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December 12, 2022

VIA ELECTRONIC MAIL
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Carmen D. Diaz
Acting Secretary of the Board
Board of Public Utilities
44 South Clinton Avenue, 1st Floor
P.O. Box 350
Trenton, New Jersey 08625-0350

RE: In the Matter of the New Jersey Energy Storage Incentive Program
BPU Docket No. QO22080540

Dear Acting Secretary Diaz:

Please accept the within correspondence as the submission of Atlantic City Electric Company in response to the Board of Public Utilities Stakeholder Notice of September 29, 2022, in the above-referenced docket.

Pursuant to the Board's directive, these comments will be uploaded via the Post Comments button on the Board's Public Documents Search tool.

We thank the Board and all parties for the courtesies extended. Feel free to contact the undersigned with any questions.

Respectfully submitted,

Cynthia L.M. Holland
An Attorney at Law of the
State of New Jersey

Enclosure

IN THE MATTER OF THE NEW JERSEY ENERGY STORAGE INCENTIVE PROGRAM

BPU Docket No. QO22080540

Comments of Atlantic City Electric Company

On September 29, 2022, the New Jersey Board of Public Utilities ("BPU" or "Board") released a Straw Proposal of the New Jersey Energy Storage Incentive Program ("Straw" or "SIP"). The SIP creates two programs that provide incentives for Front-of-Meter or "Grid Supply" energy storage resources and for Behind-the-Meter or "Distributed" energy storage devices physically connected to a New Jersey electric distribution company ("EDC").

Atlantic City Electric Company ("ACE" or the "Company") appreciates the opportunity to provide the following comments in an effort to identify enhancements to the SIP proposal to achieve BPU the goals identified in the Straw. ACE's comments reflect our experience and the experience of other Exelon operating companies developing, deploying, and operating battery storage resources on their respective distribution system.[1]

ACE fully supports the proposal's identified need for deploying transmission- and distribution-level storage resources, and providing frameworks to maximize a wide range of grid services these resources can provide. However, as currently presented, aspects of the Straw will make it challenging or infeasible to capture certain value streams. To ensure achievement of the laudable goal of maximizing the value of ratepayers' investment, ACE respectfully offers the following comments and enhancements to the proposed SIP for the Board's consideration.

- Energy storage resources can provide significant distribution system benefits, either in front-of-the-meter or behind-the-meter configurations. Several studies and recent projects demonstrate these benefits. Notably, the benefits include avoided distribution system upgrades and additional use cases.
- While the Straw proposes programs intended to provide effective incentives to realize these benefits, several enhancements will be necessary to capture the full value of energy storage resources. ACE is concerned that the Straw does not currently allow for energy storage resources deployed through the SIP to achieve their full scope of benefits to the power system. The focus on wholesale market benefits does not account for distribution system benefits. Grid Supply resources may require a build-out of the distribution system to ensure that all potential operational postures can be met reliably. As designed, the behind-the-meter Distributed program is insufficient to realize the distribution system benefits envisioned in the SIP.

[1] ACE currently has a planned storage project with a construction start date of early 2023 with completion in the summer of 2023. In addition, the Exelon companies have successfully implemented battery storage technology to improve reliability and enhance the customer experience, including Delmarva Power's Elk Neck Virtual Power Plant Program, Baltimore Gas and Electric's Coldspring Substation Battery, and two energy storage projects led by ComEd in Chicago's Bronzeville neighborhood. Both Delmarva Power and Pepco are also implementing battery storage projects as part of Maryland's Energy Storage Pilot Program.

- To fully capture the benefits envisioned by Board Staff, several adjustments to the structure of the SIP incentive may be necessary. ACE provides the following recommendations to enhance both the Distributed and Grid Supply aspects of the Straw.
    - ACE recommends Distributed program modifications to (1) provide the EDCs greater assurance that the Distributed storage resources will discharge during peak demand periods and (2) allow the EDCs to operate the energy storage resources for other use cases, such as increasing hosting capacity and maintaining system stability.
    - ACE recommends that the Board modify the SIP to allow customers to choose between a *passive* (currently included in the SIP) and an *active* Distributed program (which provides an option for customers to allow EDCs to control and operate resources to capture wider benefits and higher payments).
    - For the Grid Supply program, ACE recommends that the SIP allow for utility ownership of energy storage resources so that the EDC can identify needs on its distribution system and own and operate storage resources that will capture those distribution system benefits.

