GOVERNMENT OF THE DISTRICT OF COLUMBIA
OFFICE OF THE ATTORNEY GENERAL

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Public Advocacy Division
Social Justice Section

E-Docketed

April 8, 2020

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

Re: Formal Case No. 1156 – In the Matter of the Application of Potomac Electric Power Company for Authority to Implement a Multiyear Rate Plan for Electric Distribution Service in the District of Columbia.

Dear Ms. Westbrook-Sedgwick:

On behalf of the District of Columbia Government (DCG), I enclose for filing the Rebuttal Testimony of DCG Witness Courtney Lane – Exhibit DCG (2A). If you have any questions regarding this filing, please contact the undersigned.

Sincerely,

KARL A. RACINE
Attorney General

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BEFORE THE

PUBLIC SERVICE COMMISSION

OF THE DISTRICT OF COLUMBIA

IN THE MATTER OF THE APPLICATION OF POTOMAC ELECTRIC POWER COMPANY FOR AUTHORITY TO IMPLEMENT A MULTIYEAR RATE PLAN FOR ELECTRIC DISTRIBUTION SERVICE IN THE DISTRICT OF COLUMBIA	)	**Formal Case No. 1156**

Rebuttal Testimony of

Courtney Lane

On Behalf of

The District of Columbia Government

Regarding the Company's Proposed Multi-Year Rate Plan and

Performance Incentive Mechanisms

April 8, 2020

Exhibit DCG (2A)

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I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, title, and employer.

A. My name is Courtney Lane. I am a Senior Associate at Synapse Energy Economics, located at 485 Massachusetts Avenue, Cambridge, MA 02139.

Q. Have you previously submitted testimony in this proceeding?

A. Yes. I previously submitted direct testimony in this proceeding on behalf of the District of Columbia Government (DCG or the District) on March 6, 2020.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to: (1) respond to other parties' direct testimonies regarding the Potomac Electric Power Company's (Pepco or the Company) proposed Performance Based Regulation (PBR) proposal; and (2) provide recommendations for Performance Incentive Mechanisms (PIMs) and tracking metrics per the Public Service Commission of the District of Columbia's (Commission) Order No. 20273 issued in this proceeding.[1]

Q. What materials did you rely on to develop your testimony?

A. The sources for my testimony and exhibits are public documents and responses to discovery requests, as well as my personal knowledge and experience.

[1] *Rel.* Dec. 20, 2019.

Q. Did you prepare or direct the preparation of this testimony?

A. Yes.

Q. Are there any exhibits to your testimony?

A. Yes. I have attached five exhibits to my testimony. They are Pepco's responses to certain DCG data requests in this proceeding.

II. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Q. Please summarize your recommendations.

A. I offer the following recommendations:

1. I concur with the primary findings of the Office of the Peoples' Counsel for the District of Columbia (OPC), the Apartment and Office Building Association of Greater Metropolitan Washington, D.C. (AOBA), and the United States General Services Administration (GSA) that the Company's proposed Multiyear Rate Plan (MRP) proposal and PIMs should be rejected.

2. Regardless of whether the Commission approves an MRP, the Commission should implement a penalty-only PIM for Load Forecasting Accuracy.

3. The Commission should use its existing authority to require Pepco to increase hosting capacity, reduce line losses, implement non-wires alternatives (NWAs), and improve interconnection timeline compliance. These goals can largely be achieved through enforcement of existing standards for interconnection timelines and Commission directives to implement standards for advanced inverters and

controls, achieve cost-effective line loss reductions, and procure cost-effective NWAs. As such, they do not require development of PIMs. However, if the Commission determines that PIMs are warranted, I recommend that:

A. Shared savings PIMs be established for increasing hosting capacity, reducing line losses, and implementation of NWAs; and

B. A penalty-only PIM be established for failure to meet the Commission's approved interconnection timelines.

4. The Commission should require Pepco to develop a centralized web-based data dashboard to document the Company's performance related to the following tracking metrics: (1) time-of-use (TOU) rate enrollment; (2) TOU rate benefits; (3) greenhouse gas (GHG) reductions; (4) interconnection satisfaction; (5) interconnection costs; and (6) peak load reductions.

III. THERE IS WIDESPREAD CONSENSUS THAT PEPCO'S PROPOSAL SHOULD BE REJECTED

Pepco's MRP Proposal Should be Rejected

Q. Do other parties agree with DCG that the Company's MRP should be rejected?

A. Yes. OPC, AOBA, and GSA independently arrived at similar conclusions that the Company's MRP should be rejected:

- OPC Witness DeCourcey states that his "primary recommendation is that Pepco's MRP proposal should be rejected."[2] He further states that "Pepco's MRP would reduce transparency, reduce accountability, and limit Pepco's incentives for cost control."[3]

- AOBA Witness B. Oliver also states that "The Commission should not approve any form of multi-year rate plan in the absence of a greater demonstration by Pepco that it can project its costs with reasonable accuracy at least three years into the future."[4]

- Lastly, GSA Witness Goins also recommends "that the Commission reject Pepco's proposed MRP,"[5] citing the fact that "Pepco has not demonstrated that the MRP will significantly improve regulatory efficiency or provide material benefits to ratepayers."[6]

I agree with OPC, AOBA, and GSA that the Company's MRP should be rejected. In my Direct Testimony, I recommended that the Company's MRP proposal should be rejected as it does not comply with the Commission's principles for an Alternate Form of Regulation (AFOR), but instead shifts substantial risk onto ratepayers, does not incentivize cost containment, and does not advance the energy policy goals of the

[2] F.C. 1156 Direct Testimony of Matthew DeCourcey - OPC (C) at 3.
[3] Exhibit OPC (C) at 8.
[4] F.C. 1156 Direct Testimony of Bruce R. Oliver - AOBA(A) at 22.
[5] F.C. 1156 Direct Testimony of Dennis W. Goins - GSA (A) at 10.
[6] Id.

District. Several parties independently arrived at similar conclusions and made similar recommendations.

Q. Do you agree with OPC that the Company's proposed MRP may increase customer costs?

A. Yes. OPC Witness DeCourcey correctly concludes that "beyond the reduction in rate case expense, it is very difficult to see how any aspect of the MRP could serve to reduce customer costs. On the other hand, since the MRP proposal seems to reduce the Commission's oversight of Pepco's spending, and since it definitely creates an opportunity for the Company to earn returns greater than the Return on Equity (ROE) authorized by the Commission, there exists the very real possibility that the MRP would increase costs to customers."[7] Witness DeCourcey goes onto state that "as such, the design of the ESM is directly at odds with the AFOR Order; instead of mitigating the possibility of over-earning, Pepco's proposal provides a mechanism in which Pepco can over-earn, in some instances without any sort of review by the Commission or Stakeholders."[8]

I agree with OPC that the Company's MRP would likely increase costs to customers. As I indicated in my Direct Testimony, the Company's MRP proposal does not provide appropriate incentives to the Company to contain costs or protect customers from unreasonable rates. I further stated that the proposal shifts the majority of the risk of overspending to customers as, outside of the small deadband of 25 basis points, the

[7] Exhibit OPC (C) at 35.
[8] Exhibit OPC (C) at 50.

Company would be allowed to recover 75% of any cost overruns unless a cost was found to be imprudent after-the-fact.

