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RE: In the Matter of the Opening of New Jersey's Third Solicitation for Offshore Wind Renewable Energy Certificates (OREC), Docket No. QO22080481

Acting Secretary of the Board,

Please accept the below comments from Community Offshore Wind ("COSW") in regard to the Request for Information associated with the opening of New Jersey's third solicitation for offshore wind renewable energy certificates, which was issued by the New Jersey Board of Public Utilities ("NJBPU") on October 28, 2022. COSW recognizes that distilling and incorporating feedback and comments from a diverse set of stakeholders is not an easy task, and we commend your efforts to date. COSW applauds the NJBPU's continued nation-leading work to develop offshore wind in New Jersey and looks forward to working together to deliver clean energy and good jobs to New Jersey and its residents.

Following the success of their joint bid in the New York Bight offshore lease auction in February 2022, RWE Renewables ("RWE"), one of the globally leading companies in offshore wind, and National Grid, one of the largest energy companies pivotal to the energy systems in the northeastern United States and the United Kingdom, announced the official name of their joint venture, Community Offshore Wind, to reflect the benefits it will bring to the local communities, with the tagline, "Local clean energy for all." COSW is committed to delivering sustainable energy safely, reliably and efficiently to the communities we serve. RWE and National Grid share a common goal of enabling the clean energy future. Offshore wind will be critical for the U.S., particularly in the Northeast, to reduce carbon emissions and meet climate goals, such as New Jersey's target of bringing 11 megawatts of offshore wind online by 2040. Importantly, New Jersey's clean energy goals will also deliver significant new, good paying jobs and private investment to support the growth of the region's economy.

Design Considerations for the Prebuild Infrastructure - *As set forth in the SAA Decision, the Board directed Board Staff to require the "Prebuild" in the Third Solicitation. The Prebuild would require a single offshore wind developer to construct the necessary transmission*

infrastructure ("Prebuild Infrastructure"), which includes duct banks and access cable vaults, for its own project as well as the additional project(s) (up to four total cables) needed to fully utilize the SAA capability made available as a result of the Larrabee Tri-Collector Solution

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1. Please identify any requirements that should be included in the SGD to support the design and timely construction of the Prebuild Infrastructure. Please provide any recommendations for specification of these requirements.

In order to support the design and timely construction of the Prebuild Infrastructure, it would be most beneficial to:

- Know the location of horizontal directional drilling ("HDD")/landfall
- Where the shared infrastructure would begin
- It may not be practical to pre-drill HDD to the offshore pull-in location. Site control of the landfall area should thus be secured with long enough duration that subsequent projects have area available to site drill rigs
- Length between vaults should be specified to accommodate cable drum size and mitigate excess splicing
- Vault size and clearances should be specified to for safe operations
- Thermal analysis of parallel cable sections in vaults and other common facilities

It would also be beneficial to better understand how the permitting for the Prebuild Infrastructure would be completed (i.e. included within a single offshore wind developer's Construction and Operations Plan [COP] or permitted through separate applications).

2. Are there major challenges or significant limitations to installing up to four circuits for independent projects in a common ROW? If yes, please summarize the nature of these challenges/limitations.

Heating: Cables laid in close proximity will have mutual heating effects on each other. The duct design should be such that full output from all circuits can be achieved and maintained. Heating impacts should be considered on cable life span but also impacts to the thermal stress on the duct material itself.

Access and Security: For safety and security purposes each circuit should have dedicated vaults. That way work on a single circuit should not impact operations of adjacent circuits.

Distance between the poles: Installing 3 projects with >1.2GW capacity each would require a minimum 12 conduits to be needed for HVDC cable. Considering the width of the typical Right of Way ("ROW") it may derate DC capacity. There may be a need to consider larger conduit size due to above reason.

Impact of HVDC circuit on adjacent utilities: The DC circuit is supposed to be induced voltage free, however, running four circuits in parallel over long distances may induce AC characteristics.

Safety: A dedicated manhole for each circuit/project will be needed for safety and operational needs. Conduits will need to be routed around each manhole. This will require more ROW for conduit construction.

