November 29th, 2021

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

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

Dear Secretary Chiavetta,

The Solar Energy Industries Association ("SEIA") appreciates the opportunity to comment on the Pennsylvania Public Utility Commission's ("PUC") Policy Proceeding—Utilization of Storage Resources as Electric Distribution Assets, Additional Questions Docket No. M-2020-3022877. SEIA's comments focus on lessons learned from other states and support for open and competitive markets for energy storage deployment in which the competitive market and risk-based capital funds asset development instead of cost-of-service, rate-based projects.

Please find SEIA's comments enclosed.

If you have any questions, please feel free to contact me directly.

Sincerely,

Scott Elias

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BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

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

COMMENTS OF THE SOLAR ENERGY INDUSTRIES ASSOCIATION

EXECUTIVE SUMMARY

The Solar Energy Industries Association ("SEIA") appreciates the opportunity to comment on the Pennsylvania Public Utility Commission's ("PUC") Policy Proceeding—Utilization of Storage Resources as Electric Distribution Assets, Additional Questions, Docket No. M-2020-3022877.

SEIA members support the general policy objective of utilizing electric storage to enhance reliability and resiliency within the Commonwealth's electric distribution systems, and offer the following recommendations, which our comments elaborate on in greater detail:

- The PUC should establish parameters that allow for the use of energy storage on the distribution grid, including moving towards integrated distribution planning and requiring utilities to consider non-wires solutions, such as energy storage, before making a traditional investment in aging infrastructure.
- Parameters for the use of energy storage on the distribution grid must delineate limited circumstances in which utility ownership of energy storage should be considered and prohibit utility ownership of behind-the-meter, customer-sited battery storage.
- Third-party or customer-owned batteries via Bring Your Own Device (BYOD) programs can be designed to achieve ratepayer and grid benefits through the optimal dispatch of energy storage resources that obviate the need for utility-owned energy storage assets.
- Utility ownership of energy storage resources should be limited to circumstances in which markets have had an opportunity to provide a service and have failed to do so in a cost-effective manner, or when storage is to be used *exclusively* as a distribution asset.
- The PUC should create a process whereby EDCs submit an application to the PUC that demonstrates that any proposal for electric distribution company ownership of electric storage asset meets the definition of distribution asset under FERC's

Uniform System of Accounts, Account 363. The asset should then be subject to a cost benefit analysis, comparing it to traditional infrastructure solutions as well as non-wires alternatives and a tariff-based program.

I. INTRODUCTION

SEIA applauds the PUC for exploring the viability of electric storage, and for continuing this proceeding to clarify under what circumstances energy storage would be considered a distribution asset. SEIA appreciates the opportunity to submit these comments, which includes lessons learned from other states and emphasizes the importance of rethinking traditional distribution planning processes and providing an open and competitive market for energy storage deployment.

As the Pennsylvania Department of Environmental Protection's ("DEP") recent report on Energy Storage noted, the need for energy storage in Pennsylvania is expanding, and enacting policies that encourage pairing energy storage with solar energy to build a more resilient and cleaner grid offers an economic opportunity to the Commonwealth.[1] Pennsylvania also has an opportunity to demonstrate regional leadership in how to best facilitate a robust energy storage market that can provide critical resilience and cost savings to the local electricity system. However, deploying energy storage at scale and optimizing the services that energy storage provides will require innovative and forward-thinking policies, especially in restructured markets like Pennsylvania where energy storage is not strictly generation, distribution, or transmission, but rather a unique asset class with flexible applications and services.

The Commonwealth should align the emerging market for energy storage deployment with Pennsylvania's pro-competitive electricity markets. Competitive markets and risk-based capital

[1] See Pennsylvania Energy Storage Assessment: Status, Barriers, and Opportunities (April 2021) https://files.dep.state.pa.us/Energy/Office%20of%20Energy%20and%20Technology/OETDPortalFiles/EnergyAssurance/Strategen_PA_Energy_Storage_Assessment_April_2021.pdf.

remain foundational principles of the Commonwealth's electricity policy, and future distributed energy resources, including the deployment of energy storage, should be subject to the same restrictions on utility-ownership as were established when the Commonwealth passed the Electricity Generation Customer Choice and Competition Act ("Competition Act").[2]

