



Board of Public Utilities Offshore Wind Transmission Proposal Data Collection Form

Supplemental Information Requested to Support
New Jersey Board of Public Utilities (BPU) in the
Evaluation of Transmission Projects Proposed to be
Developed Under the 2021 State Agreement
Approach (SAA)

Document Date and Revision: August 31, 2021, Revision 3

Document Purpose: Bidders proposing to develop a transmission project to support the integration of offshore wind within the state of New Jersey's 2021 State Agreement Approach competitive solicitation must complete this form as one component of the bid submission. This document provides bidders guidance on criteria that will be used to evaluate alternative transmission proposals, collects information necessary for the BPU to evaluate proposed projects, and allows bidders to describe benefits to New Jersey residents and ratepayers.

Submission Instructions: [PJM Competitive Planning Process](#)

Submission Due Date: August 13, 2021

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I. SAA Policy Objectives

New Jersey is seeking transmission solutions capable of cost-effectively integrating into the PJM transmission system up to 7,500 MW of offshore wind by 2035. The BPU is undergoing a State Agreement Approach (SAA) process with PJM to receive, evaluate, and select proposals from transmission developers for building out the transmission capability necessary to cost-effectively and reliably interconnect the offshore wind resources. An overview of the process and the PJM Problem Statements that provide additional details on the PJM criteria and transmission upgrades necessary for meeting NJ's offshore wind objectives are available on the PJM [Competitive Planning Process](#) page.

As outlined in the Proposal Window Overview document, specific evaluation criteria for proposed solutions to meet the New Jersey public policy requirements under this State Agreement Approach include:

- *PJM system reliability* – ability to provide a solution to the needs defined in the problem statements, additional needs identified by the proposing entities, or the needs associated with alternative POIs and to resolve potential reliability criteria violations on PJM facilities in accordance with all applicable planning criteria (PJM, NERC, SERC, RFC, and Local Transmission Owner criteria), including the solution's ability to (a) resolve identified PJM reliability violations and satisfy any applicable criteria that may impact the performance measurement of the project even if it was not explicitly stated as part of the original problem statement; and (b) reduce the need for must-run generation and special operating procedures, extreme weather outages and weather-related multiple unforced outages, reduced probability of common mode outages due to electrical and non-electrical causes, islanding, power quality degradation.
- *Project constructability* – the extent to which the proposal identifies, addresses, and mitigates (through technical studies and documentation of experience with similar solutions elsewhere) the financing, constructability, execution, technology, environmental, and permitting challenges of the proposed solution, including the need for construction- or other-related outages on related transmission facilities.
- *Project costs* – total cost of proposed solutions and individual elements (partial solutions); quality of proposed innovative cost control approaches (such as phased-in development of project segments, capped project costs or capped revenue requirements, and cost recovery for excess or unused capacity) or levelized cost recovery options (such as trended original costs, which may improve the intergenerational equity of cost recovery); financial commitments regarding rate of return, specific provisions to protect against cost overruns, or other comparable provisions designed to control costs.
- *Project risk mitigation* – ability of the proposed solution to mitigate environmental, permitting, financing, constructability, timing, project-on-project (including the use of financial assurance mechanisms, guaranteed in-service dates or financial commitments contingent on meeting targeted commercial online dates, and delay damage payment provisions), and any other risks that could

increase costs, reduce value, or delay the development and delivery of offshore wind generation for New Jersey.

