

PUBLIC VERSION

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

In the Matter of

**the Implementation of
Electric and Natural Gas Climate
Change Proposals**

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Formal Case No. 1167

**AFFIDAVIT OF
ELIZABETH A. STANTON, PHD**

Attachment A

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

July 1, 2022

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I. INTRODUCTION AND QUALIFICATIONS

1. My name is Elizabeth A. 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 Washington Gas and Light Company (WGL or 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.

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.

II. SUMMARY OF AFFIDAVIT AND FINDINGS

5. This affidavit assesses issues with Washington Gas and Light Company's (WGL's) 5- and 30-Year Plans, and the Benefit Cost Analysis (BCA) in its Climate Business Plan (CBP)—all submitted as part of Formal Case No. 1167. The plans detail WGL's near-term and longer-term climate programs and are based on WGL's BCA analysis.
6. Section III of my affidavit contains a brief overview of Formal Case No. 1167. Section IV contains an overview of the materials provided by WGL as part of its Formal Case No. 1167 full filing. Deficiencies in the plans are described in Section V. Deficiencies in WGL's BCA analysis are described in Section VI. Overall errors and deficiencies in WGL's planning materials are summarized here:
 - **Detailed planning:** WGL submitted plans without sufficient detail, which neglected to involve stakeholders throughout the planning process, did not consider outreach and education on the plans' components, and which did not spread the costs and benefits of the plans equitably or in a way that accounts for vulnerable populations.
 - **Emissions math:** WGL's CBP analysis does not appropriately address meeting the District's climate change goals of reducing greenhouse gas emissions 50 percent by 2032 and 100 percent by 2050. As discussed below, WGL makes some key errors in its emission calculations that result in an emission reduction plan that is insufficient to achieve District goals.
 - **Justice and equity:** WGL's plans do not appropriately address justice and equity, make no mention of historically underserved communities, fail to assess the socioeconomic and geographic distribution of financial burdens, and provide no solutions or policy

prescriptions directed at redressing historical inequities. WGL's CBP analysis also does not permit appropriate analysis of justice and equity issues, including underserved communities, socioeconomic and geographic distribution of financial burdens; nor does the CBP address solutions or policy prescriptions directed at redressing historical inequities. In addition, WGL's CBP analysis does not include an appropriate distribution of costs and benefits between present and future generations.

- **Affordability:** WGL's plans and its CBP analysis do not appropriately consider affordability or take into consideration low- and moderate-income households or renters. The analysis does not provide results in terms of bill impacts or any impacts by rate class.
- **Funding:** As WGL does not specify non-rate sources of funding for its plans, without which the cost burden will fall on rate-payers.
- **Utility commitments:** WGL does not provide details on how it intends to equitably distribute program benefits or how it intends to create "green jobs".
- **Fuel safety and investment:** WGL's climate plans disregard the investments necessary to account for the safety-implications of RNG- or hydrogen-adoption. They also neglect to discuss sourcing of these fuels.
- **Energy efficiency and electric vehicles:** WGL's CBP analysis includes utility-led energy efficiency measures but does not address the impacts of collaboration or overlap with Pepco or the DC Sustainable Energy Utility (DCSEU).
- **Incorrect peak delivery claims:** WGL's CBP analysis mischaracterizes the relative peak delivery capability of the District's gas and electric systems.

7. **Overall, a uniform, PSC-directed, integrated BCA is essential to serve the needs of DC ratepayers. Therefore, I recommend a PSC-directed BCA that is:**

- **A uniform climate change BCA framework:** The same climate change BCA framework should be used for all District utility proposals impacting DC climate initiatives and emission reductions.
- **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 Washington Gas, Pepco, DCSEU, 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.

8. **The deficiencies in both plans and the BCA indicate that WGL’s programs are wholly inadequate to meeting or significantly contributing to the District of Columbia’s climate goals without significant revisions.**

III. BRIEF OVERVIEW OF 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.”¹

¹ *Formal Case No. 1167, In the Matter of the Implementation of the Climate Business Plan (“Formal Case No. 1167”),*

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

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

Order No. 20662 ¶ 13, rel. November 18, 2020.

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

*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

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.”⁶

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.

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

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.”⁷

IV. BRIEF OVERVIEW OF WGL 1167 FULL FILING.

15. In addition to comments on materials filed by other stakeholders, WGL has submitted the following documents in Formal Case No. 1167:

- **An explanation of WGL’s compliance with Commission Order No. 20754:**
FC1167-2021-60 (9/1/2021): This document reiterates and provides some additional explanations for information and modeling presented in WGL’s 2020 *Climate Business Plan*.
- **5-Year Plan:** *Climate Change Action Program: Part 1 (12/15/2021)*
- **30-Year Plan:** *Climate Change Action Roadmap: Part 2 (1/18/2022)*

16. WGL’s 5-Year Plan and 30-Year Plan are based on the utility’s filing in Formal Case No. 1142:

- **Climate Business Plan (CBP):** Natural Gas and its Contribution to a Low Carbon Future (3/16/2020)

17. WGL’s 5-Year Plan and 30-Year Plan describe four key areas of implementation:

- **End use and efficiency:** WGL is conducting a technical potential study on end-use initiatives and program design elements and anticipates end-use measures in—among

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

others—residential and multifamily equipment programs, weatherization programs, education and home consultations, customer reports, and income-qualified programs.⁸

WGL expects its technical potential study to be complete by August 1, 2022; initiative implementation is scheduled to start in 2023.⁹

- **Infrastructure and operations:** WGL proposes six initiatives to have an immediate impact on carbon emissions. They include an accelerated pipe replacement program, an advanced leak detection pilot and implementation initiative, a methane capture and reinjection program, a hydrogen blending initiative and pilot, and direct measurement protocol development to improve the measurement of methane emissions.¹⁰
- **Sourcing and supply:** WGL plans to pursue contracts to secure supplies of certified gas consistent with (the District’s) greenhouse gas goals.¹¹ WGL also plans to develop contracts with renewable natural gas (RNG) suppliers, develop pipeline infrastructure, and enhance its billing and customer education efforts to facilitate RNG consumption.¹²
- **Transportation:** WGL proposes to procure two to four hydrogen fuel cell electric vehicles as part of a pilot to build generation and refueling infrastructure.¹³ In addition, WGL will convert or replace its fleet of diesel and gasoline vehicles with compressed

⁸ *Formal Case No. 1167, Washington Gas Climate Change Action Program Part 1* pg. 37, filed Dec. 15, 2021 (5-Year Plan).

⁹ *Ibid*, pg. 38.

¹⁰ *Ibid*, pg. 18-20.

¹¹ *Ibid*, pg. 22.

¹² *Ibid*, pg. 23.

¹³ *Ibid*, pg. 28.

natural gas vehicles, an action the utility claims will eliminate 7,700 metric tons of carbon dioxide equivalent (CO₂-e) per year.¹⁴

V. MAIN ISSUES WITH WGL'S 1167 FILING

18. WGL's 5-Year and 30-Year Plans describe the Company's proposed near-term climate actions. Both plans have numerous deficiencies:

Detailed Planning:

19. **To permit decision making, climate program planning must be more detailed than what WGL has offered.**

20. 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 and under-served communities.

Plans presented by WGL without sufficient detail

21. WGL's submissions in Formal Case No. 1167 lacked sufficient detail appropriate to a level of assessment by stakeholders (and their third-party experts) in a public process. In particular, WGL's descriptions of plans, measures and programs lack the following types of details:

¹⁴ Ibid, pg. 61.

- lack transparent planning regarding: How will WGL involve ratepayers and other stakeholders in the design, planning, implementation and evaluation of its proposed climate measures?
- **Outreach on climate plans that includes education:** How will WGL ensure widespread awareness of and participation in its climate plans, and how will WGL ensure that ratepayers, particularly those in vulnerable or disadvantaged communities, are aware of the impacts of its climate plans?
- **Low- and moderate-income household implementation:** How will WGL serve low- and moderate-income customers, renters, and other under-resourced and under-served populations in its proposed climate measures?
- **Promoting equity in building infrastructure upgrades:** How will WGL design and implement building infrastructure upgrades (efficient heating equipment, building shell improvements) to promote equity in the District and reduce inequality in energy burdens?
- **Enhancing reliability and resilience in a just and equitable manner:** How will WGL tailor reliability and resilience upgrades, including ongoing pipe replacement, to best meet the needs of all ratepayers?
- **Plans to procure alternative fuels with the goal of decarbonization:** From what entities will WGL secure alternative fuels (certified gas, RNG, and hydrogen), using what delivery methods and pathways, and at what cost to consumers? What are the upstream emission impacts of these specific fuels from these specific sources? What are the customer cost and safety risks of these relatively un-tried fuels?

22. Each decarbonization measure in WGL’s plans should be presented with a detailed explanation and a commitment to reach specified goals.

An inclusive planning process permitting stakeholder input at every stage

23. WGL fails to provide sufficient details regarding transparent stakeholder processes that would include a broad spectrum of utility customers in climate measure planning.

24. WGL mentions “stakeholders” with some frequency but does not describe a specific process for receiving and incorporating stakeholder feedback on its plans, saying only that “...Washington Gas will continue to engage with its customers about Washington Gas’ vital role as part of the District’s energy ecosystem and the physical nature of its systems and operations, as these inform what is feasible. Washington Gas will also continue to listen to customers to better understand their needs and preferences today and tomorrow.”¹⁵

25. 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.