I. Energy Storage Resources Can Provide Significant Distribution System Benefits

The Straw proposal recognizes the multi-faceted value of energy storage resources to the New Jersey power system and seeks to capture this value by "aggregating various sources of customer savings/benefits and grid revenues."[2] The SIP envisions storage deployment in both behind-the-meter and front-of-meter arrangements, and includes programs specifically tailored to provide unique streams of value associated with each arrangement. ACE agrees with the Staff's view of the multiple benefits of energy storage resources and the need to provide opportunities for both behind-the-meter and front-of-meter resources to provide those benefits.

In addition to wholesale market vales, distribution-connected energy storage can provide benefits to an EDC's system through, some of which were discussed in the Straw. The Straw highlights several of these benefits, including "contributing to local system resilience, helping integrate higher levels of distributed generation, and potentially reducing the cost of operating and maintaining the distribution grid."[3] In addition distribution-connected front-of-meter and behind-the meter storage resources can provide value to the system under the following circumstances.

- Energy storage resources can improve the hosting capacity of the distribution system by charging during peak generation periods to mitigate overloads on stressed distribution feeders and maintain reliability, and avoid distribution system upgrades necessary to enable exports.[4]

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[2] SIP at 11.

[3] SIP at 22.

[4] This use-case requires utility ownership and operation of the storage resources, as contemplated in the SIP at n.52 and discussed further below.

- Energy storage resources can mitigate low load conditions on distribution networks that can cause system instability. Distributed battery storage could help maintain system reliability during these periods by creating additional demand on the system by charging when it otherwise may not be doing so.
- Energy storage can also provide fast response to voltage fluctuations,[5] minimize the potential for distribution flicker,[6] and monitor backfeed.[7]

One study, the Massachusetts ESI study, found that avoided T&D accounts for 13% of total benefits of storage, demonstrating the value of utilities being able to dispatch distributed storage to meet electric grid needs.[8]

The battery storage facilities developed, deployed, or operated by ACE and the Pepco operating companies provide the following benefits that the SIP does not currently capture. For example, ACE's affiliate utility, Delmarva Power & Light (Delmarva Power), is implementing two battery energy storage projects in Maryland that provide several benefits to the electric grid while exploring different ownership models. The Elk Neck Virtual Power Plant project is a third party owned and operated aggregation of behind-the-meter batteries that Delmarva Power, through agreement with the third party, can call upon to mitigate potential local distribution overloads during peak load periods. The Ocean City Battery Energy Storage project is a utility owned and operated battery that Delmarva Power will directly control and dispatch to peak shave, mitigating the growth of local peak load while enhancing the capacity of the local distribution automation scheme to restore more customers. These benefits are or will be realized by each utility's ability to control these assets based on evolving conditions on the grid and close coordination with distribution system operations.

II. Proposed SIP will not Fully Capture Distribution System Benefits of Energy Storage Resources

While energy storage resources can provide a wide range of system benefits to ensure efficient use and appropriate growth of the distribution system, ACE is concerned that the Straw does not currently allow for energy storage resources deployed through the SIP to achieve the full scope of benefits to the electric system. Specifically, the Board could further enhance the Straw proposal to more fully achieve the goals set out in the SIP by resolving the following two issues:

- First, the SIP's approach to providing incentives for Distributed storage resources for voluntary operation during peak demand conditions is unlikely to achieve the desired distribution system benefit, and may require additional investment in the distribution system contrary to the SIP's goals.

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5 NYSERDA Energy Storage Report at 11.

6 *Id.* at 12.

7 *Id.* at 13.

8 https://www.mass.gov/media/6441/download at xii.

- Second, the SIP should consider a broader range of use cases for Grid Supply energy storage that include storage as a distribution system asset.

Based on our experience, it is critical for the SIP to address these concerns as the Straw will not be able to achieve the full value of energy storage as currently proposed, specifically the value that energy storage can provide on the distribution system when optimally operated.

