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E-File

November 29, 2021

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17120-3265

**Re: Policy Proceeding – Utilization of Storage Resources
as Electric Distribution Assets
Docket No. M-2020-3022877**

Dear Secretary Chiavetta:

Enclosed for filing on behalf of PPL Electric Utilities Corporation (“PPL Electric”) please find PPL Electric’s Comments in response to the Secretarial Letter issued August 12, 2021 in the above-captioned proceeding.

Pursuant to 52 Pa. Code § 1.11, the enclosed document is to be deemed filed on November 29, 2021 which is the date it was filed electronically using the Commission’s E-filing system.

If you have any questions, please do not hesitate to contact me.

Respectfully submitted,

A handwritten signature in blue ink that reads "Kimberly A. Klock". The signature is written in a cursive, flowing style.

Kimberly A. Klock

Enclosure

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Policy Proceeding-Utilization of	:	
Storage Resources as Electric	:	Docket No. M-2020-3022877
Distribution Assets	:	

**COMMENTS OF
PPL ELECTRIC UTILITIES CORPORATION ON
THE AUGUST 12, 2021 SECRETARIAL LETTER**

I. INTRODUCTION & BACKGROUND

On December 3, 2020, the Pennsylvania Public Utility Commission (“Commission”) issued a Secretarial Letter seeking comments from interested parties on three questions: (1) what applications can energy storage provide that would facilitate reliability and resiliency; (2) what are the defining characteristics that distinguish energy storage as a distribution asset from generation resources; and (3) is it prudent for utilities to include electric storage in their planning, under what circumstances, and should the investments be included in rate base?

PPL Electric Utilities Corporation (“PPL Electric” or the “Company”) timely filed its Comments regarding those questions on February 18, 2021.

On August 12, 2021, the Commission issued a Secretarial Letter requesting “further information from utilities and other stakeholders to clarify under what circumstances energy storage would be considered a distribution asset.” (Aug. 12, 2021 Secretarial Letter, p. 2.) The Commission also stated that “[t]his next iteration of questions will also help this Commission better coordinate future storage policy with recent policy advancements at the federal level, namely the Federal Energy Regulatory Commission’s Order 2222.” (*Id.*) The questions posed by the Commission are as follows:

- 1) What are the parameters that would allow for the use of energy storage on the distribution grid? For example, what factors should be used in the consideration of the energy-storage project? Should the energy-storage project meet certain thresholds and demonstrate certain requirements, e.g., demonstration of cost-effectiveness as compared to alternate measures, demonstration of need, required RFPs to solicit potential third-party providers, limitations on project size and scope, etc.?
- 2) What EDCs have undertaken energy-storage initiatives as a pilot program and what were the results and lessons-learned?
- 3) Under what circumstances is it appropriate to deploy energy storage as compared to traditional infrastructure upgrades?
- 4) Who should own an energy-storage asset? EDCs, third-party vendors, or some combination of both?
- 5) What processes should the Commission use to review requests to utilize energy storage as a distribution asset and recover associated costs?
- 6) What cost recovery mechanisms should be implemented for the ownership and operation of energy-storage assets?
- 7) What are the appropriate models and limitations necessary to allow energy storage to participate in wholesale power markets?

(*Id.*, pp. 4-7.)

PPL Electric appreciates the opportunity to provide input on the questions raised in the Commission's August 12, 2021 Secretarial Letter and hereby files these Comments in response.

II. COMMENTS

A. PARAMETERS FOR USING ENERGY STORAGE SYSTEMS ON THE DISTRIBUTION SYSTEM

As explained in PPL Electric's Comments on the December 3, 2020 Secretarial Letter, the classification of energy storage systems as distribution, generation, or transmission is a fact-specific question that requires case-by-case analysis. (PPL Comments, pp. 1-3, 6-7.) The location and use of the energy storage systems are critical in determining the classification of such assets. (PPL Comments, pp. 6-7.) Assuming that the energy storage system is a distribution asset, the

Company believes that the Commission should generally defer to the expertise and experience of the electric distribution companies (“EDCs”) and allow them to determine the parameters on the energy storage systems’ use. Notwithstanding, if parameters are to be recommended, the following parameters can help EDCs deploy and utilize energy storage systems effectively and efficiently without adversely affecting ratepayers or the marketplace.

First, PPL Electric supports the use of requests for proposals (“RFPs”) to solicit bids for the procurement of energy storage systems but does not support opening the EDC’s system to third parties to address potential solutions for system constraints or reliability. The Company believes this is a prudent practice to help ensure that the EDCs incur reasonable and prudent costs and expenses when procuring and deploying their energy storage systems.

