BEFORE THE PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

In the Matter of	§	
	§	
the Implementation of	§	Formal Case No. 1167
Electric and Natural Gas Climate	§	
Change Proposals	§	

AFFIDAVIT OF ELIZABETH A. STANTON, PHD

Attachment A

On Behalf of the Office of the People's Counsel for the District of Columbia

June 16, 2022

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I. INTRODUCTION AND QUALIFICATIONS

- My name is Elizabeth Stanton, and I have been retained by the Office of the People's
 Counsel for the District of Columbia (OPC) to review the materials filed by Pepco
 ("Company") with the District of Columbia Public Service Commission (Commission or
 PSC) in Formal Case No. 1167.
- 2. I am the founder and Director of the Applied Economics Clinic (AEC), a non-profit consulting group. AEC provides expert testimony, analysis, modeling, policy briefs, and reports for public interest groups on the topics of energy, environment, consumer protection, and equity. AEC also provides training to the next generation of expert technical witnesses and analysts through applied, on-the-job experience for graduate students in related fields and works proactively to support diversity among both student workers and professional staff.
- 3. I am a researcher and analyst with more than 19 years of professional experience as a political and environmental economist. I have authored more than 170 reports, journal articles, books and book chapters as well as more than 50 expert comments and oral and written testimony in public proceedings on topics related to energy, the economy, the environment, and equity. My articles have been published in Ecological Economics, Climatic Change, Environmental and Resource Economics, Environmental Science & Technology, and other journals. I have also published books, including Climate Change and Global Equity (Anthem Press, 2014) and Climate Economics: The State of the Art (Routledge, 2013), which I co-wrote with Frank Ackerman. I am also co-author of Environment for the People (Political Economy Research Institute, 2005, with James K.

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Boyce) and co-editor of Reclaiming Nature: Worldwide Strategies for Building Natural Assets (Anthem Press, 2007, with Boyce and Sunita Narain).

4. My recent work includes Integrated Resource Plan (IRP) and Demand-Side Management (DSM) planning review, analysis and testimony of state climate laws as they relate to proposed capacity additions, and other issues related to consumer and environmental protection in the electric and natural gas sectors. I have submitted expert testimony and comments in state dockets in the District of Columbia, Florida, Indiana, Illinois, Louisiana, Massachusetts, Michigan, Minnesota, New Hampshire, New York, Pennsylvania, Puerto Rico, South Carolina, and Vermont, as well as several federal dockets. In my previous position as a Principal Economist at Synapse Energy Economics, I provided expert testimony in electric and natural gas sector dockets, and led studies examining environmental regulation, cost-benefit analyses, and the economics of energy efficiency and renewable energy. Prior to joining Synapse, I was a Senior Economist with the Stockholm Environment Institute's (SEI) Climate Economics Group, where I was responsible for leading the organization's work on the Consumption-Based Emissions Inventory (CBEI) model and on water issues and climate change in the western United States. While at SEI, I led domestic and international studies commissioned by the United Nations Development Programme, Friends of the Earth-U.K., and Environmental Defense Fund, among others. I earned my Ph.D. in economics at the University of Massachusetts-Amherst, and have taught economics at Tufts University, the University of Massachusetts-Amherst, and the College of New Rochelle, among other colleges and universities. My curriculum vitae is attached to this Affidavit as Attachment A-1.

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II. SUMMARY OF AFFIDAVIT AND FINDINGS

- 5. As the District's electric provider, Pepco's role is to serve ratepayers, and its climate plans must reflect that. In this affidavit I recommend climate planning and benefit-cost analysis that is:
 - Focused on the needs of and impact to ratepayers,
 - Uniform across both utilities,
 - PSC-directed, rather than designed or led by the utilities, and
 - Integrated across both utilities to provide an accurate assessment for the District as a whole.
- 6. I also provide a critique of the materials submitted by Pepco in Formal Case No.1167 that includes the following main concerns:
 - Pepco proposed climate measures, and their BCA results, need to be presented and understood in the context of their funding sources—ratepayer bills or otherwise—
 and a detailed analysis of their impact on customer rates and bills.
 - Pepco needs to provide details of its planning to ensure that the most climatevulnerable communities do not disproportionately fund mitigation and resiliency measures.
 - Pepco's climate plans fail to describe the inclusion of stakeholders in design,
 planning and evaluation; plans for outreach and education; targeting and
 sequencing of benefits; impacts on low- and moderate-income ratepayers, renters
 and public health; and intentional investment in under-resourced communities.

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- Pepco's climate plans do not include commitments related to the equitable distribution of costs and benefits, the promotion of competition with and among third-party DER vendors, the provision of green jobs and fostering small businesses, and the reduction of local pollution.
- Pepco's planning—including its electrification study—tends to treat the District as
 a homogenous monolith, ignoring variation among DC neighborhoods' and
 households' needs, circumstances, and means.
- Pepco's assumption that 95 percent of current building fuel use is electrified by 2050 is entirely contradictory to plans filed by WGL. It is difficult to comprehend how separate, contradictory climate and energy plans—affecting nearly all DC residents—can hope to result in an effective, affordable and equitable decarbonization plan.
- Pepco's plans omit discussion of iteration or learning by doing. Good policy design needs to include evaluation, reassessment and retuning of programs over time.
- 7. The ratepayer (and the almost identical set of individuals and households: District residents) is the appropriate lens from which to understand the costs and benefits of DC climate plans and actions. Assessments that instead focus on impacts to the utility miss critical information needed by the Commission for good decision-making.
- 8. The PSC should require that Pepco provide additional information including, but not limited to: ratepayer impacts; stakeholder inclusion; DER competition; green jobs and small business impacts; low- and moderate-income household impacts; and intentionally designed climate programs aimed at achieving MEDSIS goals.

III. BRIEF OVERVIEW OF FORMAL CASE NO. 1167 PURPOSE, STRUCTURE AND REQUIREMENTS.

- 9. Formal Case No. 1167 was opened "to consider whether and to what extent utility or energy companies under [the Commission's] purview are helping the District of Columbia achieve its energy and climate goals."
- 10. In terms of items that should be treated as a priority in this proceeding, the District's climate policy, as well as targets established by the District's clean energy plans, Clean Energy DC and Sustainable DC, must be the standard for each utility's climate business plan:

The Clean Energy Act establishes a requirement that the Commission consider the effects on global climate change and the District's public climate commitments in its supervision and regulation of utility or energy companies. Thus, the Commission is commencing a climate policy proceeding to consider whether and to what extent utility or energy companies under our purview are helping the District of Columbia achieve its energy and climate goals and then take action, where necessary, to guide the companies in the right direction. This new proceeding could include the development of a comprehensive plan for how utility or energy companies can help the District achieve its 2032/2050 goals and satisfy the directives of the Clean Energy Act.²

 $^{^1}$ Formal Case No. 1167, In the Matter of the Implementation of the Climate Business Plan ("Formal Case No. 1167"), Order No. 20662 ¶ 13, rel. November 18, 2020.

