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VIA ELECTRONIC MAIL

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

RE: Post-Technical Conference Comments of Atlantic City Electric Company and
Exelon on Offshore Wind Transmission
BPU Docket No. QO20100630

Dear Secretary Camacho-Welch:

On behalf of Atlantic City Electric (“ACE” or the “Company”), an Exelon Company,¹ please accept these Post-Technical Conference comments in connection with the February 26, 2021 Technical Conference hosted by the New Jersey Board of Public Utilities (“BPU or the “Board”).² During the Technical Conference, the Board examined the risks associated with a potential separation of transmission from offshore wind generation and invited written comments. ACE appreciates the opportunity to have participated in the Technical Conference and values the open public input process the Board has pursued. As the Board’s offshore wind policy evolves, ACE respectfully requests that the Board consider the following comments.

¹ ACE is a wholly owned subsidiary of PHI, a limited liability company organized and existing under the laws of the State of Delaware. PHI is, in turn, a wholly owned subsidiary of PH Holdco LLC (“PHLLC”), a limited liability company organized and existing under the laws of the State of Delaware. PHLLC is, in turn, 99.9% owned by Exelon Energy Delivery Company, LLC (“EEDC”), a limited liability company organized and existing under the laws of the State of Delaware. EEDC is, in turn, a limited liability company wholly owned by Exelon.

² Consistent with the Order issued by the BPU on March 19, 2020 in connection with *In the Matter of the New Jersey Board of Public Utilities’ Response to the COVID-19 Pandemic for a Temporary Waiver of Requirements for Certain Non-Essential Obligations*, BPU Docket No. EO20030254, ACE files these comments electronically with the Secretary of the Board and the service list. No paper copies will follow.

Background

On November 18, 2020, the Board formally requested that PJM Interconnection, LLC (“PJM”) incorporate New Jersey’s offshore wind goals into the PJM transmission planning process through a mechanism known as the State Agreement Approach (“SAA”). The Board’s bold announcement is the first time a State within the PJM region has utilized the PJM SAA to incorporate state public policy goals into the regional transmission planning process. On February 26, 2021, the Board held a technical conference to discuss potential risks associated with the separation of transmission from the generation component of offshore wind. Specifically, the Board sought to explore three specific areas: (1) pre-commercial operation delays and the mismatch of construction schedules, (2) curtailment risk, and (3) post-commercial operational risk. Michael Kormos, Exelon’s Senior Vice President – Transmission & Compliance, participated in the Board’s Technical Conference on behalf of ACE, and addressed topics on the curtailment risk panel.

ACE has shown consistent support for New Jersey’s ambitious offshore wind goals as well as the State’s current effort to unbundle transmission from offshore wind generation through the SAA. The SAA has the potential to provide the most benefits to New Jersey, and all its residents, as it prioritizes the State’s long-term offshore wind needs rather than the short-term needs of interconnecting individual offshore wind farms. ACE believes that our customers and communities would benefit most from a scalable, coordinated, open access transmission system that can be expanded over time to meet both the State’s immediate and anticipated future offshore wind procurements. This approach should provide the most efficient and least-cost solution to optimally serve multiple wind farms, reduce constriction cycles, reduce environmental and road traffic impacts, and lower costs by avoiding incremental onshore transmission upgrades.

ACE is supportive of the Offshore Wind Strategic Plan and commends the Board for initiating, for the first time ever, the SAA in pursuit of transmission solutions to interconnect New Jersey offshore wind. ACE is an Exelon Company engaged in the transmission and distribution of electric energy to serve approximately 556,000 customers over a 2,800 square mile territory that includes Atlantic City and its casinos, rural and shore communities, industrial parks and farms, and diverse areas in-between. ACE has served southern New Jersey communities for almost a century and woven into the fabric of these communities. ACE views offshore wind development, and specifically transmission for offshore wind, with an eye toward what is best for our customers and communities. Specifically, ACE sees offshore wind as an exciting way to provide our customers and communities clean, zero carbon energy along with other benefits. As the world recovers from the COVID-19 pandemic, ACE understands that investment in offshore wind development, including transmission, may provide an economic boost to our struggling local economies, especially southern New Jersey.

