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December 12, 2022

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

Via Electronic Mail

Carmen D. Diaz, Acting Secretary of the Board
Board of Public Utilities
44 South Clinton Ave., 1st Floor
PO Box 350
Trenton, NJ 08625-0350
board.secretary@bpu.gov

Dear Acting Secretary Diaz:

Consistent with the Board's September 29, 2022 Notice in the above-captioned docket, Public Service Electric and Gas Company respectfully submits the attached comments on the Energy Storage Incentive Program.

Very truly yours,

A handwritten signature in black ink that reads "Aaron I. Karp". The signature is written in a cursive style with a clear, legible font.

Aaron I. Karp

**In the Matter of the New Jersey Energy Storage Incentive Program
Docket No. QO22080540**

**Public Service Electric and Gas Company's Comments on Board Staff's September 29,
2022 Straw Proposal Regarding the New Jersey Energy Storage Incentive Program**

Public Service Electric and Gas Company ("PSE&G") appreciates the opportunity to provide input on Board Staff's September 29, 2022 Straw Proposal Regarding the New Jersey Energy Storage Incentive Program ("NJ SIP") (the "Straw").

PSE&G strongly supports the State's goals of increasing the resilience of New Jersey's electric grid, reducing carbon emissions, and enabling New Jersey's transition to 100% clean energy. PSE&G commends the Board for soliciting stakeholder input on all components of NJ SIP as a means of putting energy storage on a path to achieve the State's clean energy goals. PSE&G also recognizes the urgency in achieving those goals, and the challenges that stand in their way, considering the Clean Energy Act's target of 2000 megawatts ("MW") of installed storage by 2030.¹ To that end, PSE&G suggests that the Board must use every available resource to meet this challenge and to achieve this lofty, yet vital goal. PSE&G respectfully suggests that the state's electric distribution utilities ("EDCs") are a resource that should be more a part of the NJ SIP solution now.

In the comments below, PSE&G encourages Board Staff to consider the following:

- PSE&G's demonstrated commitment to installing 35 MW of energy storage, as proposed in PSE&G's 2018 "Clean Energy Future" filing.
- The utilities' expertise in siting and deploying storage to maximize reliability, resiliency, and environmental benefits, and integrating storage with other clean energy technology and goals.
- PSE&G's past success in kickstarting the nascent solar industry through its successful Solar 4 All® and Solar Loan programs, and how PSE&G could serve the same role with the private energy storage industry today.
- The utilities' ability to flow back federal storage incentives directly to ratepayers.
- The utilities' ability to develop grid-supply storage during a period where the distributed storage program is still being developed.

As an alternative, should the Board not rethink the EDCs' exclusion from NJ SIP, PSE&G offers additional solutions that would allow the state to meet its storage goals, such as dedicating certain blocks to utilities, reserving to utilities the blocks for underserved communities, or periodically reviewing targets to allow utilities to step in if the Board projects that private investment has been insufficient to meet storage goals.

¹ N.J.S.A 48:3-87.8(d).

Finally, should the Board reject utility ownership and operation of storage as part of NJ SIP, PSE&G respectfully requests that the Board issue a statement permitting utilities to proceed with their own storage programs.

I. PSE&G Has Demonstrated a Commitment to Advancing Energy Storage in New Jersey Since 2018

In October 2018, PSE&G took the proactive step of filing a comprehensive petition to develop a “Clean Energy Future” program, containing both electric vehicle and energy storage provisions.² As PSE&G described in that petition, the goal of the energy storage program was “to incorporate utility-scale energy storage into the Company’s distribution system to optimize electricity costs for PSE&G’s customers, support grid operations, and facilitate the integration of renewables on the PSE&G grid.”³ That proposal demonstrated how PSE&G (and other utilities) could participate in energy storage development, and the proposal remains pending pursuant to an agreement that it would be held in abeyance awaiting BPU consideration of policy matters on energy storage.⁴ Now that BPU Staff is engaging in such policy discussions, PSE&G urges the Board to rethink the NJ SIP model to incorporate the same kind of utility participation that PSE&G proposed.