26. WGL 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?

¹⁵ *Formal Case No. 1167, WGL Climate Change Action Roadmap Part 2*, Pg. 11, filed Jan. 18, 2022 (30-Year Plan) (Note: Part 1 of the Climate Change Action Roadmap is WGL’s 5-Year Plan, Part 2 is WGL’s 30-Year Plan.)

- 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 WGL conduct outreach and education about the program to local residents?

Outreach on climate plans that includes education on program costs and impacts

27. 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. WGL's planning documents filed in Formal Case No.1167 mention customer education efforts to facilitate RNG consumption¹⁶ and gas heat pumps¹⁷ but do not specify planned actions related to customer education, or outreach and marketing related to climate program participation.

28. Education and outreach will be needed 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 targeted outreach and marketing is needed to disseminate information regarding rebates and incentives, potential energy and bill savings, and how to access these programmatic benefits.

¹⁶ 5-Year Plan p.23.

¹⁷ 30-Year Plan p.34.

Climate programs that share costs and benefits equitably

29. 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.”¹ WGL’s submissions in Formal Case No.1167 place very little weight on these pivotal MEDSIS goals.
30. WGL mentions “equity” and “equitable access” in its 30-Year Plan but provides no assessment of the needs of vulnerable populations—absent low-income customers who might benefit from end-use efficiency programs. Besides acknowledging low-income customers in that context, WGL does not identify how it will target measures to benefit low-income customers or how it will sequence measures to ensure that benefits reach low-income customers and others in need first. WGL plans to pay for initiatives through a surcharge on rates or other recovery mechanisms, but does not address adjustments for underserved populations.
31. Climate-related proposals to the PSC must address specific measures to ensure that each project or program would 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 gas 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 than homeowners or rental unit owners do. Program design needs to take account of the three-quarters of District homes that are renter occupied.
- **Specific equity metrics:** Without clearly identified metrics capturing various equity-related community characteristics, WGL cannot effectively target and evaluate its climate plan's efforts in service of marginalized communities' needs. WGL's plan should include a clear explanation of the data it will use to ensure that its proposed actions are just and equitable, in accordance with the guidelines set by the District.
- **Public health impacts:** Public health risks related to energy use include indoor air pollution from appliances and heaters using fossil fuels (and/or alternative 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 programs co-benefits such as reduced indoor 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 equitably distributed across the Wards and designed to promote equity by identifying and targeting communities in urgent need of infrastructure upgrades.

- **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. 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.
- **Planning must take into consideration programs and measures by Pepco and DCSEU:** The most efficient and cost-effective decarbonization plan for the District will be planned using a process that integrates the efforts of WGL, Pepco, and DCSEU. The result of each utility planning independently for measures impacting the same buildings will be duplication and waste.

Emission calculations that are transparent and consistent.

32. WGL makes some key errors in its emission calculations that result in an emission reduction plan that is insufficient to achieve District goals. (Additional errors are discussed in the section on WGL’s CBP BCA analysis below.)

33. WGL designed its 5-Year and 30-Year Plans to align with the District’s 2050 climate goals and the “Fuel Neutral Decarbonization Scenario” in the utility’s CBP:¹⁸

¹⁸ Ibid, pg. 20.

Scenario 4, Fuel Neutral Decarbonization, uses the BAU case as its foundation, reaches net zero carbon emissions in the District in 2050 by including significant actions to decarbonize the natural gas supply through the introduction of [renewable natural gas], certified gas, and green hydrogen. As described in the preceding sections, it leverages expected improvements in technologies, aggressive energy efficiency programming for residential and commercial buildings, as well as hybridized dual fuel approaches. It also includes aggressive market penetration of electric vehicles and relies on a small volume of carbon offsets.¹⁹

34. WGL's Plans address the Company's purported aim to help the District achieve carbon neutrality by 2050 through energy efficiency efforts, methane emissions reductions, and integration of low-carbon gases into supply.²⁰ However, WGL does not include sufficient detail on how various efficiency measures will be deployed at sufficient speed to meet the District's carbon goals, nor on the stakeholders whose engagement will be sought to facilitate plan adoption.

35. WGL's 5-Year Plan discusses the use of certified gas, RNG, and green hydrogen as replacements for fossil fuel energy sources, as part of its plan to achieve carbon neutrality by 2050. However, none of WGL's materials provide specific data or evidence to support the assertion that its proposed energy sources are carbon-neutral, nor do they account for the emission of pollutants beyond carbon dioxide.

¹⁹ WGL. 2020. *Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington D.C.* Available at: <https://washingtongasdcclimatebusinessplan.com/wp-content/uploads/2020/04/Climate-Business-Plan-March-16-2020-FOR-WEB.pdf>. Pg. 26.

²⁰ 30-Year Plan Pg. 25.

- According to WGL's 2020 fact sheet, certified gas can only offer, at best, a 4 percent reduction in greenhouse gas emissions by 2032.²¹
- RNG itself is still methane, and hence its combustion for energy yields the same emissions as the combustion of methane.²²
- Green hydrogen is not a zero-emission fuel source: Even if hydrogen is produced with 100 percent renewable energy, green hydrogen combustion has been found to emit nitrous oxide (NO_x), and any leaked hydrogen itself is an indirect greenhouse gas. Both hydrogen and NO_x are indirect greenhouse gases that lead to ozone formation in atmosphere.

Justice and Equity:

36. District climate plans must address justice and equity issues explicitly and in detail.

37. WGL's 30-Year Plan mentions equity but makes no direct mention of programs or policies designed to improve equity:

Partnering with the District and the Community is also essential as part of decarbonization. It is through these actions that Washington Gas can identify meaningful and innovative opportunities to create equity and wide scale involvement in its end use and energy efficiency programs. Such outcomes will

²¹ Washington Gas. 2020. *Certified Natural Gas*. Washington Gas DC Climate Business Plan. Available at: https://washingtongasdcclimatebusinessplan.com/wp-content/uploads/2020/03/Fact-Sheet_Certified-Natural-Gas_vFINAL.pdf

²² Union of Concerned Scientists, *The Promises and Limits of Biomethane as a Transportation Fuel*. May 2017. <https://www.ucsusa.org/sites/default/files/attach/2017/05/Promises-and-limits-of-Biomethane-factsheet.pdf>. p.4.

*engender confidence, further collaboration, and good will, all of which helps sustain long term programs and lead to further innovation.*²³

38. The 30-Year Plan also mentions historically marginalized communities, but, again, does not provide detailed commitments:

The [Infrastructure Investment and Jobs Act] provides a wide range of grant funding opportunities, both large and small. Accordingly, Washington Gas intends to prioritize IJA project and program opportunities using several basic criteria including:

- *Level of effort to contribute towards the Washington Gas' and District's GHG emissions reductions targets*
- *Job opportunities creation for District residents and workers*
- *Level of contribution to Washington Gas and District goals concerning the adoption of programs that reflect equity criteria, including the rollout of climate action efforts to disadvantaged communities.*²⁴

39. WGL's plans fail to address the alleviation of existing energy burdens on ratepayers—particularly low- or moderate-income, minority, or otherwise overburdened and underserved ratepayers—nor does the utility make any mention of redressing historic and ongoing disproportionalities in pollution and vulnerability to climate change. To prioritize

²³30-Year Plan p.19.

²⁴ Ibid. p.22.

the health, safety, and needs of the District’s most vulnerable residents, WGL’s plans must prioritize justice and equity.

Fuel Safety and Investment:

40. Costs and safety issues for future fuel issues should be treated transparently in District climate plans.

41. WGL’s 5-Year Plan discusses the use of certified gas, RNG, and green hydrogen as replacements for fossil fuel energy sources. However, it offers few specifics on the costs and potential supply of these energy sources. While the 30-Year Plan includes the use of 7 billion cubic feet of RNG by 2050—accounting for 41 percent of the District’s gas supply—the Plan does not mention specific sources from which it will obtain the RNG.

42. Injecting RNG into pipelines would involve extensive upgrades to the distribution infrastructure: planning, infrastructure expansion, interconnection costs, and equipment upgrades.²⁵ WGL does not address the scale or implementation of these upgrades.