- *Environmental benefits* – ability of the proposed solution to minimize potential environmental impacts; minimize impacts to marine, nearshore, and onshore habitats, listed species, cultural resources, air (emissions) including potential benefits, water quality, noise, aesthetics, tourism, and navigation; minimize impacts related to fisheries resources and the fishing community and industry.
- *Permitting plan* – ability of the proposed solution to minimize permitting risks, including plan for and likelihood of achieving all State and Federal necessary regulatory agency approvals, permits, or other authorizations; likelihood of meeting projected commercial operation dates, operation and maintenance plans, site control or ability to achieve site control, constructability, project longevity, and project schedule.
- *Quality of proposal and developer experience* – quality of project documentation and proposal description, discussion of commitments and benefits, and supporting analyses and benefits quantifications (including documentation of assumptions and analyses, if any); documentation of developer experience relevant to the successful implementation of the proposed solution.
- *Flexibility, modularity, and option value of solutions* – ability of project proposals to achieve efficient outcomes through combinations of solutions for Options 1a, 1b, 2 and 3 needs, or ways in which proposed solutions, or portions of proposed solutions, can be combined, integrated, and sequenced to more cost effectively achieve the State’s overall public policy and risk mitigation objectives; ability of the proposed solution to accommodate future increases in offshore wind generation above current plans; innovative solutions that yield a transmission investment schedule that is optimally aligned with the planned schedule of offshore wind generation procurements.
- *Market value of offshore wind generation* – ability of the proposed solution to maximize the energy, capacity and Renewable Energy Credit (REC) values of offshore wind generation delivered to the chosen POIs, including mitigation of curtailment risks, and the level and sustainability of PJM capacity, congestion, or other rights created by the proposed solution that increase the delivered value of the wind generation or otherwise reduce the total cost of the proposal.
- *Additional New Jersey benefits* – ability of proposed solutions and associated upgrades to provide additional onshore-grid-related benefits, resolve PJM market congestion, and/or otherwise reduce or avoid PJM-related costs and improve PJM market performance; this includes (a) energy market benefits, including energy deliverability of offshore wind production or curtailment, production cost savings, or other benefits; (b) identification of benefits to the transmission system, including synergies with transmission solutions from already-ongoing procurements, opportunistic replacement of aging transmission infrastructure, the creation of valuable transmission-related rights, and other transmission cost savings; (c) capacity market benefits (including CETL increases), improve resiliency/redundancy, avoid future costs (such as future reliability upgrades or aging facilities replacements); (d) other benefits, including state energy sufficiency, improvements in local transmission and distribution outage statistics, reduced utilization of aging infrastructure, improvements in local resiliency.

To submit a proposal to achieve the objectives of this process, transmission developers must submit all of the information requested by PJM through its transmission planning process. Developers can find those materials at PJM’s website on the PJM [Competitive Planning Process](#) page.

In addition, the New Jersey BPU requests that developers submit additional information concerning their projects that will aid the BPU in evaluating and selecting the projects that best meet New Jersey’s needs based on the criteria outlined above.

II. Project Proposal Identification

Proposing Entities shall include the following information in the BPU Supplemental Offshore Wind Transmission Proposal Data Collection Form:

Proposing Entity Name: **Atlantic City Electric Company (“Atlantic City” or “ACE”)**

Company ID: **03**

Project Title: **ACE 03**

PJM Proposal ID: **2021-NJOSW-127**

III. Project Summary

In addition to the project details requested by PJM, please provide below a narrative description of the proposed project(s) and options; document the projected benefits in terms of design, flexibility, ratepayer costs, and environmental impacts; identify major risks of (such as delay or non-completion risks, including the project-on-project risks created by the interdependence of the proposed project(s) and those of other transmission and offshore wind projects); provide strategies to limit risks to NJ customers; and include cost recovery and containment provisions.

NARRATIVE DESCRIPTION OF PROPOSED PROJECT(S)

Provide a narrative description of the project(s) proposed in response to the PJM Problem Statements describing primary technical features, interconnection points (default or alternative POIs) and the associated transfer capability, timeframe for development, and how the project(s) will support New Jersey’s policy to cost-effectively develop 7,500 MW of offshore wind.