Cost Recovery Structure for Costs Associated with the Prebuild Infrastructure

3. Board Staff expects to require applicants to submit separate an OREC schedule for their offshore wind project with and without the Prebuild Infrastructure included. Over what period of years should the cost of the Prebuild Infrastructure be recovered?

The ownership and funding mechanism for the prebuild needs to be considered carefully. There are various questions surrounding this issue that would need to be answered, such as;

- Would follow-on projects become the owners of the infrastructure they occupy?
- Does this increase their tax burden?
- Who has responsibility for the continued maintenance and eventual decommissioning of the infrastructure?
- Can the owner of the infrastructure monetize it after the useful life of the offshore wind ("OSW") project?
- Can the NJBPU offer the opportunity or option for offshore wind developers to propose the commercial framework for the Prebuild Infrastructure?

Construction and Operating Considerations for the Prebuild Infrastructure - *Awardees in future New Jersey offshore wind solicitations (and other awardees in the Third Solicitation, if multiple projects are selected) will be required to utilize the Prebuild Infrastructure. As part of project construction efforts, awardees would be required to install their transmission cables in the Prebuild Infrastructure, utilizing the prebuilt duct banks and cable vaults designated to their project. To the extent possible, please consider these questions from the perspective of both the entity that constructs the Prebuild Infrastructure and an entity that will utilize the Prebuild Infrastructure.*

4. What terms and conditions for construction of the Prebuild Infrastructure between the Board and constructor should be specified in the SGD?

Ownership and obligation for free access to other OSW developers need to be specified. It would not be in ratepayers' interest for the initial prebuild developer to earn excess margin on the prebuild or engage in rent seeking by charging follow-on projects for use of the prebuild

infrastructure. The prebuild infrastructure renumeration should be covered in the same way real estate transfers are handled under the SAA.

5. What terms and conditions for operation of the Prebuild Infrastructure between the Board, constructor and future users should be specified in the SGD?

The following terms and conditions for operations of the Prebuild Infrastructure between the Board, constructor and future user should specify:

- Ongoing maintenance - Design for safe access and exit. Which party is responsible for regular inspection of the vault and regular refurbishment of civil works?
- Liabilities for downtime in the event of duct vault failure.
- Liability for capital improvement: Who should bear the cost for refurbishment of the shared infrastructure? Should they be allowed a return on the incremental investment?
- Liability for cable damage during pull-in: Who bears the risk if a conduit is found to have damaged cables during pull in?

6. Are there any potential challenges for cable installation in the Prebuild Infrastructure for future solicitation awardees? If yes, how might they be mitigated?

Below are potential challenges for cable installation in the Prebuild Infrastructure:

- Future awardees will need access to inspect vaults and conduits prior to cable pull.

- Project schedules will be contingent on the Prebuild Infrastructure being complete. If multiple projects are slated to use the Prebuild Infrastructure, then cable pulls will need to be coordinated so that crews are not operating in proximate vaults or conduit runs. There should be compensation for existing interconnection if a shutdown becomes necessary to accommodate neighboring projects.

- More landfall coordination needed. In order to plan for future awards, landfall approaches must be coordinated to decrease the risk of cable crossing and narrow approaches into area where HDD exit bores are expected.

7. Please identify any potential adverse cost or schedule implications ascribable to the Prebuild Infrastructure as it relates to awardees of future New Jersey offshore wind solicitations. How might these impacts be mitigated?

We anticipate that there will be construction challenges with the simultaneous installation of 3+ converter stations at the Point of Interconnection. This would directly impact timing on cable

pulls through the shared conduit. Issues such as which developer has first rights to construct the converter station and which developer will be first in line to have their cable pulled through will exist.

Enabling Potential Future Development of a Mesh Network - *A mesh network is an offshore transmission configuration in which the offshore substations for individual offshore wind projects are linked by connecting several offshore platforms. Board Staff is considering requiring projects bidding in the Third Solicitation to be built with design elements that will enable future connection to a mesh network.*

8. Do you have any general recommendations regarding how preparation for a future mesh network can be implemented in the Third Solicitation?