While SEIA recognizes that parameters must be established that allow for the use of energy storage on the distribution grid, doing so must delineate limited circumstances in which utility ownership of energy storage should be considered. As our initial comments on the matter indicated, SEIA does not object to electric distribution company ("EDC") ownership of storage if it is used *exclusively* as a distribution asset.[3] However, SEIA recommends that the PUC create a process whereby EDCs submit an application to the PUC that demonstrates that any proposal for electric distribution company ownership of electric storage: (1) show that the asset meets the definition of distribution asset under FERC's Uniform System of Accounts, Account 363; and (2) that asset is subject to a cost benefit analysis, comparing it to traditional infrastructure solutions as well as non-wires alternatives and a tariff-based program. These parameters are critical to ensure that Pennsylvania provides an open and competitive market for energy storage deployment so that the competitive markets and risk-based capital funds energy storage development.

II. RESPONSE TO COMMISSION INQUIRIES

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] See 66 Pa.C.S. §§ 2801—2812.
[3] See SEIA's Initial Comments, https://www.puc.pa.gov/pcdocs/1693779.pdf

As the *Pennsylvania Energy Storage Assessment* report prepared for the Pennsylvania DEP recently noted, energy storage on the distribution grid can be a flexible tool to provide multiple services, including managing peak demand, integrating renewable energy, providing voltage regulation, and mitigating power outages among other capabilities.[4] The DEP report suggests that one of the primary applications of energy storage resources is siting energy storage downstream of congested infrastructure to defer or avoid investments in system upgrades. Indeed, energy storage can reduce loading on wires and remove the need to upgrade their capacity or replace aging infrastructure. Further, because it can be located at substations or along transmission corridors to maintain frequency and voltage on the system, energy storage reduces the distribution grid's need for capacitors, synchronous condensers, or other substation upgrades.

The value and therefore cost-effectiveness of energy storage is maximized when it is competitively procured and can provide the full range of services that the asset is capable of providing in a given operation model, including generation services that may earn revenue from wholesale markets or end users.[5] However, in a restructured market like Pennsylvania, additional parameters must be established to allow for the use of energy storage on the distribution grid if an energy storage asset is owned by a utility. For example, if a utility were to demonstrate that competitive alternatives proposed by non-utility parties are inadequate or more costly than a traditional utility infrastructure alternative, Pennsylvania's EDCs should be allowed to request permission from the PUC to own and operate storage assets on its distribution grid. Indeed, an EDC may be able to demonstrate that energy storage on the distribution grid alleviates outages or overloads on parts of a given distribution feeder at a fraction of the cost of traditional alternatives.

[4] See Pennsylvania Energy Storage Assessment: Status, Barriers, and Opportunities (April 2021) https://files.dep.state.pa.us/Energy/Office%20of%20Energy%20and%20Technology/OETDPortalFiles/EnergyAssurance/Strategen_PA_Energy_Storage_Assessment_April_2021.pdf.

[5] See ESA's initial comments, p. 4-5

However, while such a proposal aligns with an EDC's obligation to provide reliability as affordably as possible, it is nevertheless critical to remember that energy storage facilities serve a generation function by shifting load when they discharge energy to be sold as energy or ancillary services at wholesale. While this type of versatility is in part what makes energy storage services tremendously valuable, allowing a utility to own a dispatchable resource that could be in direct competition with independently owned energy resources would create an unlevel playing field that would discourage private investment.

Accordingly, the PUC should consider the need for extra parameters to ensure that if a utility owns energy storage as a distribution asset, the utility-owned asset does not blur the line between generation and distribution. This can be done by prohibiting utility-owned energy storage facilities from participating in wholesale markets and requiring EDCs to issue an all-source RFP when they are seeking to procure storage as a distribution asset, thereby giving third parties a chance to bid competitive non-utility owned energy storage solutions.

While the PUC may ultimately determine that alternatives proposed by non-utility parties are inadequate, these parameters will ensure that the Commonwealth's EDCs consider the cost-effectiveness of contracting with third-party developers, including those who may provide tremendous benefits to the electric distribution system (and wholesale marketplace) by aggregating customer-sited storage paired with solar.

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

While energy storage initiatives are still nascent, Pennsylvania can learn from what has worked in other states. Although it's too soon to definitively comment on the success or challenges

of Maryland's Energy Storage Pilot program given that the projects are not yet operational, the program developed provides important lessons on developing regulatory constructs that facilitate a variety of business models and ownership structures that will ensure a robust market in Pennsylvania. There are also key lessons to draw on from other states with more significant deployment of energy storage. For example, pilot programs across the country demonstrate that maximizing the benefits of energy storage services requires "stacking" of value streams at the customer, distribution, and bulk power system or wholesale level. Additionally, EDCs across the country are increasingly benefiting from the services of competitively owned energy storage assets, including customer-sited, non-utility owned batteries.

