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November 29, 2021

VIA ELECTRONIC FILING

Ms. Rosemary Chiavetta, Secretary Pennsylvania Public Utility Commission Commonwealth Keystone Building 2nd Floor, Room-N201 400 North Street Harrisburg, PA 17120

Re: Utilization of Storage Resources as Electric Distribution Assets Additional Questions Docket No. M-2020-3022877

Dear Secretary Chiavetta:

Enclosed please find Duquesne Light Company's Response for filing in the above referenced proceeding.

If you have any questions regarding the information contained in this filing, please feel free to contact me or Chris Johnson at 412-393-6496 or cliphnson@duqlight.com.

Sincerely,

Lindsay A. Baxter Manager, Regulatory and Clean Energy Strategy

Enclosure Cc (w/ enc.): Aspassia V. Staevska, <u>astaevska@pa.gov</u>, Joe Cardinale, <u>jcardinale@pa.gov</u> David Edinger, <u>dedinger@pa.gov</u>

BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

Utilization of Storage Resources as Electric Distribution Assets

Docket No. M-2020-3022877

COMMENTS OF DUQUESNE LIGHT COMPANY

I. INTRODUCTION

On August 12, 2021, the Pennsylvania Public Utility Commission ("Commission" or "PUC") issued a Secretarial Letter inviting additional input from interested stakeholders regarding the utilization of storage resources as electric distribution assets. Specifically, the Secretarial Letter poses seven questions, requesting further input on the technical, regulatory, and financial aspects of energy storage as a distribution asset. Interested parties were invited to submit written comments to the Secretary of the Commission within thirty (30) days of publication in the *Pennsylvania Bulletin*. The policy proceeding was published August 28, 2021, 51 Pa.B. 5505. On August 31, 2021, a motion for extension was filed by the Clean Air Council, Sierra Club, Philadelphia Solar Energy Association, POWER Interfaith, the Union of Concerned Scientists, and the Natural Resources Defense Council. A Secretarial Letter dated September 14, 2021 granted this motion and established a deadline of November 29, 2021 for comments to be filed. Accordingly, Duquesne Light Company ("Duquesne Light" or "Company") hereby submits these comments for consideration.

II. BACKGROUND

At the November 19, 2020 Public Meeting of the Public Utility Commission, a motion introduced by Chairman Gladys Brown Dutrieuille was adopted initiating a policy proceeding regarding potential utilization of electric storage within electric utility distribution resource planning. On December 3, 2020, the Commission issued a Secretarial Letter formally seeking input from interested stakeholders on this topic. Twenty-one commenters provided input by the filing deadline of February 18, 2021, with nearly all supporting the use of energy storage on the distribution grid for its potential to improve reliability and resiliency. The August 12th, 2021 Secretarial Letter summarizes these comments and requests additional input on specific issues.

Duquesne Light is a public utility as the term is defined under Section 102 of the Public Utility Code, 66 Pa.C.S. § 102, and is certificated by the Commission to provide electric distribution service in portions of Allegheny County and Beaver County in Pennsylvania. Duquesne Light provides electric service to approximately 605,000 customers in and around the City of Pittsburgh.¹ As an electric distribution company ("EDC"), Duquesne Light is subject to this policy proceeding.

III. Company Response to Questions in Secretarial Letter

The August 12th, 2021 Secretarial Letter posed seven questions for additional input from interested stakeholders. The initial round of comments showed universal support for the increased use of energy storage in Pennsylvania. Commenters laid out the potential benefits of energy storage, which include the ability to reduce costs, enable clean energy, improve reliability, and more. The timing of this proceeding coincides with an effort by the Pennsylvania Department of Environmental Protection to assess the role that energy storage may play in the state's future energy system.² The agency is considering establishment of a storage deployment

¹ Duquesne Light is a member of the Energy Association of Pennsylvania, which is also submitting comments at this docket. In addition to the positions stated herein, Duquesne Light generally supports the positions articulated in EAP's comments to the extent they are consistent with the comments submitted by the Company.