Q. Do you agree with OPC that Pepco's proposed MRP does not meet the Commission's AFOR criteria?

A. Yes. I agree with OPC Witness DeCourcey who states, "Pepco has not demonstrated that its proposal meets the criteria related to affordability, safety, and the District's environmental goals with sufficient clarity to meet its burden of proof. Specifically, the proposal fails to achieve the first, second, third, fourth, fifth, eighth, ninth, and tenth AFOR Criteria."[9] As I indicated on pages 12 through 14 of my Direct Testimony, Pepco's proposed MRP does not meet many of the AFOR criteria as the proposal: (1) fails to provide adequate cost containment incentives; (2) shifts risks to ratepayers; (3) fails to sufficiently advance or otherwise align with the District's public policy goals; and (4) fails to adequately qualify, quantify, or measure benefits its proposal would provide to its customers.

Pepco's Proposed PIMs Should be Rejected

Q. Do you agree with OPC, AOBA, and GSA that the Commission should reject the Company's proposed PIMs?

A. Yes. As I stated in my Direct Testimony, the Commission should reject the Company's proposed PIMs because they: (1) do not advance the energy goals of the District: (2) target activities that the Company is already required to perform under Commission

[9] At 43.

regulations; and (3) Pepco has not quantified the incremental benefits to ratepayers. I further agree with the below statements from AOBA, OPC and GSA.

1. AOBA Witness Oliver states that "the Commission should reject the PIMs Pepco has proposed in this proceeding"[10] and that "none of Pepco's PIM proposals satisfy the criteria for PIMs that this Commission set forth in Order No. 20273. Moreover, the Company's proposed performance targets do not differ sufficiently from levels of performance the Company has already achieved."[11]

   AOBA Witness Oliver goes on to correctly indicate that Pepco specifically failed to demonstrate that:

   > "1. The levels of incentive compensation provided are appropriately tied to and would not exceed the benefits that ratepayers would be able to expect from favorable performance based on the proposed performance metrics and dead bands.
   >
   > 2. The performance levels required to achieve rewards for the Company constitute levels of performance that District ratepayers could not expect of the Company in the absence of the proposed PIM."[12]

2. OPC Witness Dismukes correctly indicates that the Commission should "reject Pepco's proposed PIMs given their considerable design flaws."[13] OPC further concludes that the Company's proposed PIMs do not represent a way to advance the operational and policy objectives of the District. Specifically, OPC Witness

[10] AOBA(A) at 23.
[11] Id. at 56.
[12] Id. at 60.
[13] F.C. 1156 Direct Testimony of David E. Dismukes - Exhibit OPC (A) at 80.

Dismukes states that "All of the Company's proposed PIMs with financial incentives attached represent items that currently are the subject of the Commission's EQSS or 15 DCMR §4004.3."[14]

3. GSA Witness Goins correctly states that the Commission should "reject Pepco's proposed PIMs and their reward/penalty mechanism. However, if the Commission decides to allow Pepco's proposed PIMs, they should be modified to penalty-only PIMs under which Pepco would face a financial penalty for failing to meet the applicable benchmark standards. The Commission should also address whether Pepco's proposed 25 bps penalty is too low to provide the company with proper incentives to meet the benchmark standards."[15]

IV. DCG'S PROPOSED PERFORMANCE INCENTIVES MECHANISMS

Q. What principles should be followed when designing PIMs?

A. In Order No. 20273, the Commission indicated that PIMs "represent an important tool to align utility incentives with public policy goals, such as the District's aggressive clean energy and environmental goals."[16] The Commission further states that it agrees "a utility should not be rewarded for essential elements of its provision of utility service, such as service quality or customer service measures, absent some compelling justification because these costs of safe and reliable service are the basis for a utility's base rates.

[14] Id. at 71.
[15] GSA (A) at 12.
[16] FC1156 Order No. 20273 at 5. (*rel.* Dec. 20, 2019).

Such PIMs could also be structured with only a downside such that failure to provide a targeted service automatically penalizes a utility."[17]

I agree with these statements that any proposed PIM should be used to advance the energy goals of the District and should not reward an action that the Company is already required to perform as an essential element of its provision of utility service or under Commission regulations, such as delivering reliability, safety, and interconnection.

Q. Are you proposing any PIMs for inclusion in Pepco's current MRP proposal?

A. I am proposing a PIM, but I want to stress that my proposal is not dependent upon Commission approval of Pepco's MRP. Instead, I propose that a penalty-only PIM and several tracking metrics be adopted regardless of whether an MRP is approved.

Q. What PIMs and tracking metrics are you proposing?

A. I propose that the Commission adopt a penalty-only PIM to support more accurate load forecasting by Pepco and the following six tracking metrics: (1) time-of-use (TOU) rate enrollment; (2) TOU rate benefits; (3) GHG reductions; (4) interconnection satisfaction; (5) interconnection costs; and (6) peak reduction. Notably, I am not proposing PIMs for actions and standards that the Commission has already required Pepco to take, as the Commission has the regulatory authority to enforce these requirements (with penalties if needed) without needing to explicitly create PIMs. However, if the Commission believes that additional PIMs would be preferable, DCG discussed four additional potential PIMs

[17] Id at 102.

within the context of two FC1156 PIMs workshops related to: (1) hosting capacity; (2) line loss reduction; (3) NWAs; and (4) interconnection timeline compliance. These four PIMs are potentially appropriate for inclusion in this proceeding but could also be implemented as stand-alone requirements by the Commission. While I support these PIMs for inclusion in Pepco's proposed MRP, I recommend that the Commission adopt these PIMs regardless of whether Pepco's MRP is ultimately approved. PIMs can be implemented on top of traditional Cost of Service Regulation (COSR) and other jurisdictions have effectively done so. A common example is performance incentives for the achievement of energy efficiency savings. Twenty-nine[18] states have some form of performance incentives for energy efficiency and many of these states have traditional COSR.

Load Forecasting PIM

Q. Please describe your proposal for a load forecasting PIM.

A. Regardless of whether the Commission implements an MRP or not, DCG urges the Commission to implement a load forecasting PIM to support the desired outcome of creating an enhanced planning process that avoids unnecessary capital investments and proactively plans for increasing penetrations of distributed energy resources (DERs) on the system.

[18] American Council for an Energy-Efficient Economy (ACEEE). 2018. "Snapshot of Energy Efficiency Performance Incentives for Electric Utilities." Available at: https://aceee.org/sites/default/files/pims-121118.pdf

This PIM would measure the accuracy of 90/10 weather normalized forecasted load three years into the future, as measured by the percent difference from actual load, by substation. Progress toward this PIM would be reported by the number of substations in which the 90/10 weather-normalized load forecast was higher than the actual load by more than the expected deviation of 90/10 load from actuals, as discussed below.

Q. How will a load forecasting PIM further the energy goals of the District?

A. If ever there was an area where utility performance and incentives are misaligned with the District's energy goals, load forecasting is that area, making a load forecasting PIM particularly warranted. Accurate load forecasting will contribute to the goals of PowerPath DC and Clean Energy DC by facilitating the incorporation of renewable energy into the electric distribution system and ensuring infrastructure planning is more cost-effective.

As solar PV, distributed storage, electric vehicles, and fuel-switching to electric heat pumps become more widespread, it will become increasingly important to ensure that Pepco is incorporating planned deployment of DERs and electrification into its load forecast scenarios to inform its planning processes. There are currently no performance standards in place for load forecasting. A load forecasting PIM will help encourage utility investments in more data-driven, predictive modeling of load. This, in turn, will help Pepco avoid unnecessary investments in traditional assets by more accurately assessing the implications of DERs to avoid the creation of future stranded costs

Q. Have you analyzed any data regarding Pepco's load forecast accuracy?

A. Yes. I compared Pepco's Forecasted District of Columbia Loads by Substation Number as included in its Consolidated Reports beginning in year 2012[19] to the Company's actual historic District of Columbia loads by Substation Number.[20] As shown in Table 1, substation forecasts for a given year were compared to actual load for each substation for that year. The percentage difference was then averaged across all substations for that year. I focused on actuals at least three years in the future to mirror the timeline for consideration of NWAs in the PowerPath Order.[21] For example, I compared the load forecast for 2015 from the 2012 Consolidated Report to the actual load for 2015 and found that, across Pepco's substations, the forecast exceeded actual load by 24%.

