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November 16, 2020

Ms. Brinda Westbrook-Sedgwick
Commission Secretary
Public Service Commission
of the District of Columbia
1325 G Street, N.W., Suite 800
Washington DC, 20005

Re: Formal Case No. 1166

Dear Ms. Westbrook-Sedgwick:

Enclosed please find Potomac Electric Power Company's ("Pepco") Response to the Notice of Inquiry Regarding Energy Storage and Distributed Energy Resources in the above referenced proceeding.

Please feel free to contact me if you have any questions regarding this matter.

Sincerely,

/s/ *Andrea H. Harper*

Andrea H. Harper

Enclosure:

cc: All Parties of Record

PUBLIC SERVICE COMMISSION
OF THE DISTRICT OF COLUMBIA

IN THE MATTER OF	**)**	
	)	
The Investigation into Energy	**)**	**Formal Case No. 1166**
Storage and Distributed Energy	**)**	
Resources in the District of Columbia	**)**	

COMMENTS OF
POTOMAC ELECTRIC POWER COMPANY IN RESPONSE TO THE NOTICE OF INQUIRY REGARDING ENERGY STORAGE AND DISTRIBUTED ENERGY RESOURCES

Pursuant to the District of Columbia Public Service Commission ("Commission") Notice of Inquiry issued on October 9, 2020 regarding energy storage and distributed energy resources ("DERs"),[1] the Potomac Electric Power Company ("Pepco" or "the Company") hereby submits its Comments.

I. Introduction

Energy storage is an important tool that Pepco expects to integrate into its distribution planning and operations to improve the reliable distribution of electricity, maintain or improve the quality of electric distribution service, defer or avoid more costly distribution equipment, and/or improve the ability of the distribution system to host additional distributed renewable resources. To expand its experience with storage and the potential benefits, Pepco recommends the implementation of pilot storage projects that the Company could develop to explore innovative uses and understandings, over the long run,

[1] *The Investigation into Energy Storage and Distributed Energy Resources*, Formal Case No. 1166, Notice of Inquiry (Oct. 9, 2020) ("NOI").

where storage may be deployed cost effectively. In addition to learnings from pilot programs, expanding utility ownership of storage resources through a variety of business models would enable more rapid deployment of storage resources where beneficial to the District.

Pepco looks forward to working closely with other market stakeholders to integrate energy storage into the District's electric grid and meet the District's clean energy and climate goals.

II. NOI Comments

A. Generally, how should the Commission classify and regulate energy storage?

The Commission defines energy storage as:

> A resource capable of absorbing electric energy from the grid, from a behind-the-meter generator, or other DER, storing it for a period of time and thereafter dispatching the energy for use on-site or back to the grid, regardless of where the resource is located on the electric distribution system. These resources include all types of energy storage technologies, regardless of their size, storage medium (e.g., batteries, flywheels, electric vehicles, compressed air), or operational purpose.[2]

Pepco agrees with the position developed through the PowerPath DC process that energy storage should be classified and regulated based on the primary purpose it serves.[3] While there are many forms of energy storage, the most prevalent type in the District of Columbia is expected to be grid-connected battery storage. Storage that is not connected to the electric grid, such as thermal storage, should only be regulated if it is in one or more of the following categories: (1) is a distribution or transmission system utility asset, (2) has the

[2] 15 D.C.M.R. 999

[3] *Modernizing the Energy Delivery System for Increased Sustainability*, Final Report v1.0 of the DCPSC MEDSIS Stakeholder Working Groups, Formal Case No. 1130 (May 31, 2019) ("Final MEDSIS Report") at 108.

opportunity to earn a financial revenue stream directly from the retail or wholesale electricity market, or (3) if it is part of an energy efficiency or demand response offering of the utility or another publicly funded entity. An example of the third category is a thermal ice storage program that is relied upon to reduce peak electric distribution loads from commercial office building electric chillers in the District and is funded through a distribution bill surcharge.

As recognized in the Commission's definition of storage above, energy storage should not be categorized as a generation asset because it consumes more energy than it discharges into the electric grid. Instead, it should be treated under one of the three categories identified below.

