



January 19, 2021

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

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

Dear Secretary Chiavetta:

The Pennsylvania Department of Environmental Protection (DEP) appreciates the opportunity to comment on the Pennsylvania Public Utility Commission's (PUC) Policy Proceeding—Utilization of Storage Resources as Electric Distribution Assets, Docket No. M-2020-3022877. DEP's comments focus on support of PUC's recommendations to explore the viability of utility investment in energy storage as a distribution asset for the purposes of enhancing or maintaining reliability of the electric distribution grid. Please find DEP's comments enclosed.

If you have any questions, please feel free to contact David Althoff, Jr., Director for the Energy Programs Office, by e-mail at dalthoff@pa.gov, or by telephone at 717.783.0542.

Sincerely,

A handwritten signature in black ink, appearing to read "Patrick McDonnell". The signature is written in a cursive style with a large, prominent initial "P".

Patrick McDonnell
Secretary

Enclosure

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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

**COMMENTS OF THE
PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION**

The Pennsylvania Department of Environmental Protection (DEP) appreciates the opportunity to comment on the Pennsylvania Public Utility Commission's (PUC) Policy Proceeding for the Utilization of Storage Resources as Electric Distribution Assets. DEP's comments focus on support of the PUC's recommendations to explore the viability of utility investment in energy storage as a distribution asset for the purposes of enhancing or maintaining reliability of the electric distribution grid. DEP is providing the comments below in response to Question 1 of the Policy Proceeding:

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

As Pennsylvania seeks to reduce greenhouse gas emissions while improving the resiliency and reliability of the state's electric grid, energy storage will play a vital role in ensuring our success in meeting Governor Wolf's greenhouse gas reduction goals.¹ In addition, the priority of growing a clean energy economy, which is partially dependent upon a significant deployment of additional solar electricity generation as well as other renewable energy sources, will be further enabled by the electric storage capacity to be deployed as grid assets. In order to understand the role of energy storage and to identify potential programs, policies and/or incentives that could help maximize the benefits of storage in Pennsylvania, DEP's Energy Programs Office (EPO) is currently undertaking a comprehensive statewide energy storage assessment. This study analyzes the economic and environmental benefits, and the barriers and market opportunities for electric energy storage in front of and behind-the meter applications. This assessment is expected to be completed in the first quarter of 2021. PUC staff have provided valuable input to the scope of the assessment and draft report.

In our research from developing the forthcoming report, EPO has identified numerous advantages associated with energy storage in relation to improving reliability and resiliency when utilized as a distribution asset by electric utilities. Energy storage can:

- Assist with **renewable energy integration** onto the grid,
- **improve resiliency and reliability**,
- provide savings via **deferral of infrastructure upgrades and investments**,
- **reduce transmission congestion** and manage peak demand.

¹ See Executive Order 2019-01, Commonwealth Leadership in Addressing Climate Change and Promoting Energy Conservation and Sustainable Governance, codified at 4 Pa. Code §§ 5.1001—5.1009.

Renewable Energy Integration

Energy storage works in tandem with renewable energy. With the Commonwealth's desire to increase emission-free renewable energy generation, energy storage can provide additional reliability of these intermittent resources. As renewable electricity generation grows in Pennsylvania, storage can be used to manage the intermittent output of distributed solar as well as avoid potential reverse power flows at the substation level. Additionally, energy storage can be critical in serving peak load and shifting the benefits of maximum renewable generation output to peak hours, thereby reducing the need for fossil fuel peaking power plants. Pennsylvania's Solar Future Plan sets a target of increasing in-state solar-powered electricity generation from its current level to 10% by 2030. This would result in Pennsylvania moving from .5 GW of installed solar to nearly 11 GW. Achievement of this ambitious solar generation target will be aided by the peak use potential enabled by a robust deployment of additional energy storage systems.

Improved Resiliency and Reliability

Energy storage can provide enhanced service to customers by providing backup power, especially at critical infrastructure such as hospitals, government buildings, and food and fueling distribution locations. In particular, energy storage would contribute to emergency preparedness by pairing solar plus storage on police and fire stations and buildings that serve as emergency shelters. Energy storage is also a key component of microgrid deployment and would serve a key role in continuing to provide power during an outage when paired with a distributed energy generation system.

Additionally, expansion of energy storage will play a key role in improving reliability in the distribution system. According to the 2019 Electric Distribution Company (EDC) Performance Scorecard², five of Pennsylvania's seven large EDC's showed a decline in reliability service between 2015 and 2019. In order to improve reliability at the distribution level, PPL, for example, has installed its first battery system designed to keep customers in-service until outage repairs can be completed. This is just one example of how utilities would be able to leverage energy storage to serve their reliability needs during times of disruption from extreme weather and other events.

Distribution Deferral for Utility System Upgrades

One of the most important benefits energy storage will provide for utilities is the cost savings associated with the deferral of system infrastructure upgrades. As distribution infrastructure ages, becomes persistently congested or experiences thermal overloads, components are commonly upgraded or replaced. However, infrastructure upgrades and replacements can require expensive capital investments. A business case for energy storage may exist in deferring or avoiding these infrastructure costs altogether and instead strategically deploying energy storage assets within the system, which can reduce the demand and potentially extend the life on traditional distribution infrastructure. Therefore, energy storage should be considered along with all other potential investment opportunities in the distribution infrastructure.

Transmission Congestion Relief

² See https://www.puc.pa.gov/general/publications_reports/pdf/electric_service_reliability2019.pdf

As customer load increases during peak hours, the cost for distribution utilities to serve those customers also goes up. The utility's cost to serve is in direct correlation with the congestion component of wholesale energy prices which also increase during those peak hours. By mitigating such congestion through a form of energy arbitrage with the use of energy storage, distribution utilities could charge the storage equipment when costs and demand are low and discharge storage during times of peak demand, therefore lowering the utility's cost to serve its customers. The short development timelines and minimal environmental impact of storage allows for quick deployment very close to load which can be beneficial for any near-term reliability concerns emerging from line congestion.

DEP appreciates the opportunity to comment on this Policy Proceeding regarding the utilization of energy storage resources as electric distribution assets. DEP supports the potential environmental benefits of this enabling technology as it allows greater flexibility and reliability of emissions-free electricity generation. We look forward to working with the PUC and providing any additional input, if needed.

Should you have any additional questions, please contact David Althoff, Jr., Director for DEP's Energy Programs Office, by e-mail at dalthoff@pa.gov or by telephone at 717.783.0542.