As described in that 2018 filing, PSE&G’s proposed energy storage program consisted of five subprograms to be developed over six years, with the goal of deploying a modest 35 MW of storage—under 2% of the State’s 2000-MW 2030 goal. The program was designed to demonstrate capabilities and possible benefits of utility-scale storage, and to allow PSE&G and the State to “learn from experience” about how best to incorporate storage into the electric utility distribution system. Another goal of that program was to create an ecosystem around which the maturing national energy storage market could grow. In fact, PSE&G estimated that even this small program would create nearly 2,000 direct, indirect, and induced job-years.⁵

As described in a later Board Order in that docket, PSE&G proposed five energy storage subprograms:

² In the Matter of the Petition of Public Service Electric and Gas Company for Approval of Its Clean Energy Future - Electric Vehicle and Energy Storage (“CEF-EVES”) Program on a Regulated Basis, BPU Docket No. EO18101111, Petition dated October 11, 2018 (the “2018 CEF-EVES Petition”).

³ Id. at 7.

⁴ See In the Matter of the Petition of Public Service Electric and Gas Company for Approval of Its Clean Energy Future - Electric Vehicle and Energy Storage (“CEF-EVES”) Program on a Regulated Basis, BPU Docket No. EO18101111, Order dated January 27, 2021, at 16 (the “CEF-EVES Order”). That Order included the following:

The proposals advanced by PSE&G in this proceeding concerning a Vehicle Innovation subprogram and Energy Storage Program will be held in abeyance in this proceeding pending a future proceeding that will be commenced by the Board in 2021 to address policy guidance related to medium- and heavy-duty trucks and busses charging infrastructure and battery storage. Nothing in the Stipulation shall prejudice the Company’s rights to advance these or other programs relating to medium- and heavy-duty battery electric trucks and school buses charging infrastructure or energy storage in future proceedings.

⁵ 2018 CEF-EVES Petition at 8.

1. Solar Smoothing, to help relieve rapid power fluctuations from solar arrays that result from changes in cloud cover.
2. Distribution Deferral, to defer distribution system upgrades and ensure that demand can be met during peak periods during the deferral period.
3. Outage Management, to utilize mobile storage for outage management solutions.
4. Microgrids for Critical Facilities, to determine how to achieve improved resiliency of electric supply for critical customer facilities.
5. Peak Reduction for Public Sector Facilities, to both help provide energy cost management services for the customer and to potentially defer traditional distribution upgrades.⁶

PSE&G remains ready and able to step up to the plate and assist New Jersey in meeting its energy storage goals—and PSE&G urges to Board to reconsider the NJ SIP’s exclusion of utility participation.

II. The State’s Lofty Storage Goals Require the Deployment of Every Available Resource, Including Utility-Scale Storage

The NJ SIP Proposal acknowledges that the energy storage targets specified in 2018’s Clean Energy Act are challenging and will require aggressive action to achieve, and that most of the storage developed to date is largely in the form of a pumped storage facility that opened in 1965.⁷

Therefore, to achieve the Clean Energy Act’s requirement of developing 2000 MW of storage by 2030, New Jersey must develop in the next seven years nearly 25 times the total amount of energy storage that has been developed in the entire State in recent decades. To do so will require an all-hands-on-deck, all-of-the-above approach, and should include not only incentivized private industry development, but also participation by the state’s electric utilities, who have the experience, personnel, and knowledge to achieve the Clean Energy Act’s goals. NJ SIP’s exclusion of utilities—especially in light of the hard road ahead in meeting the State’s goals—may only further increase the likelihood that New Jersey falls even further behind.

For that reason, PSE&G urges the Board to reconsider its exclusion of utilities from NJ SIP. As described above, PSE&G has been ready to step in and develop storage for over four years. And as described below, PSE&G already has developed storage as part of its Solar 4 All program. In light of the State’s storage goals—and the 2030 deadline—PSE&G suggests that the Board incorporate all available resources into the NJ SIP program.

