methods put forward by the Greenhouse Gas Protocol. Finally, the platform has comprehensive coverage across all Scope 3 categories, including upstream and downstream emission sources.
- **Decarbonization tracking and management:** Persefoni's platform allows for active carbon management by and modeling of carbon reduction levers and provides a high-level view into the projected reduction path to align with the Paris Agreement. We will be using the platform to track embodied carbon reductions over the life cycle of the project.

- **Reporting and disclosure:** The Persefoni platform allows for quick and easy visualization of footprint and carbon reduction data across carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride ($SF_6$) and nitrogen trifluoride ($NF_3$). Persefoni's platform is in line with Greenhouse Gas Protocol (GHGP) standards and can be adapted to evolving standards and protocols, including those NYSERDA wishes to develop.

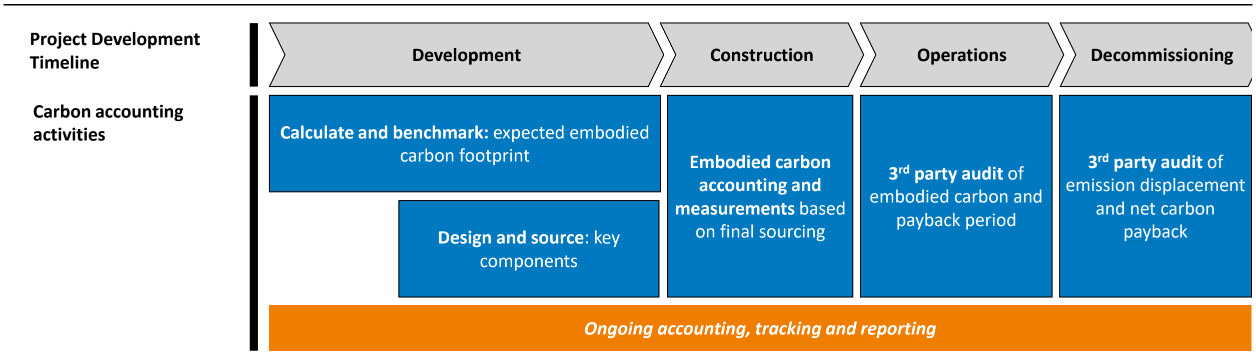
*Figure 21-7 Example dashboards through the Persefoni platform*




### 21.3.3. Validating carbon payback in the Community Offshore Wind project

**We are committed to demonstrating that our project will be a net-negative source of carbon.** We expect that our minimal embodied carbon impact will be offset by any carbon emission displacement through the generation of clean energy.

*Figure 21-8 Measurement and validation of accounting and carbon payback period*




To verify and validate our carbon payback, we will work with our Persefoni partners and leading independent verification consultants. At this time, we **will seek out and employ all best-practice emissions reporting and validating practices** and work with suppliers and SCIP partners to achieve all relevant environmental certifications. As relevant, we will link this to our carbon disclosure auditing process and will be leveraging the accounting generated using our ongoing carbon accounting methodology.

## 21.4. Our parent companies' approach to reducing carbon emissions

The New York State Climate Leadership and Community Protection Act (CLCPA) mandates net-zero emissions economy-wide by 2050, including 100% emissions-free electricity by 2040. We appreciate and support NYSERDA's desire to partner with organizations that take these commitments seriously. The CLCPA ambitions will not be achieved unless major organizations like RWE and National Grid actively play a role in reducing emissions at our respective companies.

*Figure 21-9 Our parent companies' carbon reduction performance*

**We have set ambitious targets**

- Committed to **net zero** by **2040** (RWE) and **2050** (NG)

**We are actively pulling levers towards net zero**

- RWE has **phased out 12 GW of coal capacity**, full decommissioning of coal plants by 2030
- NG is enabling **energy delivery of 10 GW** of renewable energy in NYS
- New **technologies, innovation,** and **efficiency measures** explored actively by both companies

**We have come a long way**

- **55%** carbon emission reduction since 2012 (RWE)
- **70%** carbon emissions reduction since 1990 (National Grid)

**We are recognized for our efforts**

- Both companies have been recognized for their sustainability efforts by **Carbon Disclosure Project, MSCI ESG, Morningstar Sustainalytics, ISS ESG** and **S&P Global**

### We have set ambitious targets

- **RWE** committed to be climate neutral by 2040 by focusing on renewable and storage technologies. The science-based targets initiative has certified RWE's climate targets to be in line with the Paris Climate Agreement.
- **National Grid** committed to reducing Scope 1 and 2 emissions to net zero by 2050 and to accelerate these targets whenever possible. In the UK, the National Grid electric system operator will be able to operate a zero-carbon system by 2025.

### We are actively pulling levers towards net zero

- **RWE** is fully reorienting its business around the rapid expansion of its renewable energy generation portfolio with 12 GW of coal capacity already phased out and a plan in place to fully decommission remaining coal capacity by 2030. RWE is planning a gross cash investment of almost $50 B into the expansion of the new core business by 2030.

RWE's wind projects in North America play a critical role in delivering emission-free energy. One example is RWE's Munnsville Wind Farm in New York State, which is estimated to avoid 62,000 $tCO_2$ per year.[117]

Looking beyond today, RWE is exploring new technology (including hydrogen), innovation, and efficiency measures to drive further emissions reductions. Finally, RWE is working towards higher transparency on emissions and has aligned 30% of management incentives to CSR performance.

- **National Grid** networks are enabling the energy deliverability of over 10 GW of new land-based wind and solar renewable energy resources in upstate New York. National Grid has deployed more than 4,000 EV chargers (50% in environmental justice communities) and is committed to a zero-carbon fleet of light, medium, and heavy-duty vehicles by 2030. This includes the Community Offshore Wind community van, which is fully electric.

  The commercial renewables division at National Grid has a portfolio of 1,250 MW of renewable energy generation in operation or under construction throughout the US. Additionally, members of National Grid senior management are incentivized through target-setting and remuneration policies to deliver the actions necessary to achieve the company's net-zero objectives.

### We have come a long way

- **RWE** already reduced the group's carbon emissions by 55% since 2012, from 170.8 M mt $CO_2$ to 80.9 M mt $CO_2$.[118]
- **National Grid** has reduced direct emissions by 70% (as of March 2020) since 1990, well in excess of the interim target, which was 45% by 2020.

### We are recognized for our efforts

Both parent companies are participating in several ESG ratings and rankings, including the Carbon Disclosure Project, MSCI ESG, Morningstar Sustainalytics, ISS ESG, and S&P Global.[119] The rating of our sustainability performance in these rankings is positive and showed a steady improvement throughout the last years. For example:

- **Carbon Disclosure Project (CDP):** National Grid received the highest rating (A) for six consecutive years and RWE has most recently received an A rating
- **MSCI:** National Grid holds an AAA ESG rating and RWE holds an A rating
- **Morningstar Sustainalytics:** Recognizes both RWE and National Grid for their efforts
- **ISS ESG:** Rated RWE among the top 10% of all electric utilities rated by the institution
- **S&P Global:** Awarded RWE with the Industry Mover Award in their 2021 Corporate Sustainability Assessment and gave National Grid an ESG evaluation score of 93/100

117 https://americas.rwe.com/onshore-wind/onshore-wind-projects-and-locations

118 For historic emissions data, please see the RWE Key Data Tool: http://rwe-datatool.com/

119 An overview of current results of RWE's most important ESG ratings and rankings is published on the RWE corporate website: https://www.rwe.com/en/responsibi ity-and-sustainabi ity/corporate-governance/ratings-and-rankings

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