RECEIVED 2020 JUN 15 3:58 PM

EARTHJUSTICE

VIA ELECTRONIC FILING **June 15, 2020**

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

Re: **Formal Case No. 1142,**
In the Matter of the Merger Application of AltaGas Ltd. and WGL Holdings, Inc.

Dear Brinda Westbrook-Sedgwick:

Attached please find the **Comments and Request to Institute An Evidentiary Proceeding of Sierra Club** for filing in the above-captioned proceeding.

Thank you for your attention to this matter. Should you have any questions, please contact me at smiller@earthjustice.org.

Sincerely,

Susan Stevens Miller

Susan Stevens Miller, DC Bar No. 1026066
Earthjustice
(202) 667-4500
smiller@earthjustice.org

Counsel for Sierra Club

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE DISTRICT OF COLUMBIA

IN THE MATTER OF THE MERGER OF ALTAGAS LTD. AND WGL HOLDINGS, INC.	)))	**Formal Case No. 1142**

COMMENTS AND REQUEST TO INSTITUTE AN EVIDENTIARY PROCEEDING OF SIERRA CLUB

Sierra Club, pursuant to the District of Columbia Public Service Commission's ("Commission") Order No. 20310 issued in the above-captioned proceeding, hereby files these initial comments on the AltaGas Climate Business Plan and Renewable Gas Study. Included with these comments is a technical review performed by Dr. Ezra D. Hausman.[1] As summarized below and set forth in detail in Dr. Hausman's review, the Commission should find that: 1) AltaGas has failed to comply with either Merger Commitments No. 79 or Merger Commitment No. 6; 2) the Climate Business Plan fails on its face to achieve carbon neutrality in 2050, continuing to rely on climate-damaging fossil gas for nearly half of Washington Gas's 2050 sales; 3) both the Climate Business Plan and the Renewable Gas Study are rife with unsupported claims and assertions and, where assumptions are revealed, plagued with unrealistic and overly-optimistic projections; and 4) the dearth of meaningful information and credible analysis undermines the validity of the Climate Business Plan and the Renewable Gas Study and impairs stakeholders' and the Commission's review of the documents. The Commission should institute an evidentiary proceeding and instruct parties to develop a plan to transition WGL to a business model consistent with DC's climate commitment of carbon neutrality.

[1] Ezra D. Hausman, Ph.D., Review of AltaGas' Climate Business Plan and Renewable Gas Study prepared on Behalf of the Sierra Club, (May 14, 2020) ("Hausman Report" or "Exhibit A").

I. BACKGROUND

In 2013, DC issued *Sustainable DC*, the District's sustainability plan, which included the commitment to reduce greenhouse gas (GHG) emissions by 50% from 2006 levels by 2032, and 80% below 2006 levels by 2050. In December 2017, recognizing the pressing need to keep global average temperature rise below 1.5°C, Mayor Muriel Bowser announced an even stronger commitment – reaching "carbon neutrality" in the District by 2050.[2]

On June 29, 2018, the Commission approved the Unanimous Agreement of Stipulation and Full Settlement on the merger of AltaGas Ltd. and WGL Holdings, Inc. in the above-captioned proceeding.[3] The Settlement Agreement set forth a number of merger commitments, including Merger Commitment No. 79, which provides:

> By January 1, 2020, AltaGas will file with the Commission a long-term business plan on how it can evolve its business model to support and serve the District's 2050 climate goals (e.g., providing innovative and new services and projects instead of relying only on selling natural gas) ("Climate Business Plan"). After the business plan is filed, AltaGas will hold bi-annual public meetings to report on and discuss its progress on the business plan.[4]

Under another merger commitment, Merger Commitment No. 6, AltaGas agreed to fund a study to evaluate renewable gas facilities in the District of Columbia.[5]

In August 2018, the DC government released *Clean Energy DC: the District of Columbia Climate and Energy Action Plan*,[6] described as "the District's proposal to reduce

---

[2] Press Release, Office of the Mayor, *Mayor Bowser Commits to Make Washington, DC Carbon-Neutral and Climate Resilient by 2050* (Dec. 4, 2017), https://mayor.dc.gov/release/mayor-bowser-commits-make-washington-dc-carbon-neutral-and-climate-resilient-2050.
[3] Formal Case No. 1142, Order No. 19396, App. A (June 29, 2018) ("Settlement Agreement").
[4] *Id.* ¶ 79.
[5] *Id.* ¶ 6.
[6] Clean Energy DC, *The District of Columbia Climate and Energy Action Plan*, Department of Energy & Environment (Aug. 27, 2018) ("Clean Energy DC") https://doee.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/Clean%20Energy%20DC%20-%20Full%20Report_0.pdf.

greenhouse gas (GHG) emissions at least 50% below 2006 levels by 2032 while increasing renewable energy and reducing energy consumption, as directed by the landmark Sustainable DC plan; and to put us on a path to achieve carbon neutrality by 2050."[7] Within this document, there is a recognition that reaching DC's climate commitments requires, among other things, and "a shift away from fossil fuels, including natural gas" so that the district can ultimately "eliminate fossil fuel use."[8]

Subsequent to the approval of the Settlement Agreement, the District of Columbia Council passed and Mayor Bowser signed the CleanEnergy DC Omnibus Amendment Act of 2018 ("Clean Energy Act"). The Clean Energy Act mandates that the Commission consider "the preservation of environmental quality, including effects on global climate change and the District's public climate commitments."[9] DC's climate commitments include a 50 percent reduction of greenhouse emissions by 2032 and carbon neutrality by 2050, as well as ensuring that new buildings operate at net zero carbon by 2030 and all buildings are net zero carbon by 2050.[10] Thus, the Commission must now consider the AltaGas Climate Business Plan within the context of the Plan's effects on the District's public climate commitments.

