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February 18, 2021

Aspassia Staevska, Joe Cardinale, Eric Matheson, and David Edinger
Pennsylvania Public Utility Commission
400 North Street
Harrisburg, PA 17120

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

Dear Madam & Sirs,

Convergent Energy + Power appreciates the opportunity to comment on the above-referenced policy proceeding. Over the past ten years, Convergent has invested in and operated over $300 million of standalone energy storage and hybrid solar + storage assets across North America.

Through this docket, Pennsylvania is taking an important step in recognizing the changing nature of the electricity grid and the value that energy storage can provide as a distribution asset. Convergent is keen to help deliver clean, reliable, and affordable energy to all the residents of Pennsylvania.

We believe energy storage is essential to the state's achievement of its clean energy goals. Storage can reduce peak demand and carbon emissions, improve integration of intermittent resources, lower costs for ratepayers and enhance the grid's stability and resiliency. The following pages provide more details about the benefits of energy storage, and we encourage policymakers to hold forums for industry stakeholders to raise awareness.

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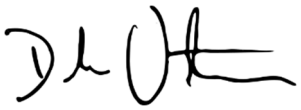
We look forward to engaging in a dialogue to assist all regulatory and legislative bodies in Pennsylvania to implement programmatic solutions so that the benefits of energy storage may be fully realized, thereby advancing the state's clean energy future.

Sincerely,



Derek Oosterman
Senior Vice President
Regulatory & Policy Affairs

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Benefits and Importance of Energy Storage

Energy storage is essential to Pennsylvania's achievement of its clean energy goals. Below are some of the many benefits of energy storage:

1. **Reduce Peak Demand and Carbon Emissions:** Energy storage projects can reduce system peak demand and carbon emissions. Peak demand has historically been met by fossil fuel-fired "peaker" plants, which have significant carbon emissions and contribute strongly to air pollution. In contrast, energy storage typically charges during off-peak times using either cleaner baseload generation or completely renewable energy and discharges during peak times, thereby addressing demand peaks with clean or cleaner energy and eliminating the need for fossil fuel-fired peaking generation. Storage assets have zero on-site greenhouse gas emissions, a small footprint, and generate virtually no light or noise pollution. As such, storage is already being deployed at scale not only to augment peaking capacity, but replace dirty, uneconomic peaking generation completely. Reducing peak demand saves customers money on higher peak energy costs, demand charges and increasing transmission charges.

2. **Integrate Intermittent Resources:** Accelerated adoption of renewable energy, distributed generation at the transmission and distribution levels, and electric vehicles will put increasing pressure on the electric grid and change load patterns and grid constraints. Storage is instrumental in integrating clean energy by creating a more flexible, locationally-responsive grid that can better handle the intermittency of renewable generation and allowing for the time-shifting of clean energy to address changing demand peaks. Pairing storage with passive renewable generation (solar and wind) allow the renewable energy to now be dynamic, dispatchable and responsive to changing system needs.

3. **Enhance Grid Resiliency and Power Quality:** Energy storage can also improve the electric grid more broadly by improving the resiliency of distribution systems, improving power quality by enhancing voltage support, and providing short-duration backup power in the event of grid faults. Energy storage embedded in distribution systems can provide distribution system benefits as well as stacked transmission and bulk system benefits.

4. **Lower Costs for Utilities and Ratepayers:** Energy storage can provide both *energy* and *capacity*. Therefore, it can provide diverse services to utilities and PJM, which can help lower their costs and create new revenue streams. Ultimately, utilities will be able to pass on these savings to ratepayers in the form of lower electricity bills. These services include: peak shaving (coincident and non-coincident), frequency regulation, voltage support, demand response, system resiliency, and emergency power during critical outages, among others.

   Energy storage is also an instrumental tool in the Non-Wires Alternative ("NWA") toolkit – a category of projects that includes energy storage, DERs, energy efficiency, and demand response – that aim to cost-effectively defer or eliminate the need for traditional, costly, transmission and distribution infrastructure upgrades. As storage inherently has a small footprint, quiet and pollution-free operation, instantaneous response, and the duration to handle peaks, it is an ideal tool in the development of NWAs.

5. **Increase Environmental Equity:** Low-income residents have been disproportionately unable to attain the benefits of renewable energy, while also disproportionately suffering from the ill effects of fossil fuel-generated pollution. By facilitating the integration of more renewables onto

the electric grid, energy storage can help residents gain access to renewable energy. The state can incentivize various environmental equity programs, such as community solar and community storage, which can be instrumental in breaking down this barrier and allowing residents and small businesses of all stripes to benefit economically and physically.

Benefits of Private Sector Participation and Third-Party Ownership:

As an independent, private developer, owner, and operator with assets across the United States and Canada, Convergent's projects and customers reflect the benefits of third-party ownership. Third-party developers and owners bring specialized knowledge and platforms, supplier and contractor relationships, and flexible capital that have taken years and significant time to develop. All these resources are shared with utility and commercial partners that have a much broader set of responsibilities, and often have neither the resources nor interest to develop these assets internally.

Energy storage technology has advanced exponentially in the last decade to be commercially viable with few, if any, incentives. Technical hurdles have been overcome and many more industry innovations are being developed presently. A third party with a fleet of storage assets is better positioned that other entities to deal with product improvements, routine operations, maintenance and augmentation requirements as components and standards improve throughout an asset's life. Long-term contracts are usually all-inclusive to assure continuous service and reliability. Redundancy and safety are built into all system designs. As an energy storage asset owner, Convergent assumes all the risks for the system for its life, eliminating ratepayer exposure.