It will be difficult for developers to accommodate mesh designs between now and the expected launch of the Third Solicitation in early Q1 of 2023 and it may not be necessary for this round if the NJBPU intends to have all winners connect in Larrabee. However, a meshed design could be beneficial if intended for future multipurpose regional and/or interregional connectivity.
The mesh design would also need to be incorporated into a COP and the geophysical and geotechnical data required to support could result in a delay in the development of this application.

9. What additional equipment would need to be specified and installed at the time of project construction in order to enable future connectivity to a mesh network, as opposed to equipment that would not need to be installed until the mesh network is implemented?

There are several ways to achieve future connectivity. The simplest would be for developers to allow for additional J-tubes and bay positions to accommodate connection to external platforms nearby to the platform or within reasonable distance.

10. What physical requirements would enable the offshore substation to support the additional equipment, including additional platform space?

Space requirements are highly correlated with the expected capacity of the mesh connection and the voltage of the mesh grid. It would be preferred if the NJBPU determined the desired operating parameters of the mesh grid and let developers optimize the solution to hit the desired characteristics.

11. How would your suggestions regarding what engineering, operational and/or regulatory information should be specified in the SGD to support a future mesh network differ if the mesh network includes (i) only New Jersey projects, (ii) New Jersey and other PJM states' projects, or (iii) New Jersey, other PJM states' and downstate New York projects?

- The definition of the POI and where New Jersey will count delivery are crucial to understand. Access to the shared transmission infrastructure is also material. Use of a projects export cable by neighboring projects should result in compensation to the initial project's owner.

- Transmission cost allocation across states will be a complicated endeavor, especially if another state is using New Jersey funded infrastructure to deliver power. Establishing a metering point and accurately charging users of infrastructure across state lines and compensation for ORECs is an important detail to work out. PJM and participating states will also need to work through curtailment protocols and primary dispatch rights through export cables owned by a single project.

Since NY has already defined some key operational attributes of its mesh design, namely transfer capability and operating voltage (230kV AC), then the New Jersey mesh design would need similar parameters to interoperate seamlessly. Control schemes would need additional thought since it is likely PJM and NYISO would both be interested in controlling flows into their respective operating areas.

12. What might be the advantages or disadvantages associated with the Board's adoption of the mesh network framework put forth by NYSERDA in ORECRFP22-1?

Following the NYSERDA Meshed Design can help advance an initial step towards a standardized approach to integrating multiple Offshore Wind farms to be shared in the future. This approach would maximize the use of offshore resources across regions, delivering greater resilience and reliability at a lower shared cost for consumers. While the NYSERDA Meshed Network approach is a great start, it might be beneficial to pursue the more anticipatory planning approach, as New Jersey did in the SAA solicitation, The anticipatory planning approach provides the opportunity to pursue large HVDC Systems that can create OSW superhighways, i.e. 525kV bipole systems, helping reduce the landfall and cabling requirements to bring power to shore.

The flexible nature of mesh design introduces cable crossing risk with multiple uncoordinated export cables and some undetermined number mesh crossings.

13. What voltage would you recommend for the future mesh network and why?

This should be determined through study of the PJM grid and adjacent areas. The voltage decision is an optimization of power transfer capability, platform transformer costs, and cable costs. Therefore, New Jersey should understand the ideal amount of power transfer between mesh nodes required for the network. This would be best accomplished through studying various mesh topologies and the percentage of time the mesh capacity is used.

Other

14. Please provide any additional information that you would like Board Staff to consider in development of the SGD

New Jersey should consider carefully the decision to move forward with a mesh requirement. Meshed Networks are intended to enhance resiliency and market benefits. Hence, if New Jersey wishes to pursue, it should be in the context of advancing these principal benefits to consumers and addressing the longer-term benefits of resource sharing across regions. While recognizing the commercial complexities in interregional sharing, New Jersey should carefully consider this option in light of its offshore wind and Clean Energy vision.

COSW appreciates and recognizes the incredible work the NJBPU has done to prepare for releasing the third offshore wind solicitation and looks forward to working together to bring clean energy to New Jersey at an affordable price.

Sincerely,

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