On December 6, 2019, AltaGas filed a motion for extension of time, requesting that the filing of the Climate Business Plan be delayed until March 16, 2020.[11] In this motion, AltaGas also stated that "renewable" natural gas ("RNG") is expected to be a component of A1taGas's

[7] *Id.* at v.
[8] *Id*. at 156.
[9] D.C. Code § 34-808.02 (2018).
[10] Sustainable DC 2.0 Plan, District of Columbia, at 43, (Apr. 23, 2019) http://www.sustainabledc.org/wp-content/uploads/2019/04/sdc-2.0-Edits-V5_web.pdf; Clean Energy DC, at v; *Net Zero Carbon Buildings Declaration*, C40 Cities (Aug. 23, 2018), https://www.c40.org/other/net-zero-carbon-buildings-declaration.
[11] Formal Case No. 1142, AltaGas Ltd.'s Motion for Extension of Time, ¶ 3 (Dec. 6, 2019).

Climate Business Plan.[12] The Commission granted the AltaGas motion for an extension of time, permitting AltaGas to delay filing of the Climate Business Plan until March 16, 2020.[13]

On March 16, 2020, AltaGas submitted a Climate Business Plan in an attempt to comply with Merger Commitment No. 79. This filing also included the AltaGas Renewable Natural Gas Study Summary purporting to comply with Merger Commitment No. 6 of the Settlement Agreement. In addition, the plan filed in March included a "Technical Study Summary Report" providing an overview of ICF's approach. Approximately one month later, ICF published the full Technical Report on its website. To date, AltaGas has not filed the full report in this proceeding.[14]

On March 18, 2020, the Commission issued Order No. 20310. In this Order, the Commission granted the Joint Motion of the Office of the People's Counsel for the District of Columbia ("OPC") and District of Columbia Government ("DCG") for Enlargement of Time to File Comments to AltaGas Ltd.'s ("AltaGas") Merger Commitment Nos. 6 and 79 Filings ("Joint Motion").[15] The Commission directed that comments on the Climate Business Plan would be due within 60 days of the Climate Business Plan filing, and reply comments would be due within 60 days of the filing of comments.[16]

---

[12] *Id.* ¶ 4.
[13] *See* Formal Case No. 1142, Order No. 20276 (Dec. 19, 2019).
[14] ICF, *Opportunities for Evolving the Natural Gas Distribution Business to Support the District of Columbia's Climate Goals*, AltaGas (Apr. 2020) https://washingtongasdcclimatebusinessplan.com/wp-content/uploads/2020/04/Technical-Study-Report-Opportunities-for-Evolving-the-Natural-Gas-Distribution-Business-to-Support-DCs-Climate-Goals-April-2.pdf .
[15] Formal Case No. 1142, Order No. 20310, ¶ 10 (Mar. 18, 2020).
[16] Sierra Club notes that on May 11, 2020, the DC Government and the Office of People's Counsel filed a Joint Motion for Second Enlargement of Time to Provide Comments to AltaGas Ltd.'s Merger Commitments No. 6 and 79 Filings ("Second Joint Motion"). The basis of this request is AltaGas's failure to respond to discovery requests from the parties. On May 14, 2020, the Commission granted the extension request. Comments are now due June 26, 2020 and reply

II. COMMENTS

This Commission is at a crossroads. Decisions made now will determine the path forward for DC's gas utility, and whether DC will be able to meet its climate commitments of a 50% GHG emissions reduction by 2032 and carbon neutrality by 2050. AltaGas was given the opportunity to shape this discussion through its Climate Business Plan, but failed to provide the Commission with a starting point for a path forward. The AltaGas Climate Business Plan does not represent even a useful first step in the Commission's determination process.

1. The AltaGas/WGL Climate Business Plan Does Not Comply with Merger Commitment No. 79.

A. The Climate Business Plan Continues WGL's Reliance on Fossil Gas for Nearly 50 Percent of WGL's Gas Supply in 2050 and Does Not Achieve the Required Carbon Neutrality

The Commission should find that the AltaGas Climate Business Plan does not comply with Merger Commitment No. 79. The settlement agreement approved by the Commission stated that the combined company would "evolve its business model to support and serve the District's 2050 climate goals (e.g., providing innovative and new services and products *instead of relying only on selling natural gas*)".[17] The District's 2050 climate commitment is carbon neutrality. However, the Climate Business Plan anticipates that 42% of gas delivered by Washington Gas in 2050 would be neither RNG nor low-carbon gas[18] Since the Climate Business Plan does not purport to identify carbon-negative activities to offset the continued burning of climate-intensive fossil gas for nearly half its fuel, the Plan fails on its face to meet DC's climate commitment for 2050.[19] Sierra Club submitted a data request to AltaGas asking how a plan which relies on fossil

comments are due August 25, 2020.
[17] Settlement Agreement ¶ 79 (emphasis added).
[18] Climate Business Plan at 18.
[19] Hausman Report at 24, 27 ("Even taken at face value, the "plan" would not eliminate gas-

gas for 42% of the gas delivered is consistent with carbon neutrality. However, AltaGas objected to the discovery questions and the Commission ruled that AltaGas did not have to respond to the questions.[20]

B. The Climate Business Plan Fails to Evolve WGL's Business Model Away From Selling Gas.

Moreover, the Climate Business Plan calls for using what AltaGas refers to as "renewable gas," also called "biomethane," which does not constitute a non-gas innovative service. Similarly, the Climate Business Plan also recommends use of combined heat and power and gas heatpump and hybrid heating/heat pumps.[21] The Climate Business Plan relies on these gas and hybrid heat pumps for 19% of the assumed emissions reductions.

Thus, contrary to the requirements of the Settlement Agreement, AltaGas did not submit a Climate Business Plan that relies on innovative and new services and products. The Company's Plan to an overwhelming extent largely rests on WGL continuing to provide gas services. The Commission should find that the AltaGas Climate Business Plan does not comply with Merger Commitment No. 79.

2. The AltaGas Renewable Gas Study Does Not Comply with Merger Commitment No. 6

Similarly, the AltaGas Renewable Gas Study does not comply with Merger Commitment No. 6. That Commitment required that the study assess "the potential

---

related emissions by 2050 as the company claims, because it would continue to rely on combustion of fossil gas for 42% of its fuel supply.")

[20] Order No. 20342 at 5.