Second, safety is a paramount concern of PPL Electric. Therefore, when deploying and utilizing energy storage systems, the Company believes that EDCs should comply with all industry safety standards for energy storage, including any American National Standards Institute (“ANSI”) and fire protection requirements. EDCs have a responsibility to provide safe and reliable electric service to customers.¹ As such, the EDCs are best positioned to determine the uses for energy storage and how to deploy them for the benefit of the broader electric distribution system. In fact, the uses and associated distribution system impacts of an energy storage system depend on its size, location, efficacy, etc. Thus, before deployment, the energy storage system must be studied and reviewed holistically based on the individual EDC’s system planning, safety and reliability requirements.

¹ See 66 Pa. C.S. § 1501.

B. RESULTS AND LESSONS-LEARNED FROM THE DEPLOYMENT OF ENERGY STORAGE SYSTEMS

PPL Electric explained in its previous Comments that the Company installed a 50-kilowatt (“kW”) battery in the Harrisburg area in 2018. (PPL Comments, pp. 3-4.) The Company has learned several lessons from deploying and utilizing that energy storage system on its distribution system, including: (1) how to maintain public safety and the distribution system’s integrity; (2) how to communicate with the battery using the Company’s Advanced Distribution Management System (“ADMS”); (3) how to safely isolate PPL Electric’s distribution system from the “intentional island” the Company created when using the battery to restore customers during an outage; and (4) how to protect the distribution system and the public if a fault were to occur on the “intentional island.” For example, to address public safety, the Company worked with local fire departments to increase their knowledge and training in the event they are required to respond to a fire at the Harrisburg battery. EDCs are in the best position to work with state and local municipalities to address concerns and share knowledge on energy storage systems. When addressing their concerns and responding to events associated with the energy storage systems, it is vital to have, like the EDC, a deep understanding of the EDC’s electric distribution system. The Company’s experience with deploying and utilizing the 50-kW battery is very valuable and will enable PPL Electric to deploy and utilize additional energy storage systems in a safe and effective manner.

C. DEPLOYMENT OF ENERGY STORAGE SYSTEMS VERSUS TRADITIONAL INFRASTRUCTURE UPGRADES

The potential uses of energy storage systems are vast and continuously developing, and the appropriateness of deploying and utilizing energy storage systems needs to be determined on a

case-by-case basis. Therefore, it is extremely difficult to present an exhaustive list of the circumstances when it may be appropriate to deploy energy storage systems as opposed to traditional infrastructure upgrades. Nevertheless, here are some instances when EDCs could utilize energy storage systems:

1. Voltage Support for Distributed Energy Resources

An energy storage system could provide voltage support for a distribution circuit that has a high penetration of inverter-based DERs which may have voltage fluctuations which are abrupt and intermittent, such as a reduction in kilowatt output due to a cloud passing over solar installations. This causes an irregular voltage profile, where voltage is changing so rapidly that traditional voltage equipment, like regulators and capacitor banks, are unable to react quickly enough to mitigate the voltage issue, potentially causing damage to customer equipment or power electronics. In such circumstances, rapid voltage support, sometimes referred to as “solar smoothing” may be necessary to even out the jagged voltage profile. Energy storage systems are uniquely positioned to provide this needed voltage support quickly, within in tenths of a second or even less, and are designed to cycle on and off very quickly with minimal wear and tear on the system.

2. Emergency Demand Response

Energy storage could be used to prevent emergency or temporary overloads on the distribution system and potentially avoid or defer costly system upgrades or keep customers in power during emergency conditions. For example, an energy storage device could relieve a temporary overload on a substation transformer, which alternatively would exceed its equipment rating and require a permanent system upgrade due to this temporary overload. If EDCs were explicitly permitted to use energy storage for emergency demand response, it may reduce or defer

other costly infrastructure investments and lower maintenance costs, thereby reducing costs for end use customers.

3. Reliability/Restoration Support

Reliability and restoration support are a key use of energy storage systems. As described in Section B of PPL Electric's Comments filed on February 18, 2021, the Company has demonstrated the use and benefits of energy storage for outage restoration with a 50kW battery in the Harrisburg area. Additionally, EDCs can use energy storage for reliability purposes where traditional alternatives would be less than ideal. Scenarios exist where distribution circuits that are over 100 miles in length have some customers with poor reliability, however, they are also located on the edge of the EDC's service territory or in terrain that is very challenging to reach. Building tie lines or new substations in these areas could be suboptimal options as compared to energy storage systems. Indeed, depending on the circumstances, leveraging energy storage in a local area to keep customers in power during an upstream outage could improve reliability at a lower overall cost.