Atlantic City Electric Company (“Atlantic City” or “ACE”), along with the other Exelon companies¹, prepared this comprehensive solution consisting of a series of system improvements in response to the 2021 State Agreement Approach (“SAA”) Proposal Window to Support New Jersey (“NJ”) Offshore Wind (“OSW”). ACE intends to be the Designated Entity for the ACE components of this proposed Option 1a comprehensive solution. The components identified to address the PECO and BGE upgrades would be assigned to PECO and BGE while all other identified upgrades would be assigned to the Transmission Owners that own those assets. These PECO, BGE and other TO upgrades are not necessarily integrated with this proposal if New Jersey decides not to sponsor upgrades in other states. The proposed solution deviates from the base case Point of Interconnection (“POI”) injection amounts and offers an alternative injection amount consisting of 2,658MW of OSW at the existing Cardiff substation, utilizing an [REDACTED] which provides PJM with added system flexibility. Providing a solution with increased OSW injection capacity to Cardiff over the baseline POI assumptions affords New Jersey an opportunity to reduce the environmental, customer and cost impact of siting new transmission cables to POIs further from BOEM lease areas and further inland. The solution is sized for 2,658MW, but given the nature of transmission equipment, the proposed solution has a rated capacity to accommodate up to a total of 2,800MW. This solution will aid New Jersey in its goal to meet 7,500MW of OSW by 2035. Additionally, this proposal conforms to the PJM SAA base case injection total of 7,648MW.

The proposal allows for 2,658MW, with a potential of up to 2,800MW, of offshore wind to connect at Cardiff. The first 1,510MW will connect to an [REDACTED] [REDACTED] positions at Cardiff. While the [REDACTED] can connect 1,510MW, the [REDACTED] facilities can accommodate up to 1600MW of offshore wind. The remaining 1,148MW will connect [REDACTED] at Cardiff that will tie into the [REDACTED]. [REDACTED] is a more reliable design and offers more operational flexibility over the existing [REDACTED]. Utilizing the [REDACTED] at Cardiff, the 1,148MW of offshore wind energy can flow from the connection at Cardiff to [REDACTED]. The [REDACTED] will be capable of carrying 1,148MW but will have the capacity to deliver up to a total of 1,200MW.

¹ The Exelon family of companies are: ACE – Atlantic City Electric Company, BGE – Baltimore Gas and Electric Company, ComEd – Commonwealth Edison Company, DPL – Delmarva Power & Light Company, PECO – PECO Energy Company, Pepco – Potomac Electric Power Company.

The above-mentioned configuration can be seen in the Cardiff General Arrangement drawing. General Arrangement and one-line for the proposed reconfiguration of the Cardiff substation is provided in Attachment ACE-1. Cost breakdown and Project Schedule are available in Attachments ACE-3 & ACE-5 respectively. Reconfiguration of the Cardiff substation [REDACTED] is required to accommodate the additional feeds. ACE owns approximately [REDACTED] that encompass the Cardiff substation therefore additional land acquisition is not required. The entire reconfiguration is anticipated to take place on ACE-owned property at the substation location.

As part of this proposal, a [REDACTED] is also required. The current ACE-owned [REDACTED] will be redesigned and turned into a [REDACTED]. We see benefits in this design as it utilizes the existing ACE right-of-way and easements and does not require new land acquisition. Impacts to the surrounding communities and permitting effort will be reduced by utilizing the existing corridor. Minimal clearing for construction purposes and maintenance will be required. Compensation equipment will be required at [REDACTED]. See Attachment ACE-1 for GA & single line. The breakdown of costs along with the cost schedules are provided in Attachment ACE-3. Project schedules are provided in Attachment ACE-5.

On top of the [REDACTED] significant components mentioned above, [REDACTED] additional solutions on ACE owned facilities are also proposed. The following [REDACTED] solutions for ACE-owned facilities are required:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

The proposed solution also includes [REDACTED] PECO upgrades, if New Jersey elects to mitigate these via the State Agreement Approach:

- [REDACTED]
- [REDACTED]

The proposed solution requires several other upgrades to facilities outside of the Exelon companies' service territories. In total, there are [REDACTED] network violations identified with the proposal. The [REDACTED] ACE network violations and [REDACTED] PECO network violations are addressed with the components listed above. The remaining violations are outside of ACE's service territory and should be assigned to the respective transmission owners. Please see Attachment ACE-2 Network Violations for a complete list of the identified Network Violations.