²⁵ (1) U.S. EPA. July 2020. An overview of renewable natural gas from biogas. EPA 456-R-20-001; (2) Gasper, R. and Searchinger, T. 2018. (3) Dyer et al. 2021. “The Feasibility of Renewable Natural Gas in New Jersey.” Sustainability, 12, 1618. <https://doi.org/10.3390/su13041618>

43. WGL does not sufficiently address the preparations for potential safety issues arising from RNG distribution: fire and explosion risks to surrounding commercial and residential spaces,²⁶ risks from poor indoor air quality,²⁷ and environmental impacts near leak sites.²⁸
44. WGL does not sufficiently address preparations for potential safety issues arising from hydrogen use: explosions or “unplanned ignition” at higher concentrations of hydrogen from equipment that is not upgraded,²⁹ the lack of hydrogen safety codes,³⁰ and the embrittlement of pipes leading to catastrophic breaks.³¹

²⁶ (1) Campbell, R. 2020. Structure Fires in Schools. National Fire Protection Association. Available at: <https://www.nfpa.org/News-and-Research/Data-research-and-tools/Building-and-Life-Safety/Structure-fires-inschools>; (2) Glick D., Plautz, J. 2018. “The rising risks of the West’s latest gas boom.” High Country News. Available at:

<https://www.hcn.org/issues/50.18/energy-industry-how-site-workers-and-firefighters-responding-to-a-2017-natural-gas-explosion-in-windsor-colorado-narrowly-avoided-disaster>

²⁷ U.S. EPA. n.d. “Introduction to Indoor Air Quality.” Available at: <https://www.epa.gov/indoor-air-quality/iaq/introduction-indoor-air-quality#:~:text=Immediate%20Effects,-Some%20health%20effects&text=These%20include%20irritation%20of%20the,if%20it%20can%20be%20identified>

²⁸ (1) Gas Leaks Allies. n.d. Gas Leaks Kill Trees. Available at:

[https://www.wellesley.ma.gov/DocumentCenter/View/9596/Gas-Leaks-Kill-TreesPDF#:~:text=Gas%20leaks%20have%20killed%20street,cost%20taxpayers%20millions%20of%20dollars](https://www.wellesley.ma.gov/DocumentCenter/View/9596/Gas-Leaks-Kill-TreesPDF#:~:text=Gas%20leaks%20have%20killed%20street,cost%20taxpayers%20millions%20of%20dollars;); (2) Schollaert,

C., Ackley, R. C., DeSantis, A., Polka, E., and Scammell, M. K. 2020. “Natural gas leaks and tree death: A first-look case-control study of urban trees in Chelsea, MA USA.” *Environmental Pollution*, 263(A). Available at:

<https://doi.org/10.1016/j.envpol.2020.114464> ; (3) Storrow, B. May 5, 2020. “Methane Leaks Erase Some of the Climate Benefits of Natural Gas.” *Scientific American*. Available at:

<https://www.scientificamerican.com/article/methane-leaks-erase-some-of-the-climate-benefits-of-natural-gas/>

²⁹ St. John, J. November 30, 2020. “Green Hydrogen in Natural Gas Pipelines: Decarbonization Solution or Pipe Dream?” *Greentech Media*. Available at: <https://www.greentechmedia.com/articles/read/green-hydrogen-in-natural-gas-pipelines-decarbonization-solution-or-pipe-dream>

³⁰ (1) U.S. DOE EERE. n.d. “H2IQ Hour: Overview of Federal Regulations for Hydrogen Technologies in the United States: Text Version.” Available at: <https://www.energy.gov/eere/fuelcells/h2iq-hour-overview-federal-regulations-hydrogen-technologies-united-states-text>; (2) Gibbs, K. E., and Ramadevanahalli, A. P. 2021. “Considerations For

Transporting a Blended Hydrogen Stream in Interstate Natural Gas Pipelines.” Available at:

<https://www.morganlewis.com/pubs/2021/06/considerations-for-transporting-a-blended-hydrogen-stream-in-interstate-natural-gas-pipelines>

³¹ Parfomak, PW. March 2, 2021. Pipeline Transportation of Hydrogen: Regulation, Research, and Policy. Congressional Research Service. p. 3.

Affordability:

45. **WGL’s plans do not address affordability.**
46. WGL fails to provide information on customer rate or bill impacts, or any other insight into the distribution of costs across customers, present and future generations, socioeconomic groups, or geographical areas within the District.
47. WGL claims in its 30-Year Plan that it offers “affordable pathways for the District’s future energy needs.”³² However, there are no specific discussion of any plans to ensure affordability or any specific financial estimates provided.
48. Critically, the 5-Year Plan states that “inclusion of RNG in the Washington Gas supply portfolio would increase the cost of gas to Washington Gas customers relative to customers of third-party marketers,” though, again, it does not state a specific amount by which costs are expected to increase.³³

Funding:

49. **Every program requires a specific funding source as part of the planning process.**
50. Proposed climate measures and their benefit-cost analysis (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. Climate change BCA results must be reviewed comprehensively from a near-term and long-term lens, and be based on a consideration of measures relative benefit to the District’s climate goals as a part of FC1167.

³² 30-Year Plan p.13.

³³ 5-Year Plan. p.23.

51. WGL's 5-Year Plan mentions the use of four existing funding mechanisms to fund its initiatives:

- “Accelerated Pipe Replacement Program mechanism (APRP) that supports the PROJECTpipes infrastructure improvements;
- The energy efficiency surcharge mechanism (EE Surcharge) that will capture and expand End Use and Efficiency initiatives;
- Purchased gas cost recovery mechanism (PGC) for supply and sourcing initiatives; and
- A Climate Action Recovery Tariff (CART) for near-term climate initiatives otherwise not subject to recovery through one of the other options.”

52. Without specific plans to seek out non-rate funds, and unless the Commission directs otherwise, the default funding source becomes ratepayer bills.

Utility Commitments:

53. **WGL's plans should include commitments to take specific, measurable actions.**

54. Utility climate proposals need to go beyond general statements of intention or acknowledgements that actions are important to make commitments with quantifiable metrics that can be evaluated over time. Utility climate proposals should include commitments related to an equitable distribution of costs and benefits, providing green jobs, and fostering small businesses.

Committing to an equitable distribution of costs and benefits

55. 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. WGL's climate plans do not commit to 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.

56. 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 low- and moderate-income customers). Likewise, all programs should be developed to ensure that benefits are equitably distributed among customer classes and District communities. WGL's 5-Year and 30-Year Plans do not provide information on the distribution of costs across generations, socioeconomic groups, or geographic areas.

Committing to providing green jobs and fostering small businesses

57. While WGL does not commit to providing green jobs or fostering small business, it does note funding opportunities from federal infrastructure legislation, specifically the Infrastructure Investment and Jobs Act. In its 30-Year Plan, WGL states that it will prioritize program opportunities based on criteria such as: "Job opportunities creation for District residents and workers".³⁴

58. However, WGL does not provide any details as to the nature or extent of its goals relating to green jobs.

³⁴ 30-Year Plan p.22.

BCA Framework

59. A uniform, PSC-directed, integrated BCA 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 on DC climate initiatives and emission reductions.
- PSC-directed: Methods, framework, and standards for the District's climate BCA analyses should be set by the PSC, not by utilities.
- Integrated: contributing to the District of Columbia's climate goals without significant revisions measures; and (2) across programs proposed by Washington Gas, Pepco, DCSEU, 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.

60. 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. Cross-sector, cross-utility BCA assessment, planning, and decision making are absolutely essential to a successful climate plan and investments.
- Important uncertainties should be reflected through sensitivities and ranges.
- 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.

- Consumers bear costs from utility programs and so should share in the benefits of BCA-based decision making by the utility.

Evaluation:

61. District climate program design should include a plan for evaluation and iteration.

62. Successful planning processing includes measures for learning by doing: evaluation, reassessment and refining. 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 should be assessed;
- methods, metrics and criteria for evaluating program data in a holistic manner; and
- plans for program redesign and iteration.

VI. WGL'S BCA ASSESSMENT

63. WGL's 5-Year and 30-Year Plans are based on the BCA analysis presented in the utility's CBP.³⁵ This section of my affidavit assesses WGL's BCA as presented in the CBP and finds WGL's BCA analysis to be deficient on several fronts:

³⁵ AltaGas. 2020. Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington, D.C. FC 1142. Available at: <https://washingtongasdeclimatebusinessplan.com/wp-content/uploads/2020/04/Climate-Business-Plan-March-16-2020-FOR-WEB.pdf>

Emissions Calculations

64. Several concerns arise regarding WGL’s BCA emission reduction math. As discussed below, WGL does not appear to have performed all of its emission modeling calculations correctly.

65. First, WGL’s CBP analysis compares four “scenarios” or energy plans for the District but fails to report any sensitivities or scenario analysis beyond these four scenarios:³⁶

- Business As Usual (“BAU”), as a baseline;
- Partial Decarbonization, which uses the BAU scenario baseline and adds on electric vehicles, energy efficiency, and decarbonization of gas to achieve an 82 percent greenhouse gas emission reduction by 2050.
- Policy Driven Electrification, which reaches net zero carbon emissions in 2050 through electrification of heating and vehicles.
- Fuel Neutral Decarbonization, which identifies areas for additional electrification of buildings and transportation while assuming low and zero-emission gas playing a role over the next thirty years.

Good climate planning requires investigation of the impacts of a likely range of future circumstances, typically represented as sensitivities and scenarios in modeling.