- **Distribution Utility Asset**—if utility storage were installed or contracted for the primary use of helping manage the electric distribution system, the Commission should classify and regulate the storage as a distribution utility asset. A discussion of jurisdictions that have classified energy storage as a distribution utility asset is provided below.
- **Transmission Utility Asset**—if utility storage were installed or contracted for the primary use on the transmission system to help manage the electric transmission system, the Commission should consider the storage to be a transmission utility asset that the Federal Energy Regulatory Commission ("FERC") regulates.
- **Distributed Energy Resource**—the Commission should classify a customer or a third-party storage project that is installed in the absence of a contract with Pepco as a distributed energy resource. Storage that is connected to the grid behind the meter ("BTM") would be subject to Commission regulation, and storage that is

connected to the grid in front of the meter ("FTM") would be subject to either Commission or FERC regulation depending upon the manner that the storage asset is used. Wholesale market participation of either aggregated BTM storage or FTM storage would be subject to the wholesale market rules developed by the PJM Interconnection, L.L.C. and approved by FERC.

PJM and FERC have established opportunities for grid-connected energy storage to participate in the PJM wholesale market. These opportunities currently include demand response opportunities for BTM storage, such as reliance on storage to participate as demand response in the PJM ancillary, energy, and/or capacity markets and for FTM storage participation in the PJM ancillary, energy, and/or capacity markets. FERC Order No. 2222 recently established an opportunity to aggregate BTM storage to participate directly in the PJM wholesale market.[4] PJM and the other independent system operators are responsible for developing the rules for the implementation of FERC Order No. 2222, which is expected to require several years of development and FERC approval before being established.

Irrespective of whether grid-connected storage participates in the PJM market, in the District of Columbia, Pepco requires that all grid-connected energy storage participate in the interconnection process, a process designed to protect the reliable and safe operation of the electric distribution system. Storage that participates in the PJM wholesale electricity market or is connected directly to the PJM transmission system must also obtain a PJM interconnection study. Customer-owned or third party-owned storage that is not

[4] *Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators*, 172 FERC ¶ 61,247 (2020) ("FER Order No. 2222").

grid connected is not subject to Commission or FERC regulation unless it is able to derive a revenue stream from the wholesale or retail energy market.

Other State Classification of Energy Storage as a Utility Distribution Asset

Generally, past regulatory commission rulings in other jurisdictions supporting decisions to classify utility-owned storage as a distribution grid asset centered on (1) the utility's planned use of energy storage (e.g., grid reliability, peak shaving, capacity deferral), (2) storage that provides a lower cost alternative to the utility solutions, and (3) societal benefits associated with utility ownership, such as expanding equity and access to low to moderate income customers, providing environmental improvements, or achieving other jurisdictional policy goals.

Jurisdictions that currently support the classification of energy storage as a distribution utility asset include Maryland (through the legislatively established Maryland Storage Pilot Program), Illinois, California, and New York. A brief description of the activities in each referenced jurisdiction is provided below.

Maryland Utility Energy Storage Pilot Program

Maryland enacted the Maryland Energy Storage Pilot Project Act (the "Act"), SB573 in 2019. The Act, *inter alia*, requires the Maryland Public Service Commission ("Maryland Commission") to establish a storage pilot program to help guide future state policy. As a result, on August 23, 2019, the Maryland Commission issued Order No. 89240 establishing an Energy Storage Pilot Program and directing each Maryland investor-owned electric utility ("IOU") to solicit offers to develop two energy storage projects under different business models.[5] The IOUs would then submit applications for those projects to the Commission for its consideration

[5] *In the Matter of the Maryland Energy Storage Pilot Program*, Case No. 9619, Order No. 89240, ML 226537 (Aug. 23, 2019) ("Maryland Order No. 89240").

and possible approval. All approved distribution storage pilot projects will be distribution utility assets and regulated by the Maryland Commission. Each utility was required to submit at least one storage project that will be third party owned. The four alternative business models are identified below, as described in the Act:

- **Model 1**: A "Utility–Only" model under which the electric company would own the project, control the project for grid reliability, and operate the project in wholesale markets or other applications when not providing grid services.
- **Model 2**: A "Utility and Third–Party" model under which the electric company would own the project and control the project for grid reliability, and a third party would operate project in wholesale markets or other applications when the project is not providing grid services.
- **Model 3**: A "Third–Party Ownership" model under which the electric company would contract with a third party-owned project for grid reliability and allow the third party to operate the project in wholesale markets or other applications when the project is not providing grid services.
- **Model 4**: A "Virtual Power Plant" model under which the electric company would aggregate or use a third-party aggregator to receive grid services from customer-owned or a third party-owned distributed energy storage projects; and the customers or third party would use the projects for other applications when the projects are not providing grid services.

