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Aida Camacho-Welch
Secretary of the Board
New Jersey Board of Public Utilities
44 South Clinton Avenue, 9th Floor
Post Office Box 350
Trenton, New Jersey 08625-0350

Via Electronic Submission

Subject: Docket No. QO20100630, Post-Technical Conference Comments

Dear Ms. Comacho-Welch:

I appreciated the opportunity to participate on behalf of Shell Renewable and Energy Solutions ("Shell") in the New Jersey Board of Public Utilities' (NJ BPU) February 26, 2021 Offshore Wind Transmission Technical Conference. In the notice setting out the Supplemental Technical Conference Agenda dated February 23, 2021, the NJ BPU invited interested parties to submit post-technical conference comments. By this letter, Shell is submitting these post technical conference comments.

The State of New Jersey has recognized that the goal of developing 7.5GW of offshore wind (OSW) by 2035 is inexorably linked to access to the electric grid on reasonable terms and conditions. OSW can serve as an important component of a diverse, stable and resilient energy infrastructure and is a key lever to achieve the State's 2050 clean energy ambitions. Shell strongly supports New Jersey's use of the State Agreement Approach (SAA) with PJM to study, and potentially identify innovative, cost-effective options for the interconnection of offshore wind projects.[1]

The February 26, 2021 conference highlighted several issues that New Jersey should consider as the OSW transmission choices are detailed and better understood. A key point arising from the presentations is that all elements of the offshore network – the individual projects and their offshore platforms, offshore cable connections, onshore network, and onshore substations and grid reinforcements – have to be considered together to optimize overall environmental impacts, cost, and ratepayer risk. Ratepayer risk will exist regardless of whether the assets are owned by the generator or a third-party transmission operator. Any system developed for the coordinated interconnection and operation of OSW resources will require clear accountabilities and responsibilities for system

[1] The approach does not mandate a specific solution; rather, utilizing the expertise and process within PJM Interconnection, LLC (PJM) to identify transmissions limitations and potential solutions. *See PJM Interconnection, L.L.C.*, 174 FERC ¶ 61,090 at P 10, Order Accepting Study Agreement (2021).

availability and operational risk over the full asset lifecycle. Ultimate success of a coordinated approach will depend on alignment of incentives and behaviors of generators and transmission operators.

The remainder of this comment focuses on a few key considerations to achieve the required alignment.

1. Effective transmission planning will ensure early projects do not become a barrier to achieve the 7.5 GW system target.

By pursuing the SAA, the State has recognized already that, as additional lease sales and competitive tenders occur, transmission interconnection may become a critical, and potentially limiting factor to achieve New Jersey's long-term ambitions. New Jersey's approach should contribute to an overall regional transmission system that increases reliability and resiliency for the State's energy system; ultimately this will be enabled by options to strengthen interconnections with other markets.

A comprehensive transmission siting plan that guides the build-out of grid interconnection and system network facilities needs to be considered carefully in parallel with the ongoing incremental development. Longer term planning such as that envisioned by the SAA studies can reduce the risk that overall program goal comes either at higher cost to consumers or results in delayed or inefficient development of offshore wind resources. New Jersey should carefully examine points of interconnection and cable rights-of-way planned by early projects to ensure that they do not inadvertently become a barrier to entry for future OSW projects and that the resulting transmission system is not cost-effective to the rate payer.

The risk of missing or underappreciating the system impacts of offshore wind can be exacerbated by an approach that considers only the incremental impacts of individual projects. In a report prepared for the NJ BPU, Levitan & Associates (LAI) suggests that New Jersey ratepayers could face more financial risk with a FERC-jurisdictional regulated approach as opposed to a radial interconnection approach.[2] The report bases this conclusion on the likely cost-recovery approaches of the different interconnection models. The regulated/coordinated approach imposes a non-by-passable, fixed charge, while the radial/developer driven approach leaves risk with developers and cost recovery on a volumetric basis.

Shell's observation as a developer of OSW resources, supported by EU's Offshore Renewable Energy Strategy,[3] is that more rational grid planning and the development of a more interconnected grid is

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[2] *See* Levitan & Associates, Inc., "Offshore Wind Transmission Study Comparison of Options", (prepared for New Jersey Board of Public Utilities dated December 29, 2020), https://www.nj.gov/bpu/pdf/publicnotice/Transmission%20Study%20Report%2029Dec2020%202nd%20FINAL.pdf, at 2.

[3] *See* COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS, "An EU Strategy to harness the potential of offshore renewable energy for a climate neutral future", COM/2020/741 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2020:741:FIN. This report notes the importance of a meshed grid to achieving EU's ambition of 60 GW OSW by 2030 and 300 GW OSW installed capacity by 2050. The report covers other forms of ocean energy as well. EU's OSW market is more mature than the US with an existing installed capacity of 12 GW. The scale of EU (60 GW) and

key to realizing significant offshore wind ambition. The EU's project development trajectory demonstrates that investment tends to be lumpy. Technical conference participants in panel 1 noted that only so many opportunities exist to conduct construction operations in a particular corridor or area due to environmental and local impact concerns.[4] The environmental issues and system interconnection costs will at some point require such significant risk premiums that leaving this risk with developers on a project-by-project basis will lead to significant barriers to the development of a 7.5 GW system at a reasonable cost. The SAA will help reveal this tipping point.