The project will support New Jersey's effort to meet its offshore wind goals by enabling 2,658MW of offshore wind to reach the Cardiff substation in Atlantic County, NJ. ACE is confident that this proposal will result in a cost-efficient, reliable, safe, environmentally optimal transmission solution that will serve PJM and New Jersey for many years to come. The two active offshore wind Bureau of Ocean Energy Management ("BOEM") lease sites off the coast of Atlantic City, OCS-A 0498 and OCS-A 0499, are geographically aligned and in proximity to southern New Jersey. Injecting all the potential OSW energy and capacity from these lease sites into southern New Jersey is a better option than building costly long transmission lines further north and inland into New Jersey. ACE's proposal deviates from the PJM SAA base case by taking the location of the active BOEM lease sites into consideration, proposes to eliminate the Smithburg POI in northern NJ, and shifts the entire 1,148MW previously included at Smithburg into Cardiff. This removes a more costly further inland POI which would otherwise require a lengthy underwater and underground route with a more cost effective and environmentally preferred shorter route. We believe another developer in this window also offered a complementary Option 1b/Option 2 bid that when paired with this Option 1a proposal, will facilitate the synergies needed to provide New Jersey with an environmentally preferred option to inject more offshore wind at Cardiff versus northern New Jersey.

The Overview of Project Costs, Cost Containment Provisions, and Cost Recovery Proposals section will address the cost in more detail, but the total cost for the ACE assets is about [REDACTED] million. The total 1A costs, inclusive of the ACE work, is approximately \$ [REDACTED] million (non-Exelon upgrade costs were pulled from previous PJM Interconnection Queue studies for comparison). Comparing this cost with the network cost of the PJM State Agreement Approach base case shows [REDACTED]. However, comparing the two proposals solely based on network upgrades presents an incomplete picture and is misleading. Detailed cost breakdowns and cashflows for Exelon costs are provided in Attachment-3.

Given ACE's vast experience building transmission in New Jersey, ACE plans to assemble a comprehensive, internal multi-disciplinary team, including contractors with significant experience in the region, to identify and capture all the risks. Examples of these risks include: pricing volatility and availability of raw material and labor, constructability, redesign and design changes based on field conditions, and schedule delays. Upon selection, ACE will be engaged in detailed development activities intended to minimize each risk. Our proposed route is wholly contained in an existing ACE right-of-way utility corridor; please see Attachment ACE-1 Route for a route map and KML file of the route. This approach helps minimize environmental, routing and permitting risks. We have engaged with the NJ DEP and had a pre-filing meeting on September 14, 2021. During our pre-filing meeting, DEP staff noted the following:

- The DEP sees the proposal to utilize existing easements without needing new rights-of-way as an overall positive aspect.
- DEP appreciates our strategy to limit longer, potentially more impactful transmission projects by leveraging existing infrastructure to increase capacity closer to the offshore lease area.
- The DEP would like to avoid tree clearing and impacts to Green Acres and wetlands; if avoidance is not possible, mitigation will be required. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- There seems to be no impact to coastal areas and US Army Corps of Engineers may not be needed unless there are river crossings.
- There seems to be no impact to fisheries as none of our routes start offshore.
- DEP staff would like to be kept in the loop as we progress and develop the proposed projects.

ACE also anticipates encountering risks associated with social dynamics. These risks include opposition by and impact to communities and stakeholders on a local and regional level. ACE will attempt to mitigate these concerns by developing public awareness, public and political support, local community support, and methods of feedback for stakeholders and members of the community.