² See "Energy Storage in Pennsylvania," Pennsylvania Department of Environmental Protection webpage. www.dep.pa.gov/Business/Energy/OfficeofPollutionPrevention/Pages/Energy-Storage.aspx

target. The deployment of energy storage for distribution services would contribute to that state goal.

With this strong support for increased utilization of energy storage in the state, the Commission's August 12th Secretarial Letter lays out several questions to solicit more detail on *how* energy storage can be deployed in the distribution of electricity. Prior to addressing the specific questions in the Secretarial Letter, the Company offers these preliminary comments. The value of energy storage, in large part, is its versatility. It is sometimes referred to as a "Swiss army knife" of energy resources for its ability to serve multiple purposes, as well as its ability to be deployed quickly and modularly. For these reasons, it deserves to be classified as a unique type of energy asset. To pigeon-hole it as either a generation asset or a distribution asset risks artificially constraining the versatility that makes storage so valuable.

Energy storage can be used in a multitude of ways in Pennsylvania. Certain uses should be implemented solely by competitive providers. For example, storing electricity when prices are low and discharging when prices are high without consideration of grid constraints, often referred to as energy arbitrage, is primarily a generation service and outside of the scope of services EDCs provide. In contrast, other uses are better implemented by the distribution grid operator who has full insight into the operating conditions of the system. An example is installing energy storage on a more constrained portion of the grid to provide capacity during peak times, as an alternative to construction of new lines.

In the initial round of public comment, more than half of commenters supported EDC ownership of energy storage at least under some circumstances.³ Although a portion of

³ See Comments at M-2020-3022877 of Duquesne Light Company, Edison Electric Institute, Energy Association of Pennsylvania, First Energy, Natural Resources Defense Council, Office of Consumer Advocate, PECO, PPL, Solar Energy Industry Association, and UGI.

commenters attempted to portray the use of energy storage as an "all or nothing" proposition,⁴ defined solely as a generation asset, the Company urges the Commission not to restrict the potential of storage by putting limits in place based on laws that pre-date the economic and technological viability storage enjoys today. The world is a very different place today than it was in 1996 when the Choice Act⁵ was enacted in Pennsylvania. At that time, energy storage was largely limited to large, capital-intensive, pumped-hydro facilities. In the decades since, the availability and cost-effectiveness of energy storage solutions has expanded greatly.

Additionally, in the 25 years since the passage of the Choice Act, customers have become more dependent on electricity, as the increased use of computers and other electronics, as well as the dependence on the internet has expanded. Further, weather patterns have changed, with more severe storms that have greater impacts on electrical infrastructure. For example, wind speeds have increased over the past decade by approximately 20 miles per hour in both sustained and gust wind speeds in the Duquesne Light territory.⁶ From 2015 through 2020, the Pittsburgh region has also seen increases in the average, minimum, and maximum temperatures observed, total inches of precipitation, and the number of days with precipitation. Energy storage on the distribution grid can play a role in addressing these challenges, ultimately benefiting customers.

The lawmakers who drafted the Choice Act were not envisioning the ability of distribution utilities decades in the future to use a battery on a distribution feeder to provide improved reliability to customers. To interpret the law to preclude such applications is misconstruing the legislative intent. If anything, the Choice Act was put in place to allow for the expansion of more efficient, less costly energy resources, rather than locking utility customers

 ⁴ See Comments at M-2020-3022877 of Advanced Energy Management Alliance, Calpine Energy, Convergent Energy and Power, Monitoring Analytics, PJM Providers Group, and Retail Energy Suppliers Association.
⁵ The Electricity Generation Customer Choice and Competition Act of 1996 (House Bill 2537); 66 Pa.C.S. § 2801

⁶ National Oceanic and Atmospheric Administration, www.noaa.gov.

into outdated energy infrastructure. Permitting EDCs to deploy, own, and operate energy storage with greater efficiency and cost effectiveness is aligned with the goals of the Choice Act.