⁶ See In the Matter of the Petition of Public Service Electric and Gas Company for Approval of Its Clean Energy Future - Electric Vehicle and Energy Storage (“CEF-EVES”) Program on a Regulated Basis, BPU Docket No. EO18101111, Order dated January 27, 2021, at 3-4 (the “CEF-EVES Order”).

⁷ Straw at 3-4.

III. The State’s Utilities are in the Best Position to Site, Develop, and Operate Grid-Supply Storage to Maximize Reliability, Resiliency, and Environmental Benefits

The Straw acknowledges that energy storage “provides numerous reliability and resilience services” and “is expected to play a key role in maintaining electric system reliability.”⁸ The Straw also notes that this kind of storage deployment has great potential to reduce emissions and decarbonize the grid, as these services are traditionally performed by dispatchable fossil-fuel generators.⁹ There are no private entities as prepared to achieve these benefits as the State’s utilities.

PSE&G has extensive knowledge of its own system, including how and where utility-scale storage assets could improve reliability. Also, PSE&G would have the operational flexibility to address changing reliability needs on the grid, and to fill gaps where the private market may not respond—flexibility that a private developer in a long-term contract may not have.

In fact, multiple subprograms proposed in PSE&G’s 2018 Clean Energy Future filing sought to do just that. PSE&G’s Distribution Deferral subprogram proposed to deploy energy storage as supply capacity on 13 kV and 4 kV circuits, as a way of supplementing the operating capacity of those lines while deferring the time and expense of circuit improvements.¹⁰

PSE&G’s proposed Outage Management subprogram sought to maintain reliability on the electric distribution system during abnormal operating conditions, such as during substation upgrades and during planned and unplanned outages. During such times, PSE&G may need to utilize portable transformer equipment, or temporary substations. By integrating energy storage at those substations, PSE&G could reduce the peak load on the impacted substations, reducing the number of mobile transformers and/or unit substations required to complete the work, and allowing PSE&G to deploy fewer mobile transformers and substations. Such an approach would not only improve reliability, but also reduce customer costs.¹¹

Finally, PSE&G notes that storage is just one of numerous interrelated areas that together pave the road to New Jersey’s climate goals, and the utilities are well positioned to address this interplay. The foundation of that road is electrification, which, at a high level, requires four pathways: transportation (including electric vehicles), building (including energy efficiency), resiliency, and storage—all of which benefit by an increasing amount of clean generation such as solar. Yet none these pathways has strict boundaries—many can cross into multiple areas, such as electric vehicles, whose batteries can also serve as storage resources. To address just one of these pathways may introduce unintended effects to the other pathways, or may leave potential synergies on the table. Utilities are best positioned to see how energy storage impacts the bigger

⁸ Straw at 4-5.

⁹ Id.

¹⁰ See Attachment 2 to PSE&G’s 2018 CEF-EVES Filing, at 10-13.

¹¹ See id. at 13-16.

picture, and to plan in a way that maximizes the reliability, resiliency, and environmental benefits of all of these components, together.

IV. PSE&G's Track Record in Boosting the Private Solar Industry Could Serve as a Model for Utility Involvement in Energy Storage Development

In many ways, today's private storage industry resembles the solar industry in 2008: undeveloped, and needing a boost. Yet starting in 2008, the solar industry got the lift it needed, as PSE&G began two successful programs that developed solar both in front of and behind the meter: Solar 4 All (which has also included a "solar plus storage" component) and Solar Loan, which collectively developed over 300 MW of solar generation.