Comments

ACE offers the following Post-Technical Conference Comments for consideration.

A. Risk

Offshore wind development is a resource intensive endeavor, both in terms of time and capital. Risks and challenges to develop, finance, construct, and operate electric infrastructure, especially offshore wind related infrastructure, are numerous. Minimizing these risks is a worthwhile undertaking. The Board is right to attempt to identify and minimize these risks for the State and its ratepayers. The Board's February 26, 2021 Technical Conference on the risks of separating transmission from offshore wind generation provided clarity on the diverse viewpoints of the different participant classes. In the end, it was plain that an unbundled, planned transmission system for offshore wind has much less risk than a bundled, radial approach.

Under the SAA, PJM, the existing PJM transmission owners, such as ACE, and qualified PJM transmission developers will look at the coordinated long-term planning impact to interconnect up to 7,500MW of offshore wind into New Jersey. This type of elevated approach provides the most benefits to the New Jersey communities facing the biggest impact, while minimizing the environmental and fisheries impact. In its role as consultant to the Board, the presentation of Levitan Associates ("Levitan") echoed this point: radial export cables have a bigger negative impact than a coordinated approach. Risk and impact (social and environmental) go hand in hand. When impact increases, risk increases. When impact is minimized, risk decreases.

Mr. James Cotter, representing Shell New Energies US, stated that the German and Dutch planned transmission system for offshore wind is a more cost-effective solution than the UK radial approach. Mr. Cotter's comments echoed many of the same positions that ACE has consistently advocated. However, the offshore wind developers on the panels largely focused on the financial risks to their individual projects. The developers' biggest concerns were cross-default risk and transmission outages affecting their offshore wind farm. Collectively, their concern with risk revolved around their financial health. Although the developers' concerns may be understandable, ACE urges the Board to focus not on such myopic views, but on the broader benefits a planned transmission system provides to New Jersey communities.

Mr. Christian Bjøl from Ørsted talked about liquidated damages to wind developers, along with penalties and incentives to transmission if they meet or fail to meet the offshore wind farm's timelines. Ms. Elisabeth Treseder from Equinor Wind also mentioned that transmission owners should pay liquidated damages to generators if transmission causes an adverse financial impact to the generator. Although it is possible that the transmission may be delayed, it is just as possible the offshore wind farms themselves can be delayed. Who should bear the risk if the offshore wind farms are delayed and transmission developers have nothing to hook in to?

Ms. Treseder from Equinor Wind stated that PJM evaluates and determines outage schedules without considering the financial and operational interests of the generators. Transmission owners have a responsibility to ensure their facilities operate reliably. Outages must

be scheduled based on a range of factors, including load levels, weather conditions, and operations planning analyses performed by PJM. Transmission owners and offshore wind operators can work together to synchronize outage schedules to minimize the impact to energy deliveries. Øyvind Vessia from Ørsted stated that offshore wind generators should be compensated during planned and unplanned outages on the transmission grid. Risks around transmission outages exist on the grid today and generators have managed to mitigate these risks. Particular risks to undersea cables exist no matter who builds the transmission. Although such an undersea cable issue can be prolonged in nature, the owners responsible for the transmission system can, for instance, examine lessons learned from other underwater cable incidents and plan to better manage similar situations. Keeping spare spools of transmission cable on hand for emergency splices can be part of the risk mitigation response.

The distinction between the risks that concern ACE and the risks that concern the offshore wind developers is clear. ACE is focused on the overall, long-term impact to New Jersey customers through a planned transmission grid that lowers cost, reduces environmental impact and risk, better addresses curtailment risk, maximizes competition between offshore wind generation, and better addresses constructability risk. The offshore wind developers appeared to focus primarily on financial risk. Only Shell New Energies suggested a solution that did not entail direct payments to the generator. Instead, Shell New Energies proposed that generators and transmission owners could share in the cost of transmission; thus, the costs and risks would be shared by all parties. This proposal seems to be a sensible middle of the road solution and the SAA allows for this exact type of approach to take place. Joint proposals from a partnership between an offshore wind developer and a transmission developer are within scope of the SAA solicitation.