The use cases for energy storage are many and varied, with different potential ownership and business models. The list below highlights some of the most likely opportunities for energy storage in Pennsylvania:

- To provide additional reliability for energy users that require constant power.
- To reduce demand charges for users that occasionally require large amounts of electricity.
- To store renewable energy generated on-site at a home or business for later use.
- To incent time-of-use rates.
- To add additional capacity to portions of the distribution grid where needed.
- To improve reliability on distribution circuits that experience frequent or extended outages, such as those located in more rural or more heavily vegetated areas.
- To improve voltage control and power quality, especially on longer circuits.
- To ensure frequency regulation on circuits with high numbers of variable distributed energy resources.

Allowing EDC ownership of assets that are deployed primarily for distribution purposes in no way blocks the competitive market from offering other storage applications, and in fact, serves as an opportunity to foster continued deployment of energy storage, further bringing down costs of the technology.

Finally, any conversation on the deployment of new technology must consider equity. Energy storage can be deployed in such a way as to improve electrical infrastructure and reliability performance in disadvantaged communities. Newer developments which are often located in suburban areas will have more recently installed electrical infrastructure, which can contribute to better reliability. In contrast, areas in the urban core are more likely to have older infrastructure, potentially increasing vulnerability to equipment failures and other interruptions. Similarly, more rural areas in the outskirts of a utility's service territory are likely to be more wooded, making them more susceptible to weather-related outages caused by tree fall-ins. Additionally these areas may experience longer restoration times due to less ability to redirect power as compared to a more developed urban or suburban area. In both cases, these areas often align with lower income populations.⁷ Additionally, in the urban core neighborhoods, it is more likely that customers may represent diverse populations. Special consideration should be given to how energy storage can be deployed as a distribution asset equitably across service territories.

With these introductory remarks in mind, Duquesne Light respectfully offers its response to the questions posed in the August 12th, 2021 Secretarial Letter.

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.?

The value of energy storage is its versatility. The Commission must provide flexibility to allow the use of energy storage as a distribution asset to evolve. Locking into strict limitations and cost tests will artificially constrain the deployment of this technology. The Commission must be careful to not unintentionally restrict the potential use cases for storage by establishing narrow thresholds and limits.

The principal limitation that should be placed on energy storage is its primary purpose. To be classified as a distribution asset, its primary purpose and use must be to provide service on the distribution grid. The Commission should avoid narrowly defining what types of distribution services energy storage can provide.

⁷ "Pittsburgh, Pennsylvania (PA) income map, earnings map, and wages data." www.city-data.com/income/income-Pittsburgh-Pennsylvania.html

The Company does not believe the Commission should establish "one-size-fits-all" thresholds or requirements. Each EDC service territory is different. For example, EDCs use different distribution voltages and equipment. Some are more rural, while others are more urban. They differ in terms of load, as well as the types of automation and technology in place. Thus, the type and size of energy storage assets that are feasible will differ by territory and even by specific location within a service territory, making it inappropriate to narrowly define use cases. Further, an upper size limit for storage deployed as a distribution asset is unnecessary; the asset will be interconnected on the distribution grid, which places a de facto limit on size.

Duquesne Light agrees with other stakeholders that energy storage as a distribution asset must be cost effective. However, it is important to distinguish between "cost" and "value." The Commission should avoid implementing a simple cost benefit test, such as the Total Resource Cost (TRC) test used in the implementation of Act 129. Such a test will inevitably undervalue storage. To adequately assess the value of storage, it should be compared to the cost and value of a more traditional alternative.