Consolidated Edison ("ConEd") in New York has pursued several pilot energy storage projects that test various use cases and highlight the potential of utility-developer partnerships that harness energy storage applications associated with third-party owned batteries. For example, ConEd piloted a new approach to increasing battery storage by partnering with GI Energy, installing four 1 MW/ 1 MWh battery storage projects at four commercial host sites spread across three NYC boroughs as part of a demonstration project. In contrast to leveraging customer-owned behind-the-meter storage assets, ConEd monetized multiple value streams and demonstrated the front of the meter battery storage business model by utilizing a third-party to locate and lease appropriate real estate for batteries based on ConEd's distribution system needs. The battery systems are owned by a third party, with ConEd paying a quarterly fee to retain priority dispatch rights for grid support during times of high demand, and when ConEd does not call for the systems, the batteries participate in NYISO's wholesale markets, with revenue shared per contract terms between the system owners and ConEd.[6]

[6] Con Edison. (2020, April 30). REV Demonstration Project: Commercial Battery Storage. Quarterly Progress Report, Q1 2020.

Green Mountain Power ("GMP") in Vermont launched one of the first customer-sited battery storage programs and reported saving customers $500,000 in one hour when, during a heatwave in July 2018, GMP reduced peak demand through about 500 customer-sited batteries.[7] What began in 2017 with a pilot program that offered a reduced price for a Tesla Powerwall has transformed GMP into the first utility with tariffed home energy storage programs for customers. Indeed, in 2018, GMP extended its pilot to include a Bring Your Own Device ("BYOD") Option, in which customers can use their Distributed Energy Resources ("DERs") to provide distribution capacity (and potentially other) services through device optimization, coordination, and aggregation. After the pilot program attracted 2,000 participants, the Vermont Public Utility Commission approved GMP's request to make the pilot program permanent, allowing GMP to remotely charge and discharge customer-sited batteries to create a virtual power plant ("VPP"), an aggregation of DERs that can be dispatched to provide grid services, similar to the way a central power plant is operated.

National Grid also launched a BYOD battery storage pilot program as part of their ConnectedSolutions program in 2019.[8] This program, which received the Energy Storage North America 2019 Innovation Award, allows battery owners across Massachusetts and Rhode Island to receive annual performance payments on a dollars per kilowatt basis to provide National Grid stored energy from customer-sited, third-party or customer-owned batteries during a limited number of events during both the summer and winter, helping lower prices on the electric grid as a whole by reducing wholesale ISO-NE market costs. A recent report aimed at informing state

[7] Green Mountain Power. December 2018. GMP Customers Keep Lights on With Stored Low Carbon Energy During Storm Outages, available at https://greenmountainpower.com/gmp-customers-keep-lights-on-with-stored-low-carbon-energy-duringstorm-outages/.

[8] National Grid Announces Home Batteries Are Now Eligible for ConnnectedSolutions Program Across Massachusetts and Rhode Island, via https://www.nationalgridus.com/news/2018/06/national-grid-announces-home-batteries-are-now-eligible-for-connectedsolutions-program-across-massachusetts-and-rhode-island/

policymakers and regulators on energy storage best practices emphasizes how this model (1) allows for both customer and third-party ownership, (2) gives utilities some control over patterns of battery dispatch, and (3) offers customers a way to pay for behind-the-meter battery storage, providing home or commercial property owners resilience and reduced energy costs without shifting costs from battery owners to other ratepayers.[9]

Eversource in Massachusetts launched a "home energy storage as a demand response" pilot program during the Summer of 2019. This program functions similar to National Grid's, with customer or third-party ownership, a limited number of events per year, and a pay-for-performance incentive, a further testament to the value of a BYOD Tariff framework. Under this model, the storage owner/provider receives a dispatch signal from the EDC at the appropriate time, and then the storage owner/provider communicates the signal to, and dispatches, the storage. However, the storage owner/provider maintains full control over the storage asset. Because compensation is dependent on performance, the storage provider/owner has the incentive to induce performance.

