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Scaling Renewable Energy

March 12, 2021

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

Via email to: Board.Secretary@bpu.nj.gov

RE: Docket No. QO20100630
In the Matter of Offshore Wind Transmission
Comments re: Technical Conference held February 26, 2021

Anbaric Development Partners (Anbaric) respectfully provides the following comments in response to the technical conference held on February 26, 2021 regarding offshore wind transmission.

I. Introduction

Anbaric is a transmission development company, based in Wakefield, MA, specializing in the development of transmission infrastructure for large-scale renewable projects. As long-time advocates for a planned transmission approach for offshore wind, we are grateful to see New Jersey take this industry leading step. Governor Murphy and the Board of Public Utilities (BPU) have made New Jersey the leader in offshore wind development in the nation, and bold steps such as this procurement continue to anchor the thought leadership and economic center of the industry here in the state.

Offshore wind is a critical component of New Jersey's energy future. With New Jersey now seeking to interconnect an additional 6.4GW of offshore wind over the next 15 years, and

with additional wind likely necessary to meet state climate goals, the time for planning is now. As the State has recognized in the New Jersey Energy Master Plan, "planned transmission to accommodate the state's offshore wind goals provides the opportunity to decrease ratepayer costs and optimize the delivery of offshore wind generation into the state's transmission system."[1]

The BPU made similar points in its November 2020 Board order, noting that continuing under the status quo of bundling transmission and generation will result in a lack of coordination and greater impacts on the environment and landfall communities in comparison to a planned approach that rationalizes cable routes and points of interconnection (POIs).[2] And as has been shown through studies such as those conducted by The Brattle Group for New England[3] and New York[4] in 2020, attempting to integrate project-specific transmission with a larger, planned offshore grid in the future will be more technically and commercially challenging, as well as carry a greater ratepayer impact. These are principles generally apply along the eastern seaboard, including to New Jersey.

Extending the benefits of a grid into the offshore wind areas and upgrading the onshore energy grid are critical to integrating the higher levels of offshore wind now embraced by the Murphy Administration. Strategically planned and competitively procured transmission will a) enable New Jersey to integrate a significant amount of offshore wind at the lowest total cost by

[1] New Jersey Energy Master Plan, at p. 117.
[2] *In the Matter of Offshore Wind Transmission,* DOCKET NO. QO2010063, November 18, 2020.
[3] https://brattlefiles.blob.core.windows.net/files/18939_offshore_transmission_in_new_england_-the_benefits_of_a_better-planned_grid_brattle.pdf
[4] https://brattlefiles.blob.core.windows.net/files/19744_offshore_wind_transmission_-_an_analysis_of_options_for_new_york.pdf

minimizing transmission bottlenecks: b) reduce grid connection risks – including reducing the risk of permitting delays vs. radial connections; c) minimize environmental and fisheries impacts, and increase competition between wind farm developers. Further, if planned network designs are used, ratepayers in the state will see the significant benefits of the power system reliability and resilience that planned transmission can provide, allowing the state to more confidently utilize these resources to replace its current fossil generation fleet. Further, as compared to radial or power corridor designs, networked transmission can reduce the amount of onshore upgrades needed by creating power transfer paths offshore, materially decrease curtailments of offshore wind energy, allow for power to be delivered where it is needed by system operators, eliminate larger single-source contingencies, and significantly decrease operational risks to wind farm owners by ensuring that generation is not lost for months at a time due to cable faults on a single radial connection.