An evaluation of the value of storage requires more nuance than a simple cost-benefit test. Storage can provide additional value, both quantifiable and qualitative, that must be considered. Examples of the value of storage that could be missed by applying the TRC include the following:

- Resiliency-- Can the energy storage project contribute to a quicker restoration of power after disruptions, improving customer experience and helping to prevent threats to health and safety?
- Enabling clean energy-- Can an energy storage project enable expansion of renewable and low- or zero-carbon energy?
- Time-- Can an energy storage solution be implemented more quickly, as compared to an alternative? Does storage provide a more flexible solution, as the energy landscape continues to evolve?
- Reduced disruption to the community-- Can implementation of an energy storage project lesson the disruption to the community by reducing the need for road closures, construction noise, and planned outages, as compared to a traditional infrastructure project?
- Reduced need to access private property for infrastructure-- Can an energy storage project reduce the need to acquire or access rights-of-ways on private property?
- Reduced environmental disruption-- Can an energy storage project eliminate or reduce the need to disrupt natural environments, such as tree removal or stream crossing, as compared to a traditional alternative? In addition to reducing the impact on the natural environment, this could decrease the need for local and state

permitting, leading to more timely deployment. This can also reduce community objections.

- Improved aesthetics—Energy storage, and particularly batteries, can be more aesthetically pleasing to the public than other types of energy infrastructure such as overhead lines and equipment.
- Equity—Because of the versatility of storage, it can be utilized to improve equity in the electrical distribution system.

Duquesne Light believes that in many instances storage may prove the most costeffective option to addressing a distribution need. However, there are times that storage may not be the least cost solution but may provide the best value. There is Commission precedent for allowing utilities to select the option that provides the greatest value to customers. For example, the Implementation Order for Phase I of the state's Energy Efficiency and Conservation Program⁸ establishes the criteria and process EDC's are to use in selecting conservation service providers (CSPs) to implement energy efficiency and conservation programs. The Order directs EDCs to select the "overall best bid/proposal (i.e., no requirement to select the lowest qualified bid) that consider: quality of prior performance; timeliness of performance; quality of the proposed work plan or approach; knowledge, background, and experience of the personnel to be utilized; and other factors as deemed relevant." Duquesne Light evaluates potential CSPs based not only on cost, but also on qualifications, team experience, and proposal detail, among other elements. This process ensures the best value for customers.

2) What EDCs have undertaken energy-storage initiatives as a pilot program and what were the results and lessons-learned?

Duquesne Light has not yet engaged in a pilot program related to energy storage. It looks forward to reviewing the responses of those EDCs who have engaged in pilots and are able to provide input based on experience.

3) Under what circumstances is it appropriate to deploy energy storage as compared to traditional infrastructure upgrades?

EDCs must make decisions every day about what infrastructure investments are appropriate to ensure the safe, reliable delivery of electricity to customers. These decisions are made case-by-case and the best solution will depend on the specific conditions of each location. Utilities must ensure these investments are prudent or face the potential risk of not being allowed cost recovery.

EDC distribution planners are skilled at evaluating the various options available. For example, load growth in a specific area may result in overloaded equipment. Distribution planners will assess multiple options to address this challenge, which may include upgrading existing equipment, like transformers, or building new tie lines to bring

⁸ Implementation Order, Docket No. M-2008-2069887. Issued January 15, 2009.

additional power to the area. Utilities assess the various options using a number of criteria, including, but not limited to, impacts to reliability, voltage, and power quality; safety; cost; compliance with all applicable regulations and codes; difficulty of construction; and acceptance by the public.

Energy storage simply becomes another option that is available to distribution planners. Because the best option will depend on the specific details of the application, Duquesne Light recommends that the Commission avoid narrow definitions, and instead allow utilities to evaluate storage alongside a suite of other options to determine which is most appropriate as is done today for all other distribution assets.

4) Who should own an energy-storage asset? EDCs, third-party vendors, or some combination of both?

The most appropriate ownership model for an energy-storage asset will depend on the asset's purpose. For example, an energy storage asset that is operated purely as a generation asset in wholesale markets should not be owned by EDCs. This application is best served through competitive providers. In contrast, Duquesne Light asserts that an energy storage asset installed primarily to provide distribution services should be owned and operated by the EDC.

