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June 14, 2024

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. 1130**

Dear Ms. Westbrook-Sedgwick:

Enclosed please find Potomac Electric Power Company's Comments on the Value of Distributed Energy Resources ("VDER") study in the above referenced case.

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

Sincerely,

/s/ *Dennis P. Jamouneau*

Dennis P. Jamouneau

Enclosure

cc: All Parties of Record

**BEFORE THE**
**PUBLIC SERVICE COMMISSION**
**OF THE DISTRICT OF COLUMBIA**

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| **IN THE MATTER OF** | **)** | |
| **THE INVESTIGATION INTO** | **)** | |
| **MODERNIZING THE ENERGY DELIVERY** | **)** | **Formal Case No. 1130** |
| **SYSTEM FOR INCREASED** | **)** | |
| **SUSTAINABILITY** | **)** | |

# COMMENTS OF POTOMAC ELECTRIC POWER COMPANY

Potomac Electric Power Company ("Pepco" or the "Company") appreciates the opportunity to submit comments on the Value of Distributed Energy Resources ("VDER") study ("VDER Study") that Synapse Energy Economics, Inc. ("Synapse")[1] submitted on behalf of the Public Service Commission of the District of Columbia ("Commission") in Formal Case No. ("FC") 1130.

## I. Executive Summary

Pepco supports Distributed Energy Resource ("DER") enablement and creating equitable access to clean energy solutions as the District's electric distribution utility. In these comments, Pepco agrees with some of the recommendations, and challenges others that Synapse's VDER Study has put forward. As the study acknowledges, "comprehensive DER valuation frameworks are relatively nascent."[2] Indeed, Synapse found that only two states—New York and California—have comprehensive frameworks.[3] Further, the cost, time, and stakeholder engagement of Synapse's VDER Study recommendations present differing levels of implementation challenges. As a result, Pepco recommends (1) a "crawl, walk, run" phased approach to DER valuation and compensation, which includes near-term actions the Commission can take to advance this effort; (2) a suggested prioritization of the Synapse's VDER Study

[1] Synapse also employed a subcontractor, New City Energy, to help with technical analyses.
[2] VDER Study at 19.
[3] VDER Study at 19. Five other states have frameworks that focus exclusively on energy efficiency and demand response. VDER Study at 19, 21.

recommendations; and (3) additional areas for research. In the near-term, consistent with the first recommendation above, the Company suggests the Commission consider actions to meet parameters outlined in the study and public notice:[4]

- Support Pepco in refiling Energy Efficiency, Load Flexibility, and Managed Charging programs to allow reformulation of the FC 1160 programs that Pepco filed in 2021;
- adopt Virtual Power Plant ("VPP") programs as a solution to grid congestion, such as the VPP program Pepco filed in FC 1167;[5]
- direct Pepco to conduct an achievable potential study for VDER and evaluate how increasing DER adoption can impact the distribution system;
- conduct additional research into which value streams should be included in a VDER framework, aligning on citations, and bringing that research into the Clean Energy Act Implementation Working Group ("CEAIWG") BCA Framework Phase 2 proceeding;
- consider additional programs to increase DER access, such as Pepco's petition to change Rider-NEM.[6]

As noted above, given the nascent nature of VDER compensation there is also uncertainty and limited precedence related to utility cost recovery. The District has established an intention to increase DERs to meet its decarbonization goals and Pepco is supportive of compensating DERs to the degree that they provide grid services.

[4]FC1130 Public Notice, issued October 25, 2023
[5]*See* Potomac Electric Power Company's "Climate Solution Plan Phase 1 Application," Formal Case No. 1167 (Dec. 15, 2022).
[6]*See* Potomac Electric Power Company's "Petition to approve a Tariff change for 20kw and below residential NEM Solar Interconnections," filed in Formal Case No. 1050, RM40-2023-01, ET2023-02 (Apr. 4, 2023).

Pepco looks forward to future discussions related to cost recovery that both incentivizes and provide clear guidance for DER asset recovery, which could include recovering costs that mimic capital expenses.