Table 1. Pepco Average Actual Load Compared to 90/10 Weather Normalized Forecasted Load

	90/10 Forecast as a Percent Above Actual Load (average across all substations)			
Forecast Year (Consolidated Report Year)	2015	2016	2017	2018
2012	24%			
2013		34%		
2014			24%	
2015				23%

Q. What does your analysis indicate?

A. At the substation level, Pepco's 90/10 load forecasting is, on average, 26% higher than actual load for the years shown in the table above.

[19] Forecast data for 2012, 2013, 2014, and 2015 from Table 1.2-C in each Consolidated Report.
[20] Pepco response to FC 1156 DCG DR 4-18 Attachment, attached hereto as Exh. DCG (2A)-1
[21] FC1130 Order No. 20286 at 38.

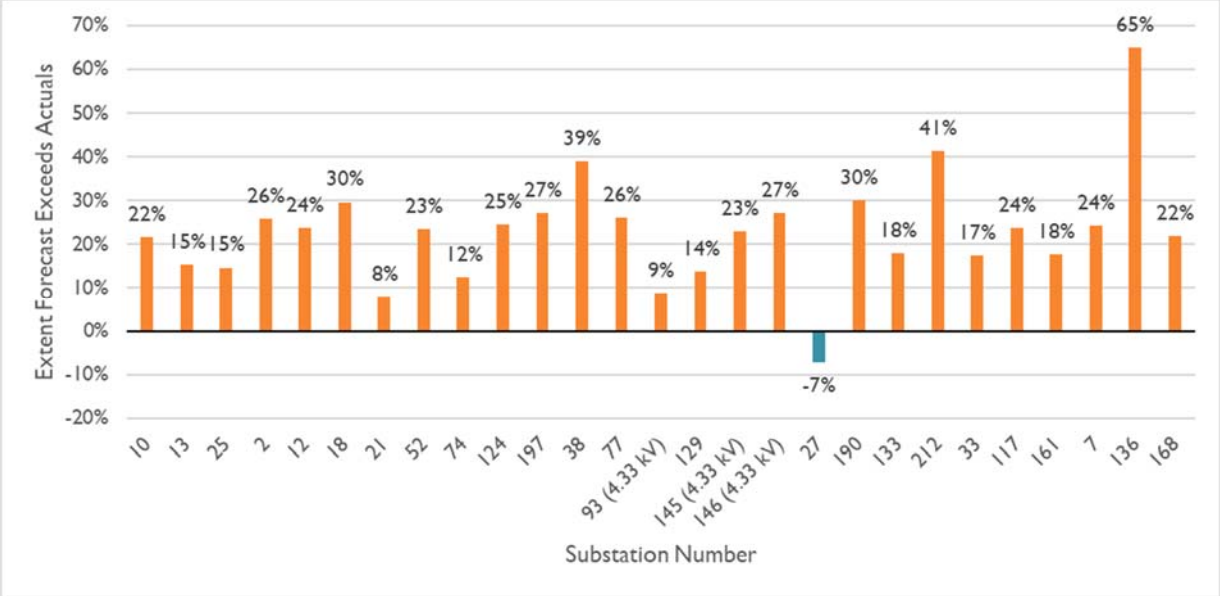
Q. Is it to be expected that Pepco's load forecast would generally be higher than actual load, given that Pepco uses 90/10 forecasting in its distribution planning process?

A. Yes, but not by the levels found in my analysis in Table 1 above. As Pepco notes, using 90/10 forecasts, "forecast loads will exceed actual loads in nine out of 10 years by an average of 8%, and in only one year out of 10 will the forecasted load equal or fall short of the actual load."[22]

However, as demonstrated in the table above, the average of Pepco's forecast loads consistently exceed this 8% threshold by a wide margin. This also holds true at the individual substation level. For example, Pepco's 2015 forecasts for 2018 load well exceeded actual load by more than 8% for all substations except for one, as shown in Figure 1 below.

[22] Reply Comments of Potomac Electric Power Company, FC 1144, quoting the Willis Affidavit, December 28, 2018, at Affidavit pg. 9.

Figure 1. Comparison of 2018 90/10 forecast (vintage 2015) to actual 2018 load by substation



Source: 2015 Consolidated Report, page 25 for forecasts; 2019 Consolidated Report, pages 21-22 for actual load. Outliers removed.

Q. Why are you concerned that Pepco's load forecasts are inaccurate?

A. If Pepco's load forecasts consistently overestimate load by a wide margin, then the proposed capital expenditures within Pepco's MRP are based on an unrealistic need. This would lead to a situation where ratepayers are paying for projects that are unneeded or could be deferred if more cost-effective DERs were utilized.

Q. Are there additional concerns with Pepco's current load forecasting methods that could be improved by the implementation of a PIM?

A. Yes. The Commission has recognized that "accounting for energy efficiency, distributed energy resources, and prospective new business [in load forecasting] are still evolving and will continue to do so in the future," and that "these adjustments may require further refinement in the future as new technology, usage patterns, and demands on the

distribution system continue to emerge."[23] As evidenced by the extent to which Pepco's 90/10 forecasts systematically far exceed actual load (beyond the expected 8% level), Pepco has not yet developed a methodology that adequately accounts for energy efficiency, updated building codes, DERs, and prospective new business. Instead:

- The Company states that it "has not received necessary data from the District of Columbia Sustainable Energy Utility (DCSEU) at the feeder level, from which to use in a peak load forecast or load reduction,"[24] implying that DCSEU energy efficiency programs are not fully captured by Pepco's load forecasting methodology, if at all.

- Pepco has not complied with Order No. 17424 by providing "A description of how the Demand Response program in the District is factored into its load forecast." Pepco states that this description is provided in Chapter 1 (Section 1.4.2) of its 2019 District of Columbia Distribution Construction Program Report, but that section does not exist.[25]

Although I understand that Pepco is undertaking enhancements to its load forecasting process and states that it will be updating its Prospective New Business (PNB) load estimation process "to account for continuous improvements in energy efficiency, conservation efforts and construction standards,"[26] a PIM will help to ensure that these

[23] DC PSC, Order No. 20274, Formal Case 1144, December 20, 2019, Ordering Paragraph 74.
[24] F.C. 1156 Pepco Response to DCG DR 5-16 (A-C), attached hereto as Exh. DCG (2A)-2
[25] Pepco Exhibit (I)-1 at p.1 of 79.
[26] F.C. 1156 Pepco Response to DCG DR 5-15 (D), attached hereto as Exh. DCG (2A)-3

improvements are realized and properly incorporated into future load forecasts. In particular, a PIM will provide a quantitative means by which Pepco's improvements to its load forecasting methodology can be evaluated and monitored.

Q. Why is it important for utilities to begin using stochastic load forecasts?

A. Deterministic load forecasts are based on a single, straight-line approach to load growth, rather than different scenarios for load and DER growth. In contrast, stochastic (or probabilistic) load forecasts are better able to accommodate a diverse set of weather assumptions, load pattern changes, and other underlying factors that provide a more robust portrait of future system conditions and the opportunities for DERs to avoid or defer investments. In this way, stochastic planning will better help utilities to plan for the future. Currently, Pepco's deterministic forecast does not account for various load growth trajectories based on different DER adoption scenarios.

