NYSERDA 2023 OFFSHORE WIND SOLICITATION ORECRFP23-1

Interconnection and Deliverability Plan

Public Version

Community Offshore Wind LLC

Lease OCS-A 0539

COMMUNITY offshore wind

nationalgrid | RWE

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NYSERDA 2023 Offshore Wind Solicitation ORECRFP23-1

7. Interconnection and Deliverability Plan

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List of acronyms and abbreviations

Abbreviation	Explanation
[redacted]	[redacted]
COP	Construction and Operations Plan
CTO	Connecting Transmission Owner
DAC	Disadvantaged Community
FEED	Front-End Engineering Design
GHG	Greenhouse Gas
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
MIS	Minimum Interconnection Standard
NPCC	Northeast Power Coordinating Council
NYISO	New York Independent System Operator
NYSRC	New York State Reliability Council
OATT	Open Access Transmission Tariff
POI	Point Of Interconnection
[redacted]	[redacted]
SDU	System Deliverability Upgrade
SRIS	System Reliability Impact Study
SUF	System Upgrade Facility
UXO	Unexploded Ordinances

NYSERDA Solicitation Requirements

Our Interconnection and Deliverability plan addresses each requirement described by NYSERDA in the fourth request for proposals for offshore wind renewable energy certificates (ORECRFP23-1) while underlining our capabilities of successfully realizing the project.

Table 7-1 Solicitation requirements

Solicitation requirement	Section
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. 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.	7.3 and 7.4
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
Describe the status of any planned interconnection to the grid.	7.2
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.	Appendix 7-2
Provide a copy of an electrical one-line diagram showing the interconnection facilities and the relevant facilities of the transmission provider.	Appendix 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. 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.	Appendix 7-4
Identification of the costs associated with all elements of the needed transmission infrastructure, including the offshore substation, Meshed Ready design, radial	7.5

export cable material and installation costs. Include a breakdown of costs of the cable installation plan, including both onshore and offshore cable routing.	
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 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
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.	Appendix 7-10
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.	Appendix 7-10
For any Proposals that will be excluded from the Meshed Ready system, provide a clear and detailed justification for the exclusion.	Not Applicable
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.	Appendix 7-9

7.1 Interconnection and Deliverability Plan Summary

Community Offshore Wind is dedicated to helping NYSERDA achieve its target of connecting at least 9 GW of offshore wind by 2035. 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 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 two feasible, constructable, and permittable interconnection solutions. Our proposal connecting to [redacted] Both proposals will incorporate mesh-ready equipment as specified in Appendix F, and [redacted]

7.2 COSW is uniquely positioned to deliver offshore wind to POIs at [redacted]

[redacted] selected to technical and commercial feasibility while leveraging New York State's leading efforts in utility scale clean energy integration. [redacted]

Table 7-2 Relative merits of our proposals[1]

[redacted]

[1] [redacted]

National Grid and RWE have extensive knowledge of the NYISO interconnection process from both the transmission owner and developer perspective, and RWE projects have been operating in NYISO since 2007. COSW 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 COSW joint venture.

[redacted] Further details of our interconnection timeline can be found in Appendix 7-2. Electrical one-line diagrams of the proposed interconnection facilities are provided in Appendix 7-3.

COSW has incorporated studies from the NYISO, CTOs, and [redacted]

[redacted] Further details on our schedule are included in Section 5.

7.3 The cable route to the [redacted]

COSW is uniquely positioned to maximize the delivery of offshore wind [redacted] by coordinating our routing, procurement, and construction efforts [redacted] COSW will reduce the overall footprint and cost of interconnecting [redacted] to help NYSERDA achieve its targeted [redacted] The benefits of our [redacted] proposal are summarized in Table 7-3 below.