The Grid Supply program for front-of-meter storage resources targets the use of energy storage to buy and sell energy, ancillary services, and capacity in the wholesale electricity markets with an additional performance incentive to reduce GHG emissions.[9] The Grid Supply program does not offer any incentives for distribution-connected front-of-meter resources to provide the distribution system benefits summarized above. Accordingly, Grid Supply storage will not serve as a resource available for ACE dispatch, as would be required to mitigate distribution system concerns.

Instead, Grid Supply resources will impact the distribution system in a manner more analogous to a generator and a load, with the distribution system being required to serve the storage in a fully-charging state (*i.e.*, drawing from the grid) and a fully-discharging state (*i.e.*, injection onto the grid). Contrary to the vision of the SIP, Grid Supply resources may require a build-out of the distribution system to ensure that all potential operational postures of the resource can be reliably met without impacting service quality on the distribution system.[10]

In the proposed Distributed program, the SIP identifies Staff's goal of capturing potential distribution benefits, but does not identify a specific quantity or amount of associated value of those benefits or how the energy storage resource will need to operate to achieve those benefits.[11] Instead, the SIP requests that the EDCs develop a performance-based incentive meant to capture and provide owners of Distributed storage resources with a representation of value provided to the distribution system, specifying both when energy storage resources will need to discharge to receive performance payments and the $/kWh payment rate.[12] The Distributed program then relies on voluntary program participation from each customer to discharge during the pre-specified periods to earn the performance payments.[13] The SIP explains that Distributed storage resources would not be subject to penalties or decreases in fixed incentive payments for non-performance.[14] As noted in the Straw, the "Distributed incentive intends to *encourage* operation of storage assets in a manner that maximizes environmental benefits, helps the electric grid during times of

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9 SIP at 2, 11, 23-24,

10 *See* SIP at 11 ("there will also need to be a robust effort by the EDCs to ensure that the grid is capable of connecting storage devices at the distribution and transmission levels.").

11 SIP at 25.

12 SIP at 25.

13 SIP at 25-26.

14 SIP at 26. ("At no point would the Distributed storage resource incur penalties or result in a decrease to the fixed payment.").

operational stress contributing to local system resilience, helps integrate higher levels of distributed generation, and potentially reduces the cost of operating and maintaining the distribution grid."[15]

However, the proposed pay-for-performance incentive structure overlooks the level of certainty required by EDC system planners to ensure reliable operations of the distribution system. To meet its reliability requirements on the distribution system, ACE must have very high confidence that distribution system-connected storage resources will be available when necessary. Under these conditions, analysis of potentially avoided distribution investment would be extremely challenging, including development of assumptions related to the amount of Distributed storage that would be operating in any dispatch interval, to determine whether any distribution investment could actually be avoided. Accordingly, the voluntary dispatch and lack of penalties for Distributed resources as envisioned by the SIP, fail to fully allow accounting for or capturing the distribution system benefits enabled by these resources.

Without certainty as to the amount of storage dispatch and only during pre-specified hours, the value of Distributed storage resources to the EDCs is expected to be very low or zero and thus fall short of the stated SIP goals because ACE cannot forecast with certainty how customers will respond to a voluntary incentive (the magnitude of which is still to-be-determined). This voluntary commitment is likely insufficient for ACE to develop and propose any incentive payment structure for the purposes of minimizing distribution investment under the parameters proposed in the Straw.

III. Proposed Enhancements to the NJ SIP

To fully capture the benefits envisioned by Board Staff, several adjustments to the structure of the SIP incentive may be necessary. ACE provides the following recommendations to enhance both the Distributed and Grid Supply aspects of the Straw. Future SIP proposal updates should review these potential benefits and identify additional approaches as necessary to enable storage resources to capture these unique value streams, and other sources of value that may be identified in the future.

ACE recommends that the Board consider ways in which the SIP could more fully capture the broader range of benefit available through alternative use cases. In addition to proposed revisions to the SIP, the Board should also consider pilot programs to enable and demonstrate the benefits of potentially valuable and cutting-edge use cases, as described further below.

A. NJ SIP should allow EDCs to control BTM Distributed storage resources to Fully Enable Distribution System Benefits

To meet Staff's stated goals of minimizing distribution costs by ensuring efficient use and expansion of the distribution system and capturing additional value to the system, the SIP should be modified to provide the EDCs greater assurance that the BTM storage resources will operate during peak demand periods and other system conditions in which charging or discharging the energy storage resource could benefit the system.

