NYSERDA 2024 OFFSHORE WIND SOLICITATION ORECRFP24 -1

Community Offshore Wind Application

Public Version

COMMUNITY offshore wind
local clean energy for all

7 Interconnection and Deliverability Plan

NYSERDA 2024 Offshore Wind Solicitation ORECRFP24-1

September 9, 2024

7 Interconnection and Deliverability Plan

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List of acronyms and abbreviations

Abbreviation	Explanation
[redacted]	[redacted]
COD	Commercial operation date: The date upon which the Project or a phase of the Project enters Commercial Operation as defined by the ORECRFP24-1 Standard Form Offshore Wind Renewable Energy Certificate Purchase and Sale Agreement
[redacted]	[redacted]
CRIS	Capacity Resource Interconnection Service
CTO	Connecting transmission owner
DAC	Disadvantaged Community
DPS	Department of Public Service
EJ	Environmental justice
HDD	Horizontal directional drilling
HVAC	High-voltage alternating current
HVDC	High-voltage direct current
MOU	Memorandum of Understanding
NYC	New York City
NYSDEC	New York State Department of Environmental Conservation
OWC	Offshore Wind Consultants
POI	Point of interconnection
[redacted]	[redacted]
PSC	Public Service Commission

NYSERDA solicitation requirements

Our interconnection and deliverability plan addresses each requirement described in NYSERDA's fifth solicitation for offshore wind energy (ORECRFP24-1).

Table 7-1 Solicitation requirements

Solicitation requirement	Section
Demonstrate that Project's plan for offshore transmission and onshore grid interconnection is technically viable and can be implemented on a timeline that is consistent with meeting the overall development schedule and proposed Commercial Operation Date(s)	7.2, 7.3
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. Include as much supportive detail and information of relevance for an actual or eventual Article VII filing as available at the time of submission. Identify whether the proposed cable routes impact New York Disadvantaged Communities or Tribal Nations. If Disadvantaged Communities are impacted by the proposed cable route, identify which Disadvantaged Communities are impacted and for the approximate miles the onshore cable route	7.2, 7.3
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	7.2, 7.3
Describe the status of any planned interconnection to the grid	7.2.1
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 - 89 - 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) as presented in response to Section 6.2.5	7.2.1, Attach. 7-2
Provide a copy of an electrical one-line diagram showing the interconnection facilities and the relevant facilities of the transmission provider	Attach. 7-3
Identify and provide an estimate of the expected (50% probability of exceedance) NYISO Interconnection Cost Allocation along with high (10% probability of exceedance) and low (90% probability of exceedance) estimates of the NYISO Interconnection Allocation, which should include 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	Attach. 7-4
Provide a clear explanation for how the estimated expected, high, and low Interconnection Cost Allocations relate to any studies that were performed. If there are differences between the studies and the proposed values, or any engineering judgment was applied, explain. If studies exist that are outside the range of the high	Attach. 7-4

and low Interconnection Cost Allocation estimates, please explain. For example, if a study shows upgrade costs beyond the estimated high Interconnection Cost Allocation, explain why the particular scenario studied is unlikely. NYSERDA understands that these values will be imperfect and seeks to understand the Proposer's view on interconnection risks	
Explain whether, in the Proposer's opinion, the Injection Point can accommodate injections from multiple Offshore Wind Generation Facilities and why or why not. If the Injection Point can accommodate multiple injections, provide expected, high, and low estimates of the Interconnection Cost Allocation, and supporting information, as described in the item above, in the event that the Offshore Wind Generation Facility connecting to the Injection Point is not the first connection at the Injection Point.	7.2
Identification of the costs associated with all elements of the needed transmission infrastructure, including the offshore substation, Meshed Ready design, radial export cable material and installation costs. Include a breakdown of costs of the cable installation plan, including both onshore and offshore cable routing	7.4
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	Attach. 7-4
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	7.2.1
For any Proposals that include an Affected Resource, please include a detailed timeline and plan to carry out the interconnection, and describe the contingency plan	N/A
For any Proposals that will be included in the Meshed Ready system, describe the components that will be installed to meet the Meshed Ready requirements set forth in Appendix F and enable future operability if recommended by the New York State Public Service Commission for interconnection to the Meshed Network	7.4.1, Attach. 7-9
For any Proposals that will be included in the Meshed Ready system, provide drafts of the required Meshed Ready deliverables listed in Section F.2.3 of Appendix F	Attach. 7-9