[redacted]

[2] [redacted]

[redacted]

Table 7-3 Our [redacted] solution in brief

[redacted]

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

We worked with consultants to design offshore cable routes with minimal risk, environmental and biodiversity impact. Our preferred offshore routes were initially developed by [redacted]

- 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

Our onshore and offshore routing assessment was performed with publicly available data, including known cables and pipelines, and NYSERDA published data sets. We are in the process of conducting offshore survey activities to establish soil conditions within our identified corridor; we have largely completed geophysical work

and are currently collecting geotechnical data for our offshore route. 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]. The initial route will follow the same export cable route as described above and will reach [redacted] as shown in Figure 7-1, while avoiding the [redacted]

Figure 7-1 Aerial view of proposed [redacted] offshore route

[redacted]

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

[redacted]

[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 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.

[redacted].

Figure 7-2 Aerial view of the preferred [redacted] landfall at [redacted]

[redacted]

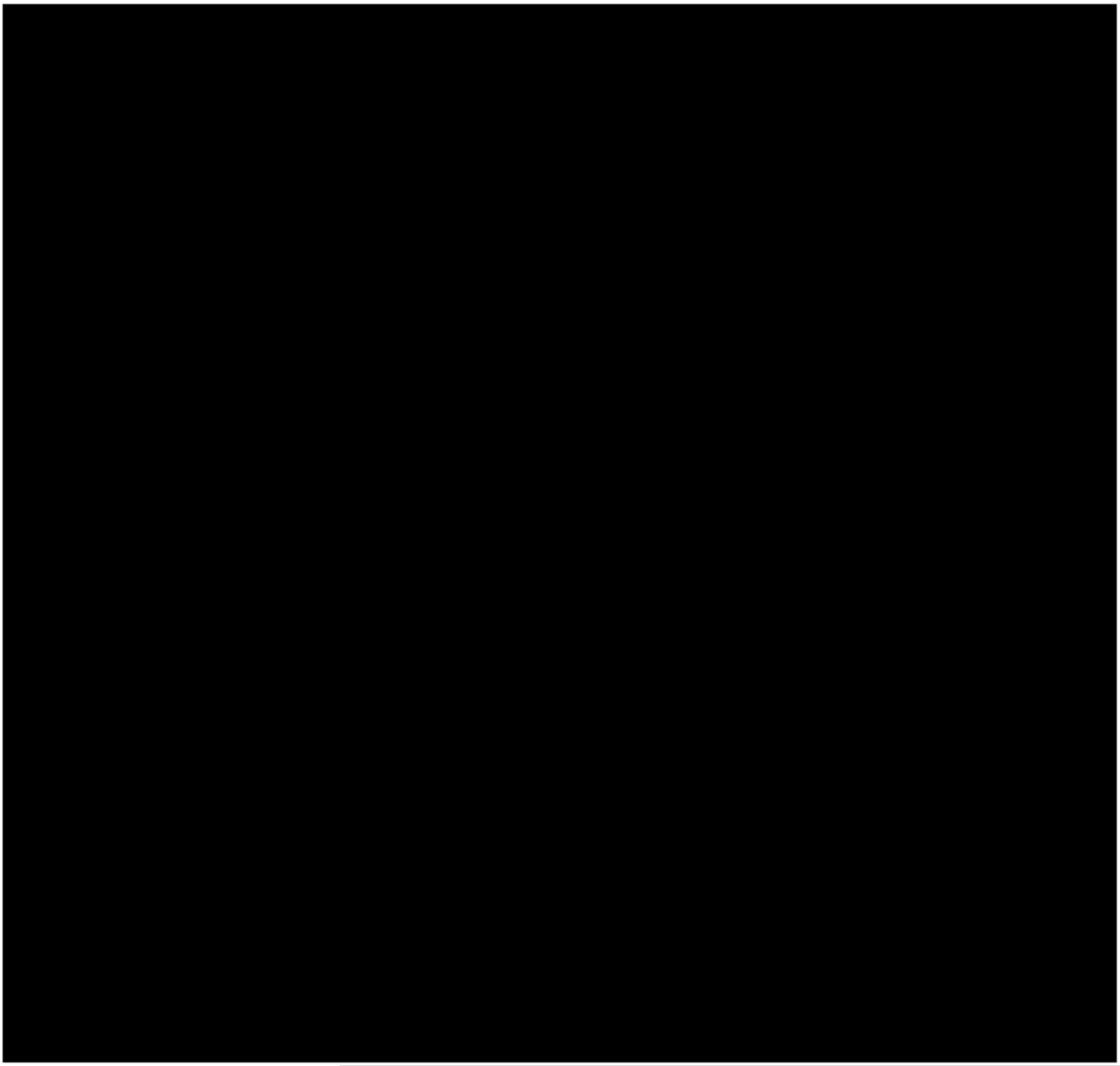
[redacted]