In response to the Act, the Maryland Exelon Utilities comprised of Baltimore Gas & Electric Company ("BGE"), Delmarva Power & Light Company ("DPL"), and Pepco

collectively proposed six utility funded storage projects.[6] The Maryland Commission approved all six projects on November 6, 2020 through Order No. 89664, Case No. 9619. Pepco's Maryland battery energy storage system ("BESS") pilot projects are discussed below.[7]

- **The National Harbor Project**: a utility-owned and third party-operated 1 MW/3 MWh BESS (Model 2) that will be located on Pepco-owned property in Oxon Hill, Maryland. This project is designed to help defer the construction of a planned future substation. Pepco will have the right to dispatch the BESS for 10 days/30 hours of peak shaving and for grid emergencies. The third-party operator will rely on the BESS to participate in the PJM wholesale market to derive supportive financial revenue from the wholesale market.
- **The Electric Bus Depot Project**: a third-party owned and third-party operated 1 MW/3 MWh BESS (Model 3) that will be located on Montgomery County-owned property at a future planned electric bus depot in Silver Spring, Maryland. The project is designed to avoid the construction of a new Pepco feeder to the electric bus depot. Pepco will have the right to dispatch the BESS for up to 10 days/30 hours of peak shaving and for grid emergencies. The third-party operator will rely on the BESS during other times to assist with load balancing for a microgrid at the location and to reduce electric demands.

Illinois – Commonwealth Edison

In Commonwealth Edison's ("ComEd") 2018 Rate Update proceeding, ComEd argued, and the Illinois Commerce Commission ("ICC") agreed, that its Zion substation

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6 *Application of Joint Exelon Utilities for Approval of Energy Storage Pilot Projects*, Case No. 9616, ML 229744 (Apr. 15, 2020).

7 *In the Matter of the Maryland Energy Storage Pilot Program*, Case No. 9619, Order No. 89644, ML 232509 (Nov. 6, 2020) ("Maryland Order No. 89644").

and Shorewood, IL BESS projects should be considered distribution projects.[8] In particular, ComEd argued that utility "[a]ssets and costs are properly functionalized based on the purpose they serve in the system – versus the type or category of machine or item."[9] ComEd further contended that asset

> functionalization should 'take into account the technical characteristics of the facilities,' which must 'be evaluated on a case-by-case basis.' [citations omitted] Thus, a wire, a transformer, or a device that stores and discharges electricity can serve distribution, transmission, or even production functions, depending on how each asset is actually used.[10]

The ICC ruled that ComEd's proposed BESS Projects "serve a distribution function."[11] In support of its decision, the ICC highlighted that the BESS Projects "are designed to defer capacity-related upgrades to a distribution substation and a distribution feeder and are necessary in the immediate term to address projected overloads."[12]

California

In its proceeding to "Consider the Adoption of Procurement Targets for Viable and Cost-Effective Energy Storage Systems,"[13] the California Public Utilities Commission ("CPUC") clarified that the definition of energy storage system is as articulated in Section 2835(a)(1) of the California Public Utility Code:

> 'Energy storage system' means commercially available technology that is capable of absorbing energy, storing it for a period of time, and thereafter dispatching the energy . . . An 'energy storage system' may have any of the following characteristics: (A) Be either centralized or distributed. (B) *Be either owned by a load-serving entity or local publicly owned electric utility, a customer of a load-serving entity or local publicly owned electric utility, or a third party, or is jointly owned by two or more of the above*. (Emphasis added).

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8 ICC Docket No. 18-0808, Ex. 13.0 REV, 9:180-10:196.
9 ICC Docket No. 18-0808, Ex. 13.0 REV, 9:180-10:196.
10 ICC Docket No. 18-0808, Initial Briefs of Commonwealth Edison, p.24 (2018)
11 ICC Docket No. 18-0808, Order at 22.
12 *Id.*
13 California Public Utility Commission Rulemaking 10-12-007, Decision 13-10-040, October 17, 2013.