66. Second, WGL does not appear to have used the 2006 baseline year consistently. The Department of Energy and Environment (DOEE) commented that: “AltaGas counts as part of its progress a claimed reduction in emissions between 2006 and 2017. The CBP then counts down emissions from 2017 levels to a claim of zero in 2050. However, its 2017

³⁶ WGL September 1, 2021. FC 1167 Confidential Compliance Filing Pg. 2.

starting point is wrong and underestimates emissions by more than 20 percent, compared to WGL’s own recent filings. As a result, the reductions are not sufficient to reach zero in 2050. Our best estimate is that the CBP actions might be sufficient to reduce emissions by about 60 to 75 percent below 2006 levels by 2050.”³⁷ I concur and note that WGL appears to have added together fractions with different denominators on p.9 of the CBP, an error that it does not address in its September 2021 filing (which accompanied the workpapers associated with the CBP).³⁸ **As described by DOEE, WGL’s inconsistent use of the baseline is serious and must be corrected.**

67. Third, WGL has subtracted emission reductions from multiple sources of emissions that do not form a part of their baseline. In its Fuel Neutral Decarbonization scenario, WGL includes 88,000 metric tons of CO₂-e reductions in the electric sector as “offsets” for the natural gas sector using combined heat and power (CHP) and renewable power investments.³⁹ While these investments may reduce emissions in the electric sector, WGL does not explain how they reduce gas emissions or why electric sector emission reduction

³⁷ Department of Energy and Environment. June 2020. “Comments by the Department of Energy and Environment on behalf of the District of Columbia Government Concerning AltaGas Ltd.’s Climate Business Plan.” Before the Public Service Commission of the District of Columbia. Formal Case No. 1142. Available at: <https://edocket.dcpsc.org/apis/api/Filing/download?attachId=105393&guidFileName=9bdbe1aa-b3f8-4282-8dbe-e5f994464caa.pdf>. p. 23.

³⁸ WGL September 1, 2021. FC 1167 Confidential Compliance Filing.

³⁹ ICF Technical Study Summary Report, p.5-7. “CHP installations increase the overall efficiency of energy use in the District. While CHP units increase the amount of natural gas consumed and the emissions from natural gas consumption, the installations also reduce electricity imports, and electricity production in the region where the District of Columbia sources its electricity supply. CHP reduces electricity production and associated emissions from the incremental sources of power generation in the PJM. The mix of marginal power in the PJM is expected to include coal power plants and natural gas combined cycle facilities. Although the share of coal is projected to continue to decline over time due to economic and environmental regulatory factors. As a result, the net emissions reductions associated with CHP units decline over time. After 2032, CHP use is expected to reduce emissions primarily from combined cycle natural gas facilities.” p.6

offsets are: (1) viable reductions for use in WGL’s goals when Pepco itself needs to reach net zero emissions by 2050, and (2) a viable decarbonization solution for the District’s gas sector emissions. WGL attributes an additional 65,000 metric tons of reductions to “Emerging Technology and Offsets.” Together with its 88,000 metric tons of electric sector offsets (i.e., CHP and Renewable Power), WGL’s total offsets account for a total of 8.7 percent of the utility’s claimed 1.765 million metric tons of planned reductions in 2050. None of these offsets are part of the District’s gas emission baseline. (To properly include these claimed reductions in WGL’s total, the original emissions need to be in the baseline.)

This emissions math simply does not make sense and overcounts WGL’s planned contribution to achieving District emission targets.

68. WGL claims an additional set of emission reductions, but, again, these reductions do not form a part of its baseline: 74,000 metric tons in 2032 down to 31,000 metric tons in 2050 from certified gas purchases, which WGL refers to as “upstream emission reductions”. WGL does not include upstream emissions in gas sector emissions baseline. Including upstream emissions would raise the baseline by more tons than certified gas purchases reduce emissions in the Fuel Neutral Decarbonization scenario—for a net increase in emissions. By my calculations, the inclusion of upstream emissions in the baseline would mean that WGL’s emission reductions amounted to a 60 percent reduction from 2006 rather than their reported 96 percent reduction in 2050 (2.3 percent in upstream gas losses—which accounts for abnormal operating conditions⁴⁰—and the, conservative, 100-year global

⁴⁰ Alvarez RA, et al. 2018. "Assessment of methane emissions from the US oil and gas supply chain". Science361, no. 6398. Pg 186-188. Available at: <https://www.science.org/doi/abs/10.1126/science.aar7204>

warming potential). This correction does not include DOEE’s additional and separate correction reducing WGL’s claimed emission reductions from 100 percent down to approximately 75 percent. **These controversial emission calculations, again, tend to overcount WGL’s planned contribution to achieving District emission targets.**

69. WGL calls its approach to emission reductions “holistic” but its count of baseline emissions begins when gas enters its distribution system, excluding the largest source of utility gas emissions: upstream extraction, refining and transmission losses. In contrast, a holistic analysis should (i) include costs and benefits of reduction measures from upstream to end user, and (ii) not only address future scenarios but also ranges of outcomes within which reasonable outcomes would be expected.

70. To truly control its emissions, WGL should include the full “cradle-to-grave” greenhouse gas emission impacts of the gas that it sells. (To be clear, Pepco should do the same for the fuels from which its electricity is generated. For both gas and electric supplies, the need to fully account for the upstream emissions of all fuel used should not be confused or conflated with the notion of calculating the emissions embodied in the equipment used to make and transmit fuel and electricity.) DOEE recommends the inclusion of fugitive emissions as part of the natural gas emissions factor and supports the inclusion of upstream emissions when calculating the natural gas emissions factor for utility supply based on natural gas.⁴¹ DOEE’s upstream emissions definition includes fugitive methane emissions (emissions that escape in the process of extraction or transmission to their end use) —from

⁴¹ CEAI WG. 2021. Framework for Compliance with the Clean Energy Omnibus Amendment Act of 2018 (the CEDC Act) of the District of Columbia. Case No. GD-2019-04-M. Draft Report, pg. 23.

exploitation and production, gathering and boosting, processing, transmission, and storage of methane.⁴² **Both WGL and Pepco should include upstream emissions in their accounting. If WGL fails to include upstream emissions in its accounting, it cannot possibly justify counting reductions in upstream emissions in its accounting.**

71. Fourth, WGL incorrectly assumes zero emissions from RNG and hydrogen. When considerations of upstream impacts are excluded—as WGL chooses to do—all RNG is methane and emits the same amount of conventional air pollutants and greenhouse gases as conventional methane when combusted.⁴³ In addition, the industry association American Gas Foundation itself has found that RNG sourced from landfills, wastewater sludge, agricultural residue, forestry, energy crops, municipal solid waste, or livestock manure all create greenhouse gas emissions, and therefore is not a zero-emissions fuel.⁴⁴ Similarly, hydrogen (even green hydrogen) is not a zero-emissions fuel. Upon combustion, it releases nitrogen oxides (NO_x), which is a harmful air pollutant.⁴⁵ Both NO_x and hydrogen itself are “indirect greenhouse gases”—that is, gases that form ozone after atmospheric release. In addition to being a harmful air pollutant, ozone is a greenhouse gas with a 20-year global

⁴² Ibid, pg. 79; DOEE comments on the draft report.

⁴³ Union of Concerned Scientists. 2017. “The Promises and Limits of Biomethane as a Transportation Fuel.” Available at: <https://www.ucsusa.org/sites/default/files/attach/2017/05/Promises-and-limits-of-Biomethane-factsheet.pdf> p.4

⁴⁴ AGF. 2019. Renewable sources of natural gas: supply and emissions reduction assessment [Table 41]. Available at: <https://gasfoundation.org/wp-content/uploads/2019/12/AGF-2019-RNG-Study-Full-Report-FINAL-12-18-19.pdf>

⁴⁵ (1) Milford, L., Mullendore, S., Ramanan, A. 2020. “Hydrogen Hype in the Air” [Blog]. Clean Energy Group. Available at: <https://www.cleanenergygroup.org/hydrogen-hype-in-the-air/>; (2) Forster, P. et. al. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Available at: <https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter2-1.pdf>

warming potential 62 to 69 times greater than carbon dioxide.⁴⁶ Compared to methane (fossil or RNG), hydrogen is even more likely to leak from existing pipelines: Roughly 10 percent will leak during production, storage, and transport.⁴⁷ **Overall, WGL's emissions accounting from RNG and hydrogen tends to overcount their usefulness in reducing District emissions.**

72. Fourth, WGL's scenario emission calculations appear to make the curious assumption that its purported emission reductions from RNG, power to gas, hydrogen, and certified gas are only available under Fuel Neutral Decarbonization and Partial Decarbonization, and not Policy Driven Electrification. Under Policy Driven Electrification, the District's gas sector still emits 58 percent of its 2006 greenhouse gases in 2032 and 7 percent in 2050. WGL has made its assumed emissions reductions from purchasing available in some scenarios but not others, depriving these scenarios of the purported (if questionable) benefits of these fuels. **WGL's Policy Driven Electrification scenario includes fuel use in early years but does not receive the purported emissions savings or cost modeling from alternative fuels that WGL uses in other scenarios.**

73. Finally, WGL claims to incorporate expected policy changes in the District affecting regional wholesale markets in their scenario analysis. However, the costs presented in the September 2021 filing do not demonstrate this. Further information on WGL's methodology and assumptions would be necessary to evaluate the ways in which expected policy changes are included or omitted in WGL's modeling.

⁴⁶ Forster, P. et. al. 2018.