[15] SIP at 22 (emphasis added).

To capture the additional value of BTM storage, ACE recommends that the Board modify the SIP to allow customers to choose between a *passive* and an *active* Distributed program. The *passive* Distributed program would be similar to what is currently included in the SIP, in which storage resources receive payments for its voluntary participation by discharging during pre-specified hours. As noted above, ACE expects that the distribution system benefits of this approach will tend to be minimal and the distribution-system performance payment for the passive Distributed program would reflect that value.

ACE recommends that the Board add an *active* Distributed program that would provide an additional option to customers in which the customers agree to allow the EDCs to control and operate the battery storage resources during times of distribution system need. The EDCs would set a separate distribution-system performance payment rate, reflecting the higher value of EDC control and operation, for the active program, reflecting the projected value to the EDC system in each case based on the broader range of use cases described above. The EDCs would not be required to set specific performance hours for control in the active Distributed program, but would propose notification requirements that would ensure participating customers had visibility into operation of their resources.

Allowing the utility to operate the Distributed storage resources could enable not only distribution value streams, but also value stacking (under the SIP's vision for use of DER Aggregation under FERC Order 2222).[16] First, utility operation of the resources would allow ACE distribution system planners to begin considerations of the benefits of Distributed storage in local plans, including potential areas where rapid deployment of such resources could defer grid upgrades or enhance distribution services (including headroom availability). Second, Distributed storage resources under the operational control of a utility could also be aggregated to offer into PJM wholesale markets under Order 2222. In this paradigm, the utility – as the market and dispatch agent[17] – would be responsible for monitoring and operating unit offers, state-of-charge-management, and dispatch to ensure that the market commitments of Distributed storage resources would assist the distribution system consistent with the parameters identified by ACE system planners. Lastly, only dispatch and management by the utility would allow the optimization of the various overlapping parameters of managing energy storage resources to produce maximum system and ratepayer benefit. Indeed, most of PJM's focus on compliance with Order 2222 focuses on utility engagement, including methods of ensuring reliable operations of DER or storage resources that could impact distribution system reliability,[18] the opposite of the distribution benefits envisioned by the SIP.

Notably, acting as the market and dispatch agent controlling and operating the Distributed storage resources for the benefit of local reliability does not require utility ownership of these resources. In fact, there are creative rate designs and dispatch arrangements that could be pursued that would allow the potential for the storage resource owner to decide the amount of the resource for which value stacking was desired, as opposed to some other, more specific use-case (*e.g.*, home back-up power). Instead of requiring distribution

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[16] SIP at 25.

[17] *See* PJM Order 2222 Design Discussion at 120 ("Market Agent and Dispatch Agent could be DER Aggregator, Utility, or 3rd party as agreed in registration process"); PJM Order 2222 Compliance Filing at Figure PJM-10.

[18] PJM Order 2222 Compliance Filing at 11-12, 14-15, 72-78.

utilities to calculate a number rife with uncertainties about the degree of distribution system benefit, Staff could instead seek a collaborative effort with utilities, storage developers, and ratepayers to develop a potential rate design and dispatch structure that would optimize use of storage resources for all. Specifically, such a rate design could allow the resource owner to determine the portion of its resource that is subject to utility operational control – and utility market bidding parameters – and the portion reserved for the use of the owner. Resources seeking this rate structure would require additional telemetry to ensure that the utility-operated portion of the resource meets reliability standards. Such a creative stakeholder rate design process could meet utility needs for reliability, provide developers opportunities to stack new values, while enabling a seamless experience for customer participation in the development of an interactive grid.

B. NJ SIP should allow EDCs to own and operate FTM Grid Supply storage resources

The proposed front-of-meter incentive structure also overlooks potentially valuable use cases that could increase benefits for customers. Although the SIP's vision of performance-based payments focused on carbon abatement could efficiently capture innovative data sources to provide revenues for this specific purpose, this narrow program design also overlooks opportunities to gain experience in New Jersey related to other potential benefits of distribution-connected storage resources. Unlike other competitive markets which are not focused on capturing values associated with reducing system investment, the SIP's program design and ownership requirements leaves out many distribution operation-specific functions.