## II. Introduction

By Order No. 17912, the Commission opened FC 1130, with a stated intent to review the District's energy system in light of recent sustainability goals and mandates and to "identify technologies and policies that can modernize our energy delivery system ('MEDSIS')." Subsequently, in Order No. 19984, the Commission rebranded MEDSIS as "PowerPath DC," with a goal of developing a more sustainable, interactive, and secure energy delivery system that remains safe, reliable, and affordable. On October 25, 2023, the Commission issued a Public Notice inviting interested persons to comment on Synapse's VDER Study and setting the schedule for comments and reply comments. The Commission later extended the comment and reply comment periods in Order Nos. 21928 and 21991.

The Commission intends to use Synapse's VDER Study to inform stakeholders regarding the potential value of DER in attempting to reduce customer and developer costs.[7] To that end, the Commission is looking for stakeholder feedback on specific topics, such as additional research needed to accelerate DER deployment, how Synapse's VDER Study or other studies can contribute to the District's greenhouse gas ("GHG")-reduction goals, how Synapse's VDER Study expands solar access in the District, and other opportunities to expand DER access.

The District has articulated, through law and policy, a clear pathway to reducing GHG emissions through electrification-based programs and plans. The District Department of Energy and the Environment ("DOEE") has stressed the importance of decarbonization and investing in solutions that support

[7]DERs that Synapse's VDER Study considers include solar photovoltaics, battery storage, energy efficiency, demand response, and managed charging of electric vehicles.

electrification. These energy efficiency and electrification advancements are needed to support the District in meeting its 2032 energy and climate plan to reduce energy by 50%.[8] As the only electric distribution utility in the District, the Company's core responsibility is to provide all customers the ability to participate in and benefit from the clean energy transformation while continuing to provide them safe, affordable, and reliable service. Pepco is the District's partner in advancing the District's decarbonization goals, with a focus on equity.[9] Pepco continues its active partnership with District to find equitable, cost-effective, scalable, and reliable solutions that accelerate DER enablement.

Pepco appreciates the opportunity to review Synapse's VDER Study and discuss the opportunities and challenges the study presents. The Company looks forward to continuing its collaboration with stakeholders on climate solutions and continuing to advance the District's climate goals.

## III. Synapse's recommendations vary in practicality to implement based on time, cost, and stakeholder input.

The Company summarizes Synapse's recommendations by category in Table 1, providing its assessment of the cost to implement, the time required for implementation, and the forum to support stakeholder engagement as well as Pepco's recommended prioritization.

[8] *See "*The Strategic Electrification Roadmap for Buildings and Transportation in the District of Columbia "RESILIENT, INNOVATIVE, AND AFFORDABLE ELECTRIFICATION"," Formal Case Nos. 1130 and 1167 (Apr. 5, 2023).

[9] *See In the Matter of the Implementation of the 2019 Clean Energy DC Omnibus Act Compliance Requirements,* Order No. 21938 at P 24 "The Commission defines "equity" as "the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment…."

**Table 1 - Pepco's Categorization of Recommendations**[10]

| VDER Report Recommendation | Cost Requirement | Time Requirement | Stakeholder Engagement Requirement | Pepco's Recommended Prioritization |
|---|---|---|---|---|
| Re-evaluate EE and DR programs | Medium | Medium | Medium | Short-Term |
| Re-design DR programs incentive tiers | Medium | Medium | Medium | Medium-Term |
| Develop solar + storage incentives | High | High | Medium | Medium-Term |
| Develop VDER framework for exporting DERs | High | High | High | Medium-Term |
| Design temporally and locationally specific rates | High | High | High | Long-Term |
| Establish contracts with DER developers | Medium | High | High | Long-Term for Broader rollout*[11] |

## Re-Evaluate Energy Efficiency and Demand Response Programs

Pepco agrees with the study's recommendation that the District should address future electrification pressure first through implementation, modification or expansion of cost-effective existing energy efficiency and demand response incentive and rebate programs, including those administered by the DC Sustainable Energy Utility ("DC SEU").[12] This recommended step to advancing the value of DER should include Pepco's suite of energy efficiency and load flexibility programs in FC 1160, currently pending before the Commission, as these solutions should be the first step in load shaping. Since Pepco filed Demand-Side Management ("DSM") programs in FC 1160 in August 2021, the Company can take