Q. Based on your review of Pepco's load forecasting, what type of PIM structure do you recommend?

A. I recommend a penalty-only PIM based on the number of substation 90/10 forecasts that exceed actual load by more than a predetermined percentage (%). Specifically, I recommend that the penalty be assessed at 1 basis point per 90/10 substation forecast that exceeds actual load by 12% or more. If a load transfer was implemented, the substation would be excluded from the analysis.

Q. What is the basis for suggesting a penalty if 90/10 load forecasts exceed actual loads by more than 12%

A. As Pepco has stated, 90/10 forecasts can be expected to exceed actual loads in most years by an average of 8%.[27] Setting the penalty threshold to begin 12% allows for a considerable amount of variance in the accuracy of forecasts around the expected amount of deviation from actuals for a 90/10 forecast (i.e., 8%), prior to assessing a penalty.

Q. Can Pepco influence the outcome of this PIM and is it sufficiently objective and free from external influences?

A. Yes. There are several actions that Pepco can take to improve the accuracy of its load forecasting and influence the outcome of this PIM. For example, Pepco could utilize stochastic forecasting tools and collaborate closely with key stakeholders (e.g., DER developers and the DCSEU) to develop more accurate inputs and various scenarios for growth in load and DER adoption.

While outside factors, including downturns and upswings in the economy and speed of building development, can influence load, probabilistic forecasting can help account for such unlikely events. However, in the case of significant external forces (such as the current COVID-19 pandemic and associated economic downturn), Pepco should be allowed to petition the Commission to temporarily suspend the implementation of this PIM.

[27] Reply Comments of Potomac Electric Power Company, FC 1144, quoting the Willis Affidavit, December 28, 2018, at Affidavit pg. 9.

V. ADDITIONAL PIMS

Q. Did DCG discuss any other PIMs as part of its participation in the FC1156 PIMs Work Shops?

A. Yes. DCG discussed potential PIMs for hosting capacity, line loss reduction, NWAs, and interconnection timeline compliance. I urge the Commission to use its existing authority to require Pepco to achieve these outcomes without the use of PIMs. However, if the Commission finds it more appropriate to facilitate these outcomes through PIMs, we recommend the below construct for each.

Hosting Capacity PIM

Q. Please describe your proposal for a hosting capacity PIM.

A. DCG proposes this PIM to support the desired outcome of expanding hosting capacity in Pepco's service territory to allow for greater penetration of DERs with fewer distribution system upgrades. Hosting capacity is the amount of DERs that can be added to the distribution system without adversely impacting safety, power quality, reliability, or other operational criteria, and without requiring significant infrastructure upgrades.

This PIM would measure the annual increase in gross hosting capacity across the distribution system obtained through the use of advanced inverters[28] and controls. Existing DERs on the system would not be netted out and any increase in hosting capacity from traditional grid-side upgrades would be excluded from this PIM.

[28] Advanced inverter is defined as having the following characteristics: autonomous "ride-through" capabilities, autonomous voltage and reactive/active power control capabilities, and two-way communication capabilities.

Q. How will a hosting capacity PIM further the energy goals of the District?

A. Increasing hosting capacity through the use of advanced inverters will contribute to the goals of the Solar for All program, PowerPath DC, and Clean Energy DC by enabling the more efficient integration of DERs into the distribution system.

DERs such as solar PV create voltage fluctuations that impact the distribution system. Advanced inverters with dynamic controls are among the best ways to increase hosting capacity in a cost-effective manner.[29] The advanced inverter volt-var function allows for the real-time management of power flows based on grid conditions, which in turn mitigates voltage issues. The result of this mitigation is an increase to the hosting capacity of distribution circuits that allows for the additional interconnection of DERs without the need for more costly investments in distribution system upgrades.

There are several examples of this benefit from other states. Hawaiian Electric's requirements for advanced inverters enabled the increase of solar interconnection limits from 120% of minimum daily load to 250%, which allowed for 2,500 solar projects in the interconnection queue to proceed.[30] In addition, Arizona Public Service found that adding

[29] Steve Steffel presentation on behalf of Pepco Holdings (2018). State Commission Staff Surge Call: Hosting Capacity Analysis. Available at: https://www.naruc.org/default/assets/File/HCA%20surge%20summary.pdf

[30] National Renewable Energy Laboratory (NREL). 2019. "Smart Inverter Utility Experience in Hawaii". Available at: https://www.nrel.gov/docs/fy19osti/74091.pdf
NREL. 2018. "NREL and Hawaiian Electric Navigate Uncharted Waters of Energy Transformation. Available at: https://www.nrel.gov/news/features/2018/nrel-and-hawaiian-electric-navigate-uncharted-waters-of-energy-transformation-part-1.html

advanced inverters to solar PV increased the hosting capacity of a distribution line over what would have occurred with traditional inverters.[31]

Q. What is your rationale for a hosting capacity PIM?

A. Pepco has not implemented advanced inverter settings for DERs interconnecting to its system, except in limited instances on a case-by-case basis. There is currently no existing requirement for Pepco to take this action, although the Commission could require that Pepco do so, since this would provide benefits to ratepayers. Fully implementing the IEEE 1547-2018 Standard will require the adoption of a technical interconnection and interoperability standard that allows DER to perform coordinated operational grid support functions. However, Pepco has an inherent disincentive to promote DERs, under traditional cost-of-service regulation, as well as in MRPs without adequate cost containment incentives, because DERs result in reductions in load growth and the deferral of traditional capital investments, upon which Pepco earns a financial return. For these reasons, a financial incentive could be implemented to better align Pepco's performance with the energy policy goals of the District.

Q. What type of PIM structure do you recommend?

A. I recommend a shared savings mechanism based on the percentage (%) increase in hosting capacity by feeder. The shared savings would be based on the cost savings achieved from using advanced inverters and controls compared to a traditional capital

[31] Electric Power Research Institute (EPRI). 2017. "Arizona Public Service Solar Power Partner Program, Advanced Inverter Demonstration Results Technical Report". Available at: https://www.epri.com/#/pages/product/3002009779/?lang=en-US

investment. Pepco's current hosting capacity map, internal hosting capacity data, and historical interconnection data could be used to inform an appropriate percentage increase performance goal, with associated deadbands, over a baseline level. I am not proposing a specific shared savings amount at this time as it should take into consideration the underlying regulatory structure (i.e., whether it is implemented as part of COSR or in conjunction with an MRP.) For example, if implemented in conjunction with an MRP, it should consider the amount of savings Pepco is allowed to retain below its approved revenue requirements.

Q. Can Pepco influence the outcome of this PIM and is it sufficiently objective and free from external influences?

A. Yes. Pepco can require the use of advanced inverters with its full range of functionalities, including the intentional islanding and the ride-through capabilities. Pepco has primary influence over interconnection and can require inverter settings and standards to increase hosting capacity in lieu of capital upgrades.

<u>Line Loss Reduction PIM</u>

Q. Please describe your proposal for a line loss reduction PIM.

A. DCG proposes this PIM to support the desired outcome of a reduction in line loss on the distribution system from the deployment of conservation voltage reduction (CVR), volt/VAR optimization (VVO), and other cost-effective technologies.

CVR is a measure that lowers the operating voltage of a distribution feeder, thereby creating a reduction in system demand for electricity. Similarly, VVO helps to manage voltage levels and reactive power. Both technologies create more efficient grid operations

by reducing overall voltage across the grid, producing reductions in line losses, energy consumption, and peak demand.

The proposed line loss PIM would measure the percentage (%) of line loss reduction achieved on the distribution system over a determined baseline.