7.1 Summary

NYSERDA's target of connecting at least 9 GW of offshore wind by 2035 is a key step toward New York's efforts to decarbonize and transition to a more sustainable energy system. Furthermore, the large-scale generation capability of offshore wind will be essential to satisfy growing electricity demand, ensure grid reliability, and avoid resource deficiencies—challenges that are expected to become increasingly critical for New York state in the 2030s as outlined in the Draft Clean Energy Standard Biennial Review and NYISO's 2024 Reliability Needs Assessment Preliminary Results. Community Offshore Wind's Project [redacted] is poised to help New York tackle these challenges by providing large-scale clean power to help replace fossil-based generation while still fulfilling New York's reliability needs.

We recognize that this level of offshore wind development requires interconnection and transmission planning that facilitate future interconnection options while minimizing impact on Disadvantaged Communities (DACs) and other stakeholders. With these principles in mind, we have leveraged National Grid's knowledge of the New York electric grid, met with NYISO and connecting transmission owners (CTOs), and worked with external consultants to design feasible, constructable, and permittable interconnection solutions. Our interconnection solutions offer:

- **Synergy with New York's clean energy integration and reliability needs**: [redacted]
- **A robust and mature interconnection plan**: Leveraging both National Grid and RWE's extensive experience with the NYISO interconnection process, we have developed a robust interconnection plan to support on-time interconnection and commercial operation. [redacted]
- **Optimized cable routing**: [redacted] Our selected cable routing optimizes clean energy integration potential while minimizing community and environmental impacts using measures outlined in the New York Offshore Wind Cable Corridor Constraints Assessment.

[redacted]

7.2 Points of interconnection

[redacted] were selected to balance technical and commercial feasibility while leveraging New York State's leading efforts in utility scale clean energy integration. We believe [redacted] can help NYSERDA optimize its portfolio and provide large-scale clean generation to support New York's offshore wind and clean energy targets and the state's resource adequacy and grid reliability needs.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

A summary of the relative merits [redacted] can be found in Table 7-3 below.

[redacted]

7.2.1 NYISO interconnection

National Grid and RWE have extensive knowledge of the NYISO interconnection process from both the transmission owner and developer perspective; RWE projects have been operating in NYISO since 2007, with 1.6 GW in projects currently operational in New York. [redacted] Community Offshore Wind has collaborated with Con Edison, NYPA, and LIPA, and our team members have previously worked for these CTOs. This experience is discussed further in Section 6.1. RWE is the entity designated as the market participant in NYISO on behalf of the Community Offshore Wind joint venture.

[redacted] Further details of our interconnection timeline can be found in Attachment 7-2. Electrical one-line diagrams of the proposed interconnection facilities are provided in Attachment 7-3. Further details on our Project schedule are included in Section 5.

[redacted] A detailed explanation of these costs is included in Appendix 7-4.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

7.3 Cable routing

To deliver power from our Project [redacted] we have developed potential offshore and onshore cables routes [redacted] A summary [redacted] can be found in Table 7-4 below, and maps of cable routes [redacted] can be found in Figure 7-1.

[redacted]

[redacted]

We have designed cable routes with minimal risk, environmental and biodiversity impact, working in partnership with local communities and considering mitigation measures in line with those outlined in the New York Offshore Wind Cable Corridor Constraints Assessment, to ensure that our routes are viable and our Project is deliverable as conceived. [redacted]. Our routes are optimized for the following considerations:

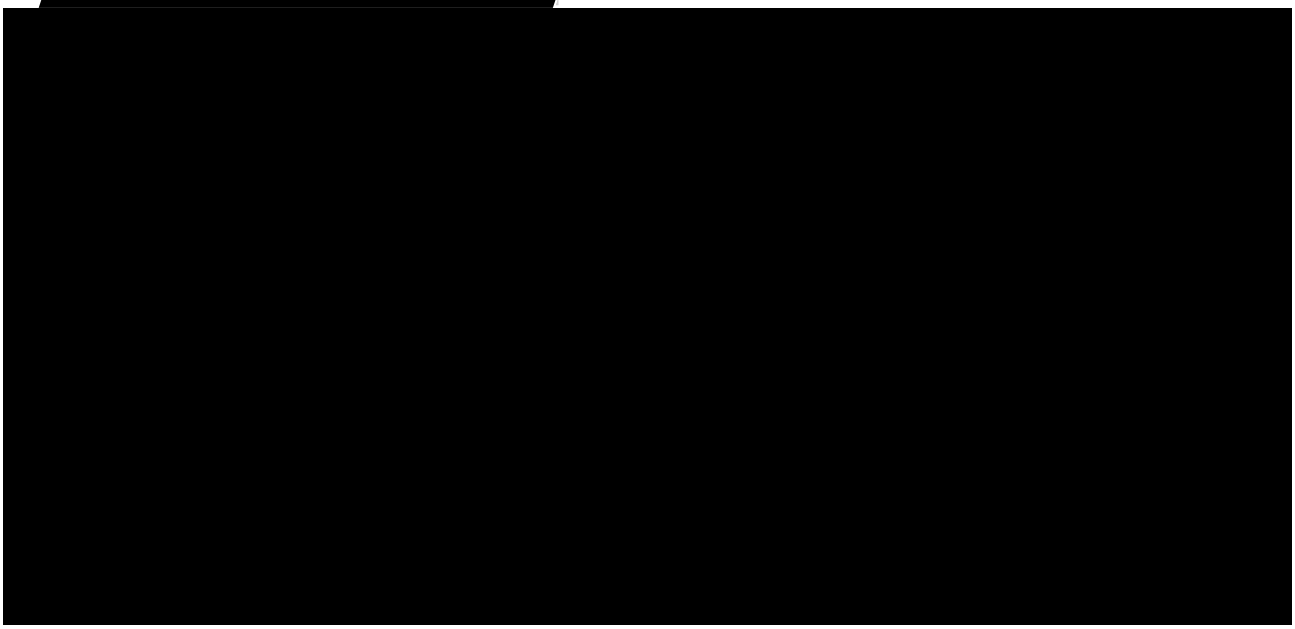
- Minimize fisheries, environmental and biological impact by avoiding:
  - Biological resources such as coastal wetlands, and recreational and commercial fishing areas
  - Aquatic vegetation, protected habitats, and fishing grounds to preserve marine resources and minimize impact on the communities that 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 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

Our onshore and offshore routing assessment was performed with publicly available data, including known cables and pipelines, and NYSERDA published data sets. We have completed all planned geophysical and geotechnical surveys to establish soil conditions within our identified corridors; following review of the complete data sets, the requirement for any further work will be assessed, though at this stage it is deemed unlikely. We also plan to perform onshore survey work and soil classification for proposed routes and alternatives. For initial cable ampacity studies, we used thermal characteristics representative of typical conditions in the area. The surveyed routes were refined with extensive input from marine communities and local stakeholders to minimize any potential impacts. Additional information regarding our stakeholder outreach and engagement is included in Section 8.3.

[redacted]

[redacted] will utilize the same offshore and onshore cable routes [redacted] As discussed further in Section 6.1, National Grid's [redacted] over 20 years of experience as a leading energy generation and transmission company in New York, [redacted] give us unique [redacted] community relationships, and knowledge [redacted] We are prepared to [redacted] help NYSERDA achieve at least 9 GW of offshore wind capacity by 2035. [redacted]

[redacted]



7.3.1.1 Offshore cable routing

[redacted] simplifying construction and allowing optionality for future offshore wind projects. [redacted] This route was developed using the assessment criteria described above, emphasizing stakeholder relationships and feedback. In addition to the hazards identified in Figure 7-3 below, [redacted] We will work with fishing communities and NOAA as this route option matures.