[10]Pepco's categories ("Low", "Medium", "High") are general groupings; "Low" referring to a general understanding of impacts, "Medium" referring to a balance of known market mechanisms and open questions to discuss before implementation, and "High" referring to a significant amount of unknowns that will impact cost, time to research, and industry input.
[11]The current DSP/NWA process is established for known constraints, but broader discussions would be needed to roll out system wide.
[12]Resources to make the right energy choice for you and your home. | DC Sustainable Energy Utility (dcseu.com)

a near-term step in advancing the value of DER by updating the suite of programs to align with more current market trends, updated customer behavior analysis, and cost-effectiveness analyses and refiling the programs with the Commission. DOEE emphasizes the need for such programs, stating that "beyond 2032, electrification loads will continue to increase, highlighting the important role for energy efficiency and DER to play in mitigating these new loads."[13] The growing building and transportation electrification will impact on the grid, and that impact can be alleviated with the implementation of load flexibility and energy efficiency programs.

The Pepco Energy Efficiency and Demand Response ("EEDR") Potential Study,[14] filed in FC 1160, concludes "some individual programs could provide in excess of 100 MW of load reduction capability by the end of our study horizon (2032) if the maximum achievable participation rates assumed in this study are achieved."[15] Pepco agrees that providing incentives to stimulate customer adoption of demand response and load shaping measures creates an enormous potential medium costs, time and stakeholder engagement.

**Re-Design Load Flexibility Programs Incentive Tiers**

The Synapse VDER Study recommends creating additional incentive tiers based on customers who adopt specific appliance measures, customer location on the distribution system or customer willingness to take on risk. These attributes would need to be re-evaluated, studied, and scoped with the appropriate Pepco information technology ("IT") investments to implement effectively, as those mechanisms were not included in Pepco's EEDR Potential Study. This would require market research

[13]*See "*The Strategic Electrification Roadmap for Buildings and Transportation in the District of Columbia "RESILIENT, INNOVATIVE, AND AFFORDABLE ELECTRIFICATION"," Formal Case Nos. 1130 and 1167 (Apr. 5, 2023).
[14]*See Pepco's Energy Efficiency and Demand Response ( "EEDR" ) Potential Study prepared by Applied Energy Group, Inc*. (May 17, 2023)("EEDR Study") in Formal Case No. 1160.
[15]*See Pepco's Energy Efficiency and Demand Response ( "EEDR" ) Potential Study prepared by Applied Energy Group, Inc*. (May 17, 2023)("EEDR Study") in Formal Case No. 1160, Page 6.

and administration costs with stakeholder feedback before being able to be implemented.

**Amend Solar Incentives**

Synapse's VDER Study recommends that solar incentives be revised to include storage that can support temporally and locationally specific feeder constraint. While Pepco does not directly participate in the District's Solar Renewable Energy Credit ("SREC") incentive program, Pepco does credit solar customers at the value of the retail rate for excess generation. Pepco invites discussions to re-evaluate net-energy-metering ("NEM") policy to improve program equity, consider credit structures that provide alternate compensation designs for customers with solar and customers that pair solar with storage, and overall better aligns compensation with the value of DER. This would require market research costs with stakeholder feedback before being able to be implemented.

**Develop a VDER Framework for DERs that Export**

Synapse's VDER Study recommends VDER tariffs for DERs that export and additional tiers for customer's preferences who are willing to take on more load controllability for higher payments. Pepco is supportive of compensating customers with DER for the actual grid value the DERs provide, but the study does not quantify the impacts sufficiently. Given the complexity of the framework, successful implementation requires further discussions around the regulatory mechanisms that support VDER tariffs and utility cost recovery. Additionally, Pepco would likely need to make billing system upgrades that would be significantly impacted by policy decisions. The Company would seek to have thorough understanding of how VDER polices, frameworks, and potential tariffs would impact current processes, which would require further understanding and investigation. Pepco recommends continued evaluation and discussion before the Commission requires implementation.