As it relates specifically to the upcoming SAA transmission solicitation and the Feb 26th technical conference, our Anbaric's comments will focus on the following items:

1. What the RFP needs to capture in the responses received

2. What is the true risk as it relates to transmission planning

II. Comments

1. The RFP Should be Structured to Provide the BPU with Information Beyond Technical Design and Cost and Cost-Cap Information, and Include Information on Consumer and Other Benefits Including System Reliability, and Risk Reduction and Development Work to Demonstrate Feasibility

Historically, the PJM RTEP process seeks a narrow scope of information needed to understand and assess project designs that are developed to address well understood, discrete reliability issues. While this process allows for an apples-to-apples comparison of proposed solutions to a set of clearly identified needs, the RTEP information submission tools are too limited by themselves to be relied on by the BPU for the development of several offshore wind transmission scenarios. While the basic RTEP information submission tool will provide a critical basis for the BPU's path forward, the BPU should ensure that the RTEP process also allows for respondents to provide much greater detail about the options they are proposing.

To this end, the BPU should ensure that the RFP solicits, and that PJM provides for, the submission of various information outside of the limited bounds of the RTEP data tool. In order to achieve the goals that New Jersey has laid out through this process, creative responses will be necessary, and the response mechanism itself must be designed to allow for that. It must allow for comparison of bids that likely will not be "apples-to-apples" comparisons, but rather a determination of "which works better for New Jersey, the apple or the orange". Anbaric recommends that the BPU work with PJM to design a response mechanism that provides respondents the ability to include extensive narrative related to the components of their responses, as well as the ability to include appendices of technical data, relevant studies, and the like.

Specifically, Anbaric recommends that the BPU encourage the submission of information regarding the following:

a. Risk and Feasibility. Information in this area should discuss routing choices, design aspects (e.g., bridge crossing, underground sections and anticipated issues, etc.) that will create or mitigate risks for on-time and on-budget completion of a given design.

This information could also discuss advanced permitting work, survey work, environmental assessment work, etc. This information could also highlight how a given design provides advantages as compared to other likely alternatives.

b. Consumer Cost Benefits. As noted, recent reports regarding the east cost of the United States, as well as in Europe, have found that planned transmission can result in significant cost savings for consumers over radial systems. However, while the cost of fewer cables may be apparent, the cost savings of larger network systems may be not be as readily apparent if only capital costs are examined. Consumer cost savings due to greater availability of wind farms and the ability to route power to where it is needed on the system instead of dispatching more fossil-based generation to meet the needs of load can be significant. For example, a recent study by ISO New England found that 8,000 MW of offshore wind could reduce RTO-wide production cost in the six-state area by 50%.[5] That type of reduction is significant given the large portion of a retail electric bill made up by the fuel costs to run traditional generation.

   Information could also be submitted about consumer cost protections. It bears noting that under the current, bundled radial transmission approach ratepayers are exposed to a significant amount of risk, as New Jersey's first award includes a transmission system upgrade cost sharing agreement, under which ratepayers must cover 30% of upgrade costs over $10 million, 50% of costs over $130 million and 100% of costs over $174 million. With adequate planning, the costs of interconnection will be better known, reducing or removing entirely the need for uncapped risk exposure. Additionally, planning and analysis can help determine the likely accrual of benefits, which in turn could be used to inform cost allocation.

c. De-risking of Offshore Wind Scaling. Planned transmission can significantly de-risk the buildout of offshore wind compared to radial transmission, as discussed in greater detail in the next section of these comments. The RFP should solicit information about how a given project design works to de-risk the scaling of offshore wind vs. radial designs. This could cover, for example, how a design results in fewer overland routes, and how multi-stage proposals can permit and pre-build for later expansion.

d. How project design allows for expandability. While New Jersey leads most other states with a current offshore wind procurement target of 7,500 MW, it is also understood that additional wind (along with the buildout of significant other renewable energy resources) will be needed to ultimately meet the state's climate

[5] https://www.iso-ne.com/static-assets/documents/2020/10/2019-anbaric-economic-study-final.docx at page 1. "The results for the production cost analyses indicate that energy-production costs are reduced by approximately one-half with the interconnection of 8,000 MW of offshore wind. Similarly, system carbon dioxide emissions are reduced by approximately one-third with 8,000 MW of offshore wind." *Id*. However, benefits were limited above that if networked systems are not used due to transmission limitations, which result in curtailment.

goals. The RFP issued by the BPU should require expandability to ensure that the projects selected can scale in the future in cost-effectively integrate additional offshore wind. Descriptions of the expandability of different project designs, along with information about the consumer cost-savings of various approaches, should be encouraged to be submitted with project proposals.