But if this is not enough, the SAA is a competitive solicitation. Offshore wind developers may participate and submit individual transmission solutions to PJM. The SAA is a tool that can eliminate the offshore wind developers' concern over a possible mismatch in timing between the offshore wind generation and transmission by allowing them to directly participate in the solicitation.

B. Constructability

Offshore wind is a nascent industry in the US and permitting and construction is still a relative unknown. Offshore wind solicitations in a handful of states have awarded contracts to projects, but besides the 30MW Block Island project and the 12MW Coastal Virginia Offshore Wind pilot project, there are no other fully constructed offshore wind projects in the US. In fact, there are no other fully permitted offshore wind projects in the US Outer Continental Shelf. Developing and building offshore wind has its own set of unique challenges. Developing and building transmission also comes with its own set of unique challenges. Assigning responsibility of both components to one entity effectively doubles the amount of challenge.

Maryland was the first state in 2017 to award offshore wind contracts through an offshore wind renewable energy credit ("OREC") solicitation. US Wind and its MarWin project and Deepwater Wind's Skipjack project, now owned by Ørsted, were selected. The original in-service

dates for the Skipjack project was 2022 and for MarWin, 2021. Both US Wind³ and Ørsted⁴ have announced significant delays to the projects; 2024 for MarWin and 2026 for Skipjack. The South Fork Wind Farm, owned by Ørsted and Eversource, was selected by the Long Island Power Authority (“LIPA”) in 2016. The intent was to begin construction in 2019 and be in-service in 2022. The BOEM recently published the Draft Environmental Impact Statement (“EIS”) for the project, which is a major step in the environmental permitting process as South Fork Wind Farm is now closer to receiving its Record of Decision (“ROD”) from BOEM. However, the in-service date of 2022 is unlikely to occur; Ørsted and Eversource will likely delay the project to at least the end of 2023⁵. Additional offshore wind projects that were selected in other state OREC solicitations are experiencing delays. The story of Vineyard Wind is well known, along with the delay that it is encountering. Ørsted announced possible delays to three additional wind farms:⁶ Ocean Wind, Revolution Wind, and Sunrise Wind.

ACE references these delays not to infer anything about project-on-project risk or the likelihood that offshore wind generation has a greater risk of delay than the transmission, but to reflect on the challenges faced by the entities building offshore wind farms for the first time in the US. These entities are going through a federal permitting process that is also being utilized for the first time on offshore wind. Piling on the responsibility of having to manage the permitting, development, and construction of transmission for offshore wind onto these same developers is likely too much. It is hard enough to permit and construct an offshore wind farm, but to also permit and construct transmission, where in most cases the offshore wind developers have never built transmission in the US, let alone through a coastal community in New Jersey, is an unnecessary additional burden.

Separating transmission from offshore wind generation makes the most sense as it allows for the entities that are best at building transmission to compete for and build the transmission needed for offshore wind. Risk may be minimized by building coordinated transmission and allowing the experienced entities that build transmission to take on that challenge for offshore wind. ACE has permitted and built facilities in Southern New Jersey for almost a century. Our experienced and knowledgeable employees have successfully placed into service many transmission facilities over the last four years and are familiar with the more strategic transmission facilities for offshore wind in Southern New Jersey. ACE recently completed work on some of these strategic facilities, including a new Orchard to Cardiff 230kV line and associated substation upgrades and a new Cardiff to Lewis 138kV line and associated substation upgrades. ACE is familiar with the challenge of building transmission facilities through Southern New Jersey and its coastal communities, but our experience, community presence, and existing rights-of-way will allow us to successfully develop and construct transmission for offshore wind.