**Design Temporally and Locationally Specific Rates**

Synapse's VDER Study recommends time- and location-varying rates to appeal to customers with DER. Implementing temporally and locationally specific rates and incentives requires significant investment and time as this model deviates significantly from traditional ratemaking. The study's recommendations would require Pepco to invest in sophisticated IT solutions to dispatch unique price signals, monitor DER assets on constrained feeders, and communicate with dispatch controls. In addition to these significant investments, success in this new model would depend on the DER owners and/or customers allowing Pepco to monitor and control DERs, which would require significant customer education, outreach, and buy-in. This education and outreach would require a coordinated effort on the part of Pepco, the Commission, DOEE and OPC before successful implementation. This education would guide customers' experience to understand that limited utility control of their DER will not materially compromise the value of their investments, will lower bills, and may also provide broader grid benefits.[16]

The potential new tariffs would need to be flexible enough for Pepco to be able to reduce the incentive to a DER if distribution infrastructure deferral is not effective or is no longer possible and Pepco must make upgrades to maintain reliability. This new rate scheme would require a constant evaluation of the adoption and effectiveness of the VDER tariff, in close coordination with the evolving load constraints. Temporally and locationally specific rates should also be designed and deployed equitably. Pepco is committed to equitable access of DER solutions and has concerns these temporally and locationally specific rates could create unintended negative consequences. All of these considerations would require significant cost, time, and stakeholder engagement to implement.

[16] Tackling 3 key issues can help scale virtual power plants and spur a wave of benefits, analysts say | Utility Dive

**Establish Contracts with DER Developers**

As Synapse's VDER Study discusses,[17] Pepco currently has a formal process for evaluating Non-Wires Solutions ("NWS") to meet system needs through the Distribution System Planning Non-Wires Alternatives ("DSP/NWA") Process. The DSP/NWA Process represents one of the many venues in which Pepco is evaluating the use of DERs, including third-party applications, to enable grid benefits and increase deployment of clean energy solutions. The distribution system provides the platform for interactive DERs to deliver a variety of environmental, customer, and wholesale market values within a safe and reliable electric distribution system. As evidenced in FC 1167, for example, the Company is uniquely positioned to serve as "the connector" for customers to a range of climate solutions, including DERs, and can act to lower barriers of adoption of efficient decarbonization technologies. While Pepco is excited about integrating third-party owned projects into its system, there are currently no third party-owned DER providing grid services on our distribution system in the District of Columbia. Gaining experience implementing third party-owned solutions is critical for Pepco to develop the tools and processes necessary to integrate these grid services, including establishing the contract mechanisms, and recovering the costs of these investments. Pepco has started integrating assessment of third-party NWS into its normal course of business in addition to running the DSP/NWA Process. Pepco is encouraged by the innovative third party-owned solutions that were technically viable- in the inaugural cycle of the DSP/NWA Process but ultimately not cost-effective based on the current framework. DOEE's April 2023 report resulted a similar conclusion, traditional investments are the more cost-effective solution for all four constrained feeders in the District than the potential NWS.[18]

In addition to or in place of the formal DSP/NWA process, Pepco is open to exploring ways to

[17]VDER Study, page 78.
[18]*See* "The Strategic Electrification Roadmap for Buildings and Transportation in the District of Columbia "RESILIENT, INNOVATIVE, AND AFFORDABLE ELECTRIFICATION"," Formal Case Nos. 1130 and 1167 (Apr. 5, 2023).

incorporate more NWS into its distribution system, to gain experience in the use of DERs for grid services. Pepco has proposed, small-scale systems that may not meet current cost-benefit tests but do provide opportunities for the Company to gain experience and learning in the short-term and have a clear cost recovery pathway. In the long-term the Company looks forward to collaborating with stakeholders to find acceptable compensation and recovery pathways that allow for greater incorporating of DERs into Pepco's distribution system.

## IV. An achievable potential study is required before implementation as technical potential studies overestimate realistic potential.

To properly assess Synapse's VDER Study recommendations, the Commission should direct Pepco to perform an achievable potential study. Synapse's VDER Study is a *technical potential* study. A technical potential study does not present achievable outcomes and should not, by itself, lead directly to policy directives. Rather, this type of study models the *technical potential* based on a suite of DERs, which can be used to determine the economic potential using avoided cost values (including utility-system and societal perspectives). An *achievable potential* study provides a more realistic basis for future action due to practical considerations, including cost, realistic customer adoption, and customer impact.