[21] AltaGas relies on "hybrid heating" for achieving 19% of its emissions reductions by 2050, which appears to include both gas-fired heat pumps and electric heat pumps with gas backup. The summary chart on page 10 of the CBP includes only "hybrid heating", but the text discussion on pages 13 and 14 describes these technologies separately.

environmental benefits of repurposing *locally sourced waste streams* into pipeline quality renewable gas, compressed natural gas and/or liquefied natural gas that can be used for carbon neutral vehicle fueling and onsite energy production.[22] The AltaGas Study presents opaque assumptions regarding the availability of locally sourced waste streams. In the absence of discovery, the Commission cannot analyze WGLs generalized estimate of biogas availability. Moreover, these overly generalized estimates do not comply with Commitment No. 6's very specific directive requiring AltaGas to access local waste streams. As a result, the Commission should also find that AltaGas failed to comply with Merger Commitment No. 6.

3. As Dr.Hausman Details in His Analysis, the Climate Business Plan Relies on Unrealistic and Unsupported Assumptions

In his technical review, Dr. Hausman sets out in detail the myriad flaws contained in both the Climate Business Plan and the Renewable Gas Study, including unsupported assumptions, unaddressed uncertainties and contradictory statements. Some of these flaws include:

- assuming that AltaGas would have priority access to the lowest-cost renewable natural gas resource when basic principles of economics belie this assumption;
- failure to provide the actual cost assumptions underlying the analyses, including the assumptions for the actual sources of RNG used in developing the Climate Business Plan;
- failing to identify the sources of the costs projections in either the RNG report or the Climate Business Plan, or provide crucial details such as whether the costs include transportation or other processing costs;
- claimed future cost savings which are predicated on one (unrealistic) alternative rather

[22] Settlement Agreement ¶ 6 (emphasis added).

than a realistic range of potential alternatives;

- offering no support for the claim that its preferred approach would cost the District $2.7 billion less (through 2050) than the electrification alternative it evaluated, when other credible sources have found that electrification is both a lower cost and lower risk alternative to continued reliance on the existing gas distribution model;[23]
- reliance on biased industry sources for vital data assumptions instead of using readily available information from credible technical sources;
- the failure to disclose the actual composition or cost of its assumed RNG contribution;
- the claim, without attribution or evidence, that "RNG is carbon neutral"; and
- reliance on the currently non-existent certified natural gas.

These flaws severely undermine the credibility of the analysis and the conclusions that AltaGas attempts to draw from it.

4. The Flaws in the Climate Business Plan Analysis Identified Dr. Hausman Are Reinforced by Other Analyses, Which Have Also Reached Conclusions Contrary to the Climate Business Plan Regarding the Relative Costs of the Electrification Alternative

The Commission should be aware that there are several (more credible) analyses that reach diametrically opposed conclusions regarding the relative cost of electrification. For

[23] Hausman Report at 14 (discussing a recent study by Energy + Environmental Economics, Inc ("E3 Study"). Dr. Hausman's report also highlights the asymmetric risks involved. AltaGas faces no risk under its preferred approach—it would be guaranteed recovery of all associated costs from its ratepayers. Hausman Report at 25–26. However, there is enormous risk to Washington Gas's customers, including risks that non-fossil gas alternatives fail to materialize or are significantly more expensive than AltaGas claims. Hausman Report at 14–15 (discussing the E3 Study). A belated recognition of the need to shift to electrification risks creating massive stranded assets in the form of ongoing upgrades to the gas distribution system. *Id.*

example, in April 2020, Energy + Environmental Economics ("E3") prepared an extensive modeling study on behalf of the California Energy Commission examining several options to achieve California's decarbonization goals. The E3 study evaluated scenarios that achieve an 80 percent reduction in California's GHG emissions by 2050 from 1990 levels.[24]

The E3 study concluded that in all the long-term GHG reduction scenarios it evaluated, electrification of buildings, and particularly the use of electric heat pumps for space and water heating, leads to lower energy bills for customers in the long run. Similarly, building electrification was found to lower the total societal cost of meeting California's long term climate goals.[25] Finally, the E3 study recommends avoiding gas system expansion. Gas system investments come with long lifetimes. Making such investments in the context of declining throughput—an outcome that occurs in all of E3's mitigation scenarios—will increase the average cost of gas service.[26]

In addition to the report from Energy and Environmental Economics, Inc., the Rocky Mountain Institute (RMI) has recently demonstrated the positive economics of home electrification.[27] The RMI report determined that air source heat pumps are better options economically and for the climate in multiple regions in the country. The closest geographic area to the District analyzed in the RMI Report was Providence, Rhode Island. In Providence it is already less expensive to build new homes with air source heat pumps rather than build with gas, oil, or propane heating systems. Home heat pump retrofits are also already lower cost

[24] Dan Aas et al., *The Challenge of Retail Gas in California's Low Carbon Future*, E3, (Apr. 2020) https://ww2.energy.ca.gov/2019publications/CEC-500-2019-055/CEC-500-2019-055-F.pdf
[25] *Id.* at 4.
[26] *Id* at 58.
[27] Sherri Billimoria et al., *The Economics of Electrifying Buildings*, RMI, (2018) https://rmi.org/insight/the-economics-of-electrifying-buildings/ ("RMI Report").

investments than oil or propane system retrofits.[28]

The unsubstantiated claim that electrification is more expensive than the elusive strategy outlined in the Climate Business Plan is also inconsistent with the findings of the Integrated Energy Plan of New Jersey. Their IEP shows that least cost attainment of their climate goal of an 80 percent reduction in greenhouse gases by 2050 involves aggressive electrification of buildings. Demand for pipeline gas falls significantly as 90% of buildings are transitioned from gas appliances to electric by 2050 under the least cost option.[29] The IEP studied a variant of the plan where gas use was retained in buildings and found that variation to be a poor foundation for further reductions beyond 80 percent. It also determined that retaining gas in buildings would require further biofuel use, and potentially synthetic fuels production which it found to be more expensive than electrification alternatives.[30] The IEP concluded that retaining gas use in buildings would increase costs sharply.