⁴⁷ NaTrompme, T. K., Shia, R.-L., Allen, M., Eiler, J. M. & Yung, Y. L. 2003. "Potential environmental impact of a hydrogen economy on the stratosphere." *Science*, 300, 1740 – 1742. <https://doi.org/10.1126%2Fscience.1085169>

Justice and Equity

74. WGL supports the BCA analysis presented in its CBP by disingenuously conflating the United Nations’ goal of reducing the use of indoor biomass cookfires in the developing world with poverty alleviation in the District. WGL’s September 2021 filing asserts that “Energy is a necessity.”⁴⁸ Backing up this assertion, the utility appears to misattribute the following quote as a United Nations’ 2016 Sustainable Development Goal for Clean Energy: “Energy provides the pathway to a more sustainable economy, helps eradicate poverty, combats climate change, generates advancements in health, education, food and water quality and is a critical building block for economic development, competitiveness and quality of life.”⁴⁹ For comparison, United Nations’ Sustainable Development Goal 7—“Ensure access to affordable, reliable, sustainable and modern energy for all”—as represented in its 2016 report is as follows: “Access to affordable, reliable and sustainable energy is crucial to achieving many of the Sustainable Development Goals—from poverty eradication via advancements in health, education, water supply and industrialization to mitigating climate change.”⁵⁰

75. The United Nation’s Sustainable Development Goals express preference for gas and electric cooking stoves over biomass (wood, crop waste, and dung) cookfires, a major

⁴⁸ AltaGas and Washington Gas Light Company (WGL). September 1, 2021. Confidential Compliance Filing. FC 1167. p. 1

⁴⁹ WGL’s September 2021 filing attributes this quote to the United Nations’ Sustainable Development Goal for Clean Energy (SDG #7). In fact, this is a quote from AltaGas’s own CBP: WGL. March 16, 2020. Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington, D.C. Alta Gas & Washington Gas. Available at: <https://edocket.depsec.org/apis/api/filing/download?attachId=101994&guidFileName=e69b6cb2-963c-4122-aca3-3b45e838b2b7.pdf>. p. 5

⁵⁰ United Nations: Department of Economic and Social Affairs. 2016. “Goal 7: Affordable and Clean Energy.” Available at: <https://unstats.un.org/sdgs/report/2016/goal-07/>

cause of indoor air pollution and related health concerns in developing countries, however, these goals do not raise indoor pollution from open burning of biomass as a concern in the United States. The United Nations' report calls out the importance of a transition to renewables, decoupling global economic growth from greenhouse gas emissions through energy use, and the urgency of limiting temperature increases to 1.5 degrees Celsius above pre-industrial levels: "Climate change presents the single biggest threat to development, and its widespread, unprecedented effects disproportionately burden the poorest and the most vulnerable."⁵¹

76. While the United Nations' calls for increased access to energy as a method of eradicating poverty, WGL's use of this global policy priority as a justification for the continued use of fossil fuels clearly runs contrary to the United Nations overall sustainable development goals. In their 2021 Energy Progress Report, the United Nations commends the advances of renewable energy in the electric sector and specifically calls for increased use of renewables in the heating and transportation sectors. The United Nations 2021 report explicitly recommends the increased use of renewables to reach climate goals simultaneously with increasing energy access.⁵²

77. WGL equates "preserving customer choice" with having access to more than one energy source: "CBP preserves customer choice, empowering all energy consumers in the District to select an energy source most suited to their needs, by supporting multiple energy sources

⁵¹ United Nations: Department of Economic and Social Affairs. 2016. "Goal 13: Affordable and Clean Energy." Available at: <https://unstats.un.org/sdgs/report/2016/goal-13/>

⁵² International Energy Agency, International Renewables Energy Agency, United Nations Statistics Division, The World Bank, World Health Organization. 2021. Tracking SDG7: The Energy Progress Report 2021: Executive Summary. Available at: <https://trackingsdg7.esmap.org/downloads>. p. 9

and a technology and fuel neutral approach to achieve DC's climate goals.”⁵³ More specifically, both the September 2021 filing and the CBP call into question the reliability of the District’s electric distribution system without providing specific evidence. If WGL has evidence of specific reliability concerns with the Pepco distribution system, these concerns should be stated explicitly.

78. WGL’s September 2021 filing seems to imply that gradual electrification of heating and transportation between today and 2050 would expose the District to increased risk of the types of recent reliability crises experienced in California and Texas:

*Ensuring access to affordable and reliable energy is an imperative to public health and safety. As has been seen most recently in California and Texas, the consequences of a prolonged loss of power are both economic and human (in terms of suffering and lives lost). The consequences could be even more severe if there were no other energy delivery infrastructure, such as the gas delivery system, that would enable energy delivery during power outages.*⁵⁴

79. This comparison seems misplaced. Both California and Texas have extensive utility gas distribution systems. Neither electrification nor the absence of a back-up gas-based energy delivery system seem to have played a role in the causes or consequence of power outages in either state.⁵⁵ **More generally, if it is WGL’s contention that all homes and**

⁵³ WGL. September 1, 2021. FC 1167 Confidential Compliance Filing. p. 1.

⁵⁴ WGL. September 1, 2021. FC 1167 Confidential Compliance Filing. p. 8.

⁵⁵ California ISO. 2021. Root Cause Analysis: Mid-August 2020 Extreme Heat Wave. Available at: <https://www.caiso.com/Documents/Final-Root-Cause-Analysis-Mid-August-2020-Extreme-Heat-Wave.pdf>

businesses should have dual heating systems—gas and electric—as a bulwark against Winter heating crises, the utility should say so plainly.

80. Regarding safety concerns related to pipelines, WGL appears to conflate safety and gas system reliability, which are related—but not identical—concerns. In its CBP, WGL states that pipeline replacement programs reduce the release of fugitive methane emissions—significantly enhancing safety and reliability. The speed and severity of methane releases pose a considerable safety risk to District residents, however WGL states its “consideration of leak flow rate will be secondary to safety considerations.”⁵⁶

81. At the same time, WGL asserts numerous times in both its September 2021 filing and CBP that its existing gas delivery infrastructure is 99.9 percent reliable. For example: “A fuel neutral approach enhances the reliability and resilience of the energy delivery system in the District by maintaining a natural gas system that provides...dependable, on-demand and resilient energy with greater than 99.9 percent reliability...”⁵⁷ The utility does not, however, explain the derivation of this claim. The CBP cites the source of this value as the American Gas Association Playbook for 2019. The 2019 Playbook is no longer available online (and was not available at the time of WGL’s release of the CBP) but the 2020⁵⁸ and 2021⁵⁹ versions do not provide this same (or any related) statistic and provide no citation

⁵⁶ AltaGas. 2020. Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington, D.C. FC 1142. P.16

⁵⁷ WGL. September 1, 2021. FC 1167 Confidential Compliance Filing. p.6.

⁵⁸ American Gas Association. Natural Gas: Our Clean Energy Future. 2020 Playbook.

⁵⁹ American Gas Association. 2021 Playbook: Picture the Potential.

or rationale for such an estimate. **If WGL has evidence that gas distribution systems provide near perfect reliability it should provide it, along with a clear definition of “reliability” as used to develop that conclusion.**

82. Any decarbonization plan for the District cannot succeed without active and full participation of households and businesses and their representatives, along with other stakeholders. To make this participation possible there must be sufficient effort in education and outreach to enhance consumers understanding of the impacts of climate change and design strategies that will increase acceptance by customers. Customer education is an essential component of any utility climate plan. WGL’s CBP briefly mentions behavioral programs and educating customers on the value of energy efficiency in their programs related to existing building retrofits.⁶⁰ The utility’s approach to influencing customer behavior should be based on its historical activities known to DC consumers and should specify how and in what ways intervention strategies would be planned and implemented. **WGL’s CBP analysis appears to omit consideration of the costs and benefits of customer education regarding decarbonization or transitioning to new energy sources or delivery equipment.**

Affordability

83. In WGL’s CBP analysis on continued investments to repair and replace aging pipelines appear to be part of its Business-As-Usual scenario but are not deducted from the costs of the Policy Driven Electrification scenario, artificially raising that scenario’s costs. A supporting ICF report submitted with the CBP explains that that full investment in a soon-

⁶⁰ Washington Gas and Light. September 1, 2021. FC 1167 Confidential Compliance Filing. Appendix A. p. 2

to-be defunct gas distribution system is included in the Policy Driven Electrification scenario and regards these stranded costs as an additional detriment of a transition away from gas.⁶¹ While the entire cost of the District’s pipe replacement programs could not be subtracted from a 100 percent electrification scenario—some safety-based replacement would be necessary during the transition period—this omission impacts WGL’s conclusion that the Fuel Neutral Decarbonization scenario, and not the Policy Driven Electrification scenario, is least cost and preferred.