In addition to allowing for utility ownership and operations, the CPUC noted that this "definition is intended to embrace a mix of ownership models and contribute to a diverse portfolio that can encourage competition, innovation, partnerships, and affordability."[14]

In a separate decision,[15] the CPUC held that the "multi-functional capabilities of energy storage means that this resource cannot be evaluated and considered on a 'one size fits all' basis"[16] and that "there is a need to divide energy storage applications into separate, discrete functions"[17] without sacrificing consideration of storage attributes in a "comprehensive manner to identify opportunities where storage could provide value to the electric system."[18]

New York

In New York, two proceedings provide the key precedent for how the New York Public Service Commission ("NY PSC") regulates and considers BESS as distribution grid assets: (1) Consolidated Edison's ("ConEd") Brooklyn/Queens Demand Management ("BQDM") Program (CASE 14-E-0302)[19] and the NY PSC's Regulatory Policy Framework and Implementation Plan proceeding (CASE 14-M-0101).[20]

- **ConEd's BQDM proceeding.** The NY PSC approved ConEd's proposed ownership of battery storage solutions upon noting that "batteries are similar to capacitor banks, which provide energy storage and VARs to the system, and are a

[14] California Public Utility Commission Rulemaking 10-12-007, Decision 13-10-040, at 51 (2013).
[15] California Public Utility Commission Rulemaking 10-12-007, Decision 12-08-016, August 2, 2012 ("Decision 12-08-016").
[16] *Id.* at 26.
[17] *Id.*
[18] *Id.*
[19] http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B5D2DABCC-1578-4CAC-A312-DEAC36F3D008%7D.
[20] New York Public Service Commission Case No. 14-M-0101, Order Adopting Regulatory Policy Framework and Implementation Plan (2015) ("Regulatory Policy Framework Order") at 66 – 71.

standard component of the traditional distribution system,"[21] "there is value in gaining experience with storage-based solutions,"[22] and that ConEd's "ownership of batteries will facilitate the deployment and use of third-party DER."[23]

- **NY PSC Regulatory Policy Framework and Implementation Plan.** The NY PSC allows utilities to own DERs where one of the following circumstances exist:

  (1) when 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;[24]

  (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 DER where markets are not likely to satisfy the need; or

  (4) a project is being sponsored for demonstration purposes.[25]

B. What, if any, regulations should the Commission consider for front-of-the meter energy storage?

Utility-owned energy storage and third-party FTM projects contracted for by the utility and relied on to provide grid support for the distribution system should be considered utility distribution assets that are regulated and subject to Commission-approved utility cost recovery methods. Utilities should have an opportunity to invest in and earn on both utility-owned storage and utility-contracted-for third-party projects. This will encourage utility selection of the most cost-effective resource alternative regardless of ownership and will help to support the use of emerging technologies.

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[21] New York Public Service Commission Case No. 14-E-0302, Order Establishing Brooklyn/Queens Demand Management Program, p.22-23 (2014).
[22] *Id.*
[23] *Id.*
[24] With respect to this first circumstance under which utilities can own energy storage facilities, the NY PSC noted that it would be "advantageous for utilities to gain this experience . . . ."
[25] Regulatory Policy Framework Order at 70.

All utility-owned or contracted-for energy storage should be permitted to participate in the PJM wholesale market when the utility is not relying on the storage to serve the local electric distribution grid. Participation in the PJM market will provide additional storage resources that PJM dispatchers can rely on and will provide a supporting market revenue stream that can be used to help offset the costs of storage that would otherwise be paid by District of Columbia consumers.

It may be appropriate to consider establishing a FERC-jurisdictional Wholesale Distribution Charge ("WDC") to assign distribution costs directly to those storage facilities that have been connected to the distribution system for the primary purpose of participating in the PJM wholesale market. Such a charge would be assessed based on the identifiable distribution grid costs associated with reliance on Pepco's utility distribution system to access the PJM wholesale market.[26]

All FTM energy storage (both utility-owned and third party-owned projects) should continue to be required to participate in Pepco's interconnection process and a required PJM interconnection study, if participating directly in the PJM market and/or connected directly to the PJM transmission system. These studies will help to avoid adverse impacts on both Pepco's electricity grid and the PJM transmission system

[26] WDC's have been established by Pepco's affiliate, ComEd and several California utilities. For example, in 2014, FERC approved revisions to ComEd's Open Access Transmission Tariff, which allowed the Company to assess a WDC to Energy Vault, a ComEd commercial customer, for facilities used to withdraw and transmit power from the customer's energy storage system to the PJM transmission grid. In California, SoCal Edison charges WDCs to project developers that seek to interconnect their generating facilities to SCE's distribution system for the purpose of participating in wholesale energy transactions. https://www.sce.com/business/generating-your-own-power/grid-interconnections/wholesale-distribution-access-tariff.

