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E-File

February 18, 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 December 3, 2020 in the above-captioned proceeding.

Pursuant to 52 Pa. Code § 1.11, the enclosed document is to be deemed filed on February 18, 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,

Kimberly A. Klock

Enclosure

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

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

COMMENTS OF
PPL ELECTRIC UTILITIES CORPORATION

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") appreciates the opportunity to provide input on the questions raised in the Commission's Secretarial Letter and files these Comments in response.

II. COMMENTS

A. GENERAL COMMENTS

At a fundamental level, energy storage systems are simply that—storage. An energy storage system contains electric power to be discharged at a later time to support many different potential functions. It does not generate electricity by taking one fuel source and transforming it into another. Rather, an energy storage resource takes electricity in, stores it, and later releases it. By way of analogy, a water canteen is not water, nor does it generate water. It is merely a vessel

that houses the water for later consumption.

As a result, energy storage resources located on the transmission and distribution systems are more similar to transmission and distribution facilities than generation facilities because they help manage the delivery of electricity to retail customers. For example, electric distribution companies ("EDCs") use capacitors on their transmission and distribution systems. Although capacitors have a much smaller capacity than batteries, they store energy for later use to enable stabilization of voltage and power flows. Batteries provide similar but additional functionality, faster, and at a larger scale. Capacitors have long been used by EDCs and are treated as transmission and distribution assets, depending on their location and use.

Energy storage systems owned by EDCs should be viewed no differently. When interconnected with the transmission or distribution system, energy storage systems can provide another tool for EDCs to provide safe and reliable service at reasonable rates. For example, energy storage applications have become increasingly more cost-effective resources to support grid reliability and resiliency on the transmission and distribution systems.

Energy storage has long been recognized as a potential "game changer." Currently, the inherent nature of electricity necessitates that the power system constantly balances supply and demand. The ability of energy storage systems to accumulate or warehouse power to be used at a later point in time provides for possible alternative approaches. Energy storage can change the utility industry by adding a buffer to what is currently a just-in-time production and delivery system. This makes energy storage a value creator enabling increased use of variable resources, improving grid utilization, enhancing grid reliability, improving grid flexibility, and providing increased resiliency.

Indeed, the most obvious function of energy storage is to provide outage restoration support

and emergency preparedness. As the Commission noted in its Secretarial Letter, there have been increases in major weather occurrences throughout Pennsylvania affecting utility reliability. Energy storage systems located on the transmission and distribution systems can be cost-effective solutions to improve reliability and resiliency of the EDCs' electric service in response to these major weather events. Energy storage systems also can serve other functions, such as voltage support, grid reinforcement, and peak demand reductions, that further benefit EDCs and their customers.

The applicability of each of these functions as a potential solution depends upon the type of problem that occurs on the distribution or transmission system. As with traditional system planning, the EDC is in the best position to evaluate any system issues and choose the most effective and economical solution. Energy storage systems are simply another option for planners to consider. Because the facts and circumstances of each potential application will differ, it is imperative for EDCs to have flexibility in determining how to best deploy energy storage systems on their transmission and distribution systems. Furthermore, given that the potential uses of energy storage systems are many and rapidly evolving, the Commission's policy should recognize the multi-functional capability of energy storage and encourage EDCs to utilize energy storage systems on their transmission and distribution systems in innovative ways. Such an approach would enable EDCs to use all available tools to optimize their systems and continue providing safe and reliable service at a reasonable cost.

B. APPLICATIONS OF ENERGY STORAGE AS A DISTRIBUTION ASSET

As explained above, PPL Electric believes that the most immediate and obvious application for EDC-owned energy storage systems is for outage restoration. The Company has proven this application through its installation of a 50 kW battery in the Harrisburg area in 2018. This

application was evaluated along with alternatives, such as building a tie to another distribution circuit, to increase reliability for 8 customers at the end of a high outage radial line. In this instance, the energy storage system was the most cost-effective solution to address the reliability concerns for customers on the radial line. This project is an example of an energy storage system's most basic functionality. While PPL Electric's project demonstrates the outage management function and ability to improve reliability for residential customers, it is important to also highlight the benefits of energy storage systems to commercial and industrial ("C&I") customers. For C&I customers who have sensitive equipment and manufacturing processes or perishable products, an outage could result in lost product, damaged equipment, or lost customers and revenue for that business. Energy storage systems on the distribution system could provide better reliability to residential customers and save C&I customers from incurring substantial costs.