2. Planned Transmission Reduces Risks Rather than Increasing Them as Compared to Radial Windfarm-by-Windfarm Transmission

As we look to the ideal scenarios for offshore wind transmission in New Jersey, it should be highlighted that the narrative that separate or planned transmission creates projects-on-project risk and that this is a significant issue to be addressed is a talking point that does not correctly identify causes of early offshore wind delays, and further does not reflect the current choices made by countries deploying significant offshore wind. Rather, history shows that early planned transmission issues did not result from project separation but from a series of technical and other factors that indicate the ambitious first attempts at planned transmission were simply difficult to execute. This was the early attempt by the German TSO, TenneT, to build a shared system. However, as was reported in the press at the time, this was not a separate transmission issues but a result of issues like undercapitalization for the project, the technical complexity of the project with solutions that were not mature, and an undeveloped supply chain.

While this narrative of project-on-project risk has been spun to advance a position that radial bundles are a "less risky" approach, the evidence that this is not the case comes from countries like Germany, which did not abandon planned transmission but rather more fully embraced it as the superior approach. The approach has worked well for other countries like the Netherlands. In fact, even a nation like the United Kingdom – which has the best-case coastline

for extensive radial development – is moving to a planned, network system finding the same sort of significant consumer benefits (an over 6 billion pound savings compared to radials) and environmental and environmental justice benefits (50% less equipment vs. radials).[6] While some have argued that if we are to move to a planned system, it should be done after radials are further utilized for additional projects, the UK found that even delaying five years – starting in 2030 vs. 2025 - cut the economic benefit to consumers by half.[7]

Planning and competitive procurement have enabled multiple jurisdictions to efficiently connect generation utilizing shared transmission facilities, and have led to subsidy-free wind procurements. This is, in itself, a very significant consumer benefit of planned transmission that could save consumers billions of dollars compared to alternatives and simply is not enabled by single farm radials or even by power corridors.

Europe also demonstrates that the technology is mature. Arguments that technology standards are needed before planned transmission can proceed are not supported by current projects around the world. The technology is mature, and just like onshore, where there is planning ahead for expansion on platforms, different technologies from different vendors can be connected. The argument that planned transmission is choosing a technology now for the entire system is not factually correct.

Further, in addition to planned, shared transmission realizing benefits in Europe, innovative networked systems are also being utilized. The Kriegers Flax Combined Grid

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[6] https://newenglandenergyvision.files.wordpress.com/2021/02/bstojkovska-02-02-2021-draft.pptx

[7] *Id*. at slide 5.

Solution is now in operation. And two additional offshore energy hubs in the North and Baltic Seas are moving forward. As noted, the UK is also moving to meshed, or network, grid planning.

In addition, there is no need to delay planned transmission for additional wind area lease auctions to be held. Current wind areas are supplemented by call areas, like Hudson South,[8] that have already been studied and specifically identified by the Bureau of Ocean Energy Management.

III. Conclusion

Anbaric appreciates the opportunity to submit these comments on the topics discussed at the February 26, 2021 technical conference. New Jersey's decisions over the next few months can enable the scaling of offshore wind in the most cost effective, least impactful way while ensuring that a design is chosen that provides the consumers with reliable electric supply that can be depended on and even improve the overall performance capabilities of the electric system vs. radial or other scenarios that have been discussed. Anbaric is excited to help the State of New Jersey identify the most optimal, least risk transmission designs that can help the state realize its current and future offshore wind energy procurements.

[8] *See e.g.*, https://www.boem.gov/sites/default/files/uploadedImages/BOEM/Renewable_Energy_Program/State_Activities/NY/NYCall_4_4_2018.jpg