[redacted]

7.3.1.2 Landfall and onshore cable routing

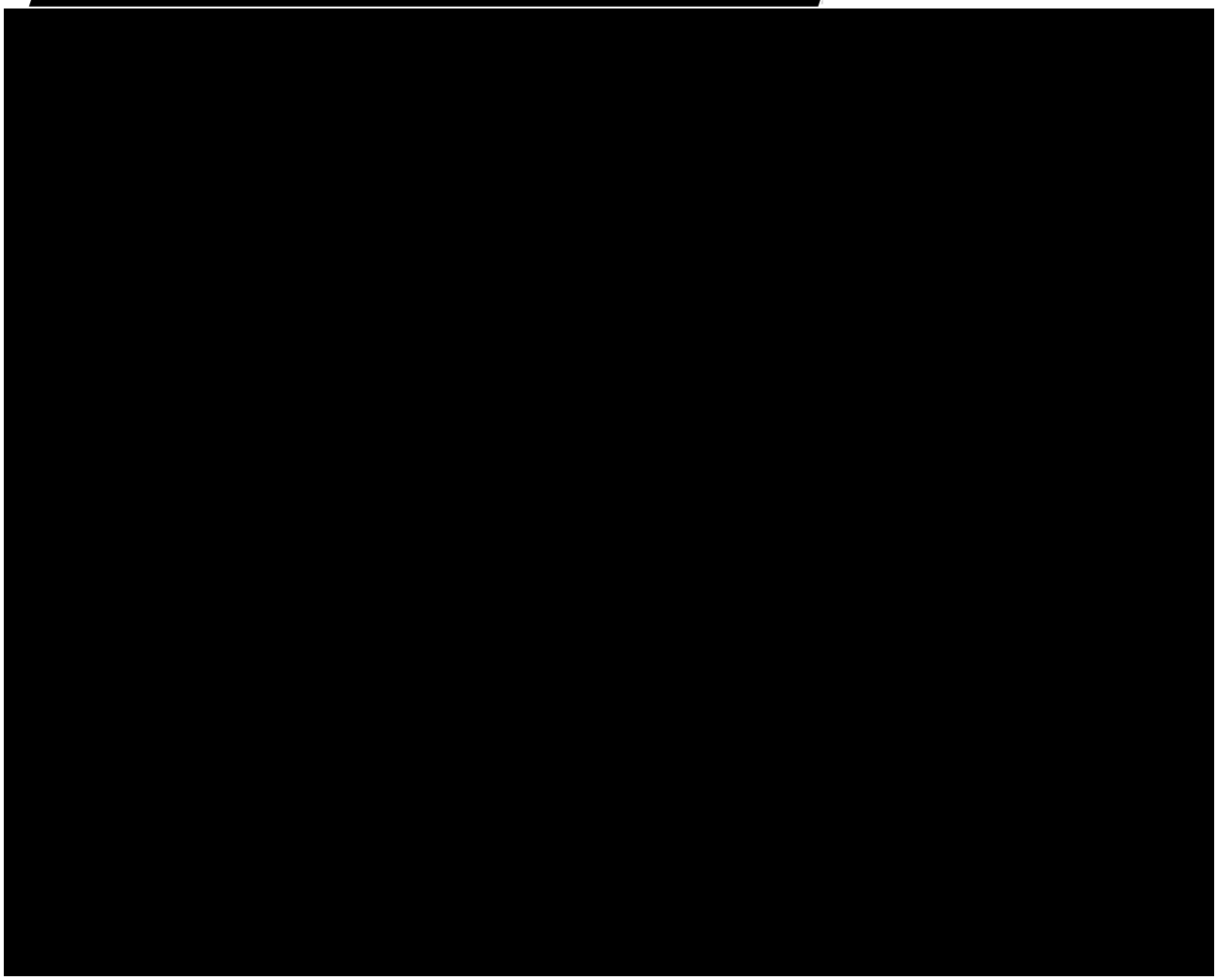
[redacted] we are exploring [redacted] viable landfalls and onshore routes, [redacted] We are collaborating with the relevant local communities to incorporate their concerns and priorities into our options evaluation and ensure we have the support of our Project's neighbors before finalizing our landfall and routing. We have selected [redacted] as our preferred landfall to minimize impacts to the environment, traffic, and DACs. This landfall area is currently a vacant lot, limiting potential impacts to existing infrastructure. [redacted] we will conduct thorough noise studies and follow best management practices during construction. As per Article VII and to de-risk our project plan, we are also considering alternative landfall and routing [redacted] and have considered an additional landfall option [redacted]

[redacted]

[redacted]

Additional details on our stakeholder engagement efforts to date as well as plans for future engagement are outlined in Section 8.3.