To capture the full value of FTM storage, ACE recommends that the Board consider allowing EDCs to directly control FTM storage or allowing EDCs to own and operate FTM storage in the Grid Supply program. As a pilot program, or in the absence of revisions to the SIP granting utility operational control over storage resources, Grid-Supply resources that could defer or avoid distribution upgrades could be explored, owned, and operated by the distribution utility. Utility-ownership would allow the EDCs to maximize the value of avoided distribution costs, identify more-efficient replacement or expansion of existing distribution facilities, and reduce the amount and/or duration of customer outages.

Other states have made similar findings. New York has found that the applications for wholesale market participation and distribution system operation benefit can only be done with utility control over resources, noting that oftentimes market participation and system reliability use-cases may come into conflict.[19] During these time periods, to ensure storage resources are helping and not hurting distribution system operations, utility control over battery operations will be critical. Other states have also allowed for utility-ownership of storage for similar reasons, including:

- Massachusetts Energy Storage Initiative has resulted in 9 MW of utility-owned storage capacity.[20]

[19] NYSERDA Energy Storage Report at 6.

[20] MA utility ES Target Reports: https://www.mass.gov/info-details/esi-goals-storage-target

- In New York, National Grid owns a 2 MW energy storage system for "increasing the resiliency of the electricity network while modernizing the distribution system, deferring infrastructure and system upgrades, and reducing system peak loads."[21]
- California utilities procured several battery storage facilities with the objective of deferring distribution system upgrades.[22]
- In Vermont, Green Mountain Power is coordinating energy storage devices through its Virtual Power Plant Program, where the utility has offered batteries to ratepayers at a discount, under the condition that the resource is subject to utility operation during stressed system conditions.[23]
- In Maryland, BG&E, Pepco, and DPL are building six pilot energy storage facilities to collect data on the operations and benefits of ownership and operational models, including utility-owned and operated and third party-owned facilities with utility operational control.[24]

Exploring these potential avenues to enable distribution system value will ensure the SIP program is comprehensive in scope. Without considering additional use cases enabled by utility ownership and operation, the proposed program structure will overlook important potential benefits of these resources. In addition, the SIP program design may even work counter to the goals of BPU Staff, by lacking penalties for energy storage dispatch that does not assist distribution system operations. ACE reiterates out supports for generating more battery interconnections in its service territory and looks forward to working with the Board to ensure reliable distribution operations can continue, while leveraging the value of distributed and grid-supply storage resources through utility control.

C. NJ SIP should Provide for Timely Cost Recovery and Minimize Impact to Ratepayers

The NJ SIP is a significant proposal to drive toward New Jersey's storage goals, and the prudent costs incurred by utilities to administer and implement the programs should be recovered on a full and timely basis. Although the proposal does not address cost-recovery for implementation of the NJ SIP, developing a timely method for utilities to recover the incremental costs related to program development, administration, and implementation will be a key component to the overall success of the program. These costs may include, for example, updates to billing systems, information technology (IT) upgrades, and ongoing program administration costs.

In addition, ACE recommends following the agency model for collecting long term incentives, allowing utilities to pre-collect incentives and ultimately avoiding increasing the cost of capital for ratepayer. This model has already been planned for use for the New Jersey utilities to enable recovering costs related to

[21] National Grid Launches First-of-Its-Kind Battery Storage System, (June, 2019).

[22] Lumen Energy Strategy, California's Energy Storage Procurement Study (Draft), (October 24, 2022) at 19.

[23] Green Mountain Power, Groundbreaking Savings for Customers During Intense Heat Delivered by GMP's Energy Storage Programs, (July 27, 2022).

[24] https://www.utilitydive.com/news/maryland-psc-greenlights-exelon-pilots-to-guide-future-of-utility-scale-sto/588864/

offshore wind. Absent this model (and pre-collection), the 10-15 year fixed incentive contracts envisioned as part of the NJ SIP[25] will create financial liabilities (i.e., imputed debt). Increases in financial liabilities would ultimately increase the overall cost of borrowing, creating higher rates for customers overall. By allowing pre-collection of incentive payments required under the long-term contracts, the lower borrowing costs will be preserved for New Jersey customers.

[25] SIP at 15.