C. What, if any, regulations should the Commission consider for behind-the-meter energy storage?

Due to the increasing pairing of energy storage with solar resources, the recent issuance of FERC Order No. 2222 permitting the aggregation of BTM resources for wholesale market participation, federal tax incentives for coupling energy storage with solar systems, and declining storage prices, installation of storage BTM is expected to increase in the District of Columbia. Consistent with FERC Order No. 2222,[27] it may be appropriate to establish a WDC for aggregated BTM projects that are developed for the primary purpose of participating in the PJM market. As discussed above, a WDC charge is FERC jurisdictional.

Business models that enable customer value from energy storage, energy storage paired with solar, and other aggregation services should be permitted under Commission regulation. Utility participation in the operation of BTM storage may be among the alternative business models and should be considered in the District of Columbia.[28] Pepco can rely on BTM energy storage to improve grid operations, provide reliability benefits, defer investments in traditional grid solutions, and improve hosting capacity for renewable distributed energy resources depending on where and how it is deployed. Utility contracting for storage owned by third-party entities and customers should be encouraged and permitted. Utility-sponsored energy storage would be selected through a competitive procurement process, providing an opportunity to multiple vendors. Under a complementary business model, the utility could provide a rebate or other incentive for

[27] FERC Order No. 2222 at ¶ 61, 247 (2020).

[28] Pepco has owned, installed, and operated residential direct load control equipment in the District of Columbia for more than 30 years. Pepco aggregates this BTM resource to participate in the PJM market to derive a supporting revenue stream. Existing program equipment includes not only direct load control equipment installed on central air conditioning equipment but also smart thermostats.

BTM installations in exchange for utility control of the asset during select times to support grid reliability/operations.

Commission approval of utility aggregation of BTM storage for participation in the PJM wholesale market would allow for more rapid storage deployment within the District and provide additional customer value. The participation of aggregated BTM storage in the PJM wholesale market will be enabled as a result of FERC Order 2222 and through the subsequent modifications to PJM market rules. Similar to the residential direct load control program, resulting PJM market revenue could be used to reduce the costs of BTM storage for District of Columbia customers and to provide possible investment incentives.

Pepco must have visibility into the use and operation of any customer or third-party BTM grid-connected energy storage to avoid negative impacts on the distribution system. Negative impacts could include reduced reliability, reduced electric service quality, increased utility distribution costs, and additional safety risks. The use of smart inverters could provide limited utility control of BTM storage resource that could help to avoid reliability and safety problems.

Other jurisdictions have permitted utility investments in BTM batteries. Some of these examples are discussed below.

Vermont

In Vermont, Green Mountain Power ("GMP") was authorized to implement a pilot program for BTM batteries that was subsequently converted to a permanent program as a result of the successful pilot.[29] The pilot program led to 2,567 utility-controlled Powerwall

[29] Vermont Public Utility Commission Case No. 18-1633-PET, Petition of Green Mountain Power Corporation for approval of a multi-year regulation plan pursuant to 30 V.S.A. § 209, 218, and 218d, Order, p.30, 201 (April 2019). *See also* Vermont Public Utility Commission, *Notice of GMP Innovative Pilot: Energy Bundle*, Case No. 19A-3193, August 5, 2019.

batteries being installed in customer homes with a total capacity of approximately 13 megawatts.[30] By discharging these batteries during hours when the ISO New England grid experienced monthly and annual peak demand, GMP produced savings of $3 million in the first three quarters of 2020 that were passed on to utility customers.[31] The network of BTM batteries also supplied 16,000 hours of backup power.[32] Due to the success of this pilot, in the summer of 2020, the Vermont Public Utility Commission approved the pilot as a permanent residential storage tariff.[33]

Customers can now enroll in GMP's Tesla Powerwall and Bring Your Own Device ("BYOD") programs.[34] The tariff offers two customer choices: First, a customer can pay the utility $55 per month to lease two Tesla Powerwalls; that covers installation costs and lasts for 10 years.[35] After ten years, the customer can keep using the battery as long as it functions, and GMP will collect and recycle the equipment when its useful life ends.[36] Second, customers may select a BYOD option where GMP makes an upfront payment to the customer for buying and connecting a battery.[37] The payment amount varies based on the amount of capacity the utility is allowed to control.[38] The maximum payment is $10,500, subject to the battery providing the committed level of discharge.[39]

