Ørsted
Long Island Wind

Section 7

Interconnection and Deliverability Plan

Portions of this proposal contain confidential, proprietary, and/or commercially sensitive information that has been redacted from the "Public Version" of this proposal. Ørsted and Bay State Wind d/b/a Long Island Wind have submitted a "Confidential Version" of this proposal that includes the redacted information, which should be treated as a non-public record that is exempt from disclosure to the extent permitted under applicable laws and/or as expressly set forth in the Request for Proposals.

Table of Contents

List of Tables

List of Figures

List of Attachments

List of Acronyms

[redacted]	
BOEM	Bureau of Ocean Energy Management
[redacted]	
FERC	Federal Energy Regulatory Commission
[redacted]	
NYISO	New York Independent System Operator
[redacted]	

7.0 INTERCONNECTION AND DELIVERABILITY PLAN

6.2.7 The Interconnection and Deliverability Plan must 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). The Submission must include both Confidential and Public versions of the Interconnection and Deliverability Plan.

This Interconnection and Deliverability Plan shows how the transmission system is designed [redacted]. The interconnection has been developed, planned, and assessed as technically viable [redacted]

The information in the sections below details the Project's planned interconnection [redacted] how the Project has incorporated the new Federal Energy Regulatory Commission (FERC) 2023 timelines and regulations to support successfully interconnecting in New York Independent System Operator (NYISO) are included along with aligned milestones for navigating the interactions required for the Bureau of Ocean Energy Management (BOEM) permitting process as well as the State permitting process. [redacted].

A key component of technical viability is related to the maturity and readiness of the selected technology [redacted].

Overview of Interconnection and Deliverability Plan

Proposal Interconnection and Deliverability Plan – [redacted])

The base of this proposal is supported by interconnection into [redacted]

Within this Interconnection and Deliverability Plan, Section 7.1 shows the routing and injection points. Sections 7.3 and 7.4 provide full detail into the interconnection plan and timeline. Sections 7.6 through 7.9 speak to the financial investment required to interconnect at this POI as well as the electrical evaluation of the substation's capability and capacity to handle the large generation injection.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]. This technology has been extensively tested and implemented in various projects worldwide which has further demonstrated its robustness and efficiency. [redacted]

HVDC systems are particularly advantageous for long-distance and high-capacity power transmission, as they minimize energy losses and enhance grid stability. [redacted]. Its proven track record in numerous operational projects underscores its readiness for deployment, ensuring that it can meet the stringent demands of contemporary power grids while supporting the integration of renewable energy sources. This maturity is further evidenced by advancements in converter technology, improved insulation materials, and enhanced control systems, all of which contribute to the reliability and efficiency of HVDC [redacted]

[redacted] cable systems have also reached a high level of maturity, making them a reliable choice for modern power transmission. [redacted]. Multiple companies offer these cables on the market, and they have been Type Tested following industry standards [redacted] proving their capability to export the Project's power throughout its lifetime. They have also proven their reliability by operating in various challenging environments, including underwater and underground installations.

Advanced jointing and termination techniques have further enhanced the reliability of HVDC cable systems, ensuring secure connections over long distances. Additionally, HVDC cables are less susceptible to electromagnetic interference and have a smaller footprint compared to AC cables, making them suitable for densely populated or environmentally sensitive areas such as New York. The integration of advanced monitoring and diagnostic tools allows for real-time performance tracking and predictive maintenance, reducing the risk of unexpected failures. These technological advancements confirm that HVDC [redacted] cable systems are ready for widespread implementation in modern power transmission projects.

The Project Schedule in Section 5 shows the transmission build out and demonstrates that the Project is technically viable, that the transmission build-out aligns with the overall development schedule, and it meets the proposed COD. A more detailed discussion of the interconnection schedule is provided in Section 7.4.

7.1 ANTICIPATED INJECTION AND DELIVERY POINTS

Proposers should provide the following information in the Interconnection and Deliverability Plan:
1. 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.

The Project will connect to [redacted]

[redacted]

Section 6.2, Permitting Plan, details the Article VII process and additional detail on permits, authorizations, and consultations required for the Project.