While the study acknowledges that analyses of cost effectiveness and achievable participation are needed,[19] it ultimately concludes that:

> [t]he results of this analysis indicates that DER compensation mechanisms, particularly those designed to relieve the pressures expected from growth in electricity peak demand at the local level, can provide considerable benefits to residents of the District of Columbia.[20]

Without an understanding of all of the impacts of the recommendations put forward, however, Synapse's VDER Study should purely be viewed as a springboard for further discussion and collaboration

[19]VDER Study, Page 9.
[20]VDER Study, Page 61.

prior to implementation after the Commission, the stakeholders and Pepco understand the achievable potential. Planning based on conceptual technical conclusions without understanding if and how they can realistically be implemented in the District of Columbia threatens to lead to unnecessary costs to customers and taxpayers and unintended consequences in implementation.

More specifically, further scenario planning with technical, achievable, and economic outputs is critical before establishing DER compensation values and programs in the District. Achievable scenarios inform distribution system planning and directly affect both Pepco and its customers. From a distribution system perspective, the importance of accounting for achievable participation is particularly acute when focusing on opportunities to use DERs for distribution investment deferral. The key challenges of using DERs to defer specific distribution projects are (1) recruiting enough localized customers that are able and willing to participate, (2) confirming that their participation is durable and will persist over the long term, and (3) obtaining sufficient guarantees that they will provide load reductions during all hours needed to defer the project (not just a subset of hours). These challenges are relatively easy to overcome when using DERs to provide bulk system benefits (*e.g.*, capacity, energy) because an aggregator can assemble a sufficient portfolio of participants across a large geographic area. In contrast, attempting to use DER to provide local distribution benefits (*e.g.*, substation upgrade deferral) will rely on a significantly limited pool of participants and increases the potential negative consequences from any individual participant's DER failing to perform as expected. For this reason, a focus on technical potential, without consideration for achievable participation, will dramatically overstate the DER opportunity to the point where the findings may have limited practical value.

Based on a survey of nine DSM potential studies, the achievable potential for energy and demand savings can vary significantly from technical potential. Across the potential studies surveyed, achievable reductions in energy usage across the given portfolio of DSM measures range from 10% to roughly 83%

of the determined technical potential. Achievable potential is an even smaller portion of technical potential for demand savings in all studies. The general observed trend across all surveyed studies is that participation levels under an achievable potential scenario are often significantly below 50% of eligible customers. Table 2 below lists the potential studies the Company surveyed, summarizes the key assumptions those studies contained, and highlights that more research is needed to understand what is realistically achievable in the District.