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30 https://www.greentechmedia.com/articles/read/from-pilot-to-permanent-green-mountain-powers-home-battery-network-is-sticking-around.
31 *Id.*
32 *Id.*
33 Vermont Public Utility Commission Case No. 19-3537-TF, Order Approving Compliance Tariffs (Jun. 10, 2020).
34 See https://greenmountainpower.com/wp-content/uploads/2020/06/GMP-Powerwall-Program-Tariff-and-Lease-2020.pdf.
35 *Id.*
36 *Id.*
37 *Id.*
38 *Id.*
39 *Id.*

Delmarva Power Elk Neck Virtual Power Plant Pilot

On November 6, 2020, Delmarva Power received Maryland Commission approval of a utility-designed and -funded BTM virtual power plant storage pilot as part of the Maryland Energy Storage Pilot program.[40] Sunverge will install storage at 110 residential homes on the Elk Neck Peninsula in the Chesapeake Bay. Sunverge will own the batteries for ten years, thereafter customers will have the option of assuming ownership or returning the batteries. The selected storage size at this location is recommended to be 0.5 MW capacity with 1.5 MWh of energy.

Sunverge will aggregate the batteries and provide aggregated peak shaving capability to Delmarva Power during periods of high load or load reduction/load injection capability during emergency grid conditions in the Elk Neck area. The aggregated batteries can also provide voltage or volt-ampere reactive support to the grid when needed. Participating customers who receive batteries can realize various benefits that include a limited period of back-up power for essential residential loads during grid outages, an opportunity to store electricity from installed photovoltaic arrays for use at a later time, an opportunity to reduce electricity use from the grid during Peak Energy Savings Credit events (Delmarva Power's residential dynamic pricing program), and an opportunity to reduce grid-supplied energy use in response to a Delmarva Power or third-party supplier time-of-use rates.

The Elk Neck Virtual Power Plant Pilot will participate in the PJM wholesale electricity market on an aggregated basis during other periods to provide supportive PJM market earnings that will be relied on to partially offset project costs. Initially, the Elk

[40] Maryland Order No. 89644 at ¶¶ 73-76.

Neck Project is expected to participate in the wholesale market as a PJM emerging technology pilot and, overtime, under the future rules that will be established as a result of FERC Order No. 2222.

D. As the District moves forward with grid modernization, what, if any, DERs should utilities be encouraged to invest in and how should regulations be structured to incentivize this growth, including examples?

Pepco commends the Commission for its commitment to furthering the District's clean energy goals through this proceeding. Achieving the goals will require collaboration across the Commission, developers, electricity customers, Pepco, and other market stakeholders to develop a regulatory framework that encourages utility and third-party investments and deployment of these resources. As the owner and operator of the District of Columbia's electric distribution system, Pepco has a critical role to play in achieving these policy goals. In addition to supporting the critical infrastructure that creates the platform for multi-directional power flow, Pepco is essential to electrifying the District, increasing the penetration of DER, and incorporating advanced technologies, all of which will support the District in achieving its goals.

As Pepco looks to enable greater levels of distributed energy resources in the District, tools that allow for increased visibility and interoperability will be a critical component of integrating increasing numbers of DERs electric distribution grid. Pepco is in the process of implementing an Advanced Distribution Management System ("ADMS"), which is a software platform that supports distribution management and the ability to optimize the delivery of electricity across grid resources. ADMS includes functions that automate outage restoration, optimize the performance of the distribution grid, and allow for DER management on the distribution system. Installation of ADMS will provide Pepco

with more information about grid operations as well as new methods to control grid resources, providing Pepco provide greater distribution system situational awareness. This data can also be used by optimize algorithms embedded within the ADMS which can then allow system to be managed in an efficient manner. Providing these tools to distribution system operators will provide greater certainty regarding the impact of DERs and allow for increasing DER penetration.

To accelerate clean energy deployment in the District, the Commission should consider allowing Pepco to procure, own, and deploy various DERs that could include investments, such as community solar projects, that support the distribution system. In this manner, renewable generation facilities could be more rapidly developed in the District of Columbia, and greater DER access could be provided to low- and moderate-income customers. Further, Pepco should be permitted and encouraged to expand access to electric vehicle charging infrastructure to meet the District's climate goals.

Beyond the creation and maintenance of the foundational infrastructure needed to integrate and optimize DERs, cities and states around the nation have found that utilities have a direct role in DER development to achieve the ambitious clean energy goals and ensure that all consumers at various income levels are able to participate and benefit. Pepco provides below examples of state-permitted utility renewable and electrification development projects.