The unsubstantiated assumptions and lack of analysis detailed in Dr. Hausman's report

[28] *Id.* at 34. While gas to heat pump retrofits were shown to be marginally more expensive in Providence, this has little bearing on whether they would be a cost-effective long term solution in the District. First, the Providence data overstates the cost of electric heat pump retrofits, as Rhode Island has the second highest electric utility rates in the country, whereas the District ranks 19th. Indeed, the electric utility costs in Rhode Island are nearly double than the District's. Further, the RMI Report acknowledges the cold-weather climate in Providence impacts the efficiency of some heat pumps. The high electricity costs and cold weather climate are major factors in the retrofit economics for Providence. The lower electric utility costs and the warmer weather climate in the District likely result in a much greater cost-effective scenario for District homes switching from gas heating systems to heat pumps. Second, the Providence analysis understates the cost of the continued use of gas for home heating, since it assumes the continued use of fracked gas, which is incompatible with the District's climate commitments. In order to achieve the District's climate goals, any gas burned in the future will need to be carbon neutral. Even if truly carbon-neutral gas exists, which is a highly questionable assumption, this form of gas would be far more expensive than the fossil gas used in the Providence comparison.

[29] Evolved Energy Research, *Technical Appendix to New Jersey's 2019 IEP*, at 12 (Nov. 29, 2019) https://nj.gov/emp/pdf/New_Jersey_2019_IEP_Technical_Appendix.pdf.

[30] *Id.* at 18.

are compounded by AltaGas's refusal to participate in any discovery process. As noted previously, AltaGas is refusing to respond to data requests propounded by parties to the merger proceeding.

The myriad flaws, unsupported assumptions and missing analysis in both the Climate Business Plan and the Renewable Gas Study renders both these filings useless for Commission purposes.

III. REQUEST TO INSTITUTE AN EVIDENTIARY PROCEEDING

Clearly, formal evidentiary hearings are necessary regardless of whether or not the Commission finds that the Climate Business Plan and the Renewable Gas Study comply with the Settlement Agreement. The only information before the Commission is AltaGas's untested assertions and flawed analysis which, on its face, fails to actually achieve the District's climate commitments. Moreover, AltaGas has refused to answer any discovery requests and the Commission has found that AltaGas has no obligation to respond to these requests. Without the scrutiny of an evidentiary proceeding, it will be impossible for the Commission to fulfill its policy and legal mandates to ensure the achievement of DC's climate commitments in a manner that safeguards the public interest.

Moreover, as illustrated by the Second Joint Motion, AltaGas has refused to be open and transparent about the assumptions, calculations and methodologies underlying certain statements and numbers contained within the Climate Business Plan.[31] AltaGas is refusing to respond to data requests propounded by parties to the merger proceeding, only agreeing to an informal process which prevents any party or stakeholder other than the District Government

[31] Second Joint Motion at 2.

from seeing the AltaGas responses.[32] Discovery is an essential tool for the Commission, the parties, and the impacted public to analyze the AltaGas data and test the efficacy of its assumptions. The intransigence of AltaGas in refusing to allow any meaningful analysis of either the Climate Business Plan or the Renewable Gas Study renders those filings useless. Neither filing can be relied upon by the Commission to determine the steps necessary to achieve DC's climate commitments.

The AltaGas response to Merger Commitment Nos. 79 and 6 is fatally deficient. However, the Commission must move forward and determine the manner in which the gas utility shall operate in the future. Accordingly, Sierra Club requests that the Commission reject the AltaGas filings and establish a formal evidentiary proceeding where the stakeholders can present and analyze proposals to evolve WGL's business model to achieve carbon neutrality by 2050 instead of relying on selling gas, and to ensure that by 2050 no greenhouse gases are emitted by the gas utility.

For example, WGL is fundamentally a company that enables households to heat their homes and heat their water. WGL can continue to serve this fundamental purpose without selling gas and contributing to the climate crisis.

To achieve this gas-free commitment, WGL could deploy two proven zero-carbon technologies for heating services:

1. Air- or ground-source heat pumps that heat and cool homes.

[32] *Id.* at 2-3.

2. Where cost-effective, clean energy micro-district heating systems that require a network of pipes in the ground that carry hot water in the winter and cold water in the summer from central units which generate the hot or cold water through geothermal energy, industrial-scale heat pumps, and sewage waste heat extraction.

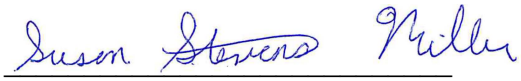
These are just two examples of the issues stakeholders would explore in an evidentiary proceeding. This proceeding is necessary to ensure that the Commission fulfills its mandate to consider "the preservation of environmental quality, including effects on global climate change and the District's public climate commitments." DC's climate commitments require that the District move away from the burning of fossil fuels, including gas. The Commission should institute an evidentiary proceedings to resolve the issues necessary to achieve this transition in a timely manner.

IV. CONCLUSION

It is impossible to reconcile the AltaGas Climate Business Plan with DC's climate commitments to reduce greenhouse gas (GHG) emissions at least 50% below 2006 levels by 2032 and achieve carbon neutrality by 2050. The continued use of gas to supply energy to District residents is contrary to these public climate commitments and also is contrary to the District's clear intention that D.C. transition away from fossil fuels, including gas.

The Commission should reject both the Climate Business Plan and the Renewable Gas Study. The Commission also should institute an evidentiary proceeding to explore methods of evolving WGL's business plan to complete the transition of the District's energy system toward clean energy and to ensure that DC meets its climate commitment of carbon neutrality by 2050.