³ <https://www.delmarvanow.com/story/news/local/maryland/2020/11/09/planned-wind-farm-off-ocean-city-delayed-again-developer-due-federal-issues/6171852002/>

⁴ <https://delawarebusinesstimes.com/news/industry/environment/orsted-skipjack-delayed-until-2026/>

⁵ <https://www.newsday.com/business/south-fork-wind-farm-delayed-1.50050231>

⁶ <https://www.offshorewind.biz/2020/04/29/orsted-faces-delays-across-us-offshore-wind-portfolio/>

C. Curtailment Risk

Continuing the comments provided by Michael Kormos at the Technical Conference, curtailment can occur due to reliability or economic issues, but constraints first show up in economic studies before they become reliability issues. Pursuing a coordinated solution through the SAA provides for the ability to perform economic modeling and identify the constraints, the location of the constraints, the duration of the constraints, and the potential amount of curtailment. Radial interconnection through the PJM interconnection queue ensures that the capacity portion of the request will be deliverable but does not provide a good means to identify curtailment risk on the full energy output of the project.

The PJM generation queue process is a reactive but-for process and only studies reliability criteria given certain load conditions. This process allows PJM to study the capacity portion of interconnections, which works well for fossil fuel generation, but renewables, given their variable nature, have capacity portions that are far less than their full output potential. The mismatch between energy and capacity of renewables presents a curtailment risk for the energy amount above the capacity request.

While offshore wind may have a capacity factor of approximately 40 percent⁷, the likely capacity factors at any given hour are either 0 percent or 100 percent. As a result, time periods of no renewable output and high renewable output are expected. A generator delivery study pursuant to an offshore wind interconnection request in the PJM queue looks at peak load conditions with an assumed offshore wind capacity injection of about 30 percent and does not take these situations into account. The planning process must consider the time periods of high renewable output or the risk of offshore wind curtailment increases.

Production cost modeling, through an economic modeling tool like PROMOD, allows us to see a forecasted 8,760 hourly view of a future year. Since production cost modeling looks at a variety of load conditions, it is not limited to a particular load condition. The Least Cost Scenario to meet the NJ's 2050 clean energy goals in the Energy Master Plan ("EMP") identified the need for up to 10,675 MW of offshore wind. Variation 5 modeled in the EMP identified a possible 26,125 MW of offshore wind. This quantity of offshore wind cannot feasibly interconnect via radial feeds from individual offshore wind farms. Additionally, the intermittent nature of offshore wind will have an adverse impact on the grid without proper reliability and economic planning and corresponding reinforcement and mitigation. Production cost modeling is key to understanding what constraints show up at a given level of OSW, the possible curtailment when this amount of offshore wind interconnects, and the optimal set of upgrades to mitigate these constraints to reduce curtailment.

For the pending SAA solicitation, interconnecting 7,500 MW of offshore wind likely changes New Jersey's energy mix as it would displace more expensive in-state energy. It is plausible that when New Jersey interconnects 7,500 MW or more of offshore wind, the State may run up against transmission constraints in New Jersey and outside of New Jersey. If constraints

⁷ PJM offshore wind interconnection requests have received a capacity value of about 30 percent.

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show up in neighboring states, the Board will have to decide whether to pursue transmission upgrades to address the constraints or consider the impacts of reduced offshore wind energy delivery due to these constraints. Utilizing the SAA, transmission upgrades outside of New Jersey could be cost allocated in part or entirely to New Jersey. Neighboring states may find benefits from these upgrades and may be willing to share in these costs; it is certainly an option worth exploring with neighboring states to ensure that New Jersey fully realizes its offshore wind goals.

Conclusion

ACE, an Exelon Company, appreciates the opportunity to provide Post-Technical Conference comments to the Board relating to the risks associated with separating transmission from offshore wind generation. ACE is excited to help New Jersey achieve its offshore wind goals and to address the most efficient least-cost transmission solution to integrate 7,500 MW or more of offshore wind, all while thoughtfully considering the economic realities facing the utility community and its customers during this unprecedented period.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "David Weaver", with a long horizontal flourish extending to the right.

David Weaver
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Atlantic City Electric Company/Exelon