Energy storage also could facilitate the safe and reliable interconnection of distributed energy resources ("DER"). As DER penetration continues to increase across Pennsylvania, there are additional challenges that the distribution system has not previously encountered. It was not built for the intermittent output of DERs, such as solar photovoltaic ("PV") systems. The distribution system was designed and built to distribute electricity from the transmission system to end-use customers, with electricity originating from large, centralized generating facilities. Because there are now energy injection points across the distribution system creating two-way power flows on a system designed and built for one-way power flows, new challenges exist. Much of the current distribution system technology is not designed to react fast enough to adapt to a passing cloud that causes a solar PV system operating at full capacity to suddenly reduce its output by approximately 30%. However, an energy storage system can react quickly to changing conditions thereby "smoothing" out the jagged output of solar PV due to cloud cover. When

appropriately located, such systems could also mitigate the increased wear and tear intermittent DERs place on distribution system equipment, thus reducing maintenance costs or capital replacements or upgrades.

Because energy storage systems can absorb electricity from the system and store it until needed, energy storage can also help reduce peak demand and help relieve distribution congestion. Traditional system reinforcements to accommodate seasonal peak demands by installing new facilities such as lines and substations can be very costly to customers. Other connected circuits may also require upgrades to accommodate transferred load or generation during emergencies. Further, expanding the distribution system with more lines and equipment to accommodate seasonal peak loading and resolve reliability via traditional methods can result in additional reliability challenges driven by failed equipment, vehicle hits, or weather impacted outages, which ultimately result in higher costs to customers. If EDCs were explicitly permitted to use an energy storage system to absorb generation from the distribution system when demanded, or, conversely, inject stored energy onto the distribution system when needed, it may reduce or defer other costly infrastructure investments and lower maintenance costs, thereby reducing costs for end use customers.

Many of the traditional solutions to distribution system problems are based on broader system needs. In contrast, energy storage assets allow EDCs to address more localized needs and reduce or defer capital investments required under traditional planning. Furthermore, because of the diverse functions this one device can provide, it may provide functionality beyond the primary solution, thereby enabling the EDC to better adapt to changing distribution system needs, both today and in the future, based upon changing customer load and DER penetration. Clear regulatory authority allowing EDCs to leverage energy storage systems as a distribution asset would result in

improved reliability and power quality at a lower cost and is the prudent thing to do. Below are some examples of how grid-connected energy storage provides benefits to the distribution system:

- Grid-connected energy storage can make the distribution system more flexible by providing a buffer between generation and loads allowing it to accommodate more DERs and new consumer loads.

- Storage can make the distribution system more resilient by supplying ancillary services such as frequency regulation, and temporary local power source or sink, thereby augmenting transmission and distribution architecture and operations and improving reliability and power quality.

- Because of the increasing demand for clean, reliable, and low-cost electricity provided by DERs, the value of energy storage is greater now than it has ever been. Energy storage may provide fast response to second-to-second changes in the supply or demand of electricity.

- Energy storage may increase the reliability and resiliency of the distribution system by providing temporary local sources of electricity that augment the transmission and distribution network.