Figure 7-3 Potential converter real estate for the [redacted] POI

[redacted]

Our onshore cable route is designed to minimize disruption to surrounding areas and disadvantaged communities. The converter station will be connected to the [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.

Figure 7-4 Proposed converter station and onshore cable routing to [redacted]



Where possible, we will seek to [redacted]

In summary, connecting [redacted] will help to reduce the footprint and cost of connecting offshore wind to [redacted].

[redacted]

[redacted]

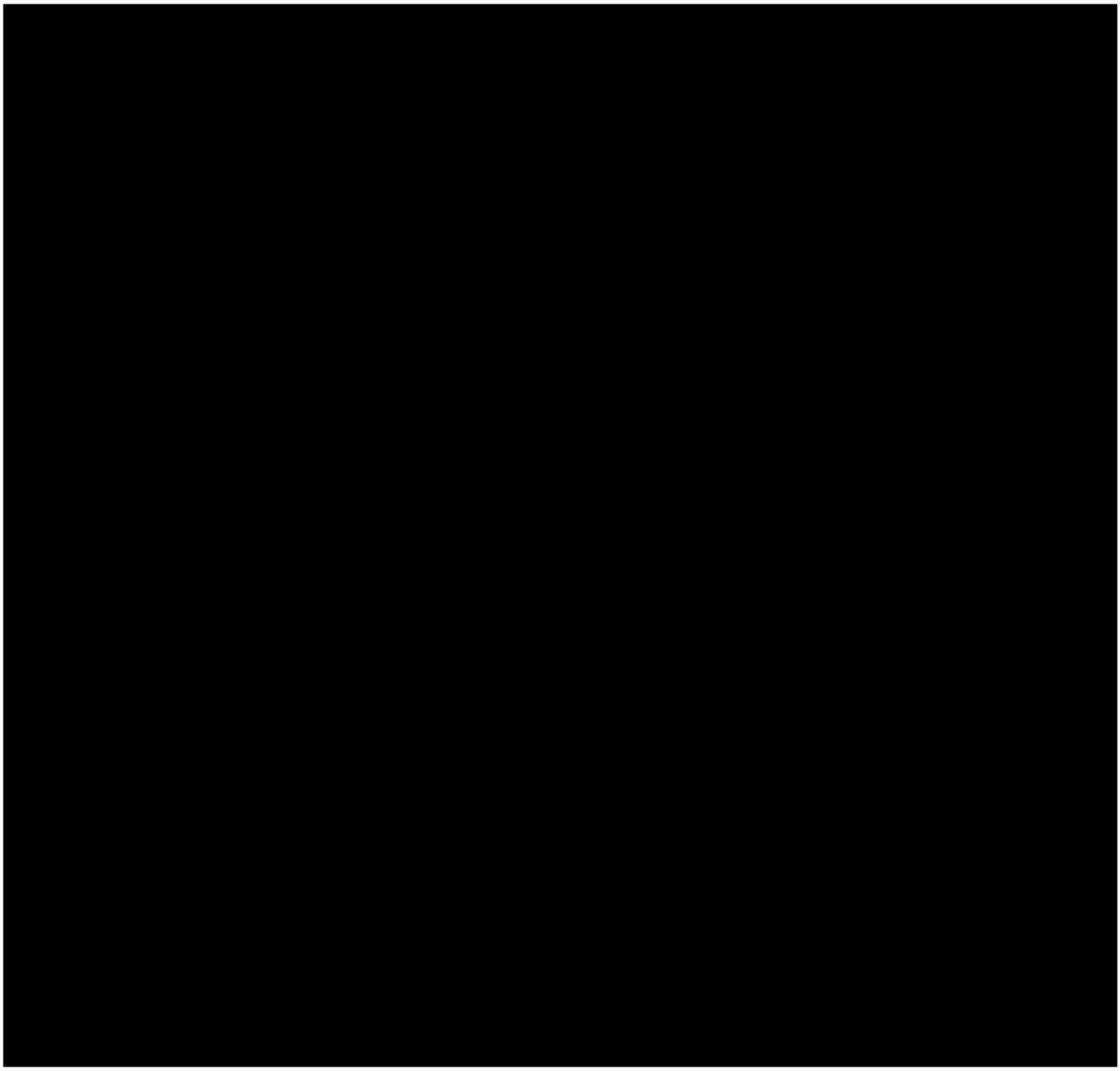
[redacted]