² Formal Case No. 1167, Order No. 20662 ¶ 11

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11. Requirements for proposals filed under this proceeding include, at a minimum:

[A] detailed description of the proposal; an explanation of how the proposal would accomplish and advance the District of Columbia's climate change goals; and a rigorous cost-benefit analysis (using the Commission approved methodology) along with detailed descriptions of costs and a proposed recovery methodology. The proposal must also describe how it meets the metrics that will be developed in GD-2019-04-M and if applicable, Formal Case No. 1160.³

12. In Formal Case No. 1130, the District of Columbia's Public Service Commission initiated a proceeding to investigate, establish and implement plans to modernize the distribution energy delivery system for increased sustainability (MEDSIS)⁴, adopting the following vision statement:

The District of Columbia's modern energy delivery system must be sustainable, well-planned, encourage distributed energy resources, and preserve the financial health of the energy distribution utilities in a manner that results in an energy delivery system that is safe and reliable, secure, affordable, interactive, and non-discriminatory.⁵

³ Formal Case No. 1167, Order No. 20662 ¶ 12.

⁴ Formal Case No. 1130, Order No. 19275 ¶ 1, rel. February 14, 2018.

⁵ Formal Case No. 1130, Order No. 19275 p. A-2.

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- 13. One of the foundational principles of the MEDSIS initiative is modernizing energy delivery in the District sustainably, by creating a system that "will meet the energy needs of the present without compromising the ability of future generations to meet their own energy needs by focusing on the triple bottom line: environmental protection, economic growth, and social equality."
- 14. Another goal of MEDSIS is to ensure that transmission and distribution systems are well-planned and developed "in a strategic manner that is data-driven, incorporates advanced technologies, and is collaborative and open—allowing for consumer and stakeholder input."

IV. BRIEF OVERVIEW OF PEPCO'S 1167 FULL FILING.

- 15. In addition to comments on materials filed by other stakeholders, Pepco has submitted the following documents in Formal Case No. 1167:
 - Climate Solutions Plan: Pepco DC Climate Solutions Plan: Pepco's Blueprint to Support the District of Columbia's Climate and Clean Energy Goals (7/20/2021)
 - Pepco Electrification Study: An Assessment of Electrification Impacts on the Pepco DC System (8/27/2021)
 - 5-Year Plan: Climate Solutions 5-Year Action Plan: Pepco's 5-Year Plan to Support the District of Columbia's Climate and Clean Energy Goals (10/8/2021)
 - **30-Year Plan:** 30-Year Transition Strategy: Pepco's Long-Term Outlook at the Development of Climate Solutions in the District of Columbia (11/30/2021)

⁶ Formal Case No. 1130, Order No. 19275 p. A-2.

⁷ Formal Case No. 1130, Order No. 19275 p. A-3.

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- **Pepco BCA:** Pepco's Climate Solutions 5-Year Action Plan: Benefits and Costs (1/31/2022)
- **BCA Workpapers:** Pepco's BCA Workpapers for System Costs and Emissions-2.16.22.pdf (2/18/2022)
- 16. Pepco's Climate Solutions Plan, 5-Year Plan, and 30-Year Plan describe four portfolios of decarbonization measures:
 - Electrifying transportation: This portfolio has two initiatives: Connect Transportation and Smart Rates Transportation.⁸ Connect Transportation focuses on infrastructure investments in the District to enable transportation electrification, and the Smart Rates Transportation initiative provides rate designs specific to vehicle charging.⁹
 - **Decarbonizing buildings:** This portfolio focuses on expanding efficiency programs to reduce energy use and greenhouse gas emissions in the District.¹⁰
 - Activating the local energy ecosystem by advancing community-based resources:
 This portfolio advances distributed energy resources (DERs) to reduce emissions and increase the supply of renewables in the District as required by the DC Renewable Portfolio Standard.¹¹

⁸ Formal Case No. 1167, Potomac Electric Power Company's Climate Solutions 5-Year Action Plan, p. 12-13, filed October 8, 2021 ("Pepco 5-Year Plan").

⁹ Pepco 5-Year Plan at 12-13.

¹⁰ Pepco 5-Year Plan at 38.

¹¹ Pepco 5-Year Plan at iii.

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• Enhancing infrastructure (distributed energy and smart grid) for climate solutions: This portfolio supports the need to actively manage system demand as electrification in the District progresses. The first initiative in this portfolio focuses on establishing and updating data-based tools to improve the usage of DERs, and the second initiative focuses on increasing the reliability of physical infrastructure linked to mass electrification. 12

V. MAIN ISSUES WITH PEPCO'S FILING

- 17. Role: Pepco's role in the climate planning and decision-making process.
- 18. Pepco's 30-Year Plan offers a proposed vision of the grid and its role in the transition to a carbon-free economy:

At its core, the Pepco Climate Solutions Plan advances the grid as a "platform," where Pepco facilitates and activates the connections between the grid, customers, and communities. As the "connector," Pepco is able to provide programs and opportunities for customers and communities to access and enable climate solutions equitably, inclusively, and affordably, while driving innovation and building resilience. ¹³

19. It is difficult to assign actionable meaning to Pepco's proposed vision. A viewpoint of the grid as a "platform" and the utility as the "connector" leaves a lot open to interpretation.

Pepco's platform/connector vision requires more detail to make clear the utility's intentions

¹³ Pepco 30-Year Plan at 2.

¹² Pepco 5-Year Plan at iii.

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regarding its role in the development of distributed generation and storage, the facilitation of the development of distributed resources by both customers and third parties, and the utility's relationship and responsibilities vis-à-vis ratepayers.