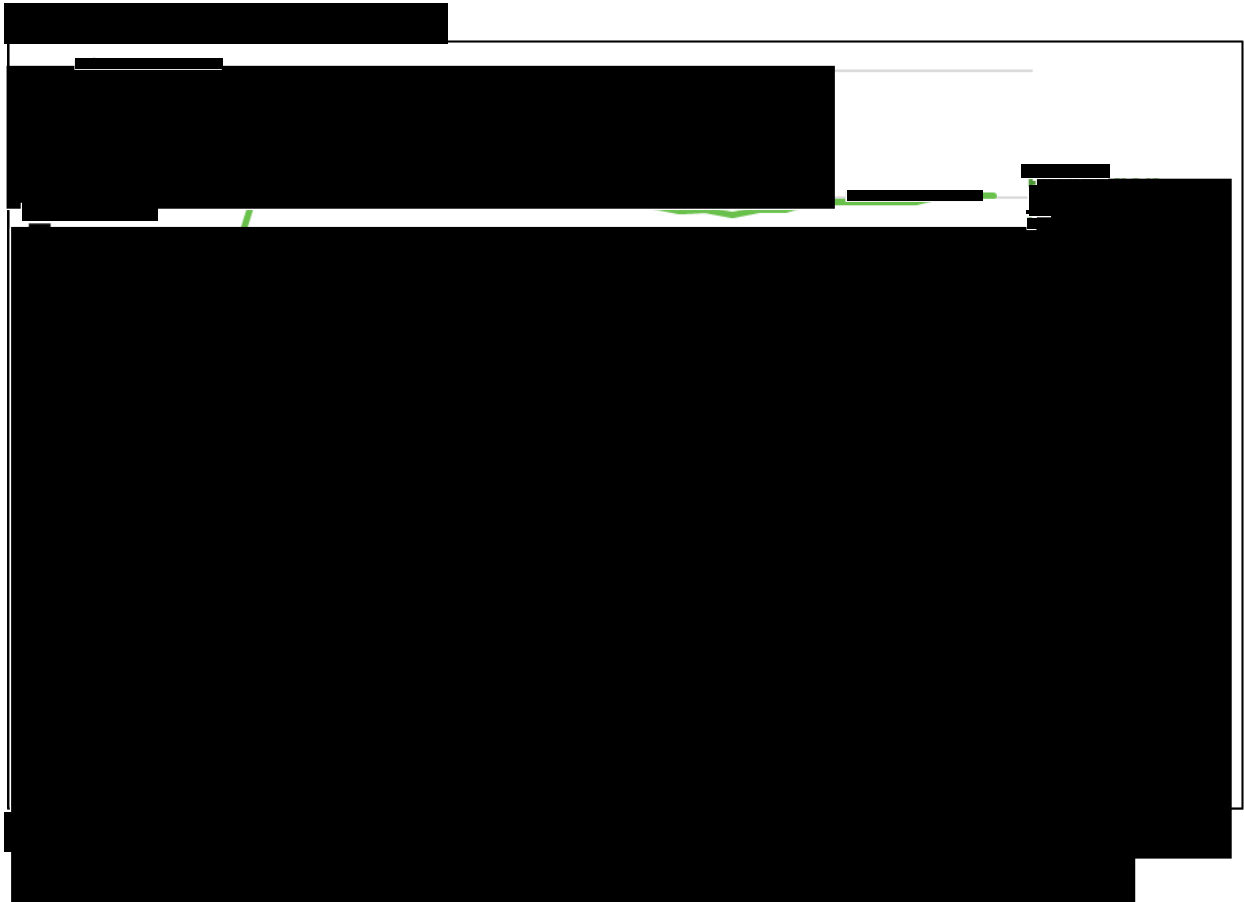
WGL’s preferred scenario also requires the purchase of high-cost fuels. In the Fuel Neutral Decarbonization scenario, customer supply is transitioned to rely heavily on what WGL claims are zero-carbon fuels: RNG and hydrogen. **[BEGIN CONFIDENTIAL]** [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[END CONFIDENTIAL]

84. WGL does not provide enough information to assess the customer costs of other, additional, scenarios aimed at different combinations of the measures discussed by WGL, or other measures not taken into consideration. Indeed, in the analyses discussed by CBP, there are no discussions of optimization modeling or optimal combinations of scenarios that will help attain the District’s climate goals at the lowest possible cost. **Identifying a “least cost” or “most affordable” climate plan requires optimization modeling: WGL has modeled it’s own selected scenarios instead.**

85. WGL’s preferred Fuel Neutral Decarbonization scenario increases total gas use over time and requires ratepayers to foot the bill for a complete replacement of the existing gas

distribution system needed to address ongoing issues with leaky pipes and other aging infrastructure in the District in any scenario that continues to rely on the gas distribution system. In the Fuel Neutral Decarbonization scenario, today's utility gas purchases are replaced first with "certified natural gas" and later with RNG and hydrogen. WGL's claim that its preferred scenario is the most affordable for customers should be backed up by a cradle-to-grave cost analysis that includes a full comparison of all infrastructure, fuel, and electric costs, as well as a social cost of carbon. **WGL has not provided an analysis of the full costs of infrastructure, fuel and electricity in its selected scenarios nor has it provided a detailed methodological description of its process of forecasting these costs.**

86. Important costs of the Policy Driven Electrification scenario for which inputs and assumptions have been omitted in the materials provided by WGL include:

- **Equipment conversion to electric heating: [BEGIN CONFIDENTIAL]** [REDACTED]
[REDACTED]
[REDACTED] [END

CONFIDENTIAL] ICF's companion report on RNG states,

Improvements to energy efficiency and conversions from fossil fuel to electricity in existing building stock have different costs based on the type and age of the building and the type and age of the heating system and other appliances. ICF used detailed Census data to disaggregate the building stock by type and age of the building and

[REDACTED]

*the heating system when estimating the costs of converting the buildings to electricity.*⁶⁴

WGL has provided no detailed information on the development of these cost assumptions making it impossible to review these assumptions.

- **Electric use in newly electrified heating:** WGL does not provide any inputs, assumptions or calculations showing the development of its estimated incremental electric use in the Policy Driven Electrification scenario, or any other scenarios. WGL's CBP, the accompanying ICF reports, and the materials submitted with WGL's September 2021 filing do not provide any information on newly installed electric heat pumps, assumed efficiency levels or how this might change over time.
- **Impact of building shell investments on electric use:** WGL's plan involves extensive investment in gas energy efficiency that lowers per meter gas use and emissions in the Fuel Neutral Decarbonization scenario. The utility has provided no information, however, regarding how these same building shell improvements are expected to reduce heating demands in the Policy Driven Electrification scenario.
- **Stranded costs:** WGL does not appear to have addressed the impacts of stranded costs of continued investment in gas infrastructure upgrades and repairs as they relate to future scenarios in which a gas distribution system is no longer necessary.

⁶⁴ ICF. March 2020. "Study on the Use of Biofuels (Renewable Natural Gas) in the Greater Washington, D.C. Metropolitan Area." Submitted to WGL. Available at: <https://washingtongasdcclimatebusinessplan.com/wp-content/uploads/2020/04/200316-WGL-RNG-Report-FINAL.pdf> p.113

87. Overall, despite Commission Order No. 20574 directing WGL to provide detailed projections, models, and assumptions related to its CBP analysis,⁶⁵ WGL does not supply sufficient detailed information regarding the inputs, assumptions and methods used in its CBP for a third-party review to determine whether or not the utility’s preferred scenario is the least-cost zero-emission by 2050 plan. WGL also does not provide an in-depth assessment of the cost-effectiveness of measures (other than utilization of RNG) to reduce incremental greenhouse gas emission reductions beyond the anticipated reductions from the BAU scenario. At most, the CBP includes a range of greenhouse gas abatement costs from two studies that are not specific to the District for a select few measures, including gas demand-side management, residential electrification, direct air capture, carbon capture and storage, electric/fuel cell trucks, and industrial electrification.⁶⁶
88. The limited suite of scenarios chosen for analysis by WGL are not well suited to exploring the best combinations of strategies for minimizing impacts on ratepayers, and the information provided regarding the methods, data, and assumptions used in WGL’s analysis are incomplete.
89. In addition, to support the importance of choosing the least-cost scenario—according to the CBP—WGL suggests, disingenuously, that District customers have been shown to be unwilling to pay more for “green products.” In its September 2021 filing, WGL states,

⁶⁵ DC PSC. 2021. FORMAL CASE NO. 1167, IN THE MATTER OF THE IMPLEMENTATION OF ELECTRIC AND NATURAL GAS CLIMATE CHANGE PROPOSALS, Order No. 20754. Available at: <https://edocket.dcpsec.org/apis/api/Filing/download?attachId=125555&guidFileName=a43e32dd-d6d5-4145-bb8c-e06a8f929775.pdf>. Pg. 15.

⁶⁶ AltaGas. 2020. Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington, D.C. FC 1142. P. 90

The proposed Fuel Neutral Decarbonization approach is the most cost-effective and affordable way to meet the District’s climate goals and thus advances the Commission’s continuing statutory mandate to ensure that rates charged by public utilities in the District are just, reasonable and non-discriminatory. As was noted in the CBP, ‘a large number of customers are either unwilling or unable to pay premiums for ‘greener’ goods and services.’⁶⁷

In fact, the research to which WGL refers to a survey of 1,000 consumers in Europe and the United States asked about their willingness to pay a green premium for products and services in the following categories: automotive, building, electronics, furniture and packaging.⁶⁸ There has not, to my knowledge, been a study pertinent to DC that demonstrates consumers’ willingness—or lack thereof—to adopt energy saving, carbon reducing, and energy efficient measures.

90. In terms of enabling market actors in the administration of greenhouse gas reduction programs, WGL’s CBP addresses competitive markets in several contexts, including: entities responsible for fuel pricing in the transportation sector, renewable energy markets, competition among electric storage options, RNG feedstock and production, and power-to-gas (P2G) costs versus green hydrogen.⁶⁹ WGL’s does not present a clear plan for avoiding discrimination against market participants.

⁶⁷ AltaGas. 2020. Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington, D.C. FC 1142. Pg. 35.