Q. How will a line loss reduction PIM further the energy goals of the District?

A. The reduction in line loss, energy consumption, and peak demand from the deployment of CVR and VVO will create associated reductions in GHG emissions. This reduction will therefore contribute to the Clean Energy DC roadmap to modernize the energy delivery system and help meet the targeted goal of reducing the District of Columbia's GHG emissions by 50% below 2006 levels by 2032 and achieving carbon neutrality by 2050.

Q. What is your rationale for a line loss reduction PIM?

A. To date, Pepco has not sufficiently implemented CVR and VVO. According to the Company, CVR is currently implemented on feeders that serve approximately 9,700 customers in the District of Columbia using load tap changers at the substation transformer to maintain voltage at the reduced level. In addition, Pepco has automated 38 capacitor banks in the District of Columbia but they have not been used in implementing CVR or Variable Voltage Reduction.[32] In addition, beyond the ability to earn on its

[32] F.C. 1156 Pepco Response to DCG 6-5, attached here to Exh. DCG (2A)-4

investment in CVR and VVO, there is no additional incentive for Pepco to accelerate deployment of this technology, nor is there any standard or requirement in place.

Q. What type of PIM structure do you recommend?

A. I recommend a shared savings mechanism be implemented. Pepco should first conduct an analysis of its distribution system to determine the cost-effective level of CVR and VVO (if any) by feeder. This analysis should include evaluating and identifying line losses at various points on its system, quantification of the costs to mitigate those line losses, and the resulting benefits. The cost-benefit analysis should include all quantifiable impacts to the distribution system, including the value of avoided GHG emissions from reduced line losses. Pepco should coordinate with DOEE to establish a value of avoided GHG emissions to be used in the cost-benefit analysis.

The financial incentive would be based on the present value of the net benefits associated with line loss reductions on Pepco's distribution system achieved through cost-effective means. I suggest that Pepco be allowed to retain 10% of the net benefits achieved, with 90% of the net benefits flowing to ratepayers. I suggest this sharing percentage since Pepco will already be earning a return on the capital investments required to implement CVR and VVO. The shared savings approach will protect ratepayers while providing Pepco with an incentive only when net benefits are positive.

Q. Can Pepco influence the outcome of this PIM and is it sufficiently objective and free from external influences?

A. Yes. Pepco can reduce line losses through the implementation of CVR and VVO, as well as other grid-side technologies such as right-sizing transformers, phase balancing, and

installing capacitor banks. The installation of distribution management and automation, demand management systems, and energy storage can also help reduce power losses by improving the efficiency of power flows.

The percentage of line loss achieved on the system can be influenced by the DCSEU energy efficiency programs and customer adoption of DERs. However, the shared savings approach to this PIM will ensure that ratepayers receive the majority of benefits from the specific investments deployed by Pepco to influence the reduction in line losses.

NWA PIM

Q. Please describe your proposal for an NWA PIM.

A. DCG proposes this PIM to support the desired outcome of an increased investment in cost-effective NWAs. The PIM would reward Pepco for each cost-effective NWA implemented in its District of Columbia service territory based on the present value of the net benefits from implementing NWAs procured through an open-sourced request for proposals (RFP) in which the solution type has not been pre-selected.

The PIM will encourage Pepco to proactively identify all NWA opportunities, seek the least-cost NWA solution, regardless of whether it is a capital investment, and be rewarded for maximizing ratepayer savings.

Q. How will an NWA PIM further the energy goals of the District?

A. The increased investment in cost-effective NWAs will contribute to the goals of PowerPath DC and Clean Energy DC, including grid modernization, the incorporation of

more DERs, and helping to reduce the need for more costly utility infrastructure investments.

Q. What is your rationale for an NWA PIM?

A. This PIM is needed to address the disincentive Pepco has to implement cost-effective NWAs. Under traditional cost of service regulation, Pepco would earn more on a traditional poles and wires capital investment to meet load growth compared to an NWA solution. Pepco's current MRP proposal also does not adequately address this disincentive. Due to the fact that Pepco would retain only 25% of any cost savings that cause its ROE to rise above the 25 basis point deadband, any NWA would need to produce substantial annual cost savings in order to offset the utility's incentive to invest in the more-expensive traditional wires solution. Another disincentive is the fact that NWAs are sometimes perceived as more risky than traditional "wires" solutions. This is due to factors including a lack of familiarity and experience with procuring, constructing, and operating the NWA solution and uncertainty regarding whether the solution will show up when needed or still be available 10 or 20 years in the future, particularly if it is third-party owned. However, the uncertainty can be mitigated by Pepco entering into long term contracts with the solution providers with penalties for nonperformance.

Further, there is no requirement or standard that Pepco has to achieve or meet with respect to the deployment of NWAs. While the PowerPath DC Order requires Pepco to implement an NWA process[33], there is nothing to address the disincentive the Company

[33] FC 1130, Order No. 20286 at 37 and 38

has to implement NWAs in lieu of traditional wires solutions, nor is there a mechanism to encourage maximizing customer value through this process.

Lastly, there has been limited implementation of NWAs by Pepco. In its proposed MRP Capital Budget there is no consideration of NWAs, except for one battery pilot for Alabama Ave (ITN Name: 71138). Pepco has not submitted any documentation that demonstrates the other $225.7 million in load growth related capital projects from 2020-2023 were screened for more cost-effective NWA solutions.

It is therefore important to provide Pepco with an incentive to procure NWA solutions if cost-effective. This would allow Pepco to earn a similar amount on an NWA solution as a traditional capital asset, as long as it also provides ratepayer savings.

Q. What type of PIM structure do you recommend?

A. I recommend a shared savings mechanism to support NWA solutions. The exact shared savings amount should depend on whether COSR continues or whether an MRP is adopted (and how much savings below approved revenue requirements Pepco is allowed to retain). Regardless, the mechanism should (a) provide Pepco with approximately the same level of earnings as a traditional solution, (b) treat NWA expenses and capital investments equally from an earnings perspective, and (c) provide greater utility earnings in exchange for greater ratepayer savings.

To qualify for this incentive, any distribution system upgrade must be vetted by DOEE and the Commission. Pepco must demonstrate how stakeholder feedback on its load forecast has been incorporated into the final needs assessment. The least cost solution to

identified system needs should give equal consideration to NWAs procured through open-sourced solicitations to third-parties and through Company specific actions, including the targeted deployment of demand response, energy efficiency, and time-varying rates. The net benefits should be based on a benefit-cost analysis that includes GHG emissions (and other externalities). Pepco should coordinate with DOEE to establish a value of avoided GHG emissions used in the analysis.

I also propose that the net present value of expensed NWAs be rate based to allow Pepco to earn a return on these NWA expenditures in order to offset much of the disincentive associated with non-capitalized NWA solutions and those implemented by third-parties.

Q. Can Pepco influence the outcome of this PIM and is it sufficiently objective and free from external influences?

A. Yes. Pepco has primary influence over the development and implementation of a robust NWA process; however, implementation of NWAs also depends on developers' responses to RFPs. Nonetheless, the shared savings approach means that the Company would not be penalized if it is unable to procure cost-effective NWAs from third-party developers.

<u>Interconnection Timeline Compliance PIM</u>

Q. Please describe your proposal for an interconnection timeline compliance PIM.

A. DCG proposes a penalty-only PIM to support the desired outcome of faster interconnections of DERs through a reduction of processing delays.

Q. How will an interconnection timeline compliance PIM further the energy goals of the District?

A. A PIM that incentivizes faster interconnections of DERs will contribute to the goals of Clean Energy DC to incorporate more renewable energy generation.