Each success story is described below. PSE&G's participation in solar development not only kickstarted the solar industry, but also put it on the path to where it is today, without displacing private investment. PSE&G is prepared to offer the same type of support to the private energy storage industry.

a. Solar 4 All

In 2009, the Board approved PSE&G's Solar 4 All program, which has allowed PSE&G to develop utility-owned, grid-connected solar throughout the state.¹² That program has been an enormous success, and the Board has extended it twice, in 2013 and again in 2016.¹³ As of today, PSE&G has developed 36 solar sites, containing a total of 158 MW of solar generation. Additionally, PSE&G's Solar 4 All Program has targeted landfills and contaminated sites (such as brownfields) for development. These sites are generally difficult for the private market to develop due to the complexity and challenges of meeting New Jersey Department of Environmental Protection requirements, local permitting, and a long development cycle that may stretch two to three years. The success of Solar 4 All could be a model for how utilities can lead the way in developing energy storage.

Solar 4 All provided the private solar energy industry a needed boost at its infancy. In developing the Solar 4 All facilities, PSE&G supported numerous contractors and trade workers, when the industry was new and when private developers were not yet in a position to respond. Under the Solar 4 All program, the Company developed and competitively bid those solar facilities. PSE&G's programs have not provided the utility an unfair advantage or stunted the development of a solar industry in New Jersey. In fact, it has been quite the opposite. Since

¹² In the Matter of Petition of Public Service Electric and Gas Company for Approval of a Solar Generation Investment Program and an Associated Cost Recovery Mechanism, BPU Docket No. EO09020125, Order dated July 29, 2009 ("Solar 4 All Order").

¹³ In the Matter of the Petition of Public Service Electric and Gas Company for Approval of an Extension of a Solar Generation Investment Program and Associated Cost Recovery Mechanism and for Changes in the Tariff for Electric Service, B.P.U.N.J. No 15 Electric Pursuant to N.J.S.A. 48:2-21, 48:2-21.1 and N.J.S.A. 48:3-98.1. BPU Docket No. EO12080721, Order dated May 29, 2013 ("Solar 4 All Extension 1 Order"); In the Matter of the Petition of Public Service Electric and Gas Company for Approval of a Second Extension of a Solar Generation Investment Program and Associated Cost Recovery Mechanism and for Changes in the Tariff for Electric Service, B.P.U.N.J. No. 15 Electric Pursuant to N.J.S.A. 48:2-21, 48:2-21.1 and N.J.S.A. 48:3-98.1. BPU Docket No. EO16050412, Order dated November 30, 2016 ("Solar 4 All Extension 2 Order").

approval of the original Solar 4 All program in 2009, New Jersey’s installed solar capacity has grown over 7000%, making New Jersey a center for solar jobs and creating an ecosystem that has allowed a national solar market to grow.¹⁴ PSE&G’s participation in energy storage today could be similar to its participation in the solar market a decade ago.

PSE&G’s storage development would not be starting from scratch. In 2013’s Solar 4 All Extension Order, the Board approved PSE&G’s proposal for a pilot program “to integrate solar power with energy storage” at Solar 4 All facilities.¹⁵ Currently, PSE&G owns and operates five “storage plus solar” facilities, with a total storage capacity of just under 2.5 MW. PSE&G’s storage sites have delivered tangible benefits to the communities they serve. For example, PSE&G’s solar plus storage site in Pennington site has provided strong resilience benefits, as the storage system at that site has provided power to the Pennington Department of Public Works during outages. Developing these storage sites have supported numerous contractors and created jobs, and PSE&G is prepared to continue and expand that support.

PSE&G investments in storage could provide similar benefits.

b. Solar Loan

PSE&G has also played a major role in moving behind-the-meter solar technology along the maturity curve. In 2008, the BPU approved PSE&G’s Solar Loan program, which allowed PSE&G to provide customers loans to install solar, and used the solar renewable energy certificates generated by that solar as repayment of those loans.¹⁶ PSE&G’s Solar Loan program—which the Board extended two additional times—played a pivotal role in getting the new solar industry off the ground, and provided key support to the solar renewable energy certificate market when that market was just beginning.¹⁷ The PSE&G Solar Loan program reduced the risk for customers choosing to install solar, spurring widespread adoption. In all, the PSE&G Solar Loan Program provided nearly 1600 loans, which led to the development of approximately 147 MW of solar. This too is a model for how utility engagement in NJ SIP could spur the adoption of energy storage systems.