Respectfully submitted,



Susan Stevens Miller
Staff Attorney
Earthjustice
1001 G Street, NW, STE. 1000
Washington, DC 20001
smiller@earthjustice.org

Counsel for Sierra Club

CERTIFICATE OF SERVICE

I hereby certify that on this 15th day of June 2020, a copy of the foregoing was served on the following parties by electronically mail:

Brinda Westbrook-Sedgwick
Commission Secretary
Public Service Commission
of the District of Columbia
1325 G Street, NW, Suite 800
Washington, DC 20005
bwestbrook@psc.dc.gov

Anjali G. Patel, Esq.
Office of People's Counsel
1133 15th St. NW, Suite 500
Washington DC 20005
apatel@opc-dc.gov

Christopher Lipscombe
Lara Walt
Office of the General Counsel
Public Service Commission
of the District of Columbia
1325 G Street, NW, Suite 800
Washington, DC 20005
CLipscombe@psc.dc.gov
lwalt@psc.dc.gov

Hussain Karim
Alan J. Barak
Department of Energy and Environment
1200 First Street, NE, 5th Floor
Washington, DC 20002
hussain.karim@dc.gov
alan.barak@dc.gov

Karen Hardwick
John C. Dodge
Cathy Thurston-Seignious
Paul S. Buckley
Meera Ahamed
Associate General Counsel
Washington Gas Light Company
1000 Maine Ave., S.W.
Washington, DC 20024
cthurston-seignious@washgas.com

Brian R. Caldwell
Assistant Attorney General
Office of the Attorney General
441 4th Street, NW
Washington, DC 2000 I
Brian.caldwell@dc.gov

Dennis Jarnouneau
Andrea Harper
Kim Hassan
Pepco
701 Ninth Street, NW
Washington, DC 20068
djamouneau@pepcoholdings.com

Frann G. Francis, Esq.
Senior Vice President & General Counsel
Apartment and Office Building Association
of Metropolitan Washington
1025 Connecticut Avenue, NW, Suite 1005
Washington, DC 20036
FFrancis@aoba-metro.org

James F. Wallington
Baptiste & Wilder, P.C.
1150 Connecticut Avenue, NW, Suite 315
Washington, DC 20036
jwallington@bapwild.com

Andrew G. Pizor
National Consumer Law Center
1001 Connecticut Avenue, NW, Suite 510
Washington, DC 20036-5528
apizor@nclc.org

Scott H. Strauss, Esq.
Spiegel & McDiarmid LLP
1875 I St., NW
Suite 700
Washington, DC 20006
Scott.strauss@spiegelmcd.com

Brian Petruska
General Counsel
LiUNA Mid-Atlantic Region
11951 Freedom Drive, Suite 310
Reston, VA 20190
bpetruska@maliuna.org

Mark Murphy, Esq.
Mooney, Green, Saindon, Murphy & Welch, P.C. on behalf of the International Brotherhood of Teamsters Local No. 96
1920 L Street, NW - Suite 400
Washington, DC 20036
mmurphy@mooneygreen.com

J. Joseph Curran, III,
F. William DuBois,
Kenneth L. Thompson
Christopher S. Gunderson
Venable LLP
750 East Pratt Street, 7th Floor
Baltimore, MD 21202
JCurran@venable.com

Emily W. Medlyn
U.S. Army Legal Services Agency - Regulatory Law Office
927 5 Guns ton Road
Fort Belvoir, VA 22060
emily.w.medlyn.civ@mail.mil

Moxila A. Upadhyaya
Venable LLP
600 Massachusetts Avenue, N.W.
Washington, D.C. 20001
MAUpadhyaya@venable.com

Bruce Oliver
Revile Hill Associates, Inc.
7103 Laketree Drive
Fairfax Station, VA 22039
revilohill@verizon.net

Dan Dyer
President, OPEIU Loca1 2
AFL-CIO
8555 16th St., NW, Suite 550
Silver Spring, MD 20190
ddyer@opeiu-local2.org

May Va Lor
Corporate Affairs Department
LiUNA
905 16th St., NW, Washington, DC 20006
mlor@liuna.org

/s/ Emma Kaboli
Emma Kaboli
Earthjustice

EXHIBIT A

Review of AltaGas' Climate Business Plan and Renewable Natural Gas Study

Prepared by

Ezra D. Hausman, Ph.D.

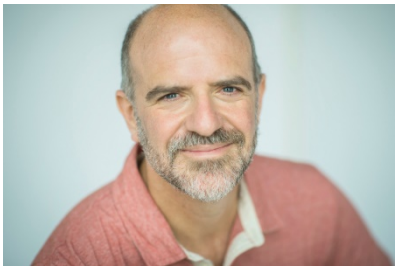
On Behalf of

The Sierra Club

May 14, 2020

Table of Contents

About the Author



Ezra D. Hausman, Ph.D. is an independent consultant in energy and environmental economics.

Ezra has worked for over two decades as an energy market expert with a focus on market design and market restructuring, environmental regulation in electricity markets, and pricing of energy, capacity, transmission, losses and other electricity-related services. Ezra has performed market analyses, provided expert testimony, led workshops and working groups, and provided other support in both regulated and restructured electricity markets for clients including federal and state agencies, consumer advocates, legislative bodies, cities and towns, non-governmental organizations, foundations, industry associations, and resource developers.

Ezra holds a Ph.D. in atmospheric science from Harvard University, an S.M. in applied physics from Harvard University, an M.S. in water resource engineering from Tufts University, and a B.A. in psychology from Wesleyan University.

For more information, please visit www.ezrahausman.com.

I. Executive Summary

On March 16, 2020, AltaGas Ltd. filed a Climate Business Plan (CBP) for Washington, DC along with a Renewable Gas Study (RGS), both in response to terms of AltaGas' settlement agreement for its merger with WGL Holdings, d/b/a Washington Gas. The CBP represents the company's "long-term business plan on how it can evolve its business model to support and serve the District's 2050 climate goals (e.g. providing innovative and new services and products instead of relying only on selling natural gas)."[1] In the CBP, the Company proposes to reduce its greenhouse gas (GHG) footprint and contribute to meeting DC's climate commitments through a combination of strategies, including end-use efficiencies, loss prevention, and relying on non-fossil sources of gas. AltaGas claims that its "Fuel Neutral Decarbonization" approach is $2.7 billion less expensive than the alternative it evaluated, which it calls "Policy-Driven Electrification," when evaluated over the next 30 years.