Third-party ownership could present a number of challenges. The Company has concern that third-party ownership may impede the ability of an EDC to utilize the asset instantaneously to maintain reliability when needed. The conditions of the distribution system are constantly changing, for example due to shifts in load and interruptions resulting from motor vehicle accidents or weather conditions. The EDC continuously monitors its system with operators making adjustments to the system multiple times throughout each day to react to real time operating conditions. A third-party owner will not have this same visibility or control to react quickly and frequently.

The Company also has concerns about mixed incentives for third-party owned energy storage assets that offer both distribution and generation services. Specifically, a third-party owner may have more incentive to bid the asset into energy markets, which introduces potential risk that the asset may not be available when needed by the EDC for distribution purposes. In contrast, the primary purpose of an EDC is to provide safe, reliable service to customers subject to Commission jurisdiction. EDCs face significant risk if they fall short of these requirements, ranging from civil fines and penalties to risk to rate of return, limiting the ability to secure capital. Under this structure, the utility maintains its focus on the provision of safe, reliable energy and does not have incentive to take any actions that could risk meeting this primary objective.

For these reasons, Duquesne Light believes the EDC should own and operate energy storage when it is used as a distribution asset, just as they own other assets used in the distribution of electricity, such as switches, transformers, and protection devices.

5) What processes should the Commission use to review requests to utilize energy storage as a distribution asset and recover associated costs?

Duquesne Light does not see the deployment of energy storage as a distribution asset differently than the Company's investment in other distribution assets such as transformers or switches. EDCs make decisions necessary to operate a safe and reliable distribution system every day. These decisions are subject to scrutiny in base rate cases before the Commission. These proceedings provide transparency by allowing for the participation of relevant stakeholders representing varied interests. As the utility will have already outlaid the initial investment and bears the risk of not having it approved, the EDC has a strong incentive to make prudent decisions on infrastructure investment. Energy storage should not be treated differently than these other types of distribution assets.

6) What cost recovery mechanisms should be implemented for the ownership and operation of energy-storage assets?

This response assumes the energy storage asset in question is owned and operated by the EDC. There are multiple potential avenues through which EDCs could seek cost recovery for energy storage assets. Utilities should be provided the discretion to choose which mechanism is most appropriate for a particular project, as they do today for any other piece of equipment utilized for electricity distribution.

Among the potential cost recovery mechanisms available, Duquesne Light avers that the capital cost of energy storage deployed primarily as a distribution asset should be eligible for recovery through §1308 base rates, unless the investment is found to be imprudent.

The Secretarial Letter asks "Should the Commission allow EDCs' storage systems to participate in the PJM wholesale markets and how should those revenues be treated? Should the PJM revenues be used to offset the costs of the electric storage system and be credited to customers? Would such a participation model alleviate competition concerns?"

As stated above, EDCs should be permitted to own energy storage that is deployed with the primary purpose of supporting the distribution grid. However, these assets may not be needed for the provision of grid services at all times. In these instances, participation in the wholesale market could serve to maximize the value of the resource to the benefit of EDC customers.

For example, Arizona Public Service deployed an eight megawatt-hour battery to defer transmission investment in a more rural part of its service territory. This battery is a more cost-effective alternative to building a new transmission line. However, it is only needed for 20-30 days each year. The remainder of the time, the existing conductor can provide sufficient service. Rather than sit idle the remaining 300 plus days of the year, the battery,

which is owned and operated by the utility, is permitted to participate in the market with revenues flowed back to consumers.⁹

Similarly, in its ongoing energy storage pilot program Maryland allows for "An energy storage device owned or operated by an investor-owned electric company to participate in all available PJM wholesale revenue markets in order to realize benefits for investor-owned electric company customers."¹⁰

Duquesne Light supports the earlier comments of the Energy Storage Association which state that "an ESS (energy storage system) should not be restricted from providing multiple uses even though it has been determined to have a primary use. The value and therefore cost-effectiveness of ESS is maximized when it is able to provide the full range of services that the asset is capable of providing in a given operational mode, including generation services that may earn revenue from wholesale markets or end users."¹¹

Any market participation, if permitted by the Commission, would only occur when the EDC has confidence the storage asset will not be needed for distribution service. The EDC must commit to operate in accordance with good utility practice, so that market participation does not inhibit the ability of the storage asset to provide its intended distribution services. It is inadvisable for the Commission to put any additional blanket limitations on market participation, as circumstances will vary by project, location, season, time of day, etc.