¹⁴ Per the “Installation Report” available at the New Jersey Office of Clean Energy’s Solar Activity Reports web page (available here: <https://njcleanenergy.com/renewable-energy/project-activity-reports/project-activity-reports>): at the end of 2009, 57,740 kW of solar was installed in New Jersey, and as of September 30, 2022, 4,183,544 kW of solar was installed.

¹⁵ See Solar 4 All Extension 1 Order at 3.

¹⁶ In the Matter of the Petition of Public Service Electric and Gas Company for Approval of a Solar Energy Program and Associated Cost Recovery Mechanism, Docket No. EO07040278, Order dated April 16, 2008.

¹⁷ In the Matter of Petition of Public Service Electric and Gas Company for Approval of a Solar Loan II Program and an Associated Cost Recovery Mechanism, BPU Docket No. EO09030249, Order dated November 10, 2009; In the Matter of the Petition of Public Service Electric and Gas Company for Approval of a Solar Loan III Program and Associated Cost Recovery Mechanism and for Changes in the Tariff for Electric Service, B.P.U.N.J. No. 15 Electric Pursuant to N.J.S.A. 48:-2-21 and N.J.S.A. 48:2-21.1, BPU Docket No. EO12080726, Order dated May 29, 2013.

V. Utility Development of Storage Could Maximize Ratepayer Savings from Other Government Programs

In August 2022, President Biden signed into law the Inflation Reduction Act, which, among its many pro-environment provisions, expanded a 30% investment tax credit to apply to energy storage projects.¹⁸ This credit is available to any energy storage developer that begins construction prior to 2025. Like a private developer, PSE&G would be eligible for this investment tax credit. However, for utility-developed storage, that federal money would flow directly to utility customers—instead of to a private developer. Without allowing utilities to propose reasonable utility deployment of storage and access these federal incentives, NJ SIP leaves this potential utility customer benefit on the cutting room floor.

VI. Technical Challenges in Implementing the “Distributed” Portion of NJ SIP Provide Additional Urgency in Allowing Utility Participation

PSE&G is dedicated to standing up the administration of the distributed (behind-the-meter) portion of NJ SIP, and doing so as expeditiously as practicable. That said, PSE&G observes that creating and implementing that program will include significant technical challenges that may take time to resolve, as detailed below, and proposes two ways in which increased utility participation in NJ SIP could help to advance the state’s storage goals during this development period.

a. The Technical Challenges of Creating an Effective EDC-Administered Distributed Storage Program

In the Straw, Staff proposes that “[e]ach EDC will be required to develop a system for calling resources and communicating with distributed storage resources, many of which are expected to respond automatically,” but provides minimal guidance on how EDCs are to construct or implement that call mechanism.¹⁹ In fact, the only concrete suggestion for how to do that is for EDCs to “rely, to the maximum extent possible, on Advanced Metering Infrastructure (‘AMI’), as set forth by the Board in each EDC’s AMI rollout filings and in any compliance with the AMI Data Access Plan proceeding, Docket No. EO20110716.”²⁰ That AMI Data Access Plan proceeding, however, has not yet concluded.²¹

PSE&G understands that the cornerstone to a distributed storage program is an effective communication and call mechanism that is also cost-efficient, coordinated, and standardized

¹⁸ Inflation Reduction Act of 2022, PL 117-169 (August 16, 2022) at Sec. 13102.

¹⁹ Straw at 26.

²⁰ Id.

²¹ PSE&G also notes that while the Straw states that “[r]ate and tariff design should align with expected PJM rules related to Federal Energy Regulatory Commission (‘FERC’) Order 2222,” the FERC proceeding on PJM’s compliance filing also has not yet concluded. Straw at 25; See Order No. 2222 Compliance Filing of PJM Interconnection, L.L.C.; Motion for Extended Comment Period, FERC Docket No. ER22-962-000 (filed February 1, 2022).

among the EDCs. Yet developing an effective mechanism may take an extended period, and likely will involve stakeholder working groups and technical conferences.