⁶⁸ De Witte, M. 2018. “Public support for climate policy remains strong.” Stanford Earth Matters magazine. Available at: <https://earth.stanford.edu/news/public-support-climate-policy-remains-strong#gs.oinuxc>

⁶⁹ AltaGas. 2020. Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington, D.C. FC 1142

91. Overall, a better planning process would:

- involve stakeholders in scenario design;
- provide integration (or at least consultation) with Pepco, DCSEU and other relevant District agencies in the development of measure savings potential, costs and benefits;
- take a truly holistic (cradle to grave) approach to emissions measurement;
- include the results of an all-source Request for Quotes for measures to reduce gas emissions in the District;
- provide a consistent and transparent baseline against which emission reductions are measured; and
- provide full access to stakeholders and third-party experts to review all scenario analysis inputs, assumptions and methods.

Energy Efficiency and Electric Vehicles

92. In pursuing the District’s climate goal, WGL’s CBP analysis proposes to implement utility-led energy efficiency measures but does not address collaboration or overlap with Pepco or DCSEU. WGL projects that its energy efficiency measures will:

- [BEGIN CONFIDENTIAL] [REDACTED]
[REDACTED]
[REDACTED]
- [REDACTED]
- [REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

• [REDACTED]

• [REDACTED]⁷⁰[END

CONFIDENTIAL].

94. Because most District energy consumers are dual fuel (gas and electric) users, DCSEU, Pepco and WGL have the same set of consumers to target for energy efficiency program participation. WGL’s September 2021 filing does not reference Pepco’s proposed energy efficiency programs but does suggest that “the CBP’s Fuel Neutral Decarbonization Scenario highlights many proven methods to reduce energy use that can complement programs in place by the DCSEU.”⁷¹ The CBP explains that WGL intends for its gas energy efficiency programs to “not [be] duplicative of those now offered by the DCSEU.”⁷²

95. The absence of a clear plan for collaborative delivery—and/or clear delineation of who is delivering what to whom—among WGL, Pepco, and DCSEU is an important gap in WGL’s ambitious targets for more, and more expensive, gas energy efficiency.

96. WGL’s CBP appears to overlap with Pepco’s planning, without discussion of either collaboration or segregation of customers. Some of the strategies discussed by WGL—such as electric vehicles and energy efficiency—are currently also being pursued by Pepco. **An ideal approach would be to determine the shares of climate-focused measures such**

⁷⁰ [REDACTED]

⁷¹ WGL. September 1, 2021. FC 1167 Confidential Compliance Filing.p.9

⁷² AltaGas. 2020. Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington, D.C. FC 1142. p.11.

as energy efficiency and electrification attributable to Pepco, WGL and DCSEU, who are all targeting the same set of utility consumers.

97. Pepco DC's 5-Year Plan mentions the DC Energy Efficiency Program Initiative proposed in Formal Case No. 1160, which has programs for "incentivizing energy efficient appliances and home products, recycling old appliances, whole-home retrofits, home energy assessments, behavior change through price signals and education. In addition, many programs offer increased incentives for LMI residents, ensuring that these customers can maximize the benefits and cost savings of reducing energy usage."⁷³ The 5-Year Plan also proposes to provide incentives and assistance for residential and commercial customers to "adopt efficient electric heating and other efficient electric end uses" through the Connect Homes and Businesses Initiative.⁷⁴ Pepco's Smart Rates Building Initiative intends "to create price signals to encourage residents to use less energy during peak hours."⁷⁵ Finally Pepco's programs on transportation electrification emphasize the removal of barriers to electric vehicle charger deployment and financial, technical, and educational services smooth the transition for customers.⁷⁶

⁷³ Pepco 2021. *Climate Solutions 5-Year Action Plan*. FC1167-2021-M-73. Available at: <https://edocket.dcpsec.org/apis/api/Filing/download?attachId=141966&guidFileName=3e5b91ad-8c1e-4db5-a271-afcba2cf4ce7.pdf>. Pg. 40-42.

⁷⁴ Pepco 2021. *Climate Solutions 5-Year Action Plan*. FC1167-2021-M-73. Available at: <https://edocket.dcpsec.org/apis/api/Filing/download?attachId=141966&guidFileName=3e5b91ad-8c1e-4db5-a271-afcba2cf4ce7.pdf>. Pg. 41.

⁷⁵ Pepco 2021. *Climate Solutions 5-Year Action Plan*. FC1167-2021-M-73. Available at: <https://edocket.dcpsec.org/apis/api/Filing/download?attachId=141966&guidFileName=3e5b91ad-8c1e-4db5-a271-afcba2cf4ce7.pdf>. Pg. 41.

⁷⁶ Pepco 2021. *Climate Solutions 5-Year Action Plan*. FC1167-2021-M-73. Available at: <https://edocket.dcpsec.org/apis/api/Filing/download?attachId=141966&guidFileName=3e5b91ad-8c1e-4db5-a271-afcba2cf4ce7.pdf>. Pg. 17.

98. Pepco DC's 30-Year Plan promises to build on the DC Energy Efficiency Program Initiative, the Connect Homes and Businesses Initiative, and the Smart Rates buildings Initiatives after the initial three-year program cycle and pilot phases.⁷⁷ Pepco hopes to introduce:

*...longer-term programs to achieve deep efficiency retrofits (30%-50% energy savings) and make-ready efforts for electrification and expanding interactivity, with a focus on reducing GHG emissions and providing assistance to low-and moderate-income communities to reduce barriers to this transition. To fully leverage the benefits of grid-interactive buildings, Pepco will work to integrate buildings into load and demand management platforms, adapting those platforms to connect new forms of data in ways that are plug-and-play for the customer.*⁷⁸

Pepco also proposes to manage the introduction of distributed energy resources and electric vehicles into the grid, implement a managed charging platform, a distributed energy resources management system, and new software to facilitate grid automation as part of its efforts to achieve zero-emission transportation.⁷⁹ Finally, Pepco claims it will “ensure the reliable and efficient integration of electrified transportation into the grid and coordinate

⁷⁷ Pepco. 2021. *30-Year Transition Strategy*. FC1167-2021-M-93. Available at: <https://edocket.dcpsec.org/public/search/details/fc1167/93>, Pg. 19.

⁷⁸ Ibid.

⁷⁹ Ibid, pg. 14.

with the broader grid planning process” and encourage the development of charging stations and deployment of make-ready infrastructure.⁸⁰

99. Efficient, low-cost energy efficiency and electric vehicle programs cannot be both duplicative and least cost. Collaboration between the utilities and with relevant District agencies will be essential in planning to meet the District’s climate goals. To offer a coherent, cost-effective decarbonization strategy, each utility’s plan must address its overlap with that of the other utility.

Incorrect Peak Delivery Claims

100. WGL mischaracterizes the relative peak delivery capability of the District’s gas and electric systems. WGL states, “Since the natural gas system delivers 61 percent more energy on the coldest days of the year than the electric system delivers on the hottest days of the year...”⁸¹ Relatedly, in its CBP, WGL claims that its gas is delivered with very low loss during its delivery from source to customer: out of 100 MMBtu of natural gas burned, only 9 MMBtu is lost from extraction to end use delivery.^{82,83} WGL’s CBP uses the following figure to (erroneously) demonstrate gas’ superiority in delivering energy on peak days.⁸⁴

⁸⁰ Ibid, pg. 15.

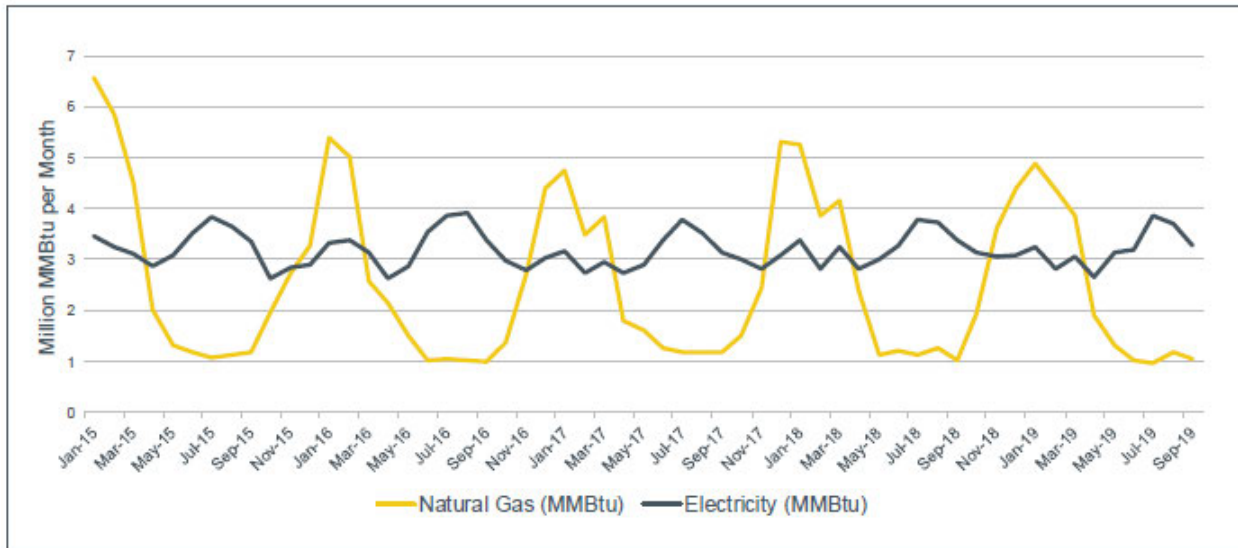
⁸¹ WGL September 1, 2021. FC 1167 Confidential Compliance Filing Pg. 6

⁸² AltaGas. 2020. Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington, D.C. FC 1142. p.25

⁸³ In its diagram depicting 100 MMBtu of source energy for gas and electricity, with 91 MMBtu delivered to customer for gas, and 36 MMBtu delivered to customer for electricity—WGL does not provide a citation with a correct link to the original source to support this claim in their footnote.