[redacted]

7.1.1 Impact on Disadvantaged Communities and Tribal Nations

[redacted]
the Proposer is cognizant of the CLCPA's additional provisions regarding ensuring that at least 35 percent and a goal of 40 percent of clean energy spending benefits flow to such communities. For more on Long Island Wind's approach to Disadvantaged Communities, see the New York Jobs and Workforce Plan (Section 11), Disadvantaged Community Impacts (Section 8.4), and the Stakeholder Engagement Plan (Attachment 8.3-1).

The Stakeholder Engagement Plan will also consider any potential impacts on Tribal nations

Tribal nations are consulted throughout permitting and surveying of proposed cable routes.

7.2 ALTERNATE PROPOSALS

2. 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.

7.3 PLANNED INTERCONNECTION

3. Describe the status of any planned interconnection to the grid.

[redacted]

[redacted]

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

With NYISO's filing for FERC Order 2023 compliance, there are new requirements that need to be met to enter and maintain an interconnection request with NYISO. [redacted]

A significant requirement of the interconnection request is the electrical system model. [redacted]

[redacted]

This comprehensive plan outlines the status of the planned interconnection to the grid, the challenges faced, and the steps being taken to mitigate risks and ensure successful project delivery.

7.4 INTERCONNECTION PLAN AND TIMELINE

4. 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) as presented in response to Section 6.2.5.

This section 7.4 provides the detailed plan for the interconnection process and describes how it fits with the overall project schedule as described in Section 5.

7.4.1 Detailed Plan and Timeline for Interconnection Process

The FERC Order 2023 reforms have introduced a more predictable and structured interconnection process. This new process allows NYISO to have greater control over the interconnection requests, enabling them to remove developers who cannot maintain their interconnection requests. This predictability is crucial for planning and executing the interconnection process efficiently in line with NYSERDA solicitations and awards.

The NYISO's filing of FERC Order 2023 compliance has set specific timings and dates for the transitional cluster as well as the first cluster process. This structured timeline allows projects to predict the best and most appropriate time to enter the study process without holding speculative Queue Positions, which meets the intentions of FERC Order 2023.

[redacted]

[redacted]

7.4.2 Interaction with Grid Connection Process and Construction and Operations Plan Submission

[redacted]

[redacted]

7.5 ELECTRICAL ONE-LINE DIAGRAM

5. Provide a copy of an electrical one-line diagram showing the interconnection facilities and the relevant facilities of the transmission provider.

An electrical one-line diagram [redacted]

7.6 EXPECTED INTERCONNECTION COST ALLOCATION

6. Identify and provide an estimate of the expected (50% probability of exceedance) Interconnection Cost Allocation along with high (10% probability of exceedance) and low (90% probability of exceedance) estimates of the 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. 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 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.

[redacted]

[redacted]

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

[redacted]

7.7 INJECTION POINT

7. 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.

[redacted]

[redacted]

[redacted]

[redacted]

At the time of submission of this bid, the offshore wind projects currently awarded/under construction [redacted]

7.8 COST OF TRANSMISSION INFRASTRUCTURE

8. 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.

The estimated costs for the transmission infrastructure are provided below [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]

7.9 AVAILABLE CAPACITY OF INJECTION POINT

9. 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.

This proposal intends to inject [redacted] into [redacted] and as part of the proposal, the capacity availability of the area has been considered to understand the load demand and deliverability of the generation. This section covers the factors and capacity assessment that support this proposal.

The largest capacity contribution [redacted]

[redacted]

[redacted]

7.10 NYISO MARKET PARTICIPANT

10. 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.

[redacted]

7.11 AFFECTED RESOURCE

11. 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.

Not applicable – the Proposals do not include an Affected Resource as defined in ORECRFP24-1.

7.12 MESHED READY COMPONENTS

12. 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.

The proposer has provided a concept design of the offshore HVDC converter station [redacted] to meet the meshed ready requirements [redacted]

A concept-level one line diagram for the additional arrangements at the array feeder level is shown [redacted].

7.13 MESHED READY DELIVERABLES

13. 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.

Ørsted has developed a plan, as shown in Table 7.4, to address each of the documentation deliverables for the Meshed Ready system that are listed in

[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].

7.14 CABLE ROUTE GIS FILES

Provide detailed maps as KMZ files that show the proposed off- and on-shore cable route(s) from the offshore project to the proposed Injection Point including (if applicable) the landfall point(s), the converter station location and the assumed right-of-way width. KMZ files should be compiled in a single ZIP file for submission.