- 20. Pepco's role should be focused on acting on behalf of ratepayers' interests. Ratepayers are subject to all the costs and benefits of climate programs, including providing the funds for climate programs through rates and bills (barring funding through as yet unidentified taxes or federal grants). Pepco's actions on behalf of ratepayers should be informed by and grounded in input from ratepayers and their advocates. For example, the Rhode Island Public Utilities Commission engaged expert support to involve National Grid, consumer advocates, low-income advocates, environmental advocates, and other participants in developing a stakeholder-informed BCA framework.¹⁴
- 21. A uniform, PSC-directed, integrated benefit-cost analysis is essential to serve the needs of DC ratepayers:
 - Uniform BCA framework: The same BCA framework should be used for all District
 utility proposals impacting DC climate initiatives and emission reductions. For
 example, the New York Public Service Commission developed a BCA framework and
 guidance for assessment of utility planning decision to minimize cost while maximizing
 consumer options.¹⁵

New York Department of Public Service. July 1, 2015. Staff White Paper on Benefit-Cost Analysis in the Reforming Energy Vision Proceeding. 14-M-0101. Available at:

¹⁴ Besser, J., Strickland, K., and Grossman, D. 2020. *Developing a Comprehensive Benefit-Cost Analysis Framework:* the Rhode Island Experience. Smart Electric Power Alliance. Available at: https://sepapower.org/resource/developing-a-comprehensive-benefit-cost-analysis-framework-the-rhode-island-experience/

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• **PSC-directed:** Methods, framework, and standards for the District's climate BCA analyses should be set by the PSC, not by utilities.

• Integrated: Climate measure BCA analyses must be integrated: (1) across a portfolio of planned and proposed measures; and (2) across programs proposed by Pepco, Washington Gas, DC Sustainable Energy Utility (SEU), and any other relevant actors. Without integration, it is impossible for the PSC and stakeholders to compare net benefits or other metrics of viability across resource types and proposed measures.

22. Funding: Every program requires a specific funding source as part of the planning process.

23. Throughout the materials submitted by the utility in Formal Case No. 1167, Pepco fails to specify a funding source for its proposed measures. Pepco's 5-Year Plan mentions cost recovery through a multiyear rate plan, surcharge or regulatory asset treatment, and emphasizes that climate programs are contingent on utility cost recovery:

Timely recovery of these investments will enable Pepco to implement the Climate Solutions Plan programs at the level and pace required to fully support and advance the District's leading climate goals. ¹⁶

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 $[\]frac{https://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/c12c0a18f55877e785257e6f005d5}{33e/\$FILE/Staff_BCA_Whitepaper_Final.pdf}$

¹⁶ Pepco 5-Year Plan at 8.

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24. Pepco also asks for "regulatory certainty" (or pre-approval from the PSC) and explains that it will include requests for specific cost recovery mechanisms together with its request for approval to implement climate programs.¹⁷

25. Finally, Pepco notes the existence of other potential funding sources:

Pepco also recognizes that there may be opportunities to offset program costs, including through existing federal grants, as well as potential funding that could be made available from the infrastructure and reconciliation bills now pending before Congress and will work with the District government and other stakeholders to identify and leverage these potential funds.¹⁸

- 26. Without specific plans to seek out non-ratepayer funds, the default funding source becomes ratepayer bills. This raises a number of important issues/questions related to Pepco's next planned rate application:
 - How will climate measure-related rate increases be structured?
 - Will every customer pay equally into the program? As a per customer charge? On a per kilowatt-hour basis?
 - For programs in which rebates are contemplated to cover participant costs, will the same rebate amount apply to all participants? Or will rebates be means-tested, or assigned based on some other criteria?

¹⁷ Pepco 5-Year Plan at 8-9.

¹⁸ Pepco 5-Year Plan at 9.

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- Will the distribution of rebates across the District be monitored and reviewed over time?
- 27. Proposed climate measures, and their BCA results, need to be presented and understood in the context of their funding sources and a detailed analysis of their impact on customer rates and bills.
- 28. Detailed Planning: To permit decision making, climate program planning must be more detailed than what Pepco has offered.
- 29. In public processes like the District's climate-related PSC dockets, adequate stakeholder participation and review require thorough information sharing. Utility climate proposals must include details on: the inclusion of stakeholders in design, planning and evaluation; plans for outreach and education; targeting and sequencing of benefits; impacts on low-and moderate-income ratepayers, renters and public health; and intentional investment in under-resourced communities.
- 30. Plans presented by Pepco without sufficient detail.
- 31. Each submission by Pepco in Formal Case No. 1167 has lacked sufficient detail for a level of assessment by stakeholders (and their third-party experts) in a public process. In particular, Pepco's descriptions of plans, measures and programs lack the following types of details:
 - Stakeholders' involvement in the policy development process: How will Pepco involve ratepayers and other stakeholders in the design, planning, implementation and evaluation of its proposed climate measures?

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- Low- and moderate-income household implementation: How will Pepco serve lowand moderate-income customers, renters, and other under-resources and under-served populations in its proposed climate measures?
- Promoting equity in building and transportation infrastructure upgrades: How will Pepco design and implement building and transportation infrastructure upgrades that promote equity in the District and reduce inequality in energy burdens?
- Enhancing reliability and resilience in a just and equitable manner: How will Pepco tailor reliability and resilience upgrades to best meet the needs of all ratepayers?
- 32. Each measure should be presented with a detailed explanation and a commitment to reach specified goals. For example, as part of Massachusetts' joint statewide electric and gas three-year energy efficiency plans, Program Administrators provide detailed descriptions of each strategy they will use to accomplish each of their key priorities in order to meet their goals. ¹⁹
- 33. Planning process must be inclusive, permitting stakeholder input at every stage
- 34. Pepco fails to provide sufficient details regarding transparent stakeholder processes that would include a broad spectrum of utility customers in climate measure planning. Pepco makes broad statements about its past track record in stakeholder engagement but does not describe or commit to a specific plan for receiving input from ratepayers and other stakeholders in climate policy design or implementation:

¹⁹Mass Save. November 1, 2021. *Massachusetts Joint State Wide Electric and Gas Three-Year Energy Efficiency Plan 2022-2024*. Massachusetts Department of Public Utilities, Docket Nos. 21-120 – 21-129, Exhibit 1. Available at: https://ma-eeac.org/wp-content/uploads/Exhibit-1-Three-Year-Plan-2022-2024-11-1-21-w-App-1.pdf

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Pepco has worked to seek this expertise and align the 5-Year Action Plan's

proposed programs with input received through direct engagement with

dozens of stakeholders. Pepco will continue to engage with stakeholders

across the District and in other jurisdictions for the remaining filings in this

proceeding and prior to filing the Company's applications, as the Company

recognizes that the initiatives and programs proposed must meet the needs

and expectations of the customers and communities Pepco serves. ²⁰

Pepco will rely, leverage, empower and seek guidance from communities,

businesses, organizations and other District stakeholders to inform and

execute the communications and outreach strategy. This continued

partnership between Pepco and District stakeholders will contribute greatly

to the success of the Climate Solutions Plan programs. 21

35. An intent to engage with stakeholders is apparent but specific goals for these engagements

or metrics for evaluating their success are lacking. In building partnerships and

collaborating with governmental and private-sector organizations, consumers must be

involved in the planning process for the District's climate plans from start-to-finish to

meaningfully weigh in on consumer interests. Inclusive practices also require

communication in multiple languages and non-technical presentations easily understood

by lay audiences.