**Table 2 – Survey of Achievable Potential Estimates Across DSM Studies**[21]

| Study Characteristics | | | | | Achievable Share of Technical Potential | |
|---|---|---|---|---|---|---|
| **Study** | **Year** | **Author** | **Study Horizon** | **Achievable Participation Levels** | **Energy** | **Demand** |
| Colorado Springs Utilities 2020 Demand Side Management Potential Study | 2019 | Cadmus | 2020-2039 | Modeling assumptions around participation vary from program to program. Broadly, the study assumes that residential program participation ranges from 15%-30% of eligible customers for residential customer programs, and 2.5%-30% of eligible customers for commercial customer programs. | 63% | 62% |
| Demand-Side Management Potential Study (Prepared for Lansing Board of Water and Light) | 2020 | GDS Associates Inc., Siemens Energy Business Advisory | 2021-2040 | Modeling assumptions vary across demand response program options. Residential participation rates (as a % of eligible customers) range from 3% (for the Plug in EV TOU Rate - Level 1 Charger Program) to 54% (for the Plug in EV TOU Rate - Level 2 Charger Program). Non-Residential participation rates range from 3% (DLC Lighting Program) to 20% (CPP with Enabling Technology Program). | 30%-43% | 23% - 35% |
| Duke Energy North Carolina EE and DSM Market Potential Study - DEC Results | 2020 | Nexant | 2020-2044 | Modeling assumptions vary by season, customer class, and modeling scenario (base vs. enhanced). Residential SFH and MFH participation levels are similar, ranging from 7%-10.4%. Small and medium commerical participation rates are lower, ranging from less than 1% to only ~4%. Large C&I participation rates are highest, ranging from 9%-20%. | 55% - 58% | 14% - 15% |
| Duke Energy North Carolina EE and DSM Market Potential Study - DEP Results | 2020 | Nexant | 2020-2044 | Modeling assumptions vary by season, customer class, and modeling scenario (base vs. enhanced). Residential SFH and MFH participation levels are similar, ranging from 7%-18.4%. Small and medium commerical participation rates are lower, ranging from less than 1% to only ~2.7%. Large C&I participation rates are highest, ranging from 6.7%-17%. | 57% - 59% | 9% |
| Evergy 2019 DSM Potential Study | 2020 | ICF | 2023-2032 | Modeling assumptions vary by program/measure, customer class, and modeling scenario. In the Realistic Achievable Potential Scenario, residential participation ranges from 1%-34.5%. Commercial participation ranges from 1.5%-25%. Industrial participation ranges from 9%-55%. | 10% - 33% | |
| 2020-2025 Integrated Electric DSM Market Potential Study & Action Plan (prepared for Vectren Energy Delivery of Indiana) | 2019 | GDS Associates, EMI Consulting | 2020-2025 | Modeling assumptions vary by DR program, customer class, and Achievable Potential scenario. Residential program participation ranges from 17%-93%, while non-residential participation ranges from 3% to 71%. | 35% | 18%-46% |
| 2021 Energy Efficiency Potential and Goals Study | 2021 | Guidehouse, prepared for CPUC | 2022-2032 | Participation asumptions not provided. | 34% | 16% |
| Pepco Energy Efficiency and Demand Response Potential Study | 2022 | AEG, The Brattle Group | 2023-2032 | Participation asumptions reported for DR programs only. These vary by program, scenario, and customer class. Base assumptions from the cost-effective scenario range from 0%-80% for residential programs, 0%-23% for small C&I programs, and 2%-46% for large C&I programs. | 36%-61% | |
| Pacificorp Conservation Potential Assessment for 2023-2024 | 2023 | AEG | 2023-2042 | Modeling assumptions vary by measure; AEG used achievability assumptions from The Council's Draft 2021 Power Plan as the customer adoption rates, which typically assume that 85% of the technical potential could be acquired over a 20-year period, but go up to 100% for certain measures. | 83% | |

[21] Pepco's evaluation of achievable potential across DSM studies.

## V. Advanced DER management tools are critical for maximizing DER value while providing the level of reliability customers expect and deserve.

Pepco is committed to supporting clean energy solutions that support the District's climate goals. To effectively manage and control DER on different areas of the distribution system, the Company will require significant investment in enabling technologies (*e.g.*, DERMS). Pepco will use these enabling technologies to deploy and dispatch the necessary levels of DER on its system while continuing to provide customers the reliable service that they expect. With the increase of customer owned DERs on Pepco's distribution system, the Company will invest in tools to optimize DER utilization, manage grid congestion, and harness the flexibility of these distributed resources. Enabling more precise control and dispatch of DERs through DERMs and other enabling technologies helps minimize impacts on transmission and distribution systems, securing the reliability of the system and potentially deferring costly infrastructure upgrades. Through DER management tools, Pepco will use communication protocols with DERs to effectively dispatch in times of need. To adjust to seasonally and locationally specific grid conditions, Pepco will invest in enhanced DER management software with capabilities that facilitate demand flexibility, load shedding, and peak shaving to support grid reliability. Synapse's Study reiterates this, stating that "DERs may require more coordinated dispatch that is aligned with the needs of the grid in real time…Centralized modeling and control systems will also be helpful, including smart systems that can rapidly determine emerging needs and evaluate how to balance needs across the grid."[22] Pepco agrees that this is an important consideration when designing equitable clean energy solutions.

Pepco is currently evaluating potential DER management use cases and steps necessary to achieve DER optimization. These advanced technologies will support optimized distribution system planning with balancing maximizing the value of DER, complying with FERC Order 2222[23], and providing the

[22]VDER Study, Page 82.
[23]FERC Order No. 2222: Fact Sheet | Federal Energy Regulatory Commission.

safe and reliable service that the customers deserve and expect.

## VI. The District should consider pilot programs to support a "crawl, walk, run" strategy to support equitable and affordable DER enablement.