Duquesne Light proposes that energy storage deployed as a distribution asset will be included in the rate base and that the utility will recover the cost through rates. Any revenue resulting from market participation would be treated as a reconcilable element to offset costs to customers and improve the affordability of utility services. The Company suggests that EDCs be allowed to propose, in the context of a rate case, a rule to address this revenue.

7) What are the appropriate models and limitations necessary to allow energy storage to participate in wholesale power markets?

Duquesne Light is focusing its response to this question on the potential market participation of energy storage *that is deployed as a distribution asset* rather than energy storage that is deployed solely as a generation asset.

Market participation should be limited to the extent that it does not interfere with the provision of distribution services. For this reason, the Company does not believe that, in most cases, storage deployed as a distribution asset could participate in the capacity market as it must be available any time it is needed to support the distribution grid and thus cannot guarantee its availability. The risk associated with steep penalties from PJM

⁹ "APS to deploy 8 MWh of battery storage to defer transmission investment." August 9, 2017.

www.utilitydive.com/news/aps-to-deploy-8-mwh-of-battery-storage-to-defer-transmission-investment/448965/ ¹⁰ Md. Code, Pub. Util. § 7-216.

¹¹ Comments of Energy Storage Association, February 18, 2021, <u>www.puc.pa.gov/pcdocs/1693752.pdf</u>.

if an asset is not available when called upon make this type of market participation imprudent. In contrast, EDC-owned storage assets may be well-suited to participate in the ancillary services market such as the PJM Regulation Market with the regulation D signal for fast responding resources.¹² Additionally, there may be an opportunity for EDC-owned assets to participate in the energy spot market at times when they are not needed for distribution services.

In the Secretarial letter, the Commission contemplates whether "allowing EDC-owned energy-storage assets to participate in these markets may have a negative impact on these markets." Duquesne Light believes any potential impact to markets would be de minimis. The Company does not agree that "allowing third-party ownership of energy storage would alleviate competition concerns," as the Secretarial Letter surmises. If those thirdparty owned storage resources are being utilized for distribution services, and thus are receiving some revenue from ratepayers, this could also distort the pricing at which they bid into the market compared to purely wholesale generators.

Finally, the Secretarial Letter asks "are there appropriate limits for the EDCs to place on the operation of such wholesale assets? Does this depend on whether the energy-storage asset participates in wholesale markets independently or through Order 2222 Distributed Energy Resource aggregation?"

Unlike other distributed energy resources, energy storage both draws from the grid and discharges electricity onto the grid, impacting the EDC's distribution system. Prior to interconnection, the utility would seek to quantify this impact and identify any necessary upgrades required. This is a well-established process and would not require significant changes to allow energy storage to interconnect. While FERC Order 2222 is a timely consideration, any limits put in place would be done so to protect the safety and reliability of the distribution system regardless of whether the resource participates independently or via aggregation. The EDC must always be able to override a wholesale market signal if necessary to maintain reliability. Distribution system reliability must always be the first priority.

¹² See more information on regulation market participation at <u>https://learn.pjm.com/three-priorities/buying-and-selling-energy/ancillary-services-market/regulation-market</u>.

IV. CONCLUSION

In closing, the Company commends the Commission for continuing to explore this important matter. The world is rapidly evolving as it transitions to more sustainable forms of energy use. It is essential that the Commission enable and empower the entities it regulates to evolve with it, in order to bring the best possible service to Pennsylvania consumers. A Policy Statement that provides guidance, but not rigid constraints, would best serve this purpose. Duquesne Light looks forward to continued discussion of this topic.

Respectfully submitted,

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DATE: November 29, 2021