Table 7-4 Our [redacted] solution in brief[1]

[redacted]

[redacted] simplifying construction and allowing optionality for future offshore wind projects. Upon exiting the lease area, [redacted] This route was developed using the same assessment criteria described in Section 7.3, emphasizing stakeholder relationships and feedback. In addition to the hazards identified in Figure 7-5 below, we are also aware of the route proximity to the [redacted]. We will work with fishing communities and NOAA as this route option matures.

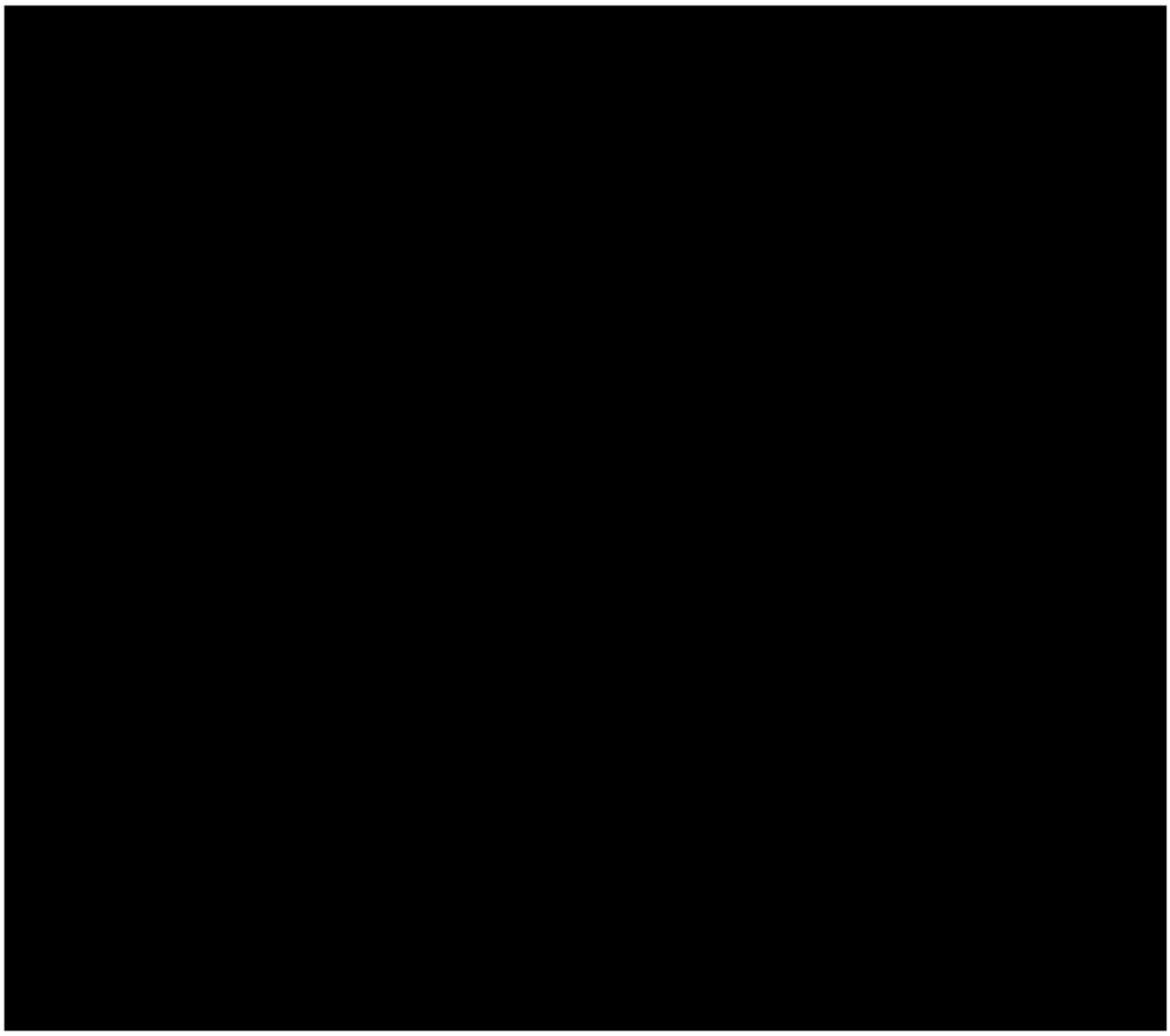
Figure 7-5 Aerial view of planned [redacted] offshore route