As discussed above, VDER frameworks are at a nascent stage in the U.S. and, to date, only in California and New York do comprehensive VDER frameworks exist. Not only will the District be implementing a new framework, but it will be doing so without a history of successful national programs from which to learn. The "crawl, walk, run" approach will help successfully deploy a new model of valuing DERs that meets the District's unique needs and allow all parties to learn effective implementation models. The Commission should direct Pepco to continue to pilot new DER technologies, which can provide insights into the scalability and replicability of the program across different feeders, customer segments, and market conditions. Piloting programs is particularly important in the District where the networked feeder system is unique among distribution systems around the nation; this type of power system configuration, which is found in the downtown areas of major metropolitan cities, represents only about 2% of all power distribution in the United States.

DER compensation mechanisms are only one tool among the many options available to use DERs to offset distribution system upgrades. The Commission should consider and address Pepco's VPP Pilot filed in the December 2022 Climate Solutions Plan[24] as an interim solution in accelerating DER enablement. Pepco agrees with Synapse's Study that deploying behind-the-meter battery energy storage projects can be an effective way to scale DERs for real-time grid stability, voltage management, and service reliability. Pepco's proposed VPP pilot enables grid constraint mitigation through load shifting, demand response, and peak shaving. By managing these resources, Pepco can dispatch enrolled DERs to alleviate load constraints during peak periods or grid congestion events, providing the benefits of the VPP

[24] *See "Potomac Electric Power Company's Climate Solution Plan Phase 1 Application,"* Formal Case No. 1167 (Dec. 15, 2022). .

to its customers.

Piloting new rate design is also critical. Advanced VDER tariffs and rate design require more discussion regarding value streams, system impacts, and device communications. VDER tariffs, like any rate design, involve allocation of costs across different customer segments and can create "winners" and "losers" depending on the design of the compensation mechanism. A well-designed VDER tariff, in conjunction with other incentives and programs, can appropriately compensate DERs for all the types of value they provide to society. A poorly designed VDER tariff, on the other hand, could exacerbate cost shifts from adopters to non-adopters if it includes compensation for speculative or unquantifiable value streams.

Synapse's VDER Study provides a reasonable overview of the potential parts of the value stack that DERs may offer. Some of these value streams are typically included in Benefit Cost Analyses ("BCAs") and can be reliably quantified based on market data. However, the study discusses several non-standard value streams that may not be reasonable or feasible to include in a compensation mechanism. Based on BCAs and VDER studies across the U.S., the value streams[25] mentioned in Synapse's VDER Study can be categorized as:

- **Standard:** Energy generation, generation capacity, transmission capacity, distribution capacity, system losses, GHG emissions, environmental/RPS compliance, utility administration costs
- **Generally accepted but sometimes excluded as they are harder to quantify:** Ancillary services, DRIPE, public health, other environmental, resilience
- **Non-standard:** Market price risk reduction, distribution O&M, voltage, credit and collections,

[25]Pepco's evaluation of industry-wide BCAs.

construction and procurement cost risks, reliability[26]

The Commission should closely scrutinize the inclusion of each value stream in a VDER compensation mechanism as the consequence will be that non-adopters will subsidize adopters for these services. Additionally, when establishing compensation mechanisms based on a VDER study such as this, it is critical to account for tradeoffs in the value stack (*i.e.*, the need for a DER to forego one value stream when pursuing another). Creating a VDER framework that supports equitable benefits to adopters and non-adopters should be further discussed before implementation. Further, rolling out new programs and rates as pilots will allow the Company to assess these impacts in advance of broader roll out.

On December 8, 2023, the Commission issued Order 21938 that kicked off CEAIWG BCA Phase 2, which seeks to develop "difficult-to-quantify portions of the test". Pepco believes this is the right forum to discuss the nuanced and complex issues related to a VDER framework and which value streams should be included in a BCA. The Company recommends stakeholder feedback from Synapse's VDER study be discussed within the BCA Phase 2 working group for alignment and awareness.

The potential for distribution system upgrades is another known market barrier for customers interconnecting DERs to the grid. Pepco's April 2022 Small Generator Interconnection petition addresses this barrier, creating a flat fee to offset distribution system upgrades. The Commission should approve this program as an interim step to support customers in interconnecting more solar. Approval will support the "crawl, walk, run" approach by implementing an achievable near-term action that will enable residential DER customers in achieving on site clean energy generation.

[26]While reliability is a proven benefit of several types of DERs, such as demand response, that value generally is already reflected in avoided generation capacity costs. Additional incremental reliability value is less certain and would require additional analytical support.