D. OWNERSHIP OF ENERGY STORAGE

As noted above and in PPL Electric's prior Comments on the December 3, 2020 Secretarial Letter, the classification of energy storage systems as distribution, generation, or transmission is a fact-intensive inquiry that should be resolved on a case-by-case basis and consider the location and use of the systems. (PPL Comments, pp. 6-7.) However, if the energy storage system is used by an EDC to solve distribution problems, provide benefits to distribution customers, and support the provision of safe and reliable service at a prudent and reasonable cost, then energy storage should be considered a distribution asset. (PPL Comments, pp. 6-7.)

E. COMMISSION REVIEW OF ENERGY STORAGE’S USE AND COST RECOVERY

Given that EDCs have the duty to provide safe, reliable, adequate, and reasonable service to their customers, EDCs must have the discretion to determine how best to design and operate their distribution systems. Investments in the EDCs’ distribution systems, and the expenses incurred in operating those systems, are evaluated as part of base rate proceedings and, if applicable, proceedings involving the EDCs’ Long-Term Infrastructure Improvement Plans (“LTIIPs”) and Distribution System Improvement Charges (“DSICs”).

Energy storage systems, when used for distribution purposes, should not be treated any differently from other distribution system assets. As such, EDCs should not be required to receive Commission approval to deploy and utilize energy storage systems. In fact, PPL Electric believes that Commission approval before the deployment of energy storage systems is not allowed under Section 1102(a) of the Public Utility Code. Specifically, Section 1102(a)(3) states that Commission approval is not required for a public utility to acquire property that “is to be installed new as part of or consumed in the operation of the used and useful property of such public utility.” 66 Pa.C.S. § 1102(a)(3)(iii). Therefore, when an EDC acquires and installs a new energy storage system as a distribution system asset, Commission approval beforehand is not required. Accordingly, like other distribution systems assets, the Commission should only evaluate the prudence of investments in an energy storage system when the EDC seeks to recover the capital costs and expenses associated with that system, such as in a base rate proceeding.

F. COST RECOVERY MECHANISMS FOR ENERGY STORAGE

As far as what cost recovery methods are permissible or appropriate (*e.g.*, surcharges, base rates, alternative ratemaking), PPL Electric believes those issues are best left to be decided if and

when an EDC proposes to recover the capital costs, expenses, or both related to the energy storage system. EDCs should be able to request cost recovery through whatever means they deem appropriate, at which point other parties can support or oppose the proposed cost recovery methods, the amounts to be recovered, or both.

Further, no limits should be placed on the EDC's operation of the energy storage system for cost recovery purposes. When energy storage systems are deployed for use on the distribution system, EDCs should be allowed to operate the energy storage systems to the full benefit of distribution customers without limits placed on their operation of such systems.

In addition, EDCs should be allowed to enter into distribution-related services provided by third party-owned energy storage systems. Such arrangements could provide benefits for EDCs and their customers depending on the circumstances. Moreover, as PPL Electric previously stated, the costs associated with energy storage systems, including any distribution-related services by third party-owned energy storage systems, should be determined when an EDC proposes to recover those costs.

Also, the Commission should allow EDCs' energy storage systems to participate in PJM Interconnection LLC's ("PJM") wholesale markets for the benefit of distribution customers. Revenues derived from participating in those markets could be flowed back to ratepayers, thereby reducing the rate impact of the energy storage systems. It is certainly reasonable for EDCs to explore all of the ways in which energy storage systems can be used to benefit distribution customers, and that includes the participation of energy storage systems in wholesale markets.

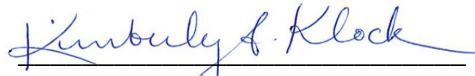
G. THE APPROPRIATE MODELS AND LIMITATIONS NECESSARY TO ALLOW ENERGY STORAGE'S PARTICIPATION IN WHOLESALE POWER MARKETS

The Company agrees with the Commission that energy storage systems “ha[ve] several versatile functions.” (Aug. 12, 2021 Secretarial Letter, p. 6.) However, if energy storage systems exclusively participate in those wholesale markets, EDCs would lose out on the safety and reliability benefits of having those energy storage systems support their distribution systems. Also, energy storage systems are extremely volatile because they can discharge electricity onto the distribution system at any time. Therefore, EDCs must be able to set appropriate limits on the operation of energy storage systems participating in wholesale markets. At a minimum, such limits must be set to override the electric storage system’s dispatch to protect the safety and reliability of the electric system as well as employees that may be working on the distribution system.

III. CONCLUSION

PPL Electric appreciates the opportunity to provide these Comments and respectfully requests that the Commission take these Comments into consideration in developing its next steps.

Respectfully submitted,



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