BUSINESS NETWORK for OFFSHORE WIND

November 27, 2019

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

Via email to: OSW.Stakeholder@bpu.nj.gov

Re: New Jersey Offshore Wind Transmission

Dear Ms. Camacho-Welch:

The Business Network for Offshore Wind appreciates this opportunity to provide comments regarding planned electric transmission infrastructure for future New Jersey offshore wind procurements.

The Business Network for Offshore Wind (the "Network") is a 501(c)(3) nonprofit organization focused on the development of the US offshore wind industry and its supply chain. Since 2011, the Network has brought together business and government, both domestically and internationally, to educate and to prepare companies and small businesses to enter the offshore wind market. The Network uses the voice of its members to educate and support federal, state, and local policies to advance the development of the US offshore wind industry. The Network empowers its members with the education, tools, and connections necessary to participate in this booming industry.

Other Jurisdictions' Efforts

A planned approach to renewable energy transmission has worked well for other jurisdictions and could work well in New Jersey. Examples from other U.S. states illustrate the key role that transmission planning has played in supporting the large-scale transition to renewable energy. Of course, New Jersey's unique geography and energy landscape would need to inform any planning process, and a solution tailored to fit the state's needs is required.

California built 4,500 MW of competitive wind capacity in the Tehachapi Resource Area near Los Angeles with the help of a high-capacity transmission system built by Southern California Edison. The Tehachapi Renewable Transmission Project ("TRTP") and Sunrise Powerline project are the only major transmission upgrades in California expressly built to facilitate both integration of renewables and reliability improvements. These transmission network projects were fully rate based and have proven critical to expanding penetration of wind in California's energy mix. Both the California Public Utilities Commission ("CPUC") and California Independent System Operator ("CAISO") provided planning input for these projects.

Similarly, Texas built over 17,000 MW of competitive wind capacity in the remote, but very windy, areas of West Texas. This aggressive expansion – in an area with few high-capacity transmission lines – would not have been possible without the foundation of a newly planned high-capacity electricity transmission network. Known as the Competitive Renewable Energy Zone ("CREZ") projects, this foundation used a competitive procurement process to build high-voltage trunk lines, which were constructed by Texas utilities and independent transmission companies. Planning leadership by the Public Utility Commission of Texas was essential to this success. The CREZ projects have benefitted Texas ratepayers by driving down wholesale electricity prices and reducing fossil fuel emissions.

Offshore wind farms serving continental European jurisdictions commonly utilize interconnection facilities which are provided by the utilities that operate the onshore grid. In this circumstance, utilities must undertake significant transmission planning and coordination with offshore wind project developers. The offshore wind transmission frameworks utilized in Denmark, Germany, the United Kingdom are intricate, and other entities are better suited provide commentary.

However, the Network strongly encourages the Board of Public Utilities to extensively analyze case studies from the relevant government agencies in Denmark, Germany, and the United Kingdom. Further study of New Jersey's unique transmission scenario is also recommended.

It is therefore clear that there are a variety of transmission planning options. The question is which approach best suits New Jersey. We encourage the Board of Public Utilities to utilize a recent New York Power Authority study of European offshore wind ("NYPA Study"), which found some common factors that support success:[1]

- Visible, long-term grid planning, both on- and offshore, removes barriers to entry, improves coordination and lowers costs.
- Cross-border coordination helps countries leverage planned transmission infrastructure, achieve resource flexibility and gain economies of scale.
- The most effective path to low-cost wind power is through scale and healthy competition.

Many ideas are packed into those observations and we will cover them briefly in the balance of our comments.

[1] Offshore Wind: A European Perspective, New York Power Authority, August 2019, available at: https://www.nypa.gov/-/media/nypa/documents/document-library/news/offshore-wind.pdf

Offshore Wind Transmission Framework

While the experience of other jurisdictions can be instructive, we believe New Jersey's overall objective should be to create a transmission framework that is tailored to the state's energy goals, in particular the recently expanded offshore wind target of 7,500 MW, and is consistent with New Jersey's unique geography and energy landscape. To that end, we make the following suggestions:

1. Plan Offshore Transmission with an Eye on the Whole NJ Energy Landscape

New Jersey is unique, and its offshore wind transmission approach should be designed to accommodate the unique drivers of its current and future energy picture. For example, New Jersey has a goal of 100% clean energy by 2050, with a mix of electrification, renewables, energy storage, nuclear power, and grid modernization. Offshore wind will be built off the southern New Jersey coast, and the state's existing large nuclear fleet is already located in southern New Jersey.

However, New Jersey's population and industry are concentrated in the north, and a large swath of development-restricted Pinelands separates northern and southern New Jersey. Historically constrained transmission infrastructure has prevented low-cost energy from reaching northern New Jersey, resulting in persistently high capacity and locational marginal energy prices in the north. A New Jersey-focused offshore transmission plan would recognize that transmitting offshore wind power to the north enhances electricity supply in the region where it can be most effective in reducing consumer energy costs. Additionally, northern New Jersey's large loads are better able than rural southern New Jersey to absorb the variability of offshore wind generation.