## VII. Lack of access to Synapse's VDER Study's underlying analyses prohibits Pepco from fully assessing the recommendations.

An essential part of assessing any study is reviewing and analyzing the assumptions, analyses, and calculations that the study relied on in coming to its conclusions. Those critical pieces are found in the workpapers. Pepco sought but did not receive access to Synapse's VDER Study workpapers, resulting in an incomplete review of the recommendations. Synapse's VDER Study makes critical assumptions about the magnitude of customer adoption and the location of load growth that may not be in line with Pepco's or other forecasts in the District. Moreover, Pepco understands, but was unable to verify, that Synapse's VDER Study may have taken a worst-case-scenario approach to modeling. This approach, in addition to modeling only the technical potential, produces an outcome that is unlikely to occur in the District.

Pepco supports greater deployment of DERs that provide grid value. Synapse's VDER Study selected feeders that highlight uniqueness and nuances of Pepco's distribution system. The study evaluated one network feeder and three radial feeders. Transformers on network feeders have network protectors that help the feeder breaker isolate any faults that occur on the network group. When one of the network feeders in a network group experiences a fault, the network protectors on all the transformers connected to that feeder open for the reverse current back feeding into the fault. Currently, DER, such as PVs on the secondary network, can inject power directly to the network (reverse power), impacting the network protectors and resulting in the loss of power to customer(s). This is an important system consideration when compensating DERs for providing a grid service. Without having access to the workpapers, Pepco is unable to assess whether and how Synapse's VDER Study accounted for these distinctive aspects of the District's distribution system. Improper analyses of this type of the unique aspects of the District's network system can result in implementing programs that interrupt network

system functionality and result in severe consequences to system reliability. These potential consequences further underscore the need for further discussion and analysis of the proposed recommendations before the Commission requires implementation of them.

## VIII. Conclusion

Pepco plays an integral role in advancing the District's efficiency, electrification, and decarbonization goals through multiple pathways. The Company has proposed and implemented approved comprehensive initiatives spanning Transportation Electrification, Decarbonizing Buildings, Activating the Local Energy Ecosystem, and Enhancing Infrastructure for Climate Solutions to facilitate and activate customers and third parties. These initiatives, which span from approved programs in FC 1130/1155 to the pending EEDR programs in FC 1160 and in FC 1167, will drive the GHG emissions-reduction opportunities the District has already identified and provide the overall infrastructure needed to enable and support the District's climate goals. Pepco will continue to reduce barriers and facilitate broader accessibility of climate solutions for District residents, as local solar generation is fundamental to meeting the District's Renewable Portfolio Standards goal.

Pepco supports DER enablement in the District and is committed to finding equitable solutions for customer participation. Creating compensation principles for valuing DER is novel and nascent, and Pepco recommends the Commission take a "crawl, walk, run" approach by 1) Supporting Pepco in refiling Energy Efficiency and Load Flexibility programs to allow reformulation of the FC 1160 programs were filed in 2021; 2) Adopting Virtual Power Plant ("VPP") programs as a solution to grid congestion, such as the VPP program Pepco filed in FC 1167;[27] 3) Directing Pepco to conduct an achievable potential study for VDER and evaluate how increasing DER adoption can impact the distribution system ; 4)

[27] *See* Potomac Electric Power Company's Climate Solution Plan Phase 1 Application," Formal Case No. 1167 (Dec. 15, 2022).

Conducting additional research into which value streams should be included in a VDER framework, aligning on citations, and bringing that research into the Clean Energy Act Implementation Working Group ("CEAIWG") BCA Framework Phase 2 proceeding; and 5) Considering additional programs to increase DER access, such as Pepco's petition to change Rider-NEM.[28]

Respectfully submitted,

**POTOMAC ELECTRIC POWER COMPANY**

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[28] *See* Potomac Electric Power Company's "Petition to approve a Tariff change for 20kw and below residential NEM Solar Interconnections," filed in Formal Case No. 1050, RM40-2023-01, ET2023-02 (Apr. 4, 2023).

## CERTIFICATE OF SERVICE

I hereby certify that a copy of Potomac Electric Power Company's Comments on the Value of Distributed Energy Resources ("VDER") study was served this June 14, 2024 on all parties in Formal Case No. 1130 by electronic mail.

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