Hawaii

Similar to the District of Columbia, Hawaii is working to achieve a 100% renewable energy target. As utility grid operators work to accommodate the growing penetration of DERs, new tools are needed to provide greater visibility, control, and

optimization of the distribution system for more reliable operations of a two-way grid with increased variable distributed generation and other DER. Similar to Pepco, Hawaiian Electric Company ("HECO") is pursuing an ADMS solution that will enable more advanced, coordinated, and safe management of the grid as HECO continues to increase its renewable energy portfolio and provide greater customer energy options.[41] HECO's ADMS solution will also improve resilience by allowing operators to quickly adapt to changing grid conditions and rapidly recover from power outages and disruptions by enhancing utility situational awareness and assisting in restoration triage to recover from events faster. HECO estimates that the total capital, deferred, and operations and maintenance ("O&M") costs of the project through implementation will be $45.8 million, and the utility will seek to recover these costs through an adjustment mechanism until these costs are reflected in base rates.[42]

Maryland

On January 14, 2019, the Maryland Commission approved Pepco's and Delmarva's Power request to implement a combined $21.2 million portfolio of electric vehicle ("EV") offerings across the residential, non-residential and public market segments.[43] The approved public program offerings consist of 350 installations of utility-owned, publicly available Level 2 smart chargers and Direct Current Fast Charging ("DCFC") sited at county and municipal public locations across the service territory.[44] The approved residential offerings include rebates of $300 for customers with an eligible Level 2 EV

41 *https://dms.puc.hawaii.gov/dms/DocumentViewer?pid=A1001001A19J01B05653A00075.*
42 https://dms.puc.hawaii.gov/dms/DocumentViewer?pid=A1001001A19J01B05653A00075.
43 *In the Matter of the Petition of the Electric Vehicle Work Group for Implementation of a Statewide Electric Vehicle Portfolio*, Case No. 9478, Order No. 88997, ML 223588 (Jan. 14, 2019) ("Maryland Order No. 88997").
44 *Id.* at 65.

smart charger, discounted EV chargers and installation for 137 residential applicants receiving their energy through utility Standard Offer Service.[45] The approved commercial program offerings include a discounted Level 2 smart chargers and a one-time free installation per site for 250 multifamily applicants with a voluntary green rider adder and a multifamily, fleet, and workplace demand charge credit on qualifying customer-owned Level 2 or DCFC EV chargers.[46]

E. What regulations should the Commission consider that will assist in alternative DER deployment in the District?

Innovative thinking is not only necessary for the consideration of alternative technologies but also for the consideration of alternative business models. Innovative new business models are being tested and deployed in forward-looking states across the nation. These innovative business models allow for the optimization of DER value through a variety of ownership and operation arrangements between the utility, third parties and customers. For example, revenue-sharing models where the utility owns an asset and market revenues are shared between customers and the utility provide an economic incentive to maximize customer value from these assets. Allowing various business models, such as those established through the Maryland pilot program, to flourish, allows for the greatest number of alternatives and deployment of high-value DER projects.

F. Should additional provisions be added to the Commission's regulations to further protect consumers and the reliable operation of the distribution system?

It is critical that Pepco continue to conduct interconnection studies for all grid-connected resources and that the installation of smart inverters be required for new projects.

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45 Maryland Order No. 88997 at 48.
46 *Id.* at 55-60.

The utility should have the ability to control, on a limited basis, grid-connected DERs, where possible, to help ensure the continuing reliable supply of electricity and avoid safety problems. At this time, the Company does not have specific recommended language.

G. Are there any parameters or steps the Commission should consider or implement before approving any potential storage pilot projects?

To enable the District to learn quickly about the potential uses and limitation of storage technologies, the Commission should consider establishing and funding utility investments in energy storage pilot projects. The Commission should consider the following items before approving a storage pilot: (1) the project's unique learnings, (2) the deferral or avoidance of traditional utility investments, (3) the project's ability to help maintain the reliability and/or resiliency of the electric distribution or transmission system, (4) the project's ability to improve hosting capacity for renewable distributed energy resources, (5) the project's ability to improve the environment by reducing power plant air emission or reduce land use for otherwise required utility infrastructure, and/or (6) the project's ability to participate in available PJM wholesale market opportunities to provide a supporting market revenue while providing support to the PJM wholesale electricity market. Because utilities are precluded from obtaining financial support for storage pilot projects through the established PowerPath DC funding process, these projects would need to receive alternative funding or Commission-established cost recovery.