Q. Have you analyzed any data regarding Pepco's interconnection timeline compliance performance?

A. Yes. As indicated in my Direct Testimony, I previously analyzed data from Pepco's Quarterly Compliance Reports Covering Interconnection Applications for 2019 Q2 through Q4.[34] In addition, I analyzed the data provide by Pepco in response to DCG Follow-up Data Request No. 6-3(B), which included a list of Community Renewable Energy Facility (CREF) applications received by Pepco through 2019, indicating the date each CREF application was received, whether the application has been approved, the date of approval (if approved), and the capacity associated with each application.[35]

Q. What does your analysis indicate?

A. My analysis found that Pepco is already meeting close to 100% of the Level 1 interconnection requirements, excluding CREFs. The data also shows Pepco is underperforming for CREF Level 2 interconnections. For CREF Level 2 applications received after January 1, 2019, 82% of the applications had an Approval To Install (ATI) timeline of 45 days or longer. The average number of days for customers to obtain an ATI for these applications was 75.9 days.

[34] F.C. 1156. Direct Testimony of Courtney Lane. Exhibit DCG (A) at 60.
[35] F.C. 1156 Pepco Response to DCG Follow-up 6-3B, Confidential Attachment.

Q. Based on your review of Pepco's interconnection timeline performance, what type of PIM structure do you recommend?

A. I recommend a penalty-only mechanism. Pepco is already required by the Commission to comply with existing interconnection standards. Pepco should not be rewarded for fulfilling its core responsibilities. Rather, Pepco should face penalties for failure to comply with these requirements. Further, the penalty should apply to each interconnection Level (1-4). It is evident that Pepco is underperforming in relation to these projects, particularly for CREF projects, and a penalty can help influence better performance.

The PIM should be based on the percentage (%) of interconnection applications in which Pepco's time to complete any milestone exceeds the time allowed for in the applicable interconnection review process, reported for each Level (1-4). Pepco should provide quarterly reporting on this performance that includes the number of days behind schedule for each milestone, the reasons for the delay, and remedial measures taken. Pepco should also mark each project that is a CREF due to the fact that CREFs can fall under any Interconnection Level.

A penalty should be assessed when Pepco's performance falls below 95% of interconnection deadlines for each point in the process - with time dependent on customer or other permitting agencies actions being excluded. The penalty should be scaled in a linear manner based on the magnitude of delays.

I would like to reiterate that DCG only supports a PIM for interconnection if it is a penalty-only mechanism. DCG will not support a positive financial incentive for

interconnection because, as I stated earlier, Pepco should not be rewarded for fulfilling its core responsibilities.

Q. Can Pepco influence the outcome of this PIM and is it sufficiently objective and free from external influences?

A. Yes. Pepco has a high level of influence over the rate at which DER interconnection applications are reviewed, analyzed, and ultimately approved. For example, Pepco indicated it has already made investments to improve and automate the interconnection process, such as the Connect the Grid project monitoring system, process changes, and greater contractor resources.[36]

VI. PROPOSED TRACKING METRICS

Q. Do you recommend any tracking metrics for inclusion in Pepco's proposed PBR?

A. Yes. I recommend six tracking metrics:

1) Time-of-use (TOU) rate enrollment;
2) TOU rate benefits;
3) GHG reductions;
4) Interconnection satisfaction;
5) Interconnection costs; and

[36] F.C. 1156 Pepco Response to DCG DR 6-3(A) attached hereto as Exh. DCG (2A)-5.

6) Peak reduction.

As I explain further below, these metrics represent important actions by Pepco to support the energy policy goals of the District. However, these metrics lack sufficient historical data to inform the development of a performance baseline and to assess whether with financial penalties or rewards are justified. Therefore, DCG recommends these as tracking metrics with the intent of becoming PIMs in the future if warranted.

Q. How do you recommend that these metrics be reported?

A. I recommend that the Commission direct Pepco to create a centralized data dashboard where any interested stakeholder can easily view data on the Company's performance, similar to that provided by the Hawaiian Electric Companies: https://www.hawaiianelectric.com/about-us/key-performance-metrics.

Q. Why do you recommend that performance be reported in a centralized data dashboard?

A. Some of the proposed metrics will be reported through other dockets. For example, Pepco will report on its Transportation Electrification Implementation Plan including the "Residential Service – Plug-In Vehicle Charging" whole house TOU tariff enrollment in Formal Case Nos. 1130 and 1155.[37] Centralized reporting of Pepco's performance enables stakeholders to review Pepco's performance in one location instead of searching through various dockets. When performance statistics are not aggregated in a central

[37] Potomac Electric Power Company's Transportation Electrification Implementation Plan in response to Order No. 19898, as clarified by Order No. 19983. October 30, 2019. Formal Case Nos. 1130 and 1155. At 7.

location, it becomes difficult and time-consuming to develop a holistic view of utility performance across multiple dimensions.

Q. Please describe your proposals related to TOU tracking metrics.

A. I propose two metrics related to TOU rates. To date there has been limited activity related to TOU rates in the District of Columbia. As Pepco begins to deploy its "Residential Service – Plug-In Vehicle Charging" whole house TOU tariff[38] and, if approved, its proposal for a pilot residential TOU rate,[39] it will be important to track metrics related to customer enrollment and resulting load reduction to gain visibility into whether a PIM may be warranted in the future. Specifically, I propose the following metric definitions:

1) TOU Rate Enrollment: This metric would require Pepco to track the percent of customers enrolled in TOU rates by customer class. Accurate price signals created by TOU rates will aid in achievement of climate and energy goals and facilitate technological innovation goals described in PowerPath DC, the Sustainable DC Plan, and the DC Climate and Energy Action Plan. Pepco can easily track the total customers enrolled for this reporting metric.

2) TOU MW Reduction: This metric would require Pepco to track the total megawatt (MW) load reduction from customers enrolled in TOU rates. Pepco should be able to track this information from existing Advanced Metering

[38] Id.
[39] PowerPath DC (Formal Case No. 1130). 2020. Pepco Residential Time-of-Use Pilot Proposal.

Infrastructure data. If needed, an evaluation could be conducted by a third-party to verify the load reductions reported.

Q. Please describe your proposal for a GHG Reduction tracking metric.

A. This metric would require Pepco to track the reduction carbon dioxide equivalents (CO_2e) from all regulated activities in its District of Columbia service territory, including both operational and embodied impacts. Exelon currently utilizes a corporate scorecard that includes a specific goal for managing direct and indirect CO_2e emissions from its operations-driven sources.[40] Pepco could develop goals specific to actions taken within the District of Columbia and report annually against those goals. Pepco can influence its performance through actions such as electrification of its fleet, use of NWAs to avoid construction, sourcing of more sustainable materials where possible, purchasing more renewable electricity for Standard Offer Service, and through reductions in line losses through CVR and VVO. A tracking metric will help assess Pepco's overall contribution to meeting the GHG reduction goals of Clean Energy DC and whether a PIM may be needed in the future.

Q. Please describe your proposal for an Interconnection Satisfaction tracking metric?

A. This metric would require Pepco to conduct a survey to track customer satisfaction with its interconnection process. Customer satisfaction can be quantified through a third-party customer survey of customers and DER developers.

[40] Exelon Corporation CDP Climate Change Questionnaire 2019. Available at: https://www.exeloncorp.com/sustainability/Documents/Exelon_Investor_CDP.pdf

On an annual basis, at the conclusion of the interconnection process (including interconnection applications that were ultimately withdrawn), the third party would conduct a survey of interconnecting customers (or the party that submitted the interconnection application). The results would be reported as the percentage (%) of customers satisfied or very satisfied with the interconnection process based on independent customer surveys by Interconnection Level (1-4).