²⁰ Pepco 5-Year Plan at 9-10.

²¹ Pepco 5-Year Plan at 11.

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- 36. Pepco must provide specific plans to ensure that its stakeholder engagement will be robust, equitable, and inclusive, and provide details that include:
 - What specific categories of stakeholders will be included in "stakeholder input" process?
 - How will stakeholders be selected for inclusion?
 - Will stakeholders include representatives from under-resourced and under-served communities?
 - Will stakeholders include representatives from heat island affected communities?
 - Will stakeholders be compensated for their time?
 - Will Pepco conduct outreach and education about the program to local residents?
- 37. Outreach regarding climate plans that includes education on program costs and impacts
- 38. Equitable, wide-spread distribution of climate program participation is essential to achieving the deep emission reductions called for by the District's climate commitments. Programs that are accessible only to the middle- and upper-income groups will not be sufficient to reaching carbon neutrality by 2050. Pepco's planning documents filed in Formal Case No.1167 do not specify planned actions related to customer education or outreach and marketing related to climate program participation.
- 39. Pepco's cooperation will also be important in the District's effective and targeted education and outreach to make ratepayers aware of benefits of a clean energy transition in terms of the District's participation in global greenhouse gas reduction and of co-benefits such as reduced air pollution. Additional outreach and marketing is needed—on a program-specific

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basis—to disseminate information regarding rebates and incentives, potential energy and bill savings, and how to access these programmatic benefits.

- 40. Climate programs that share costs and benefits equitably
- 41. The District's MEDSIS process calls for an energy system that is affordable and non-discriminatory—a system that "will meet the energy needs of the present without compromising the ability of future generations to meet their own energy needs by focusing on the triple bottom line: environmental protection, economic growth, and social equality." Pepco's submissions in Formal Case No.1167 place very little weight on these pivotal MEDSIS goals to modernize DC's energy distribution system in a way that is: sustainable, well-planned, encourages DERs, safe/secure and reliable, interactive, and affordable and non-discriminatory.
- 42. Climate-related proposals submitted to the PSC for approval must address specific measures to ensure that each project or program will be carried out in a just, equitable, and affordable manner. Achieving acceptable equity outcomes will require transparent planning regarding:
 - Impacts to low- and moderate-income customers: Low- and moderate- income ratepayers face higher energy burdens than more affluent customers. Special consideration is required in designing climate programs that will not add disproportionate costs to the bills of households that can least afford bill increases.
 - Impacts on renters: Renters face different costs, financial benefits, options for climate program participation, and opportunities to benefit from the clean energy transition

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than housing owners. Program design needs to take into account the three-quarters of

District homes that are renter- occupied.

• Public health impacts: Public health risks related to energy use include air pollution

from vehicle use and building back-up generators, indoor air pollution from appliances

and heaters using fossil fuels, and a myriad of climate change-related impacts due to

heat waves and flooding. Neighborhoods at the greatest risk of these public health

impacts—or where these health stressors are already occurring—should be first in line

to receive climate program co-benefits such as reduced local air pollution.

Targeting of programs and their benefits to under-served and under-resourced

communities: District policy must mitigate emissions and invest in under-served and

under-resourced communities to avoid the worst impacts of climate change. The most

climate-vulnerable communities should not disproportionately fund mitigation and

resiliency measures. Program costs and benefits should be distributed across the

District's eight wards and designed to promote equity by identifying and targeting

communities in urgent need of infrastructure upgrades. For example, Massachusetts

Program Administrators identify equity as one of three main priorities in their three-

year energy efficiency plans. To support this priority, Massachusetts utilities have

developed strategies and measurable equity metrics for each sector that aim to target

underserved communities.²²

²² Mass Save. November 1, 2021. Massachusetts Joint State Wide Electric and Gas Three-Year Energy Efficiency Plan 2022-2024.

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- Strategic sequencing of project roll-out: Utility climate proposals should address program sequencing with a goal of meeting the needs of the most vulnerable communities first. By strategically addressing urgent needs before they worsen, front-loading benefits to communities with urgent needs or disproportionate risks provides greater benefits for the same expense.
- Program planning should include intentional investment in vulnerable communities: With intentional design, climate initiatives can promote investment in under-resourced and under-served communities. Utility climate proposals should provide detailed information regarding the share of investments planned by Ward and by demographic characteristics including income level and race/ethnicity.

43. Pepco's plans should include commitments to take specific, measurable actions.

44. Utility climate proposals need to go beyond general statements of intention or acknowledgements that actions are important. These proposals must make commitments that include quantifiable metrics that can be evaluated over time. Utility climate proposals should include commitments related to the equitable distribution of costs and benefits, the promotion of competition with and among third-party DER vendors, the provision of green jobs and fostering small businesses, and the reduction of local pollution. For example, as part of their Three-Year Energy Efficiency Plan, Massachusetts' Program Administrators have set equity targets for environmental justice municipalities, workforce development,

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partnerships, renters, moderate income customers, English-isolated customers, and small businesses.²³

- 45. Committing to an equitable distribution of costs and benefits.
- 46. The District must mitigate emissions and invest in resilient communities to avoid the worst impacts of climate change. The most climate-vulnerable communities should not disproportionately fund mitigation and resiliency measures. Pepco's climate plans do not commit to an amount of proposed investments in resilience and energy infrastructure to be made in the most climate-vulnerable communities in the District or provide a distribution of costs and benefits across Wards. For example, Pacific Gas and Electric (PG&E) has launched a number of measures to target communities most vulnerable to fire-risk. In May 2022, PG&E installed safety settings across 26,000 miles of distribution lines in high-fire risk areas. ²⁴ In addition, the California Public Utilities Commission's Self-Generation Incentive Program offers rebates for energy storage technology and prioritizes communities in high fire-threat areas, communities that have had multiple power shut-offs, and low-income and medically vulnerable customers. ²⁵
- 47. Costs of transitioning to a clean energy economy should be equitably distributed among consumer classes and market participants (costs should not be disproportionately borne by

²³ Mass Save. November 1, 2021. Massachusetts Joint State Wide Electric and Gas Three-Year Energy Efficiency Plan 2022-2024.