[redacted]



Our proposed onshore [redacted] route [redacted] shown in [redacted] is relatively short at only [redacted] miles and avoids DACs; [redacted] we will use HDD installation at this crossing to avoid habitat and species impacts.

[redacted]

[redacted]

Our proposal is designed to minimize the impact of our onshore infrastructure. [redacted]

[redacted] We will also

conduct further studies and work closely with the New York State Department of Environmental Conservation (NYSDEC) to adhere to the best management practices during the construction and maintenance of the converter station. Should we face permitting challenges, we have flexibility to move [redacted]

In summary, Community Offshore Wind is uniquely positioned to deliver offshore wind [redacted] due to our strong stakeholder relationships [redacted]

[redacted]

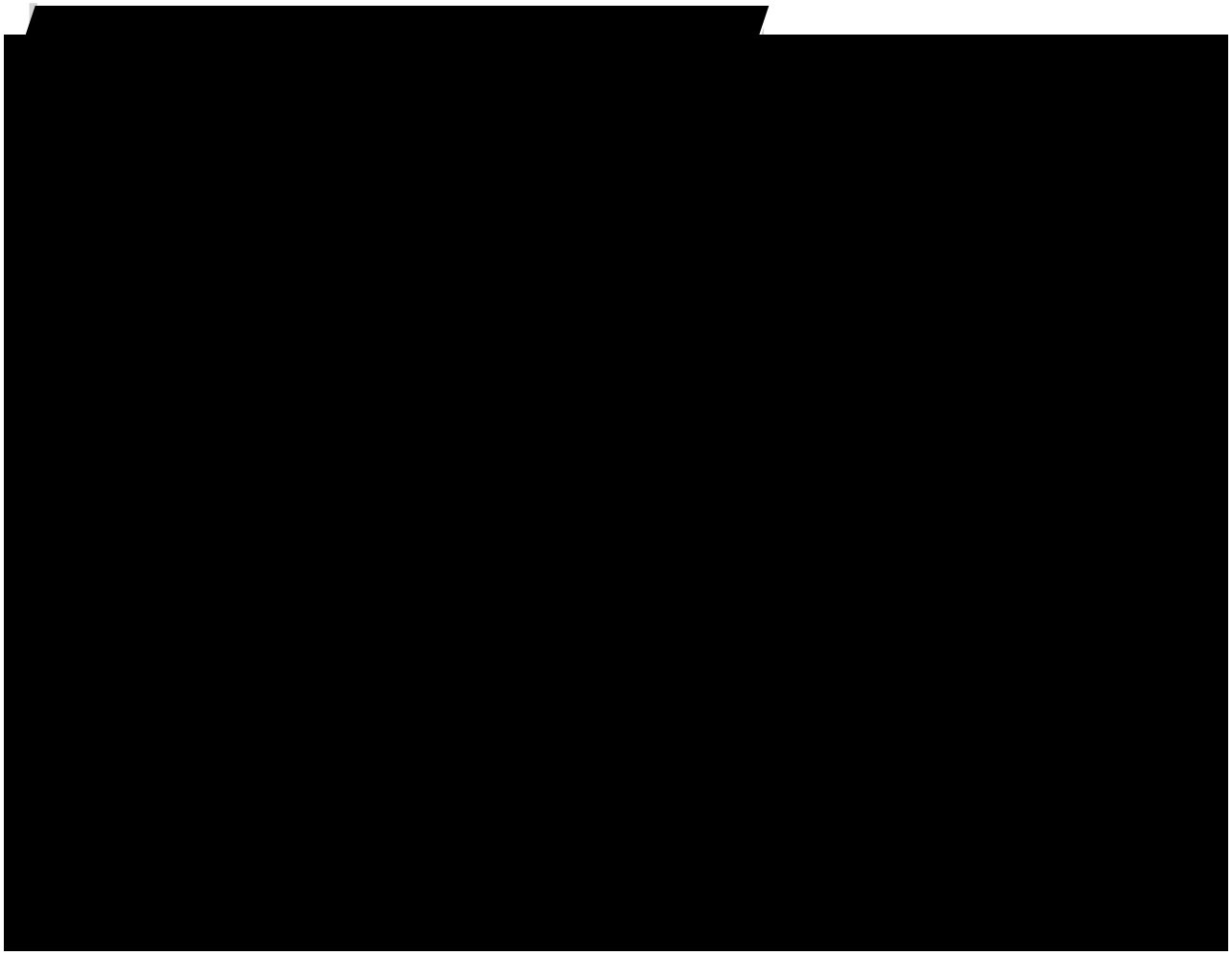
[redacted]