The kmz files for the offshore and onshore cable routes are included as [redacted] assuming no significant changes in technology and pending survey of existing road conditions and underground utilities.

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Attachment 7-1

[redacted]

[redacted]

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Attachment 7-2

[redacted]

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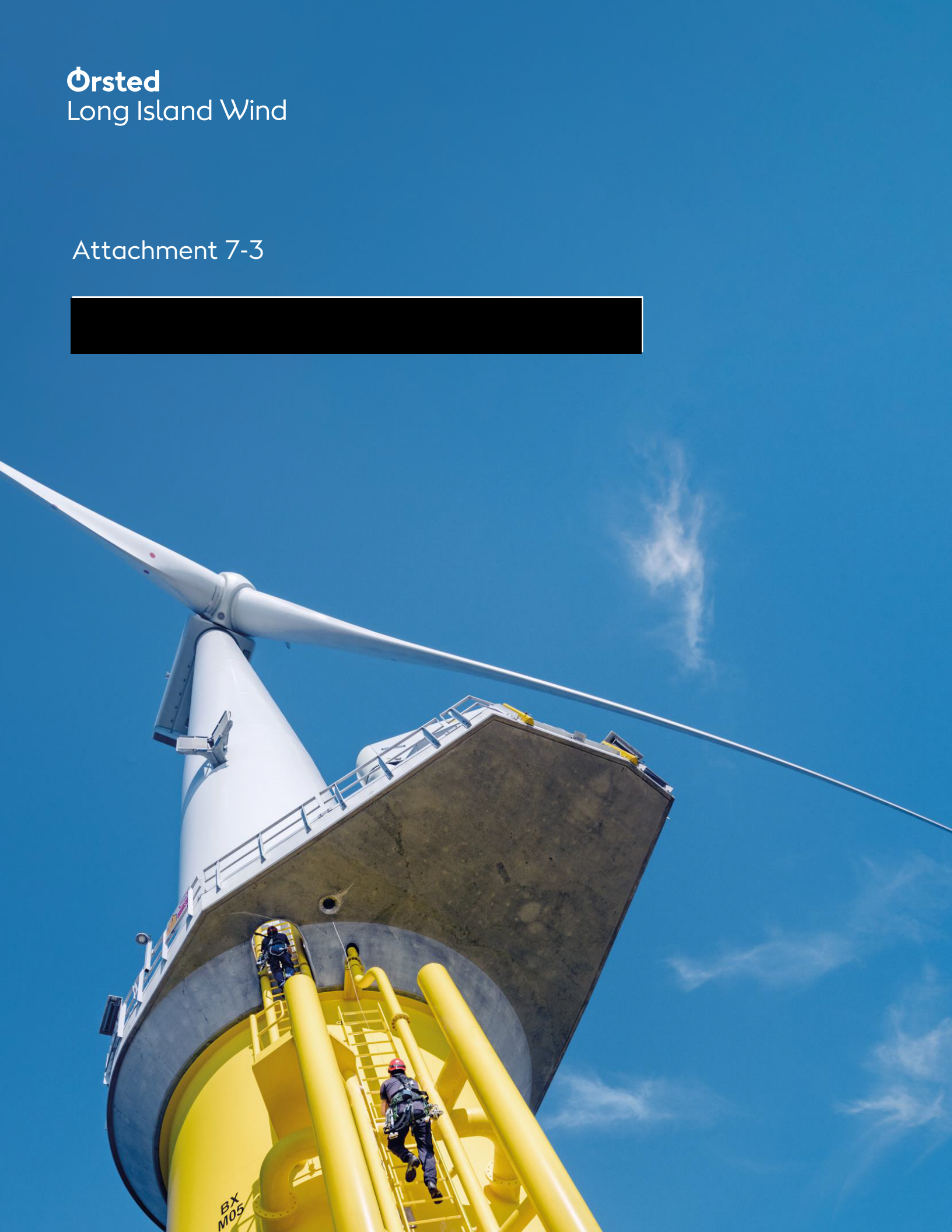
Attachment 7-3

[redacted]



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Data provided separately as GIS shapefiles and in kmz format