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February 18, 2021

VIA eFILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120

Re: Policy Proceeding Utilization of Storage Resources as Electric Distribution Assets
Docket #: M-2020-3022877

Dear Secretary Chiavetta:

Enclosed for filing, please find the **Comments of PECO Energy Company** in the above-captioned proceeding.

Should you have any questions about this filing, please do not hesitate to contact me.

Sincerely,

Anthony E. Gay

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

POLICY PROCEEDING – UTILIZATION OF STORAGE RESOURCES AS ELECTRIC DISTRIBUTION ASSETS	**:**	**DOCKET NO. M-2020-3022877**

COMMENTS OF PECO ENERGY COMPANY

On December 3, 2020, by Secretarial Letter issued in the above-captioned proceeding, the Pennsylvania Public Utility Commission (the "Commission") solicited comments on potential opportunities for the deployment of energy storage technologies in the Commonwealth to enhance the reliability and resiliency of utility distribution systems. PECO Energy Company ("PECO" or "the Company") submits these Comments in accordance with the Secretarial Letter.

PECO appreciates the efforts of the Commission to investigate opportunities to deploy energy storage technologies in Pennsylvania to promote a more reliable and resilient distribution system, overall system efficiency, and lower costs for customers. While energy storage is not a new technology, the rapidly declining costs of large-scale batteries, the development of sophisticated distributed operations management systems and the increasingly diverse ways in which customers are using the grid make this investigation particularly timely.[1]

In these Comments, PECO first provides an overview of the key benefits of energy storage and several guiding principles the Commission should keep in mind as it considers policies related to the utilization of energy storage technologies as an electric distribution asset. PECO will then address each of the Commission's questions presented in the Secretarial Letter

[1] Utility commissions in several other states, including the District of Columbia, Maryland, Massachusetts, New Jersey, New York and Virginia have also initiated regulatory proceedings to evaluate the value of deploying energy storage in strategic locations on the distribution system.

regarding the potential of energy storage applications to meet distribution system operating needs, how the Commission should classify energy storage facilities, and the prudency of utility investment in energy storage technologies.

I. OVERVIEW OF THE BENEFITS OF ENERGY STORAGE AND GUIDING PRINCIPLES

Energy storage technologies are capable of storing electrical energy from the utility distribution grid and then deploying the stored energy for use on-site or to the grid for a variety of purposes. Deployment of energy storage resources in Pennsylvania has the potential to offer multiple benefits.

The increased reliability and resiliency that energy storage systems can offer provides an important potential benefit for both customers and utilities. For example, energy storage can serve as backup electric supply for customers during service interruptions caused by severe weather or equipment failures. Utilities can deploy energy storage systems on the distribution system to minimize, and in some cases prevent, electrical outages arising from grid disturbances, as well as maintain the quality of electric service delivered to retail customers (e.g., voltage and frequency support). This can be particularly valuable in providing advanced reliability and resiliency solutions to critical public facilities and essential utility, communications and transportation networks.

Energy storage also offers a valuable tool to improve the ability of the distribution system to host additional distributed energy resources ("DERs"). Energy storage systems can mitigate the impacts of DER output variability and help address many impacts associated with increased DER penetration such as voltage fluctuations. As the deployment of DERs and non-traditional uses of the distribution system, like electric vehicle charging, proliferates, integrating energy

storage systems with the distribution grid can facilitate new services for customers while maintaining reliability and power quality.

For utilities, in some situations, energy storage may also offer opportunities to defer or avoid investments in traditional distribution infrastructure to meet system constraints or reliability requirements. This is possible because energy storage can support efforts to optimize grid integrity by mitigating the magnitude of electric demand on the grid during system peaks. Combined with demand management technologies, storage can also be deployed as a reliability solution for customers in isolated locations and at the ends of lengthy distribution circuits. In addition, energy storage provides utilities with the flexibility to address future system opportunities.

In light of the potential benefits of energy storage technology to PECO's customers and the Commonwealth, including those described above, PECO strongly supports the efforts of the Commission to explore policies to facilitate utility investments in energy storage for the purpose of maintaining or enhancing distribution system reliability and resiliency. PECO recommends that the Commission and stakeholders consider several guiding principles in developing policies to facilitate distribution system-related utility investment in energy storage.

Pilot Projects Should be Used to Evaluate the Benefits and Capabilities of Energy Storage Technologies as a Tool to Support Distribution System Operations. To expand experience with energy storage technologies integrated with utility distribution systems in the Commonwealth, PECO recommends the use of pilot projects that electric distribution companies ("EDCs") could develop to explore innovative uses and gain understandings, over the long run, of where energy storage may be deployed to support system quality to benefit EDC customers. Pilot programs offer effective venues for demonstrating energy storage technologies on a manageable scale, observing their operational characteristics, and optimizing their performance

under controlled conditions. In addition to providing important field-tested information for the Commission and other stakeholders, EDC involvement in the ownership, procurement and operation of energy storage through pilot projects can help identify valuable applications and beneficial locations for future deployments in Pennsylvania.