Several SEIA members participate in these ConnectedSolutions programs in New England, including programs in New Hampshire and Connecticut, and the continued expansion of this model to new states is a testament to how providing deployment incentives and performance compensation to third-party owned energy storage systems delivers benefits to customers and the grid. Indeed, such programs reduce costs, increase resilience, and combine the core competencies of utilities and third parties in partnership for an open-access program that layers on top of existing rate design. Collectively, these examples further demonstrate that EDCs need not include utility ownership of energy storage assets in their distribution resource planning, but rather should include the provisioning of energy storage services from third-party owned batteries.

[9] Energy Storage Policy Best Practices from New England: Ten Lessons from Six States, via https://www.cesa.org/wp-content/uploads/Energy-Storage-Best-Practices-from-New-England.pdf

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

As previously noted, siting energy storage downstream of congested infrastructure can defer or avoid electric distribution investments in system upgrades. However, as the PUC notes, energy storage should not be viewed as the appropriate solution in every case. The PUC should, at a minimum, establish guidance on how and when utilities should consider non-wires alternatives, such as energy storage, and provide additional transparency into the distribution system planning process.[10] This will clarify appropriate circumstances for non-wires solutions, like the deployment of energy storage.

Distribution system planning is the process utilities undertake to evaluate their system needs based on forecasting demand, anticipating load shapes, and considering the tools available to them to meet system needs. As part of the planning process, utilities evaluate whether an issue can be addressed by reconfiguring their distribution system. This reconfiguration may involve shifting load through switches in the distribution system, moving load served by a substation and feeder to another feeder potentially served by another substation, and, if reconfiguration is insufficient to address the forecast need, planning investments in new infrastructure, such as substation upgrades, capacitor banks replacement, or feeder reconductoring. With the advent of energy storage, the basic tenets of this process remain intact, but utilities may defer or avoid conventional infrastructure investments by procuring distributed energy resources, such as energy storage, that are lower cost while maintaining or improving system reliability and resilience. However, to determine the circumstances in which it is appropriate to deploy energy storage in

[10] See NRDC's initial comments, p. 19

lieu of traditional infrastructure upgrades, there must be visibility into the distribution planning process and a clear process for utilities to consider which projects provide the best opportunities for energy storage to meet a system need in a more cost-effective way than the traditional alternative.

Many states—including California, Maine, Michigan, New Hampshire, New York, Rhode Island, and Vermont—now require utilities to consider distribution-level non-wires alternative projects that meet defined screening criteria. Some states have also sought to develop clear and consistent frameworks for determining when energy storage solutions are suitable for addressing a system need, as well as for evaluating non-wires solutions against traditional approaches. For example, in 2016 the California Public Utilities Commission approved a Locational Net Benefits Analysis (LBNA) Framework as part of a process to solicit cost-effective DERs that could defer traditional distribution infrastructure projects.[11] The LBNA value is the net present value (NPV) of the annual costs associated with deferring a planned project, which can be used as an indicator of the economic feasibility of a non-wire solution such as energy storage. In California, this framework allows utilities to identify distribution system deficiencies and identify planned distribution upgrade candidates for deferral projects, which are then subject to a competitive solicitation.

Similarly, New York's Public Service Commission established a Benefit Cost Analysis Framework as part of New York's requirement that utilities file Distribution System Implementation Plans that identify opportunities to avoid traditional distribution investments by calling upon the DER marketplace.[12]

[11] See CA CPUC R.14-08-013, Assigned Commissioner's Ruling (1) Refining Integration Capacity and Locational Net Benefit Analysis Methodologies and Requirements

[12] See NY PSC 14-M-0101 Order Establishing the Benefit Cost Analysis Frame and NY PSC 14-M-0101 Order on Distributed System Implementation Filings

In 2020, the National Energy Screening Project, published the *National Standard Practice Manuel for Benefit-Cost Analysis of Distributed Energy Resources* ("NSPM"), which includes an entire chapter dedicated to the key factors that affect energy storage benefits and costs and provides guidance on addressing energy storage cost-effectiveness analyses.[13] Given that DERs are often not accurately valued and are treated inconsistently in many cost benefit analyses, reviewing the NSPM will be a valuable resource that sheds light on how to best determine whether an energy storage asset is cost-effective.[14] Expanding upon the 2017 National Standard Practice Manuel for Assessing Cost-Effectiveness of Energy Efficiency Resources, the NSPM for DERs provides guidance for conducting a cost benefit analysis of DERs, including energy storage, and is intended for use by states to help inform which resources to acquire to meet state policy goals and objectives, such as evaluating and planning for non-wire solutions and incorporating DERs into distribution system planning.