The plan filed in March included an "ICF Technical Study Summary" as Appendix E. Approximately one month later, Washington Gas published the full, 140-page Technical Report prepared by ICF on its website.[2]

Sierra Club commissioned the current study as an independent technical review of AltaGas' filings and Technical Report, including a review of the methodologies, assumptions, and projections upon which its conclusions are based. This review also evaluates the extent to which AltaGas' filings meet the requirements of the settlement agreement and comport with the District's climate commitments.

The validity of any study is dependent on the validity and credibility of its input data, assumptions, and the methods underlying its results. The AltaGas studies encompass a wide range of assumptions about future resource cost and availability that are fundamental to their findings; the conclusions are also predicated on the specific alternatives considered. With respect to AltaGas' filings, I find that to the limited extent that the CBP and the RGS reveal their assumptions at all, they are plagued with unrealistic projections of both resource availability and cost. Both studies routinely brush aside uncertainties in key assumptions of a magnitude that, if reasonably considered, would likely overwhelm the studies' findings. The CBP report relies upon misleading nomenclature, along with false comparison to a poorly

[1] DC Public Service Commission Order No. 19396, Appendix A, ¶79.
[2] https://washingtongasdcclimatebusinessplan.com/wp-content/uploads/2020/04/Technical-Study-Report-Opportunities-for-Evolving-the-Natural-Gas-Distribution-Business-to-Support-DCs-Climate-Goals-April-2.pdf.

defined alternative to support its conclusions. Even taken at face value, it does not appear that AltaGas' plan meets the District's climate commitment because it continues to partly rely on fossil gas. Finally, many key assumptions on which the authors rely in both studies are either unreferenced, or are referenced to unreliable and biased sources such as the American Gas Association, a gas industry lobbying group. Often, the reports rely heavily on assertions that are not supported by any reference at all. All of these shortcomings cast serious doubt on the validity of the reports' findings, at best making them impossible for the reader (or the Commission) to credibly assess.

One particularly unrealistic set of assumptions permeating the reports concerns the world outside of the Washington Gas system. The authors assume that while Washington customers are paying billions of dollars over the study period to decarbonize their economy, *no other region is taking any action at all* beyond current renewable portfolio standard (RPS) rules.[3] AltaGas also ignores other, likely more economically plausible uses for the resources the company claims it will exploit as part of its future supply – including extremely high-value uses such as supporting electric system reliability and low-carbon aviation fuel. Consultant ICF finds, paradoxically, that there is almost no impact on the regional electricity market, even if Washington customers implement a complete transition to electrification, because no other state in the region is taking any action at all. In fact, there is no recognition of the impact that a nationwide switch to low- or zero- GHG sources of energy would have on crucial assumptions in the study, including availability of fuels such as "renewable" natural gas (RNG) and hydrogen fuels, or on the operation of the electric grid.

Of course, it is difficult to model unknown future policy initiatives, especially when greenhouse gas policy has largely devolved to the individual states due to a lack of action on the federal level. There are various solutions to this challenge that have been applied in numerous studies.[4] What is not reasonable is to select and model a single, vaguely-defined scenario that fails to comport with economic or policy reality, as AltaGas and its consultant have done. In so doing, the company has denied the Commission and other stakeholders a meaningful assessment of low-GHG energy options under likely and realistic future conditions.

---

[3] Page TS-2: "ICF has assumed that other states in the region meet current RPS and other policy requirements, but do not implement more aggressive RPS, climate change or electrification policies." This ignores, for example, the recent Virginia Clean Economy Act mandating that Virginia reach 100% clean energy resources by 2045. See https://www.washingtonpost.com/local/virginia-politics/virginia-dominion-energy-bill/2020/03/06/4524cd20-5fc1-11ea-b29b-9db42f7803a7_story.html.

[4] For a recent (November 2019) example, see "Getting to Zero: A US Climate Agenda" by the Center for Climate and Energy Solutions, available at https://www.c2es.org/content/getting-to-zero-a-u-s-climate-agenda/.

I find that AltaGas' cost assessments for its policy options cannot be taken at face value, because they are based on wild and largely unsupported guesses about future resource availability and costs with no attempt to analyze the impact of uncertainty. Despite the fact that AltaGas' consultant ICF has provided both a 150-page RNG study and a 140-page "Technical Report," nowhere has it provided the actual cost assumptions underlying its analyses, including specification of the nature and sources of RNG assumed in developing and analyzing the Climate Business Plan. In the not unlikely event that the speculative resources envisioned by AltaGas turn out to be significantly more expensive than assumed in the CBP, the company's preferred scenario could turn out to be much more costly than a focus on electrification.

The CBP is most specific on the policy changes AltaGas would require before it would pursue GHG mitigation strategies. These policy changes generally entail transferring the risk of the speculative and costly resources outlined in AltaGas' plan away from the company, ensuring that Washington ratepayers would cover all costs, while compensating AltaGas for any lost sales and rewarding the company with an elevated return on equity (ROE) for meeting its obligations. This approach places an unfair burden on the District's ratepayers, and especially on its lower-income ratepayers, while ensuring that its stockholders will earn a generous return whether the company's analyses and forecasts were right or wrong, and however imprudent its actions.

Overall, I conclude that AltaGas has failed in its commitment to credibly "file with the Commission a long-term business plan on how it can evolve its business model to support and serve the District of Columbia's 2050 climate goals."[5]

[5] Order No. 19396, Appendix A, ¶79.