While access to affordable capital is not an issue for all utilities, the business model and regulatory paradigm under which utilities operate does not always align with ratepayer desire to minimize costs. Competitive procurement from private developers ensures that minimizing costs remains the focus. In

summary, allowing reputable, experienced, and capable private-sector developers to participate in the Pennsylvania market will increase competition, drive down costs, and ultimately improve the quality and reliability of projects, without compromising the grid reliability that ratepayers demand.

Questions for Comment in the Policy Proceeding:

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

   As described above, the benefits of storage are numerous, including at the distribution scale. From alleviating distribution grid constraints through locationally-targeted storage deployment, to cost-effectively deferring or eliminating the need for distribution infrastructure upgrades such as reconductoring a line or upgrading a substation to add a bank or transformer capacity, a myriad of reliability issues can be addressed. Beyond those examples, storage can also provide voltage support, for example by being located near the tail end of a lengthy distribution line, aide in the integration of intermittent renewable energy being created through the proliferation of distribution-scale and residential solar and wind assets. Finally, storage can be configured to provide limited-duration back-up power in the event of a critical grid fault.

   Convergent has assets located behind a customer's meter which deliver savings to the individual customer, participate in utility peak shaving programs, and provide back up power to a facility when required to continue operations. As customer needs are coincident with distribution or system needs, asset operation provides stacked benefits. Reduced electric bills retain businesses and the jobs these businesses create in-state.

   For businesses where economics, site and size limitations or insurance and permitting are disincentives to a behind-the-meter solution, Convergent finds that a Community Storage

concept works well. The utility places a community storage asset on its system where it can provide optimized grid services and allows smaller businesses to buy kW shares to subsidize the asset and get the same bill reductions of individual, behind-the-meter systems. This allows smaller business owners and those located in disadvantaged communities to participate in out-of-reach green programs.

Energy storage is also helpful in alleviating constraints and providing optionality in areas where load is projected to grow quickly. Rather that investing in major system upgrades for speculative development, existing distribution assets can continue to serve areas while load develops, with energy storage installed and located to mitigate the new peaks caused by this development. It is often the case that loads do not develop as forecasted; storage allows utilities to defer or avoid major system upgrades, rather than investing ratepayer money in assets that could ultimately become stranded if the anticipated load growth does not occur.

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

The defining elements of energy storage that distinguish it from a generation resource are two: 1) the inability to generate electricity, and 2) the ability to serve as a load on the grid. While there are certainly additional differences related to the manner in which storage systems are able to dispatch electricity to the grid (e.g. response times, immediacy with which output can be varied, etc.), at a fundamental level these are the distinguishing factors.

Aside from these fundamental differences, energy storage is widely viewed to be a generation resource because of its ability to mimic the operation of a traditional generation resource upon dispatch. While limited in its duration, energy storage delivers electrons to the grid, and its

performance parameters often exceed traditional generation. Storage suffers neither the intermittency of renewable generation nor the slow response and start-up times of traditional generation.

This ability to mirror or exceed the capability of traditional generation resources means that storage is considered to be, at least in part, a generator under virtually all regulatory constructs, and as such ineligible for utility distribution ratemaking and recovery.

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

The capabilities of storage are too great, and the potential for cost savings to ratepayers too significant, for utilities to exclude electric storage from their distribution resource planning. The rate of deployment of distributed energy resources, and the new distributed, bi-directional grid paradigm that they bring, is far too advanced for anyone to look back to the old, unidirectional, hub-and-spoke grid model and imagine that a state or nation will revert to that model. Utilities need to be prepared for the grid of the future, and storage will be an essential element of that grid.

Distribution planning should consider energy storage in the following areas:

- Load growth mitigation
- Substation and sub-transmission projects
- Distribution circuit system contingency planning
- Reliability system planning
- Renewable system capabilities
- Power factor and voltage support
- Redundancy studies

As has been done in other markets, utilities should be required to share with the public, and specifically the third-party developer community, every potential capital expenditure project, for instance through an annual capital expenditure forecast and/or Distribution Resource Plan. Through information sharing and transparency, the utility would work with the developer community to evaluate the feasibility and appropriateness of those projects for non-wires alternatives. Should a potential capital expenditure be technically capable of being replaced by an NWA, and a benefit-cost analysis reveal the NWA to be more cost-effective, then the NWA should be chosen in every instance.

Generally, as a matter of regulation, storage is considered a generation asset and therefore not permitted to be included in the rate base. Beyond this restriction, and as described earlier in this document, there are additional benefits to competitive procurement from third parties and the long-term ownership and operation of these assets by third parties.

Convergent would encourage creative incentive structures or hybrid ownership models that would work toward alleviating the tensions that the current paradigm creates between utilities and third-party developers, so that utilities and their ratepayers can both benefit from third-party ownership and operation of distributed energy resources. For those instances, as described above, where the utility avoids the capital cost of a system upgrade through the deployment of a third-party owned storage asset, this contract should be treated as if it were rate based to encourage utilities to choose the lower-cost NWA. This would free up planned capital for replacement of the aging asset base.