Pennsylvania can learn from the experiences of other states and stakeholders so that a consistent criterion is established and utilized across the Commonwealth's EDCs to identify and prioritize the most viable and valuable energy storage as distribution asset opportunities. The application of a comprehensive cost benefit analysis framework that compares diverse distributed energy resources to each other and to conventional utility infrastructure solutions within updated planning and investment decision-making processes is critical in the determination of whether the deployment of energy storage, or any DER, may allow a utility to avoid or defer traditional utility investments.

[13] See National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources via https://www.nationalenergyscreeningproject.org/wp-content/uploads/2020/08/NSPM-DERs_08-24-2020.pdf
[14] See OCA's Initial Comments, p.9 and p. 42-43

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

EDCs should not be permitted to own behind-the-meter, customer-sited battery storage because doing so would compromise competition, customer choice, and innovation while inflating costs. There is no inherent need for a monopoly actor behind-the-meter. The use of competitive markets and risk-based capital where appropriate—as opposed to utility ownership and ratepayer funding—is a fundamental tenet of Pennsylvania's electricity policy. Thus, utility ownership of energy-storage assets should be the exception rather than the rule.

Utility ownership of energy storage resources should be limited to circumstances in which markets have had an opportunity to provide a service and have failed to do so in a cost-effective manner, or when storage is to be used exclusively as a distribution asset. While SEIA does not object to electric distribution company ownership of storage if it is used *exclusively* as a distribution asset, benefits to the distribution system from energy storage services can be accomplished through contracted resourced owned by third parties.

The New York Public Service Commission has a stated policy preference that third parties should develop energy storage but has delineated the limited circumstances in which utility ownership ought to be considered. In New York's Reforming the Energy Vision (REV) proceeding Framework Order, utility ownership will only be allowed if any of the following circumstances exist:

1. Procurement of DER has been solicited to meet a system need, and a utility has demonstrated that competitive alternatives proposed by non-utility parties are clearly inadequate or more costly than a traditional utility infrastructure alternative;
2. A project consists of energy storage integrated into distribution system architecture;

3. A project will enable low- or moderate-income residential customers to benefit from DERs where markets are not likely to satisfy the need; or
4. A project is being sponsored for demonstration purposes. [15]

Building upon Pennsylvania's competitive electricity market, SEIA recommends that the PUC consider adopting a similar framework for the deployment of energy storage assets. This can be accomplished by allowing electric distribution company ownership of storage if it is used *exclusively* as a distribution asset. The PUC should create a process whereby EDCs submit an application to the PUC that demonstrates that the proposed utility-owned energy storage asset meets the definition of a distribution asset under FERC's Uniform System of Accounts, Account 363. The asset should then be subject to a cost benefit analysis, comparing it to traditional infrastructure solutions as well as non-wires alternatives and a tariff-based program.

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

SEIA recommends adopting the process used to review EDC requests to utilize energy storage under Maryland Energy Storage Pilot Program, which could facilitate a variety of business models and ownership structures that will ensure a robust market in Pennsylvania. Under this model, EDCs submit project applications for PUC approval that must contain, among other items, information concerning: (1) best estimates of costs and savings for the project; (2) project location; (3) project size (in watts) and duration (in watt-hours); (4) primary and secondary applications; (5) business model selected for the project; (6) project developer, engineering, procurement and

[15] See NY PSC 14-M-0101 Order Adopting Regulatory Policy Framework and Implementation Plan

construction firm information; (7) type of energy storage technology; and (8) the process used by the investor-owned electric company to solicit offers for the project.[16]

The Maryland Public Service Commission also established an Energy Storage Working Group that set forth proposed metric and value streams to be used for the evaluation of pilot project proposals filed by EDCs.[17] As discussed in question #3, it is critical to consistently apply a comprehensive cost benefit analysis framework that compares diverse distributed energy resources to each other and to conventional utility infrastructure solutions. Combining Maryland's process with a comprehensive cost benefit analysis framework should give the PUC effective tools and information to properly evaluate EDC requests to utilize energy storage.