II. Background

Washington DC Climate Commitments

In 2013 the District of Columbia created *Sustainable DC*,[6] the District's sustainability plan, including the goal of reducing greenhouse gas (GHG) emissions by 50% from 2006 levels by 2032. In December 2017, in recognition of the pressing need to keep global average temperature rise below 1.5°C, Mayor Muriel Bowser announced an even stronger commitment: reaching "carbon neutrality" for the District by 2050.[7]

In August 2018 the District released *Clean Energy DC: the District of Columbia Climate and Energy Action Plan*,[8] described as "the District's proposal to reduce greenhouse gas (GHG) emissions at least 50% below 2006 levels by 2032 while increasing renewable energy and reducing energy consumption, as directed by the landmark *Sustainable DC* plan; and to put us on a path to achieve carbon neutrality by 2050."[9] Within this document, there is a recognition that reaching DC's climate commitments requires addressing all of the energy-using sectors of the DC economy, including transportation, electricity, and energy use in buildings. For the building sector, decarbonizing means aggressively pursuing energy efficiency, implementing strict energy building codes including adoption of "net-zero" energy building codes,[10] and "a shift away from fossil fuels, including natural gas" so that the district can ultimately "eliminate fossil fuel use."[11] As one possible action, *Clean Energy DC* proposes to "explore how biologically derived fuels such as methane captured from agricultural processes, wastewater treatment, or landfills can service" residual needs after aggressive energy efficiency and electrification.[12]

[6] https://www.sustainabledc.org/
[7] https://mayor.dc.gov/release/mayor-bowser-commits-make-washington-dc-carbon-neutral-and-climate-resilient-2050
[8] Available at https://doee.dc.gov/cleanenergydc.
[9] *Clean Energy DC*, page v.
[10] "Net-zero" buildings achieve energy-neutrality through very high levels of efficiency and on-site renewable generation, so that they produce as much energy as they consume over the course of a year.
[11] *Clean Energy DC*, page 156.
[12] *Ibid*., page 157.

Natural Gas and the AltaGas/WGL Settlement

Combustion of natural gas contributed 22.8% of GHG emissions associated with building energy use in DC in 2017, and 17.7% of DC's greenhouse gas emissions overall,[13] making it the third-largest source of emissions after electricity and transportation. Because GHG emissions in the District have already dropped by 30% from 2006 levels, meeting the District's 2032 climate commitment will require reducing today's emissions by 28%.[14] Thus, while it is conceivable to meet the District's near-term climate commitment while continuing to emit some GHGs from the combustion of natural gas, this will be far more difficult, if not impossible, as the District strives to meet its 2050 commitment of carbon neutrality. It is in this context that AltaGas agreed, as part of its commitment under the settlement agreement for its merger with WGL Holdings (d/b/a Washington Gas), to create a business plan for how it could "evolve its business model to support and serve the District of Columbia's 2050 climate goals."[15]

Further, perhaps because the settling parties anticipated that AltaGas' Climate Business Plan might rely on replacement of fossil natural gas with one or more gas resources with a lower GHG impact, the company agreed to commission a study of the availability and cost of such resources to serve the DC market:

> *AltaGas will provide $450,000 to fund a study to assess the development of renewable (bio) gas facilities in the Greater Washington, D.C. metropolitan area. The study will assess the potential environmental benefits of repurposing locally sourced waste streams into pipeline quality renewable gas, compressed natural gas and/or liquefied natural gas that can be used for carbon neutral vehicle fueling and onsite energy production. The study will evaluate the economic viability, identify operating challenges and solutions, and offer recommendations relating to regulatory and market approaches that can facilitate the utilization of renewable sources to support the achievement of local, state, and regional climate and energy plans.* (Settlement agreement, ¶6.)

To address this requirement, AltaGas' commissioned a "Renewable Natural Gas" study from the consulting firm ICF that was released as an appendix to the company's Climate Business Plan.

---

[13] Based on 2006-2017 DC Greenhouse Gas Inventory, available at https://doee.dc.gov/service/greenhouse-gas-inventories. 2017 is the last year for which data are available as of this writing.

[14] Ibid. Citywide GHG emissions calculated for DC dropped from 10,496,684 $MTCO_2e$ in 2006 to 7,328,971 $MTCO_2e$ in 2017. To reach the 2032 commitment of a 50% reduction from 2006 levels requires a reduction to 5,243,342 $MTCO_2e$, or a reduction of 28% from 2017 levels.

[15] Settlement, ¶79.

III. Summary of AltaGas Studies

On March 16, 2020, AltaGas Ltd. filed its Climate Business Plan for Washington, DC along with its Renewable Gas Study, in compliance with the terms of its settlement agreement for its merger with WGL. The CBP claims that AltaGas could reduce its GHG footprint and contribute to meeting DC's climate commitments through a combination of strategies, including end-use efficiencies, loss prevention, and use of renewable sources of gas. AltaGas also claims that its "Fuel Neutral Decarbonization" approach would cost the district $2.7 billion less than the alternative approach it evaluated, which it calls "Policy-Driven Electrification," when evaluated over the next 30 years. The company offers no analytical support for this cost-savings claim, at least in its publicly-available reports.

AltaGas' nomenclature in the report – calling its preferred scenario "fuel neutral" and the electrification scenario "policy-driven" – is misleading, and will not be adopted here.[16] Both approaches to decarbonization considered by the company's consultant, ICF, would be fundamentally driven by policy choices, and the company's preferred approach is in no meaningful sense fuel-neutral. In fact, *any* strategy to reduce greenhouse gases below the Business-as-Usual (BAU) baseline is policy-driven by definition, because in the absence of policy the costs of GHG emissions are socialized and external to the economic calculus of the user. In the CBP, even the BAU scenario is policy-driven, in part, because it includes compliance with the District's 100% Renewable Portfolio Standard (RPS).

Nor is it feasible to design an optimal "fuel-neutral" approach to reaching the District's long-term GHG emissions commitments. As acknowledged in the CBP and the Technical Report, we simply cannot know today what the least-cost approach will be to achieving high levels of emissions reductions. Policymakers and experts have to make educated guesses regarding the costs and capabilities of future technology solutions, along with the availability and cost of renewable biofuels, carbon capture and sequestration, biological offsets, and other unknown approaches. There is a fundamental interdependence between policy, technology development and deployment, and cost. For these

[16] The term "policy-driven electrification" appears to have originated with the pro-gas lobbying group the American Gas Association. For example. A July 2018 gas association study, also prepared by consultant ICF, is entitled "Implications of Policy-Driven Residential Electrification" (https://www.aga.org/research/reports/implications-of-policy-driven-residential-electrification/.) As noted in the text, this term is misleading because *any* strategy to internalize the costs of GHG emissions and address climate change will be driven by policy. A critique of the AGA approach to electrification by the environmental policy group NRDC may be found at https://www.nrdc.org/experts/amanda-levin/why-agas-report-gets-electrification-wrong.

reasons, AltaGas's pretense of comparing a "policy-driven" scenario with a "fuel-neutral" scenario should be disregarded.