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

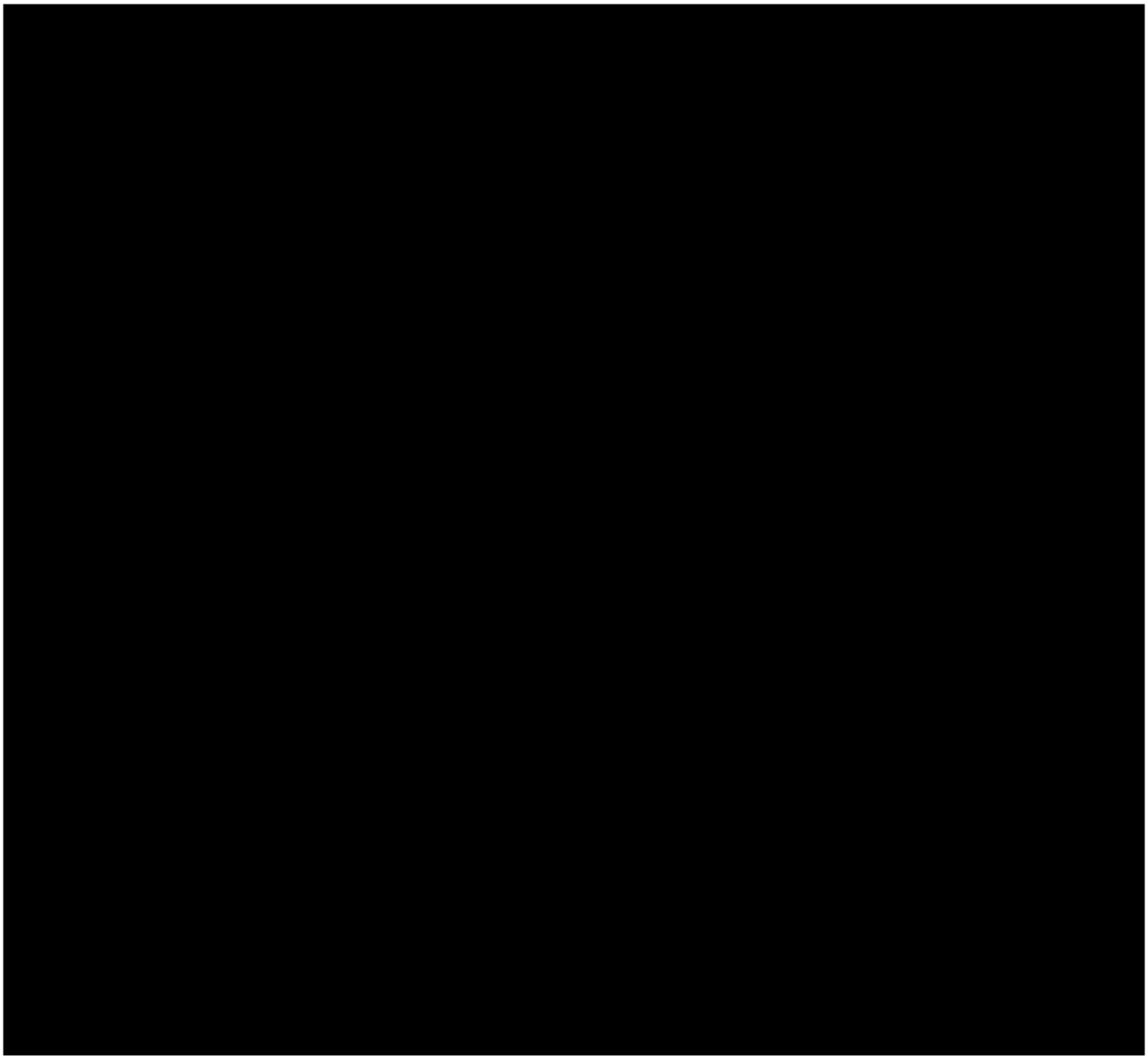
[redacted] to minimize impacts to the environment, traffic, and disadvantaged communities [redacted], we will conduct thorough noise studies and follow best management practices during construction. As per Article VII and to de-risk our project plan, we are also considering alternative landfalls at [redacted] as shown in Figure 7-6 below.