²⁴ PG&E. May 25, 2022. "Installation of Powerline Safety Settings Essentially Complete in High-Fire Risk Areas Across 25,500 Distribution Line Miles in PG&E's Service Area." Available at: pge.com/en_US/about-pge/media-newsroom/news-details.page?pageID=4abd8d0c-c546-4d73-b511-9ca157468e85&ts=1654181766043

²⁵ California Public Utilities Commission. n.d. "Participating in Self-Generation Incentive Program (SGIP)." Available at: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/self-generation-incentive-program/participating-in-self-generation-incentive-program-sgip

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low- and moderate-income customers). Likewise, all programs should be developed to ensure that benefits are equitably distributed among customer classes and District communities. Pepco's plans maintain that "equity and inclusion" are driving principles and note that "additional," "increased," or "scaled" incentives will be offered for "underresourced communities" and "low-income households" but fail to provide specific information about what share of program benefits these communities will receive. In addition, many of the enhanced equity incentives described in Pepco's 5-Year Plan take the form of rebates, which are of limited use in overcoming important capital cost barriers of low-income customers because customers can only receive rebates after they have made a full capital expenditure.

- 48. Committing to competition allowing third-party DER vendors
- 49. A critical aspect of ensuring competition in DER procurement is making utility companies subject to third-party competition. A stakeholder process for facilitating the growth of DERs is particularly important as more customers begin to generate electricity on-site. Pepco has not committed to a transparent stakeholder process that would include customers in the planning process for infrastructure upgrades. Energy Efficiency and Demand Response potential studies planned as a part of Formal Case No. 1160 are expected to provide critical information regarding needs for both supply- and demand-side resources to serve the District's needs; the roles of both the DC SEU and the utilities should be influenced by this information. Potential inconsistencies among the utilities' climate plans include both overlapping efforts (building shell improvements, modernizing heating services) and deeply contradictory paths (full electrification versus doubling down on fossil

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fuel variants and substitutes). The District needs a single, integrated climate plan to minimize ratepayer costs and maximize emission reductions and related co-benefits. Multiple, contradictory plans pointing the District in opposite directions and layering on duplicative measures can be neither affordable nor effective.

- 50. Pepco also fails to address its own role as the "connector" on the grid "platform" with respect to DER. As the connector, will Pepco initiate its own investments in DER? What problems might arise from Pepco taking the roles of both developer and connector simultaneously? What safeguards will be put in place to protect third-party DER developers competing with Pepco? What measures will the grid platform's connector take to foster DER development by customers and third parties? In light of the Commission's Order No. 20754 and comments submitted in Formal Case No. 1166, how will Pepco proceed with facilitating DER in the District without claiming utility ownership and operation of energy storage?
- 51. Pepco's 5-Year Plan includes an initiative to "Provide Robust Opportunity for Competitive Markets" by avoiding monopolies and promoting competition to reduce barriers to entry and lower customer costs. The 5-Year Plan does not, however, include discussion of how third-parties will participate in or provide programs to decarbonize the District's electric supply by increasing DERs or entering into long-term power purchase agreements. The Plan mentions third-parties as they relate to the development of DERs, non-wires alternatives, and a solar/battery demonstration program in Ward 8, but fails to address or commit to third-party competition in these instances or as it relates to the entire suite of programs more broadly.

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52. Committing to providing green jobs and fostering small businesses

53. The transition to a clean energy economy should bring quality green jobs to District

residents. Pepco's climate plans do not discuss or commit to jobs numbers, job types, or

job quality related to development of DER or new building and transportation

infrastructure. Pepco's 5-Year Plan states that "programs have the ability to contribute to

local job creation and economic development"²⁶ and notes a need for trained workers:

[A]s Pepco builds the infrastructure to support the additional electric load

and increasing amounts of local solar on the system, there will be an

increased need for trained and qualified individuals to construct and maintain

the electric grid, such as the more than 105 District residents that have

graduated from the DC Infrastructure Academy to date and received job offers

with Pepco and its local contractors that support projects such as DC PLUG

and Capital Grid, among others.²⁷

54. A growth in local green jobs has the potential to address equity issues in under-resourced

communities while facilitating a clean energy transition. Similarly, Pepco's 30-Year Plan

mentions support of businesses in under-resourced communities, but does not make a clear

commitment. Instead, the 30-Year Plan uses conditional language like "where

appropriate", and "to the extent practical". 28

²⁶ Pepco 5-Year Plan at 3.

²⁷ Pepco 5-Year Plan at 7.

²⁸ Pepco 30-Year Plan at 34.

55. Committing to reducing local pollution

56. Local pollutants have the greatest impacts on communities with disproportionately high rates of asthma and other health issues. Prioritizing public health requires reducing air pollution first in communities with the worst air quality. Pepco's climate plans do not commit to specific goals for rectifying air pollution through climate programs and fail to address the need to prioritize reducing air pollution in communities with disproportionate levels of local pollution and poor air quality.

VI. BCA ASSESSMENT: THE DISTRICT'S CLIMATE PLANS REQUIRE CUSTOMER- (OR RESIDENT-) FOCUSED ASSESSMENT PROCESSES AND TOOLS.

57. The methods and assumptions used to develop Pepco's BCA assessment differ from those developed in the District's Clean Energy Act Implementation Working Group (CEAIWG) Report issued in Case No. GD-2019-04-M. Published in November 2021, the CEAIWG Report makes recommendations to the PSC on how to conduct a benefit-cost analysis (BCA) on utility filings related to climate objectives. ²⁹ In response to a majority recommendation that the PSC should adopt a BCA framework based on the National Energy Screening Project's National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources manual (NSPM), ³⁰ which evolves over time, Pepco disagreed and instead suggested a "straw BCA" on which CEAIWG members could offer

²⁹ Formal Case No. GD-2019-04-M, In the Matter of the Implementation of the 2019 Clean Energy DC Omnibus Act Compliance Requirements ("Formal Case No. GD-2019-04-M"), A report by the Clean Energy Act Implementation Working Group, p. 5, filed November 16, 2021 ("CEAIWG Report").