⁸⁴ AltaGas. 2020. Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington

Figure 2. Comparative monthly gas and electricity consumption in the District

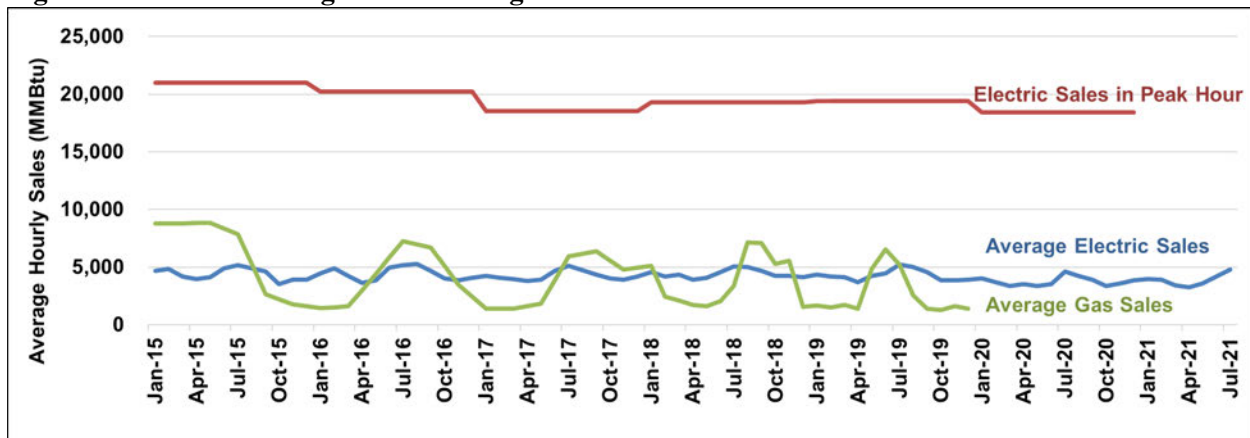


Reproduced from: WGL’s September 2021 filing attributes this quote to the United Nations’ Sustainable Development Goal for Clean Energy (SDG #7). In fact, this is a quote from AltaGas’s own CBP: WGL. March 16, 2020. Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington, D.C. Alta Gas & Washington Gas. Available at: <https://edocket.dcpsec.org/apis/api/filing/download?attachId=101994&guidFileName=e69b6cb2-963c-4122-aca3-3b45e838b2b7.pdf>. p. 26

101. In this figure, WGL compares its monthly gas sales in the District in MMBtu’ to Pepco’s monthly sales of electricity in megawatt-hours (MWh) converted to MMBtus using a physical energy conversion factor of 3.412. (i.e. this conversion does not take account of generation mix or heat rates.) This is the measure that WGL is referring to as “capable of delivering” on a peak day. WGL is the best judge of whether monthly gas deliveries provide a reasonable maximum for its capacity to deliver on a peak winter day. For the electric measure, however, average monthly generation is both a nonstandard and most certainly an incorrect measure (and gross underestimation) of system capacity.

102. As the Commission is well aware, electric system capacity is understood in megawatts (MW) at peak and conversion of this peak capacity to MMBtu is, at best, imprecise. Nonetheless, solely for the sake of demonstrating the bias created by WGL’s unorthodox choice of comparison metric, Figure 3 below (developed by AEC) converts the two data series presented by WGL into somewhat more comparable terms.

Figure 3. Peak and average electric and gas sales in the District



Data source: U.S. EIA. September 29, 2021. “Form EIA-861M (formerly EIA-826) detailed data”. Available at: <https://www.eia.gov/electricity/data/eia861m/>

103. Figure 3 converts annual peak electric sales in MW into “electric sales in peak hour” in MWh and then to MMBtu using the same physical conversion factor employed by WGL. Average monthly electric sales per hour and average monthly gas sales per hour (in both cases, averages across every hour in the month) are presented for comparison. By this measure—equally unorthodox but far more accurate—electric sales in the peak hour are two to three times higher than monthly average gas sales per hour. In contrast, WGL’s method of averaging peak electric needs across each summer month gives the incorrect impression that the District’s gas system is capable of delivering far more energy on peak than its electric system.

104. WGL uses this erroneous claim of greater peak capacity on the gas system to incorrectly argue that a scenario that increases gas distribution in the District provides a hedge on electric sector prices, protecting customers from price volatility. According to WGL’s September 2021 filing, “Since the natural gas system delivers 61 percent more energy on the coldest days of the year than the electric system delivers on the hottest days of the year, the Fuel Neutral Decarbonization Scenario also helps to stabilize costs via a diversified energy portfolio and provides a hedge against renewable electricity price increases and volatility resulting from competition for projected demand escalation.”⁸⁵ The CBP further explains that this “competition” would be:

*...for projected escalation in demand for renewable electricity supply and Renewable Energy Credits (“RECs”) as well as protection against unknown costs of distribution and transmission upgrades. A diverse low-carbon fuel portfolio can reduce the demand for electricity, thereby lessening the potential of multiple jurisdictions to get into bidding wars for a scarce commodity.*⁸⁶

105. I understand WGL’s (incorrect) rationale for the use of a gas distribution system in electric price hedging to be as follows. In a context of electrification and increased customer demand for electricity:

- Multiple electric utilities bid for a scarce resource: low-carbon electricity and with it, RECs. (Unsupported assumption: Renewable supply will not keep up with renewable demand. Reality: To date, renewable supply has outpaced demand.)

⁸⁵ WGL September 1, 2021. FC 1167 Confidential Compliance Filing, p. 6

⁸⁶ AltaGas. 2020. Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington, D.C. FC 1142. p.43

- These same electric utilities face unknown costs of distribution and transmission upgrades. (Unsupported assumption: Electric utilities cannot forecast and plan for increased demand over a 30-year time frame. Reality: With clear public mandates and good planning, utilities have every opportunity to plan ahead and to act on these plans.)
- Competition for scarce low-carbon electric resources results in higher and more volatile prices. WGL references its own estimate that increased peak electric demand (which it ballparks at 50 percent) will result in \$0.3 billion in extra costs. To calculate this cost WGL multiplied its assumed 50 percent extra MW by DCSEU’s FY2016 avoided cost of supply.⁸⁷ (Unsupported assumption: WGL provides no support for its estimated increase of 50 percent (although this appears to closely match Pepco assumptions) nor for the assumption that the marginal avoided cost of supply provides a reasonable estimate for a non-marginal change in added supply. Reality: At the margin, it may well be the case that a small increase bears the same cost as a small decrease. However, the purpose of DCSEU’s avoided cost of supply estimation is explicitly the valuation of marginal changes to electric supply, to wit, the District’s annual incremental energy efficiency savings. WGL’s estimate of a 50 percent increase in District peak electric demand is definitionally not a marginal change and its cost cannot be estimated using a marginal price of supply.)
- The District gas distribution system’s superior capacity to deliver on peak will provide a “hedge” that lowers electric prices and/or reduces electric price volatility. In short,

⁸⁷ AltaGas. 2020. Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington, D.C. FC 1142. p.42

more gas use, less electric demand, lower and more stable electric prices. (Unsupported assumption: District electric demand is a critical determining factor in setting District electric rates. Reality: The District represents 1.5 percent of total demand served by the PJM interconnection network and has less influence on the wholesale cost of power.⁸⁸ To the extent that increased peak electric use causes added infrastructure investments, beyond those needed for upkeep and maintenance, these costs could indeed be passed onto consumers but must be netted against no longer having to pay fixed costs on gas bills to support and replace the District's aging gas distribution system. WGL does not appear to have made this net cost calculation in its scenario analysis.)

106. In addition, WGL's proposition that natural gas capacity provides a physical hedge against volatile electricity prices has two fundamental problems: (1) This assumes that customers have the opportunity to switch end-use fuel on a whim. Customer demands in the short-term are highly inelastic because of the difficulty and expense of switching from one type of heating equipment to another. Replacing electric furnaces and appliances with natural gas alternatives is a major investment and customers neither constantly switch out equipment or operate two sets of equipment. (2) Electricity prices are highly correlated with natural gas prices (natural gas will continue to be a dominant fuel for electric generation for some time to come), especially on the margins that set prices in the electricity market, and natural gas and electric prices, therefore, move largely in tandem.

⁸⁸ AltaGas. 2020. Natural Gas and its Contribution to a Low Carbon Future: Climate Business Plan for Washington, D.C. FC 1142

107. **In sum, WGL makes several unsupported assumptions regarding the District's renewable supply, demand forecast for gas and electricity, avoided costs of supply, and the influence of demand on the wholesale cost of power. These unsubstantiated claims all contribute to WGL's mischaracterization of gas supply as a barrier protecting consumers against price volatility.** WGL also fails to address the adequacy of gas storage within its system or the impact of storage on customer costs. The role of storage in gas system reliability and cost stabilization is very commonly under-reported on and unreviewed (left at the discretion of the utility).