2. Align economic incentives to reduce potential for curtailment and congestion.

The current design of the State's Offshore Renewable Energy Credit program incents OSW generators to produce power even when wholesale power prices are low or even negative.[5] This means that the system analysis and potential design should include assessment of the increased potential for congestion and/or OSW curtailment associated with the injection of 7.5 GW OSW into various locations on the PJM system. An assessment of potential points of congestion and curtailment will reveal critical information for developers and the State. The State should assess the extent to which the onshore transmission system should be reconfigured given the large injections of power contemplated from various points on the eastern side of the grid. A comprehensive analysis would reveal where it makes economic sense for developers and ratepayers to use compensation mechanisms that continue to incent OSW power production during all hours or accept some curtailment or congestion risk in lieu of investments that eliminate that risk. Subsequently, the NJ BPU may wish to assess how the OREC design affects OSW generator behavior and how that behavior impacts on transmission design choices and overall ratepayer costs.

Another corollary to the mitigation of curtailment risk relates to potential participation in the capacity market. Participation by OSW resources can provide indirect consumer benefits by providing another wholesale market revenue stream. If developers have the opportunity to participate in PJM's Capacity Performance market, they will have to be comfortable with the assumption of some curtailment risk as that market leaves much of the risk with the owners/operators of generating resources that have a capacity obligation and imposes significant penalties, even if the curtailment is due to local transmission constraints or outages. Further discussion among stakeholders may clarify how a backbone transmission system can optimally manage and allocate the curtailment risk among the operator and the generators connected to it.

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US East Coast (about 30 GW) OSW ambitions for 2030 are on the same order of magnitude. The EU experience appears to have reached an inflection point and therefore may illustrate the challenges of integrating significant renewable offshore energy.

[4] A recording of Technical Conference can be found at https://register.gotowebinar.com/recording/3195253771358050063

[5] *See* State of New Jersey Board of Public Utilities Docket No. QO18080851, *IN THE MATTER OF THE OPENING OF OFFSHORE WIND RENEWABLE ENERGY CERTIFICATE (OREC) APPLICATION WINDOW FOR 1,100 MEGAWATTS OF OFFSHORE WIND CAPACITY IN FURTHERANCE OF EXECUTIVE ORDER NO. 8,* Order issued September 17, 2018, discussing history of the OREC funding program. OREC payments and tax credits can provide incentives for OSW resources to supply energy during conditions when energy prices are low or even negative.

3. Align economic incentives for transmission system delivery, maintenance and availability.

OSW generators are acutely aware that transmission is their route to market and without it they will have no revenue. While individual projects will aim to keep control of the risk by operating their own transmission, a meshed transmission system[6] will provide a significant improvement over individual radial connections by providing critical redundancy for asset integrity and production. Shell is agnostic whether these planned transmission facilities are best delivered by an independent transmission developer or by bundled projects. Most important is their planning and predictability of delivery and operations.

A high risk of delay in onshore connection permitting and construction contributes to investor uncertainty, reducing the incentive for developers to invest in new projects and impacting the cost of financing. Generators who rely on a third-party transmission developer will factor the risk of transmission delivery delay into any contracts for the development of their proposed projects, potentially increasing costs to consumers. New Jersey can use the OSW bid solicitation process to provide price discovery and reveal how this risk is assessed and allocated by project developers in response to proposals. For example, if a predetermined, transmission plan is developed, developers could submit offers based on a radial approach or one that contemplates a defined interconnection plan.

In addition, business interruption insurance for OSW generators is held by most bank-financed projects and generally has an exclusion period of 3-6 months before the loss of generation is covered. The ability of business interruption insurance to reduce ratepayer costs hinges on the Expected Maximum Loss (EML) – i.e., time to make system repairs. Creating compensation mechanisms for third-party transmission providers that provides transmission operators financial incentives to minimize EML could also reduce insurance premia, thereby providing a net benefit to ratepayers.

Requiring transmission operators to demonstrate they have appropriate capabilities to reduce EML may also reduce transmission performance concerns. New Jersey should require offshore transmission operators to use site specific details (such as the wind profile of the location which affects the available weather window for maintenance interventions) and establish clear performance indicators and expectations for the mean time for minor repairs, major repairs, and major equipment replacements. The purpose of the indicators is to ensure fast return to service and could include metrics such as access to strategic spare parts, specialized vessels, critical equipment, and skilled offshore workforce.

## Conclusion

Solving the transmission interconnection and operation quandary is key to unlocking OSW investment. Shell believes that the State's OSW ambitions require a planned transmission approach that ultimately supports interconnection to other markets as the industry matures and injection volume increases.

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[6] A meshed offshore transmission network links at least two different onshore POI and allows power to flow in multiple directions, similar to the onshore interlinked transmission grid. This approach provides critical system redundancy and ensures no generator is left "last in line."

Planned transmission can be delivered faster and more efficiently than multiple, radial line interconnections, and presents a more realistic pathway to realize the State's 2035 ambitions. Aligning the economic and operational incentives of OSW generators and transmission providers will be a key factor for achieving the 7.5 GW goal. A flexible contracting strategy will reveal when developers believe that it is more efficient to develop and own OSW generating facilities with radial interconnection plans or rely on the planned system that could emerge from the SAA process.

Sincerely,

James Cotter
Vice President, Wind Development Americas
Shell Renewables and Energy Solutions