³⁰ National Energy Screening Project. 2020. *National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources*. Available at: https://www.nationalenergyscreeningproject.org/wp-content/uploads/2020/08/NSPM-DERs_08-24-2020.pdf

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suggestions for improvement.³¹ Pepco submitted its own BCA of its 5-Year Plan in January 2022, and Pepco's motion to the PSC dated January 31, 2022 recommends its own BCA as the "straw proposal BCA" on which to base a Phase II of GD-2019-04-M.³²

- 58. The cost-effectiveness test framework outlined in the CEAIWG Report includes considerations of applicable tests for a BCA, discount rates, equity considerations, and sensitivity analyses, in addition to the types of criteria air pollutants and greenhouse gases included in the analysis. During the CEAIWG process, Pepco provided a critique of these considerations. In certain instances, such as in the discussion of a BCA framework to build upon, Pepco recommended its own BCA handbook.
- 59. The CEAIWG majority recommendation is to use the Societal Cost Test (SCT) for screening all relevant programs and portfolios, and to use the Utility Cost Test (UCT) and Total Resource Cost (TRC) test as secondary tests in program evaluation, while a ratepayer impact measure (RIM) can be used to inform rate and bill impacts.³³ According to the CEAIWG Report, "Pepco stated that the primary test should be the Societal Cost Test as the BCA should reflect net welfare from a societal perspective, considering benefits and costs from the perspective of the District's policy goals. Pepco also noted that, while other information about a project or program may be useful for informational purposes on a

³¹ CEAIWG Report, at 48; 51.

³² Formal Case No. GD-2019-04-M, Pepco's Motion for Leave to submit Comments and Comments on the CEAIWG Report, filed January 31, 2022 ("Pepco Motion for Leave").

³³ CEAIWG Report at 169.

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situational basis, Pepco did not see a compelling reason to require that a secondary test be

performed, and it stated that requiring such a test could increase administrative costs."34

60. More broadly, the CEAIWG recommended the use of the NSPM as a consistent BCA

framework. 35 Pepco opposed this recommendation and claimed the CEAIWG did not reach

an agreement on many issues of BCA methodology, and that this does not justify using an

external report.³⁶ Instead, Pepco recommended a "strawman" BCA be proposed and

recommended either its own Benefit-to-Cost Analysis Handbook for Locational Constraint

Solutions (LCS BCA) handbook or the "Climate Solutions BCA" (FC1167).37 Pepco

argued that the NSPM cannot serve as the initially proposed methodology as it does not

have sufficient detail and clarity.³⁸

61. Pepco's BCA offers an analysis of its own October 2021 5-Year Plan. In it, Pepco develops

a new cost-effectiveness test it coins the Climate Policy Enablement (CPE) test.³⁹ The

Company explains the need for a new test (in contrast to using one or more of the

established cost-effectiveness tests), stating that the District's policy context requires a

cost-effectiveness framework that "specifically compares the cost of Pepco DC's proposed

³⁴ CEAIWG Report at 78-79.

³⁵ CEAIWG Report at 48-51.

³⁶ CEAIWG Report at 69.

³⁷ CEAIWG Report at 69.

³⁸ CEAIWG Report at 69.

³⁹ Formal Case No. 1167, Pepco's Climate Solutions 5-Year Action Plan: Benefits and Costs, p. 3 filed January 31, 2021 ("Pepco BCA").

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programs to the benefits associated with advancing the District's climate policy objectives

through those programs."40

62. The CPE test compares Pepco's program costs of its 5-Year Plan to the programs' projected

benefits from reduced fuel and electricity consumption, and reduced greenhouse gas and

criteria air pollution emissions. The proposed CPE test is a combination of the well-known

SCT and UCT. 41 Like the SCT, it calculates a reduction in system costs of supplying

electricity and fuel, and the societal benefits of reduced emissions. Like the UCT, the CPE

test also includes the utility-incurred costs for implementing programs. Pepco rejects an

additional common cost-effectiveness test—the RIM—and in doing so excludes

participant costs from the analysis. Pepco argues that participant costs fall outside the scope

of its Study because Pepco's objective should be to evaluate "the economics of how Pepco

DC's proposed programs enable achievement of the District's decarbonization goals,"

rather than evaluating the cost-effectiveness of the goals themselves. The Company also

argues that assessing participant costs would necessitate assigning a value to non-energy

customer benefits, such as customer preferences for vehicle performances of electric

vehicles compared to vehicles running on internal combustion engines.⁴²

63. The pertinent differences between the CEAIWG's recommended cost-effectiveness tests

and the Pepco BCA's new CPE test are: (1) Pepco's exclusion of certain social

externalities, (2) its exclusion of costs related to customer incentives, and (3) its exclusion

⁴⁰ Pepco BCA at 3.

⁴¹ Pepco BCA at 3.

⁴² Pepco BCA at 4.

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of the RIM as a secondary test. Overall, Pepco's own BCA test appears to detract focus

from the impacts of utility measures and programs on ratepayers.

64. In addition, the CEAIWG Report includes a recommendation that the District's BCAs

"should include metrics for social equity, racial equity, and environmental justice." ⁴³ The

Report calls for the inclusion of both energy and non-energy benefits, including access to

clean energy, across income, race, and geography. 44 In its response comment within the

CEAIWG Report, Pepco argues that qualitative factors could be reported, but that it did

not believe an equity-focused program should be subject to a BCA because these types of

programs frequently fail to pass a BCA due to the higher costs of providing services to

low- and moderate-income communities. 45 As such, Pepco argues that its 5-Year Plan

incorporated equity considerations into program design. 46 But it does not include any of

the specific equity factors recommended in the CEAIWG Report in its BCA, including

energy and non-energy benefits (access to clean energy, across income, race, and

geography).47

65. The CEAIWG stresses the importance of good decision-making when monetizing all

benefits of climate-related policies and programs:

⁴³ Pepco BCA at 21.

⁴⁴ Pepco BCA at 21.

⁴⁵ Pepco BCA at 23.

⁴⁶ Pepco BCA at 3.

⁴⁷ CEAIWG Report at 7.