Accordingly, such a transmission plan also would be a significant enabler of New Jersey's goal of 100% clean energy by 2050.

2. Engage with PJM Early and Often

New Jersey's grid and energy markets are part of PJM Interconnection. PJM is responsible for planning and authorizing transmission projects within its territory, and for setting the rules governing its wholesale energy markets.

New Jersey should engage fully with PJM on transmission planning to support its offshore wind goals. Incorporating PJM into the planning process gives New Jersey the opportunity to upgrade its grid to accommodate offshore wind, while also addressing the reliability, resiliency and market efficiency grid drivers that are PJM's primary focus. Working with PJM and thinking holistically about New Jersey's grid could highlight opportunities to achieve these multiple goals at a lower cost.

3. Collaborate with New York

The energy markets in New Jersey and New York are closely linked. As a region, the two states presently have a 16,500 MW offshore wind goal, representing about 60% of the entire offshore wind targets of states on the US East Coast (7,500 MW in New Jersey; 9,000 MW in New York). Such ambitious goals heighten the importance of planning to ensure that this large volume of clean energy can be cost-effectively integrated into these electricity networks. The variability of offshore wind in the NJ/NY region will be more efficiently managed with a coordinated approach that gives New Jersey access to New York hydroelectric generation resources, and New York City's large load.

A regional planned approach to transmission would likely help both states accommodate an ambitious expansion of offshore wind at a lower cost than either state could achieve acting alone. For example, with an appropriately planned transmission system, large offshore wind projects – which help keep project costs down by leveraging economies of scale – could serve electricity to both New Jersey and New York. Additionally, New York City's large load could be used to absorb off-peak offshore wind overproduction in New Jersey at a lower cost than installing large battery storage systems in New Jersey.

Of course, fair treatment of both states, including cost allocation, will be essential to the success of a regional approach. We recommend formation of an interstate work group for in-depth discussions between the states on a regular, frequent basis. The work group composed of representatives of both states should be charged with developing an equitable proposal for a coordinated approach to offshore wind transmission.

4. Regardless of the Transmission Solution Selected By New Jersey, Onshore Transmission & Interconnection Challenges Will Be Present

Despite New Jersey's long Atlantic shoreline, there are relatively few high-capacity points of grid interconnection located close to the coast. Deciding upon a point of interconnection requires consideration of numerous factors, including availability of cable landing, consenting & permitting, real estate availability for an onshore substation and associated equipment, local stakeholder preferences, onshore grid stability/upgrades, and capacity interconnection rights. These onshore challenges will be present regardless whether New Jersey selects a radial or planned transmission solution for its offshore wind projects.

The scarcity of high-quality interconnection points is a concern shared by the offshore wind industry. The NYPA Study concluded that, even in the United Kingdom, "with more than 7,000 miles of shoreline, the radial model is reaching saturation in interconnection points available for the projects." See, NYPA Study at p. 15.

Closer to home, the developers of Massachusetts' Vineyard Wind project entered into a $35 million agreement with Barnstable Township just to allow for cable access through the town to the local high-voltage substation.

Through planning, New Jersey can anticipate the offshore wind industry's grid interconnection needs; provide interconnection capacity and clear cost information to the industry; improve competition; and reduce risks, delays, and costs for all parties.

5. Maximize Competition

Transmission provides offshore wind projects access to energy markets. However, limited onshore transmission connection points, a priority-based interconnection queue, and other transmission constraints can create barriers to entry that restrict market access, limit competition, and increase prices. A transmission plan that provides offshore wind developers with multiple available and convenient points of grid interconnection, with low, predictable interconnection costs, will increase competition and reduce risks and costs.

We support maximizing competition including in transmission, with three important caveats. **First**, it is critical that as part of any transmission development framework, offshore wind developers have the opportunity to submit bids for transmission and generation combined. There are considerable synergies in integrated asset development and it is important these remain on the table for selection. **Second**, any entity awarded the opportunity to construct transmission assets must have a robust track record and demonstrated its ability, financially and technically, to deliver on such a project. These assets are critical single points of failure. Accordingly, there must be a robust assessment of any entity's ability to deliver onshore and offshore transmission assets. **Third**, in a competitive process, revenue recovery mechanisms must be in place to provide certainty to offshore wind generation facilities in the event transmission assets are delayed in construction, or unavailable due to outage. In European jurisdictions, it has proved very challenging to align these incentives in offshore environments. This certainty would need to be in place in advance of a competitive process, to ensure the risk and uncertainty is not priced into the projects, which could have a negative impact for rate payers, and impede the ability of US offshore wind industry to bring down costs.