[redacted]

[redacted]

7.3.2.1 Offshore cable routing

[redacted]



7.3.2.2 Landfall and onshore cable routing

Our planned landfall [redacted] is a former industrial site, minimizing impacts to the local community. To prevent the spread of contaminated soil and water, we will conduct further studies and use best management practices to clean and contain the site prior to construction.

We will draw from National Grid's decades of experience in operating and maintaining underground natural gas infrastructure to manage the complexities of work [redacted] We will also conduct noise impact studies, significant community outreach, and specialized best management practices. Section 8.3 includes more details on our community outreach and engagement efforts.

If required, we will use HDD to minimize impact of our landfall and will coordinate with state and federal regulators to arrange for access [redacted]

We have also evaluated alternative landfalls and associated onshore routes as per Article VII requirements, shown in Figure 7-8.

[redacted]

We worked with our real estate consultant to identify a short list of potential converter station locations near our planned landfall, shown in Figure 7-9 below. Locating our converter station on the same parcel as our landfall will allow us to further reduce our project footprint. [redacted]

[redacted]

Our onshore cable route is designed to minimize disruption to surrounding areas and DACs. [redacted]

As we continue to refine our routes, we will work with all relevant state, local, and federal regulatory agencies for necessary approvals and alternative assessments.

[redacted]

7.4 Transmission system design and cost

Our transmission solution is based on proven designs and equipment, and it implements advanced technologies [redacted] The transmission infrastructure is discussed in depth in Section 6.4, and a cost breakdown is included in Table 7-5 below. Detailed information on our interconnection cost estimates is included in Attachment 7-4.

[redacted]

7.4.1 Meshed Ready design

We recognize the opportunity for a mesh transmission solution to provide the flexibility to deliver offshore wind where it is most needed without adding to electric congestion. To help achieve this goal, Community Offshore Wind worked with experienced consultants [redacted] to develop innovative mesh solutions that would accelerate and simplify the adoption of a broader mesh network in the New York Bight. For more details [redacted] see Section 6.1.

[redacted]

[redacted]

[redacted]

[redacted]

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Attachment 7-1

Interconnection request documentation

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7-1 Interconnection request documentation

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Attachment 7-2

Interconnection schedule

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7-2 Interconnection schedule

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Attachment 7-3

Interconnection facility one line diagrams

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7-3 Interconnection facility one line diagrams

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Attachment 7-4

Interconnection and transmission system upgrades

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7-4 Interconnection and transmission system upgrades

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Attachment 7-5

Network upgrades study

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7-5 Network upgrades study

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Attachment 7-6

Deliverability study

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7-6 Deliverability study

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Attachment 7-7

Initial routing study

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7-7 Initial routing study

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Attachment 7-8

Routing optimization report

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7-8 Routing optimization report

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Attachment 7-9

Meshed ready deliverables

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7-9 Meshed ready deliverables

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Attachment 7-10

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7-10 [redacted]

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Attachment 7-11

Cable route GIS files

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7-11 Cable route GIS files

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