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All benefits and costs should be quantified and/or monetized to the extent

possible, even when difficult; a utility will use cost-effective efforts to

develop/acquire and apply the best available tools, analytic methods and

techno-economic practices to quantify and/or monetize benefits and costs

included in the DCPSC's primary cost-effectiveness test in connection with

the planning, design and implementation of its programs that relate to the

achievement of the District's climate change, clean energy and energy

efficiency mandates and associated policy commitments, taking into account

recognized industry practices and techniques. The BCA should avoid double-

counting impacts. 48

66. In particular, the omission of benefits that would normally be included in the SCT, UCT

and RIM tests but are excluded in Pepco's CPE (avoided emission impacts and non-energy

benefits including health and safety benefits, low-income benefits, and environmental

impacts not related to emissions) may be important impacts on BCA results and the policy

and investment decisions made based on those results.

67. Good, unbiased decision-making requires a PSC-directed BCA; not a utility-driven BCA.

BCAs should provide focused assessment of ratepayer impacts as a central metric. The

ratepayer (and the almost identical set of individuals and households: District residents)

is the appropriate lens from which to understand the costs and benefits of DC climate

⁴⁸ CEAIWG Report at 62.

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plans and actions. Assessments that instead focus on impacts to utility miss critical information needed by the Commission for good decision-making.

- absolutely essential to a successful climate plan and related investments. A stand-alone BCA (that considers only a single sector and/or ignores impacts of services and programs among the gas and electric utilities and DC SEU) is incomplete and cannot accurately depict future impacts. The importance of cross-sectoral energy planning has become increasingly imperative with the electrification of heating and transportation services.
- Benefits should be limited to those impacting District residents:
 - Air pollutants: Only local emissions should be considered. The District's
 climate decision making cannot expect to comprehensively observe,
 record, measure or value all localized emission impacts upstream of its
 energy services. Local pollution is a critical issue, but outside of a
 reasonable scope of decision making, with the exception of pollutants that
 impact on the District's own air quality.
 - Greenhouse gas emissions: All emissions, including Scope 2 upstream emissions at power plants, should be included. In contrast to local air pollution, greenhouse gas pollution affects the entire world, including the District. DC's own greenhouse gas emissions affect DC, and so do the greenhouse gas emissions of all other jurisdictions around the globe.

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- Important uncertainties should be reflected through sensitivities and ranges. The energy and emissions modeling behind any BCA rests on assumptions of future values that can only be projected with uncertainty, among these, fuel prices, emissions allowances (e.g. carbon prices), and expectations regarding climate damages. These predictions cannot, by their nature, be certain and so must instead be represented in a way that reflects this uncertainty, by performing sensitivity analyses that explore how robust modeling results are to changes in assumption values and by presenting ranges of modeling results values (including BCA ratios) associated with ranges of assumption values. For example, in the Brattle Group's California-focused BCA, variations in capacity prices, resource adequacy and frequency regulation were examined.⁴⁹
- BCA-based decision-making should choose among a set of plans that all meet District
 climate goals. Multiple potential plans or measures would be selected based on the net
 cost and benefit impact to the ratepayer and on measures of their distributional impacts.
 Decision-makers would choose among the set of plans or measures that provide
 positive net monetary benefits along with other qualitative benefits.
- 68. Pepco should follow the recommendations enumerated by the CEAIWG and NSPM, and not chart a new course that is both untested and countervails stakeholders' considered recommendations formed through a lengthy process of discussion, learning, and collaboration.

⁴⁹ Hledik R., et al. September 2017. *Stacked Benefits: Comprehensively Valuing Battery Storage in California*. The Brattle Group. Available at: https://www.brattle.com/wp-content/uploads/2017/10/7208_stacked_benefits_final report.pdf

PEPCO ELECTRIFICATION STUDY: THE DISTRICT'S BUILDING VII. DECARBONIZATION PLAN MUST KEEP CONSIDERATIONS OF **EQUITY FRONT AND CENTER.**

- 69. On August 27, 2021, Pepco submitted An Assessment of Electrification Impacts on the Pepco DC System (the Study), prepared by The Brattle Group, in Formal Case No.1167. Brattle's analysis provides an overview of the role electrification could play in making the District carbon neutral by 2050. To model the District's climate goals, Brattle makes the following assumptions:
 - **Decarbonize the power supply**: The District aims to have 100 percent renewable electricity by 2032.⁵⁰ Brattle assumes that electrification and a decarbonized power supply will eliminate 90 percent of the District's emissions by 2050.⁵¹
 - Electrify transportation: The District has several transportation electrification initiatives. For the Study, Brattle assumes 100 percent of light-duty vehicles, over 75 percent of medium duty vehicles, and over 50 percent of heavy-duty vehicles are electrified by 2050.⁵²
 - **Reduce building energy consumption**: The District's goal is a 50 percent reduction in building energy consumption by 2032.⁵³ For the Study, Brattle assumes that this

⁵³ Clean Energy DC. 2018. District of Columbia Climate and Energy Action Plan Summary Report. Prepared for the

Department of Energy & Environment, Government of the District of Columbia. p. 25

⁵⁰ Clean Energy DC. 2020. Turning ideas into actions: Progress Report Summary. Department of Energy & Environment, Government of the District of Columbia. Available at: https://doee.dc.gov/cleanenergydc. p. 2

⁵¹ Formal Case No. 1167, Pepco's Electrification Study, p. 8, filed August, 27, 2021 ("Electrification Study").

⁵² Electrification Study at 31.

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reduction will be achieved in part by widespread electrification of heating and that 95

percent of buildings will be fully electrified by 2050.⁵⁴

70. The Brattle Study explores how implementation of energy efficiency and load flexibility

practices can be used to achieve carbon neutrality and moderate the load impacts of

electrification. However, the Pepco Electrification Study does not contain any mention of

how these benefits will be equitably applied to District residents.

• Equitable cost sharing: According to Brattle, electricity already provides 43 percent

of the District's energy demand with commercial and industrial customers accounting

for 32 percent of total District electric demand.⁵⁵ In order to transition to an electrified

system, Brattle assumes that—in a carbon neutral by 2050 scenario—100 percent of

light duty vehicles and 95 percent of buildings will be completely electrified by 2050

and that the majority of other vehicles will also be electrified. This creates a scenario

where electrification eliminates 90 percent of emissions; Brattle assumes that the

remaining 10 percent will be addressed through other means but does not specify what

other means might be used.⁵⁶ The Study does not comment on how the costs of

transitioning to electric vehicle and heating systems or increases to future electric bills

will be funded, or the distribution of these costs across income groups.