Technical Considerations

We do not provide technical recommendations here, such as whether an offshore transmission system should be radial or networked in design, or whether it should adopt an alternating current or direct current architecture. New Jersey will achieve the best outcome by remaining open to a broad variety of proposed solutions and technologies. The offshore transmission planning effort should focus on describing the desired outcome. New Jersey can then cast a wide net for proposed solutions, and let all parties combine technologies in innovative ways to achieve the state's goals.

Cost Responsibility and Business Model Considerations

Just as New Jersey should remain open to multiple technical solutions, it should proceed with an openness to solutions that are structured in different ways from a business model standpoint. The state should not bias the outcome with a preference for rate base transmission provided by incumbent utilities, or offshore wind developer-provided transmission. Rather, all parties should be invited to propose solutions, and ratepayer value should be the basis for determining the winner.

Ratepayer costs could be significantly lower under an open approach. FERC-authorized returns on transmission equity investments of 10% or more are commonly earned by traditional utilities operating terrestrial transmission assets. Following a traditional rate base transmission approach in New Jersey could result in FERC-authorized returns much higher than returns that would be acceptable to a non-traditional transmission investor such as a pension fund.

In the UK, there is evidence that competition is driving down prices for offshore transmission. There, offshore wind developers are required to tender their transmission assets to OFTOs (third-party transmission owner/operators). Historically, the OFTOs have bid to own and operate the offshore transmission assets at rates substantially less than the regulated rate of return earned by the UK's on-land transmission provider. A study by the Office of Gas and Electricity Markets ("OFGEM"), the UK energy regulator, found that, in comparison to alternative transmission approaches, such as merchant or traditional regulated transmission (what the report calls the "counterfactuals"), "the OFTO approach has achieved both financing and operating cost savings when compared to the counterfactuals. The analysis suggests that contestability has driven down operating costs and the cost of equity, whilst facilitating a pass-through of historically low debt costs, to a degree that cannot easily be envisaged under any of the counterfactual scenarios."[2]

Separating offshore wind transmission from wind generation raises the issue of project on project risk. Wind developers can be harmed by delays and outages on the transmission system, while transmission developers can be harmed by delays in offshore wind projects development timelines. Different equitable approaches that balance these risks between the parties will be an essential aspect of any planned transmission system.

Further Study

The Network strongly recommends that the Board of Public Utilities conduct further study on this nuanced issue, particularly New Jersey's recently expanded goal of 7,500 MW of offshore wind by 2035. Onshore upgrades and optimal points of interconnection may need to be adjusted as a result of this increased target.

[2] Evaluation of OFTO Tender Round 2 and 3 Benefits, Office of Gas and Electricity Markets, March 2016 Final Report at 55. Available at: https://www.ofgem.gov.uk/ofgem-publications/99546

Conclusion

New Jersey has already approved the 1,100 MW Ocean Wind offshore wind generation project, which will utilize a radial approach to transmission. For future offshore wind procurements, however, a planned approach to offshore transmission will allow the offshore wind industry to scale up efficiently without running into transmission roadblocks. A planned transmission expansion also can provide large savings for ratepayers by ensuring healthy competition among offshore wind developers while lowering the uncertainty that wind developers face. Today, the cost of various transmission options is unclear and obscured by the transmission queue and upgrade process, which does not conclude until well after offshore wind solicitations occur and projects are awarded. Eliminating this uncertainty, by providing more interconnection capacity and clear cost information to the industry, would reduce risks, delays, and costs for all parties. It would also improve competition, resulting in lower costs to ratepayers.

Healthy and open competition among transmission providers also will benefit ratepayers by providing innovative technical solutions and alternatives to the traditional regulated utility transmission model that may provide access to lower cost capital. To achieve these benefits, New Jersey should solicit proposals for solutions that would achieve the state's goals without prescribing the technology or the business model that should be used to achieve it. The market should be given the flexibility to propose solutions from regulated utilities, independent transmission developers, and wind developers. These proposals should be objectively judged based upon their value to ratepayers, including costs, risks, and benefits.

Finally, regional approaches that recognize New Jersey's position within PJM and the interdependence between New Jersey and New York have significant potential. This is particularly true because New Jersey's 100% clean energy by 2050 goal will necessarily entail more reliance on variable renewable energy. In that context, a well-planned transmission system enables the sharing of energy across the region, which will pay dividends insofar as it is an effective, low-cost way to manage variability of renewable electricity generation sources.

The Business Network for Offshore Wind appreciates this opportunity to offer the input on this important topic. Our members have a strong interest in reducing the barriers to the offshore wind industry's growth, and we are focused on lowering costs.

We look forward to continuing engagement with the State of New Jersey as this discussion evolves.

Sincerely,

Liz Burdock, President & CEO
Business Network for Offshore Wind