C. CLASSIFYING ENERGY STORAGE AS A DISTRIBUTION, NOT GENERATION, ASSET

The location and use of the energy storage systems are critical in determining whether they are transmission, distribution, or generation assets. In FERC Order No. 845, the FERC importantly recognized that its reformed definition of "generating facility . . . would not affect whether electric storage resources operate as transmission assets." *Reform of Generator Interconnection Procedures and Agreements*, Order No. 845, Docket No. RM17-8-000, 163 FERC ¶ 61,043, P 278 (2018). The FERC explained that it "has previously found that, in certain situations, electric storage resources can function as a generating facility, a transmission asset, or both." *Id.* (citing

Western Grid Dev., LLC, 130 FERC ¶ 61,056 (2010), *reh'g denied* 133 FERC ¶ 61,029 (2010) (finding that electric storage resources functioned as a transmission asset); *Utilization of Electric Storage Resources for Multiple Services When Receiving Cost-Based Rate Recovery*, 158 FERC ¶ 61,051 (2017)). The latter order cited by the FERC explained that energy storage resources:

> [A]re able to provide multiple services almost instantaneously and can switch from providing one service to another almost instantaneously. As such, electric storage resources may fit into one or more of the traditional asset functions of generation, transmission, and distribution.

Id. P 2. Recently, FERC has allowed storage as a transmission-only asset ("SATOA") to be selected by the Midcontinent Independent System Operator ("MISO") in its transmission expansion plan. *Midcontinent Independent System Operator, Inc.*, 172 FERC ¶ 61,132 (2020).[1]

PPL Electric believes that the Commission should employ a similar analysis to determine whether energy storage is classified as a distribution asset. From the Company's perspective, the location and use of the energy storage are critical factors to this analysis. For example, when interconnected with the distribution system and providing reliability benefits, the energy storage should be considered a distribution asset. In other words, if 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.

D. WHETHER IT IS PRUDENT FOR ELECTRIC UTILITIES TO INCLUDE ENERGY STORAGE IN DISTRIBUTION RESOURCE PLANNING AND RATE BASE

As explained previously, energy storage systems can provide several benefits to the distribution system. Consequently, PPL Electric believes that it is prudent to include energy

[1] PPL Electric notes the treatment of energy storage by FERC continues to evolve. *See American Electric Power Service Corporation*, 173 FERC ¶ 61,264 (2020) (finding storage project "not appropriately classified as a transmission asset eligible for recovery through AEP's transmission formula rate").

storage in the distribution planning process. An energy storage device is a multi-functional device capable of providing a distribution planning solution in several circumstances and can be the most economic and timely approach to solving a distribution system problem. Indeed, for each of the applications identified in Section II.B, *supra*, the EDC would evaluate all the tools in its toolbox, including energy storage applications, to determine the best solution. In PPL Electric's energy storage project, alternative solutions to the reliability issues experienced by customers were more costly or did not notably improve long-term reliability in the service area. Selecting a more expensive alternative for the sake of tradition is archaic and does not make for a reliable and efficient automated distribution system capable of adapting to the changing needs of customers and the increase in DER penetration. Energy storage is just one of the latest advances in smart grid technology available to EDCs. Therefore, an EDC should be permitted to include an energy storage system in rate base, just like any other reasonable and prudent capital investment in the distribution system.

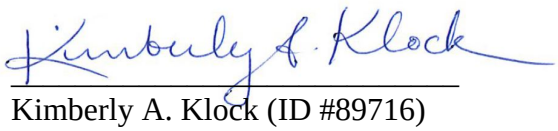
III. CONCLUSION

The Commission has sought information regarding utilization of energy storage assets. The Company believes that such inquiry is well-timed and ripe for regulatory support so that EDCs may start or continue to incorporate applications of this technology into its business processes. PPL Electric believes that energy storage is an important distribution asset with many applications available to benefit customers and should be included in rate base and cost recovery. The Company also believes that the Commission should consider broad guidelines that allow the EDC to consider the individual facts and circumstances of each application to determine the best solution to issues on its distribution system. Attempting to implement a strict, limited approach that fails to recognize the benefits of energy storage will only place EDCs in the position of implementing traditional solutions that may increase costs to customers. Pennsylvania has been

progressive in recognizing the need for EDCs to adapt and be flexible to address rapidly changing customer needs, as evidenced by the implementation of smart meters, long-term infrastructure improvement plans and the distribution system improvement charge, fully projected future test years, and alternative ratemaking. Clear regulatory support for EDC's use of energy storage as a distribution asset is another step to prioritizing safe and reliable service with rapidly changing technology that balances customer costs.

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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