• Equitable benefit sharing: Pepco lists residential and commercial load flexibility

modeling assumptions that include criteria for program participation, including home

⁵⁴ Electrification Study at 8.

⁵⁵ Electrification Study at 30.

⁵⁶ Electrification Study at 8.

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electric vehicle charging, distributed (behind-the-meter) batteries, and electric heat pumps.⁵⁷ However, there is no information on how these measures would be made available to District residents or how their benefits would be equitably distributed.

• Investing in climate-vulnerable communities: The Study does not discuss the funding of mitigation and adaptation measures or where such measures would be located. Brattle assumes that decarbonization of the building sector—which would lead to a decrease in emissions—will in large part be achieved through electrification of heating, increasing electric demand and contributing to load growth. Pepco acknowledges that most future load growth will likely be location specific and based on localized grid conditions. Parttle's Study, however, is system wide without analysis based on smaller geographic areas (such as Wards) within the District. If localized grid conditions are a factor in the initial stages of the District's decarbonization, analysis of Ward by Ward conditions will be essential to ensure that climate-vulnerable communities are eligible for building sector electrification.

• Inclusive planning process: Brattle does not address how Pepco will include consumers in its planning process and facilitate consumer awareness and understanding of climate plans and incentive programs. The Study also does not comment on how Pepco would address consumer interests and needs.

⁵⁷ Electrification Study at 38.

⁵⁸ Electrification Study at 32.

⁵⁹ Electrification Study at ii.

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• **Promote competition**: The Study omits any discussion of the role of third-party competition in managing the growth of annual electric use and peak demand, contributing to electrification, or ensuring a 100 percent renewable power source. ⁶⁰ It also does not address the role of third-party competition in meeting the District's carbon neutrality goals. ⁶¹

• **Provide green jobs**: The Study makes no mention of jobs, job numbers, types, or quality as it relates to Pepco's plan for a transition to clean energy.

• Reduce local air pollution: The District plans to meet its greenhouse gas reduction goals through transitioning to 100 percent renewable powered energy, electrification of transportation, and reduction in building energy consumption, all of which have cobenefits of decreasing local air pollution. ⁶² Brattle's Study does not set specific goals for improving air quality or comment on which communities will be front loaded for air pollution reductions.

71. Evaluation: Brattle's Study includes several key technical flaws.

72. While Brattle's performs a technically sound electrification analysis and its approach, overall, provides a big picture view of one conceptualization of the District's potential electrification pathway, Brattle's Study does not capture variations across the DC neighborhoods and households, or address how those variations may effect electrification on both the local (Ward) and city level. Brattle's Study treats the District—incorrectly—

⁶⁰ Electrification Study at 3.

⁶¹ Electrification Study at 7.

⁶² Electrification Study at 7.

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as a homogenous monolith. Chartering a practical, equitable, and affordable plan for

District-wide decarbonization, however, is simply impossible without detailed

consideration of differences in household and neighborhood circumstances, means, and

needs. Ignoring DC's diversity can only lead to poor planning and suboptimal, unintended

outcomes.

73. In addition, Brattle uses a proprietary model to estimate the size and shape of peak electric

load, which reduces transparency and makes it impossible to verify Brattle's modeling or

independently test the sensitivity of its results to changes in assumptions or modeling

techniques. Assumptions regarding the adoption of energy efficiency measures and the

pace of building and vehicle electrification are pivotal to Brattle's assumed build-out of

DERs and other renewables, and its near-term emission forecasts under this full

electrification plan. The speed at which efficiency and electrification measure are

employed—and the costs of these investments—are critical uncertainties in any

decarbonization plan. Pepco addresses this uncertainty by providing results at baseline and

high-load growth levels. This area of uncertainty merits additional sensitivity runs across

a wider set of possible outcomes.

74. Brattle's assumption that 95 percent of current building fuel use is electrified by 2050 is

entirely contradictory to plans filed by WGL. It is difficult to comprehend how separate,

contradictory climate and energy plans—affecting nearly all DC residents—can hope to

result in an effective, affordable and equitable decarbonization plan.

- 75. In addition, Brattle and Pepco's assumptions regarding post-COVID commuting patterns, the effect of EV charger investment on EV adoption, and the expected vehicle milage range in the DC-specific context all warrant additional examination.
- 76. Evaluation: District climate program design should include a plan for evaluation and iteration.
- 77. Successful planning processing includes measure for learning by doing: evaluation, reassessment and retuning. District climate proposals should include detailed descriptions of evaluation procedures including:
 - program metrics focusing on the equitable distribution of costs and benefits;
 - geographic analysis of programs and benefits by Ward.
 - data assessment and reassessment over time;
 - the frequency at which program data be assessed;
 - methods, metrics and criteria for evaluating program data; and
 - plans for program redesign and iteration.

VIII. ASSESSMENT OF PEPCO'S STRATEGY

78. Pepco's planning documents are not detailed enough to provide a full understanding of (and allow appropriate stakeholder and third-party review of) program funding, program offerings, the distribution of costs and benefits by geography and community, stakeholder involvement, and procedures for evaluation, and the utility's expectations with regard to its own role in decision-making. In addition, Pepco's BCA and Electrification Study are deeply flawed, focusing on the needs of the utility, not the ratepayer, and failing to correctly account for costs and benefits specific to the District's ratepayers.

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79. **Recommendation:** The PSC should require that Pepco provide additional information including, but not limited to: ratepayer impacts; stakeholder inclusion; DER competition; green jobs and small business impacts; low- and moderate-income household impacts; and intentionally designed climate programs aimed at achieving MEDSIS goals.

BEFORE THE PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

In the Matter of the)
the Implementation of Electric and Natural Gas Climate Change Proposals) Formal Case No. 1167))
AFFID	AVIT
I declare under penalty of perjury that or under my direction and is true and information, and belief.	the foregoing testimony was prepared by mocorrect to the best of my knowledge,
	Thylate Starte
Subscribed and sworn to before me	
This <u>16</u> day of <u>June</u> , 2022.	
State of Massachusetts	
County of Middlesex	
Mayer Pallotta Notary Public	
My Commission expires: $9/33/38$	
Maryann F. Pallotta Notary Public COMMONWEALTH OF MASSACHUSETTS My Commission Expires September 22, 2028	