If recovery for utility-financed storage pilot projects is allowed, a competitive contracting process would be used to provide business opportunities to a variety of vendors, establish competitive pricing, and identify innovate technology. In Maryland, Pepco and Delmarva Power conducted a competitive procurement process that resulted in the selection of two diverse suppliers to design, install, and maintain utility-owned battery

storage. Similar to Pepco's role in identifying storage pilot opportunities, developing projects in Maryland, and conducting a competitive vendor solicitation, the utility could perform a similar role in the District of Columbia.

H. Should the Commission, when evaluating potential storage pilot projects, include a benefit/cost analysis? Are there unique features only applicable to storage evaluation in a benefit/cost analysis?

The primary purpose of storage pilot and demonstration projects is to provide learnings about the use of energy storage within the District of Columbia and the benefits that it can provide. While the benefits and costs of each individual pilot project are a consideration, the primary selection of a pilot or demonstration project should be based upon the additional learnings that it can provide to stakeholders and policymakers. If pilot or demonstration projects were required to be cost effective, many pilot and demonstration projects that would otherwise advance the District's goals and the understanding of technologies and solutions that advance the District's goals would not be implemented.

As discussed above, the Maryland Commission recently reinforced the focus on learnings from pilot storage projects through its recent order approving storage pilots by including two pilot projects that are not expected to be cost beneficial on a strictly quantifiable basis. While the Maryland Commission recognized that "some of the projects might not be immediately cost-effective,"[47] it approved the Pepco- and Delmarva Power-proposed storage pilot projects because "…this pilot program's value to both ratepayers and the public will come primarily from the lessons learned by utilities, stakeholders, and the Commission, and which will later be relied on in making future investment decisions."[48]

[47] Maryland Order No. 89664 at ¶ 75.
[48] Maryland Order No. 89664 at ¶ 76.

The two Pepco-proposed pilot projects are expected to be cost effective based upon the forecasted quantified benefits compared to their expected costs over a 15-year period. However, the two Delmarva Power proposed pilot projects are not expected to be cost effective based only on their quantifiable benefits compared with expected costs. One Delmarva Power pilot project in Ocean City, Maryland is located on a barrier island in the Atlantic Ocean that is subject to increasing storm risks. The installed BESS is expected to provide reliability and resiliency benefits to that community. The second Delmarva Power pilot project, as described earlier, would result in the installation of third-party owned batteries behind-the-meter at 110 residential homes. The batteries will be aggregated by a third-party for utility control for peak shaving, grid emergencies, and for wholesale market purposes by a third-party.

In support of the storage pilot, the Maryland Storage Working Group developed a list of quantifiable and unquantifiable benefits for storage and included them in the December 31, 2019 report to the Maryland Commission.[49] A unique benefit of storage projects is the benefit of "optionality," providing a utility the opportunity to reduce the time required for a decision regarding the construction of traditional utility infrastructure. In addition, storage installations that are designed to be relocated can benefit customers and the utility by providing support the grid at multiple sites. Unique PJM market-related benefits primarily consist of available wholesale market earnings from the ancillary services market, specifically Regulation D.

[49] *Submission of the PC 44 Energy Storage Working Group*, Case No. 9619, ML 228020 (Dec. 31, 2019)

III. Conclusion

Energy storage, if appropriately regulated and incented and properly integrated into the electricity distribution and transmission system of the District of Columbia, could improve the ability of Pepco's distribution system to host additional distributed renewable resources, help to maintain or improve the reliable distribution of electricity, maintain or improve the quality of electric distribution service, or defer more costly utility solutions.

Pepco's integration of grid-connected third-party, customer-owned, or utility-owned storage into the District's electric distribution system is critical for optimizing the benefits to the grid and helping to achieve the electrification and carbon-reduction goals of District policy makers. Pepco could be encouraged through regulation to install or contract for the installation of storage in the District of Columbia initially for pilot or demonstration projects for learnings and, over the long-run, where expected to be cost effective. Pepco looks forward to working closely with other market stakeholders to optimize the use of energy storage in the District's electric grid. Pepco appreciates the opportunity to provide these comments and looks forward to continuing active engagement in this proceeding.

Respectfully submitted,
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November 16, 2020

CERTIFICATE OF SERVICE

I hereby certify that a copy of Potomac Electric Power Company's Pepco's Response to the Notice of Inquiry Regarding Energy Storage and Distributed Energy Resources has been served this November 16, 2020 on:

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