To that end, PSE&G proposes two options to compensate for this potential delay:

i. Allow Utilities to Conduct a Behind-the-Meter Pilot Program

PSE&G proposes that the utilities can speed up the development of the behind-the-meter program if given the opportunity to conduct a pilot program involving resources the utilities own and deploy. Specifically, PSE&G proposes that at first, it strategically deploy storage behind meters at various locations and on various circuits in its service territory. Over the course of a predetermined period, PSE&G would be allowed to test its ability to call on its own distributed storage devices, as a means to test the sufficiency of its call mechanisms and the impacts that distributed storage deployment would have on the grid. In a pilot where PSE&G owns its own devices, it would be able to more nimbly adjust and adapt the software and hardware components of the call system, and better prepare for mass distributed storage deployment. At the end of that pilot period, PSE&G could make the storage device available to the customer for purchase, with any revenues flowing back to customers.

ii. Allow Utility Participation in the Grid Supply Program to Ensure that the State Meets Its Storage Goals

During the time it may take to resolve technical and administrative issues across all EDCs and launch the distributed storage program, the primary storage development occurring under NJ SIP would be grid-supply. In light of those likely delays, cutting utilities out of grid-supply storage development—especially during the period where utility expertise could be most effective and most complementary to private development—may negatively impact the State’s ability to meet its storage goals. Utility participation in the grid supply portion of NJ SIP will put the State on a better trajectory to meet those goals.

VII. Alternative Means to Allow Utility Contributions to the State Storage Goals

Should the Board not reconsider the Straw’s categorical exclusion of utilities from NJ SIP, PSE&G proposes that it consider the following options:

- A reserved block for utility storage development.
- A reserved block for utility storage in certain areas that are unlikely to attract robust private investment, such as underserved communities.
 - As an example: per Staff’s November 17, 2022 stakeholder notice regarding the solar Administratively Determined Incentive program, the Interim Subsection (t) market segment received one application for a 5 MW facility, despite that segment having a block size of 75 MW.²² The Subsection (t)

²² In the Matter of the One Year Review of the Administratively Determined Incentive Program, BPU Docket No. QO20020184, Stakeholder Notice dated November 17, 2022, at 4.

segment is devoted to areas that are particularly unattractive to private development: per the Solar Act, such projects are those “located on a brownfield, on an area of historic fill or on a properly closed sanitary landfill facility.”²³ Underserved communities may suffer the same lack of interest from private storage investors.

- A limited period in which utilities may participate in NJ SIP, perhaps with utility participation phasing out as certain interim goals are met.
- A yearly Board review of storage development progress, with automatic triggers for the creation of utility blocks should certain thresholds not be met, whether they are MW thresholds, or more targeted thresholds such as storage deployment in underserved communities.

In addition to the above: PSE&G appreciates Staff’s repeated acknowledgements during the stakeholder meetings that the Straw’s exclusion of utility participation as part of the proposed NJ SIP program should not be construed as a blanket prohibition on EDCs ever participating in future potential energy storage programs. At the second and third stakeholder meetings, Staff mentioned “storage as a transmission asset” and other “non-wires alternatives” as examples of such future programs.

In light of Staff’s comments, PSE&G urges that the Board explicitly state in its order adopting the NJ SIP Proposal that approval of NJ SIP should not be construed as limiting utilities’ ability to propose their own storage programs. PSE&G makes that request notwithstanding the statement currently included in a footnote in the Straw that utility storage programs may be discussed in a future proceeding.²⁴

* * *

Thank you again for this opportunity to provide comments on the NJ SIP Straw Proposal. We look forward to working with the Board and interested stakeholders to develop an energy storage plan that achieves the important goals set forth in the Clean Energy Act of 2018.

²³ N.J.S.A. 48:3-87(t).

²⁴ Straw at 11 n.52.