Tracking this metric will enable increased visibility into Pepco's interconnection process and assess whether a future PIM is needed to improve satisfaction with the interconnection process. Improved customer satisfaction will contribute to the goals of Clean Energy DC to incorporate more renewable energy generation.

Q. Please describe your proposal for an Interconnection Costs tracking metric.

A. This metric would require Pepco to track annual interconnection costs ($) for DER developers by feeder (including number of projects, MW of capacity installed, and total cost). This data should be reported on an annual basis in tabular and shapefile formats, as well as displayed in map form.[41] Pepco should be able to track this data through its interconnection process.

The outcome of this reporting will be improved transparency for interconnection costs. This will be important to meeting the renewable energy goals of Clean Energy DC as it will enable DER developers to better assess the viability of potential projects. This metric

[41] Pennsylvania PUC's Solar Collaborative Working Group works on interconnection rules to streamline rules/requirements, with a PECO developed map of where interconnection costs are high/low.

will provide information to assess whether distribution system upgrade costs are justified and allocated appropriately, and whether a future PIM is justified to improve performance.

Q. Please describe your proposal for a Peak Reduction tracking metric.

A. This metric would require Pepco to track weather-normalized peak reductions by DER type (energy efficiency, demand response, solar PV, battery storage, TOU rates). Pepco could obtain this data from interconnection applications, AMI data, and demand response and energy efficiency programs. Pepco can influence this outcome through time-varying rates, implementation of demand response and energy efficiency programs, and promotion of customer adoption of distributed generation. This metric will support the goals of PowerPath DC and Clean Energy DC by increasing the use of cost-effective DER to reduce peak demand and manage load growth in new or congested neighborhoods.

VII. CONCLUSION AND SUMMARY OF RECOMMENDATIONS

Q. What are your recommendations?

A. My recommendations are as follows:

1. I concur with the primary findings of OPC, AOBA, and GSA that the Company's proposed MRP proposal and PIMs should be rejected.

2. Regardless of whether the Commission approves an MRP, the Commission should implement a penalty-only PIM for Load Forecasting Accuracy.

3. The Commission should use its existing authority to require Pepco to increase hosting capacity, reduce line losses, implement NWAs, and improve interconnection timeline compliance. These goals can largely be achieved through the enforcement of existing standards for interconnection timelines and Commission directives to require timely approval of Level 2-4 interconnection applications and implement standards for advanced inverters and controls, cost-effective line loss reductions, and cost-effective NWAs. As such, they do not require development of PIMs. However, if the Commission determines that PIMs are warranted, I recommend that:

   A. Shared savings PIMs be established for increasing hosting capacity, reducing line losses, and implementation of NWAs; and

   B. A penalty-only PIM be established for failure to meet the Commission's approved interconnection timelines.

4. The Commission should require Pepco to develop a centralized web-based data dashboard to document the Company's performance related to the following tracking metrics: TOU rate enrollment, TOU rate benefits, GHG reductions, interconnection satisfaction, interconnection costs, and peak reduction.

Q. Does this conclude your testimony?

A. Yes, it does.

POTOMAC ELECTRIC POWER COMPANY
DISTRICT OF COLUMBIA FORMAL CASE NO. 1156
RESPONSE TO DCG DATA REQUEST NO. 4

QUESTION NO. 18

Provide the Company's actual historic District of Columbia loads for the past 5 years (2014 – 2018) in electronic Excel spreadsheet form.

RESPONSE:

See FC 1156 DCG DR 4-18 Attachment.

SPONSOR: Bryan L. Clark

Historical District of Columbia Loads

Loads in Mega-Volt-Amperes (MVA)

Ward 1	Sub. Number	2013	2014	2015	2016	2017	2018	
	10	103.0	135.4	135.7	143.0	125.6	127.1	
	13 (4.33kV)	11.0	10.0	9.4	9.9	3.1	2.5	
	13	33.0	32.5	31.7	33.0	31.9	34.3	
	25	43.5	40.1	39.1	44.0	50.2	51.0	
	Subtotal - Ward 1	**190.5**	**218.0**	**215.9**	**229.9**	**210.8**	**214.9**	Avg. Trend = 2.44%

Ward 2	Sub. Number	2013	2014	2015	2016	2017	2018	
	2	166.5	159.1	151.7	154.1	147.6	146.9	
	12	111.6	104.8	105.9	106.6	104.2	102.5	
	18	142.1	129.7	126.9	134.3	128.3	126.0	
	21	38.5	36.5	36.4	36.3	37.1	39.9	
	52	178.9	177.4	175.9	175.8	157.0	154.7	
	74	48.6	48.1	43.8	43.3	41.0	41.8	
	124	105.5	103.2	99.7	101.5	98.5	96.2	
	197	123.6	120.5	116.5	117.5	112.4	107.2	
	Subtotal - Ward 2	**915.3**	**879.3**	**856.8**	**869.4**	**826.1**	**815.2**	Avg. Trend = -2.29%

Ward 3	Sub. Number	2013	2014	2015	2016	2017	2018	
	38	52.6	46.1	46.3	47.3	37.5	36.7	
	38 (4.33kV)	3.5	3.9	0.0	0.0	0.0	0.0	
	77	73.3	67.0	70.0	68.7	64.3	64.9	
	93 (4.33kV)	4.6	4.0	3.2	5.4	3.0	3.4	
	129	163.8	150.2	151.5	162.1	159.3	162.7	
	145 (4.33kV)	2.7	2.8	2.5	3.1	2.4	2.6	
	146 (4.33kV)	4.2	4.0	3.6	5.8	5.4	4.8	
	Subtotal - Ward 3	**304.7**	**278.0**	**277.1**	**292.4**	**271.9**	**275.1**	Avg. Trend = -2.02%

Ward 4	Sub. Number	2013	2014	2015	2016	2017	2018	
	27	38.3	36.6	31.4	34.1	34.1	36.4	
	190	87.5	80.7	84.0	88.9	89.0	87.3	
	Subtotal - Ward 4	**125.8**	**117.3**	**115.4**	**123.0**	**123.1**	**123.7**	Avg. Trend = -0.34%

Ward 5	Sub. Number	2013	2014	2015	2016	2017	2018	
	133	129.6	99.1	97.0	108.2	101.8	106.2	
	212	79.7	79.9	79.5	83.9	106.9	116.2	
	Subtotal - Ward 5	**209.3**	**179.0**	**176.5**	**192.1**	**208.7**	**222.4**	Avg. Trend = 1.22%

Ward 6	Sub. Number	2013	2014	2015	2016	2017	2018	
	Sta. 'B'	124.9	118.7	110.7	119.3	123.1	56.5	
	33	17.0	16.3	16.5	17.1	16.4	16.1	
	117	111.2	108.5	104.1	112.7	104.5	101.4	
	161	113.2	109.5	114.7	112.3	108.5	107.1	
	223	0.0	0.0	0.0	0.0	0.0	78.0	
	Subtotal - Ward 6	**366.3**	**353.0**	**346.0**	**361.4**	**352.5**	**359.1**	Avg. Trend = -0.40%

Ward 7	Sub. Number	2013	2014	2015	2016	2017	2018	
	7	165.9	160.7	160.2	158.5	159.7	162.3	
	Subtotal - Ward 7	**165.9**	**160.7**	**160.2**	**158.5**	**159.7**	**162.3**	Avg. Trend = -0.44%

Ward 8	Sub. Number	2013	2014	2015	2016	2017	2018	
	8 (4.33kV)	1.6	1.5	1.5	1.6	1.2	0.9	

8	32.2	25.8	25.9	27.6	17.5	22.5	
136	77.4	80.6	80.3	89.5	91.2	93.4	
168	20.9	21.6	19.3	20.7	20.6	20.5	
Subtotal - Ward 8	**132.1**	**129.5**	**127.0**	**139.4**	**130.5**	**137.3**	Avg. Trend = 0.78%
DC TOTAL	**2409.9**	**2314.8**	**2274.9**	**2366.1**	**2283.3**	**2310.0**	Avg. Trend = -0.84%

Notes: All substations supply 13.8kV of primary power unless otherwise noted.
Loads shown are actual readings taken during peak summer conditions.
Totals shown are the sum of undiversified peak loads and are not meant to be used as official Pepco system peak loads.
Trends shown are based on the straight line regression of the loads and include transfers amongst the substations.