Figure 7-6 Aerial view of the proposed [redacted] landfall at [redacted]



Our proposed onshore HVDC route to the [redacted] avoids disadvantaged communities. [redacted] We are confident in our ability to facilitate effective stakeholder outreach [redacted]

Figure 7-7 Planned onshore route to the [redacted] POI



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

[redacted]

7.5 We have designed a dependable transmission system and innovative mesh proposal

Our transmission solution is based on proven designs and equipment and implements advanced technologies including [redacted]. The transmission infrastructure is discussed in depth in Section 6.4, and a cost breakdown is included in Table 7-5 below.

Table 7-5 Transmission Cost Breakdown[3]

[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]

[3] Costs are reported in 2023 dollars.

[redacted]

To maximize the benefits of offshore wind, we recognize the need 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, COSW [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

- [redacted]

See Appendix 7-10 for the meshed ready deliverables set forth in Appendix F.

[4] [redacted]

Section 7 – Interconnection and Delivery Plan Appendices

7-1 Interconnection Request Documentation
7-2 Interconnection Timeline
7-3 Interconnection Facility One Line Diagrams
7-4 Interconnection Upgrades
7-5 Network Upgrades Study
7-6 Deliverability Study
7-7 Initial Routing Study
7-8 Routing Optimization Report
7-9 Cable Route GIS Files
7-10 Meshed Ready Deliverables

Appendix 7-1 Interconnection Request Documentation

This document contains confidential information and is therefore excluded from this public version.

Appendix 7-2 Interconnection Timeline

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Appendix 7-3 Interconnection Facility One Line Diagrams

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Appendix 7-4 Interconnection Upgrades

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Appendix 7-5 Network Upgrades Study

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Appendix 7-6 Deliverability Study

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Appendix 7-7 Initial Routing Study

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Appendix 7-8 Routing Optimization Report

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Appendix 7-9 Cable Route GIS Files

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Appendix 7-10 Meshed Ready Deliverables

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