EDCs Should Be Have Flexibility in Developing Energy Storage Applications. PECO believes that customers will be best served if EDCs are accorded sufficient flexibility to test, evaluate and deploy energy storage applications that best meet the needs of their customers and help integrate these technologies into the distribution grid. A blanket approach to the utilization of energy storage within utility distribution resource planning may hinder innovation and an EDC's ability to identify appropriate use cases and locations for testing storage applications that will deliver systemic benefits of these technologies to customers.

The Commission Should Ensure Fair and Timely Cost Recovery of Utility Investments in Energy Storage. EDCs have extensive knowledge and experience operating the distribution system and should play an important role in investing in energy storage solutions to enhance reliability and resiliency. The Commission should ensure full and current recovery for those investments to promote certainty and facilitate the exploration of innovative technologies that can further ensure EDCs' ability to maintain safe and reliable distribution service throughout the Commonwealth.

With these considerations in mind, PECO provides the following responses to the Commission's questions and looks forward to working with the Commission and all stakeholders to optimize the use of energy storage technologies in the Commonwealth.

II. COMMENTS IN RESPONSE TO THE QUESTIONS PRESENTED IN THE SECRETARIAL LETTER

1. *What applications can electric storage provide as a distribution asset for utilities that would facilitate improved reliability and resiliency*?

Generally, PECO invests capital to replace aging infrastructure, improve reliability, bolster resiliency, and meet customer growth. The technologies for investments are selected consistent with PECO's commitment to both cost-effective deployment and the use of innovative technologies.

PECO is taking significant steps to enhance its distribution system's reliability, resistance to storm damage, and capacity to recover from the impact of major storms under its second electric Long Term Infrastructure Improvement Plan ("LTIIP II") effective from January 1, 2021 through December 31, 2025. LTIIP II builds on PECO's first electric LTIIP (2016-2020) to target investment in the replacement of electric distribution infrastructure with a higher probability of failure and of infrastructure that presents higher risk because of the severity of the impact if a failure would occur. Over the five-year LTIIP II term, PECO will increase its overall reliability-related capital expenditures by $1.36 billion for: (1) storm hardening and resiliency; (2) replacing underground cables with higher risk profiles; and (3) replacing older and degraded substation switchgear.

In addition to PECO's infrastructure improvement programs, deploying energy storage on the Company's distribution system is another approach to add flexibility, reliability and resiliency. Energy storage applications that are appropriate for integration with PECO's distribution systems and can enhance system reliability and provide other public benefits include:

- **Use of energy storage in a substation or on a distribution feeder to enhance reliability and defer the need to increase capacity**. These applications support PECO's ability to meet customer load requirements at all times and can help avoid

outages in specific portions of the distribution system. Energy storage may also provide the opportunity to avoid or defer portions of otherwise necessary investments in the distribution system.

- **Deployment of energy storage to improve grid stability and support larger-scale integration of DERs**. Energy storage can help manage and mitigate the impact on other customers from intermittent changes in voltages and frequency as the generation output from DERs varies due to sun conditions or other factors. Energy storage may be an effective means of mitigating such variability and increasing the amount of DERs that the distribution system can accommodate at a given time and location under existing grid conditions and operations. Energy storage may also provide a method to minimize grid impacts and demand related to intermittent high capacity customer applications (e.g., electric vehicle charging).
- **Utilization of energy storage to maintain power quality**. Some distribution feeders can experience variations in voltages that may cause issues with customers' appliances and equipment. Energy storage may provide a method to help mitigate those variations and maintain service quality.
- **Deployment of energy storage to enhance system reliability and resiliency for critical facilities on a stand-alone basis or as part of a microgrid**. This application provides the opportunity to support the operation of critical public infrastructure (e.g., street lights and traffic signals), government facilities (e.g., fire stations) and public accommodations (e.g., hospitals and community commercial centers) by reducing the recovery time from major disruptions to the distribution system.

2. *What are the defining characteristics of electric storage used for distribution asset planning as distinguished from generation resources*? *What threshold, if any, would classify electric storage as a generation resource and therefore outside permitted distribution ratemaking and recovery?*

Distinguishing attributes of energy storage resources, when compared to generation resources, primarily pivots on whether a fuel source is directly used by the resource for its energy output or whether the resource acts as a retail consumer of electricity prior to discharging power. Generation resources convert energy from a fuel source to electricity at the onset of operation. In contrast, energy storage resources must first consume electricity (by charging from an external energy source), transform the consumed energy from electricity to a storable form and transform stored energy back to electricity again when dispatching the energy for use.

The Commission should take into account the technical characteristics of energy storage facilities and classify those assets on a case-by-case basis depending on the purpose they serve in the EDC's system. The multi-functional capabilities of energy storage mean that not all of its applications fit neatly in traditional generation, transmission, or distribution classifications. However, energy storage resources should not be invariably categorized as generation assets because storage resources consume more energy than they discharge onto the electric grid. Instead, PECO believes that energy storage applications should be treated under one of the three categories identified below based on the primary function of the energy storage assets.