POTOMAC ELECTRIC POWER COMPANY
DISTRICT OF COLUMBIA FORMAL CASE NO. 1156
RESPONSE TO DCG DATA REQUEST NO. 5

QUESTION NO. 16

Regarding Pepco's distribution planning process and peak load forecasts:

A. Provide the information that Pepco has obtained from the District of Columbia Sustainable Energy Utility (DCSEU) to estimate load reductions from DCSEU programs for its peak load forecast.

B. Describe how the estimated load reductions from DCSEU programs are translated into load reductions by ward, substation, and circuit.

C. Describe the methodology that Pepco uses to incorporate the impacts of new building code standards into its load forecast, if at all.

RESPONSE:

A – C. See the response to FC 1156 DCG DR 2-3 for a description of how the Company performs its load forecast. The Company has not received necessary data from the DCSEU at the feeder level, from which to use in a peak load forecast or load reduction.

SPONSOR: Bryan L. Clark

POTOMAC ELECTRIC POWER COMPANY
DISTRICT OF COLUMBIA FORMAL CASE NO. 1156
RESPONSE TO DCG DATA REQUEST NO. 2

QUESTION NO. 3

In Excel spreadsheet format, provide the economic growth assumptions by forecast year over the Company's 10-year load forecast.

RESPONSE:

Pepco does not base its 10-year load forecast on economic growth assumptions. Thus, the requested information is not available.

Pepco does not base its 10-year load forecast on economic growth assumptions. Rather, as Pepco has explained in other rate cases and formal proceedings, Pepco uses a "90/10" forecasting methodology and "bottom up" approach to develop short- and long-term load forecasts. Key inputs to the forecasts are Prospective New Business (PNB) information received by the Company, load transfers identified during the studied period, and DER installations.

SPONSOR: Bryan L. Clark

POTOMAC ELECTRIC POWER COMPANY
DISTRICT OF COLUMBIA FORMAL CASE NO. 1156
RESPONSE TO DCG DATA REQUEST NO. 5

QUESTION NO. 15

Regarding Pepco's distribution planning process and peak load forecasts:

A. Provide Pepco's internal documentation regarding its load forecasting methodology and practices.

B. Does Pepco utilize stochastic or deterministic methods for its forecasting and planning studies?

C. Describe the limitations of current forecasting techniques and how the changing distribution system, including DER growth, will impact the forecasting process.

D. Describe any major improvements to forecasting that the Company views may be necessary in the short-term and long-term in order to maintain forecast integrity as DER penetration grows.

RESPONSE:

Pepco objected to parts A-C to this data request in its Objections filed on January 14, 2020.

D. The Company is currently in a process of enhancing its current load forecasting process. The enhanced process will incorporate the use of weather normalization to forecast peak loads by year per feeder as well as weather normalized hourly load profile (8,760) on a feeder by feeder basis. This process should also improve the way the Company forecasts effects of energy efficiency, DERs and EVs.

The Company is also updating the PNB load estimation process. To account for continuous improvements in energy efficiency, conservation efforts and construction standards. This update is expected to be completed this year.

Lastly, the Company is studying the impact of EV charging in the District. This will allow it to localize transportation electrification load growth to individual substations and then identify substations most at risk due to the growth of EV charger loads.

SPONSOR: Bryan L. Clark

POTOMAC ELECTRIC POWER COMPANY
DISTRICT OF COLUMBIA FORMAL CASE NO. 1156
RESPONSE TO DCG DATA REQUEST NO. 6

QUESTION NO. 5

Refer to the testimony and exhibits of Bryan Clark - PEPCO (I)-1, pages 31-32 regarding capacitor bank automation and the ability to conduct Conservation Voltage Reductions (CVR) during peak days and perform Variable Voltage Reduction (VVR).

A. Identify the project numbers in PEPCO (I)-2 that are associated with capacitor bank automation.
B. Has Pepco automated any capacitor banks to date?
C. If Pepco has already begun to automate capacitor banks, has it begun to perform CVR and VVR?
D. If Pepco has already begun to perform CVR and VVR, provide the details regarding the benefits of these actions to date. If Pepco has not yet begun to perform CVR and VVR, explain why not.
E. Does Pepco have a long-term plan for capacitor bank automation across the District of Columbia? If yes, provide the plan.
F. Explain whether capacitor bank automation will facilitate the integration of Distributed Energy Resources (DER) in the District of Columbia.

RESPONSE:

A. The project number associated with capacitor bank automation is ITN: 72032.
B. To date, Pepco has automated 38 capacitor banks in the District.
C. Pepco has not used capacitor banks in implementing CVR or VVR. CVR is currently implemented on feeders that serve approximately 9,700 customers in the District using load tap changers at the substation transformer to maintain voltage at the reduced level.
D. Pepco's CVR program has reduced loading on the participating feeders by approximately 1%.
E. No, the Company does not have a long-term plan for capacitor bank automation across the District, but one is currently in development.
F. Capacitor bank automation will eventually lead to greater integration of DERs once ADMS and an eventual Distributed Energy Resource Management System are in place that will enable monitoring and control of smart inverters along with capacitor banks, voltage regulators and substation transformer tap changers to maintain adequate customer voltage while maximizing output of DERs on the distribution system.

SPONSOR: Bryan L. Clark

POTOMAC ELECTRIC POWER COMPANY
DISTRICT OF COLUMBIA FORMAL CASE NO. 1156
RESPONSE TO DCG DATA REQUEST NO. 6

QUESTION NO. 3

Refer to the Second Supplemental Direct Testimony of Kevin McGowan (PEPCO 3B), page 12, lines 1-5 regarding the Company's proposed Performance Incentive Mechanism (PIM) on interconnections supporting and advancing "the deployment of distributed energy resources, such as community solar."

A. Explain how the Company's proposed PIM on interconnections facilitates the development of community solar.
B. Provide an electronic spreadsheet that contains a list of Community Renewable Energy Facility (CREF) applications received by Pepco through 2019, that indicates the date each CREF application was received, whether the application has been approved, the date of approval (if approved), and the capacity associated with each application.

RESPONSE:

A. Although the Interconnection PIM proposed by the Company is specific to solar installations under 20kW, many of the improvements and automations made to the interconnection process for under 20kW systems can be applied to improve the interconnection process for community solar projects such as the Connect the Grid project monitoring system, process changes and greater contractor resources. Improving the interconnection process for community solar will support and advance these types of investments in the District of Columbia.
B. Under District law, detailed customer information cannot be released. The total number of applications received by Pepco through 2019 was 240 with an aggregate nameplate capacity of 36.66 MW^{AC}.

SPONSOR: Kevin McGowan/Bryan Clark

Exh. DCG (2A)-5

CERTIFICATE OF SERVICE

I certify that on April 8th, 2020, a copy of the Rebuttal Testimony of District of Columbia Government Witness Courtney Lane was served via electronic mail on the following parties:

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