In addition to laying out a clear process whereby the PUC can review EDC requests to utilize energy storage, Pennsylvania should consider requiring proactive consideration of energy storage in utility planning efforts, which requires an updating of the state's distribution system planning process, as the Office of Consumer Advocate ("OCA") has recommended in its initial comments in this docket. Indeed, SEIA supports OCA's recommendation to consider moving to integrated distribution planning ("IDP"), a comprehensive planning framework that requires, among other things, behind-the-meter resource forecasting, robust hosting capacity analysis, and cost benefit analysis of non-wires alternatives.[18]

For the PUC to successfully review requests to utilize energy storage as a distribution asset, Pennsylvania must develop and implement a distribution system planning process that enhances the transparency of distribution planning and improve information and transparency around

[16] See MD Order No. 82940- Case No. 9619- Order Establishing an Energy Storage Pilot Program
[17] Public Utility Law Judge Division - Submission of the PC 44 Energy Storage Working Group. Case No. 9619. (ML 228020), via https://webapp.psc.state.md.us/newIntranet/Casenum/NewIndex3_VOpenFile.cfm?FilePath=//Coldfusion/Casenum/9600-9699/9619/2.pdf
[18] See OCA's Initial Comments

locational net benefits on the grid. One way to accomplish these objectives is for the PUC to require EDCs to issue an all-source RFP for non-wires alternatives, such as energy storage, when they are seeking to procure an infrastructure asset whose cost exceeds a given threshold and to subject the proposed assets to a cost benefit analysis, comparing it to traditional infrastructure solutions as well as other non-wires alternatives and a tariff-based program.

Utilities should be required to show that it considered non-wire alternatives, such as energy storage, before making a traditional investment and provide a detailed cost benefit analysis to support final decisions. EDCs must also compare the costs and benefits of a cost-of-service, rate-based proposed energy storage project with that of a private developer's project. This would best serve the interests of ratepayers, effectively ensuring that EDCs weigh the pros and cons of utility-ownership of storage as a distribution asset against the pros and cons of contracting with third-party developers who may offer a more cost-effective storage solution or who may own and operate a portfolio of behind-the-meter energy storage resources—either C&I or residential—and synchronize them as a larger, unified and flexible resource to meet the utility's distribution needs.

SEIA believes that these recommendations will give the PUC and stakeholders an opportunity to review each EDC request to utilize energy storage as a distribution asset to determine whether the estimated costs, benefits, and business model requested by the EDCs align with the objectives of the PUC.

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

Physical energy storage assets that the utility owns and operates should be recovered through rate base just like other distribution assets. Expenses such as energy lost during round-trip

charging should be considered operational expenses and be recovered through existing mechanisms. The utility should earn a return on capital on rate base additions but should not earn a return on operational expenses.

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

FERC Order No. 2222 is intended to enable DERs to participate alongside traditional resources in the regional organized wholesale markets through aggregations. While FERC established wholesale market changes, in order to get access to the wholesale market, DERs must first interconnect to the distribution system, and that is a system over which state authorities retain jurisdiction. However, one of the barriers to DER expansion is the lack of a clear, transparent, and customer-friendly interconnection process. Storage technology has unique characteristics and cannot be interconnected using the standard approach to solar interconnection. SEIA recommends the PUC open a stakeholder working group that shall review and recommend updates to the interconnection process for DERs, including energy storage.

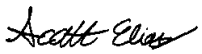
While enabling energy storage participation in wholesale power markets remains critical to open market competition in the electricity sector, SEIA cautions against allowing utility-owned energy storage assets to bid energy, capacity, and ancillary services into wholesale markets. As stated before, such circumstances blur the line between utility ownership of generation and distribution, which is antithetical to the Competition Act and Pennsylvania's historical preference for competitive markets.

III. CONCLUSION

Energy storage assets provide myriad benefits to the grid that "stack" on top of each other, but energy storage as a technology is still evolving, and has multi-use, modular, and mobile applications that the market has yet to realize. With so much uncertainty and potential, private developers and the force of the competitive market are in the best position to discover which combination of present and future benefits will create the most value for a given energy storage project.

SEIA thanks the PUC for the opportunity to provide these comments on the viability of electric storage, under what circumstances energy storage would be considered a distribution asset, and who should be able to own energy storage assets. We hope these comments clarify the need to update the state's distribution system planning process and why the Commonwealth should align the emerging market for energy storage deployment with Pennsylvania's rich history of pro-competitive electricity markets, as well as the limited circumstances in which utility ownership of energy storage should be considered. SEIA looks forward to working with the PUC, utilities, and other stakeholders to maximize the potential for an open and competitive market for energy storage in Pennsylvania.

Respectfully Submitted,



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