- **Distribution utility asset** – The Commission should consider utility-owned or utility-contracted energy storage projects, located either in front of or behind the meter ("BTM"), for the primary purpose of managing and supporting distribution grid operations (e.g., reliability and resiliency, peak load management, and power quality conditioning) as distribution utility assets subject to the Commission's ratemaking principles and cost recovery rules. Other states have treated energy storage applications

used to support grid operations and improve reliability under a variety of business models as distribution utility assets.[2]

- **Transmission utility asset** – Utility-owned and utility-contracted energy storage projects to help manage the electric transmission system should be classified as transmission utility assets that the Federal Energy Regulatory Commission regulates.
- **Distributed energy resource** – The Commission should classify a customer or third-party BTM grid-connected energy storage project installed in the absence of a contract with an EDC as a DER. PECO notes that EDCs need visibility into the use and operation of any customer or third-party BTM energy storage to avoid negative impacts on the distribution system, such as reduced reliability, increased distribution costs and additional safety risks.

3. *Is it prudent for utilities to include storage in their distribution resource planning, and if so, where and under what circumstances? Further, is it appropriate for utilities to include such investment in rate base?*

In the Secretarial Letter, the Commission appropriately recognizes the potential value that energy storage can provide in delivering enhanced levels of reliability, resiliency and grid flexibility to EDC customers. To enable and facilitate rapid learning about the potential uses, limitations and value propositions of storage technologies in distribution resource planning, the Commission should encourage EDC investments by authorizing rate recovery for energy storage

[2] *See*, *e.g.*, *In the Matter of the Maryland Energy Storage Pilot Program*, Case No. 9619, Order No. 89644 (Md. P.S.C. Nov. 6, 2020), pp. 11-24 (approving utility owned and funded battery storage pilot projects designed to provide peak shaving capabilities, improve reliability and aid during emergencies); *Commonwealth Edison Company: Annual Formula Rate Update and Revenue Requirement Reconciliation Under Section 16-108.5 of the Public Utilities Act*, Docket No. 18-0808 (I.C.C. Dec. 4, 2018), p. 22 (allowing for recovery of battery energy storage systems deployed at two of Commonwealth Edison Company's substations through distribution formula rates because the projects were designed to address projected overloads and defer capacity-related upgrades); *Order on Distributed System Implementation Plan Filings* (N.Y. P.S.C. Mar. 9, 2017), pp. 29-30 (directing utilities to develop storage projects and emphasizing that utilities "should be striving to develop their abilities to plan and use energy storage as part of their normal course of business").

projects as a routine component of reliability and resiliency upgrades, as well as for more complex and innovative pilot projects.

EDCs should have an opportunity to invest in and earn on both utility-owned and utility contracted energy storage pilot projects to support distribution grid operations. This will promote a mix of ownership and operation models between EDCs, third parties and customers to identify the greatest number of cost-effective resource alternatives and support the use of emerging technologies.

The Commission's evaluation of potential energy storage pilot projects, including their benefits, should not be based strictly on a cost-benefit analysis. For complex and innovative pilot projects, PECO believes that the Commission should consider the following criteria before approving an EDC's proposed storage pilot:

(1) The project's opportunity for learnings applicable to future projects;

(2) The project's ability to help maintain the reliability and/or resiliency of the electric distribution system;

(3) The project's ability to improve hosting capacity for DERs;

(4) The project's ability to support transportation electrification in Pennsylvania (e.g., by mitigating the grid impacts of EV charging);

(5) The project's ability to reduce the environmental impacts of otherwise required portable emergency generation;

(6) The deferral or avoidance of traditional utility investments;

(7) The project's ability to participate in wholesale markets (e.g., by providing ancillary services) in a way that optimizes the value of the system and reduces costs for customers.

The Commission should allow EDCs to seek recovery of a return on and of investments tied to energy storage projects (including pilots that meet the above criteria) in a subsequent electric distribution base rate proceeding. Recovery of energy storage costs through distribution rates is appropriate because the primary function of the energy storage systems deployed is to help ensure reliability consistent with other distribution system improvements and not to meet the ongoing energy and capacity needs of retail electric customers.

III. CONCLUSION

In the Secretarial Letter, the Commission appropriately recognizes the potential value that energy storage can provide in delivering enhanced levels of reliability, resiliency and grid flexibility to EDC customers. Utility involvement in the integration of energy storage into the distribution system is critical to optimize the value and benefits to the grid and customers. The Company recommends that the Commission allow and encourage EDCs to invest in energy storage systems where those systems will provide cost-effective reliability, resiliency and grid integration benefits, as well as on a pilot basis where projects can demonstrate technology applications that may deliver long-term benefits to Pennsylvanians. PECO appreciates the opportunity the Commission has provided to offer these Comments and looks forward to working with the Commission and interested stakeholders to accelerate deployment of energy storage in the Commonwealth.

Respectfully submitted,

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Dated: February 18, 2021