ICF asserts that its analysis for AltaGas identifies and evaluates an approach to meeting the District's energy needs that comports with the District's climate commitments while still relying on gaseous fuels delivered through Washington Gas' existing distribution infrastructure.[17] In its report, AltaGas puts forth such a plan for consideration,[18] and purports to compare it to its alternative, more conventional plan for achieving the District's commitments that involves extensive electrification of end-uses such as residential heating, hot water, and cooking, so that such energy demands could be served with renewable energy.[19] ICF also considers two approaches that do not meet the District's commitments: Business-as-Usual (as noted, including the 100% RPS) and "Partial Decarbonization." All cost results are reported relative to the cost to the BAU scenario but, as noted above, are not supported by any analytical details or calculations; nor has AltaGas provided any uncertainty or sensitivity analysis, despite the inevitable reliance on future unknowns.

AltaGas' Preferred Approach

AltaGas' proposed GHG mitigation pathway is summarized in Figure 1 and Figure 2, below. In Table 2, the plan components from Figure 1 are re-cast to show AltaGas' projected contribution of each to achieving the GHG reductions called for by the District's 2032 and 2050 climate commitments.

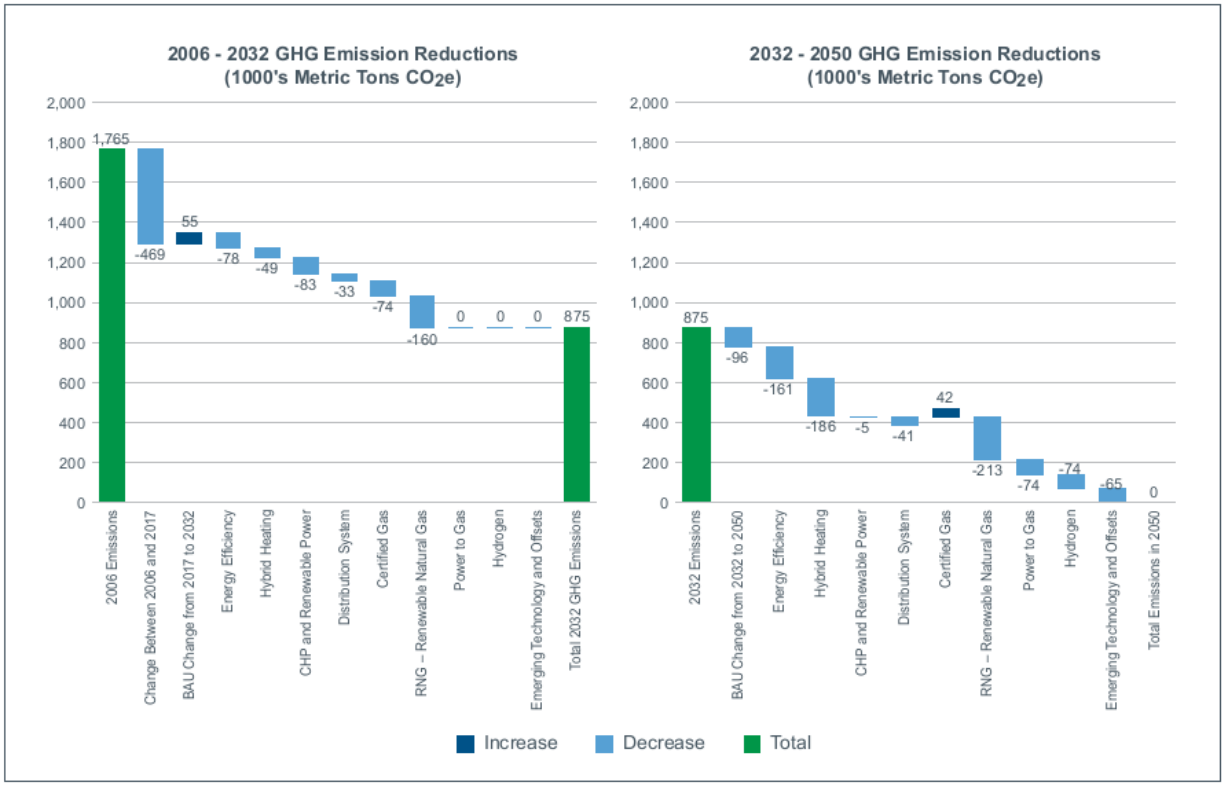
Most of the strategies relied upon by AltaGas in its preferred plan are untested and speculative, as will be discussed in detail below. As a result, neither the availability nor the cost of these strategies can be projected with any reasonable degree of confidence. Under these circumstances, the appropriate response would be for researchers to estimate, and explain, the range of possible costs, and to explore the implications of that range of inherent uncertainty on the robustness of the report's conclusions. AltaGas does not provide such an analysis.

It also does not appear that even AltaGas believes its strategies will meet its GHG reduction targets. The company projects that 58% of the gas it sells in the District will come from low-carbon sources by

[17] CBP, pages 2-3. It should be noted that even taken at face value, AltaGas' plan does not actually meet the District's 2050 commitments, and ultimately relies on "emerging technology and offsets" to close the gap.
[18] As discussed below, AltaGas' plan does not appear to actually meet the District's climate commitment because it continues to rely in part on fossil gas.
[19] The alternative plan, involving extensive electrification of end-uses, could be broadly consistent with the *Clean Energy DC* Plan.

2050,[20] meaning that 42% will still come from fossil sources. The report is silent on the apparent contradiction between continuing to deliver fossil gas and the claim of eliminating 100% of GHG emissions. Inconsistencies aside, AltaGas' preferred approach is as shown in the figures and table below.

Figure 1. GHG mitigation plan as presented on page 10 of the AltaGas Climate Business Plan.



[20] CBP, page 18.

Figure 2. Relative contribution of each component to DC 2032 and 2050 climate commitments, per AltaGas' Climate Business Plan.

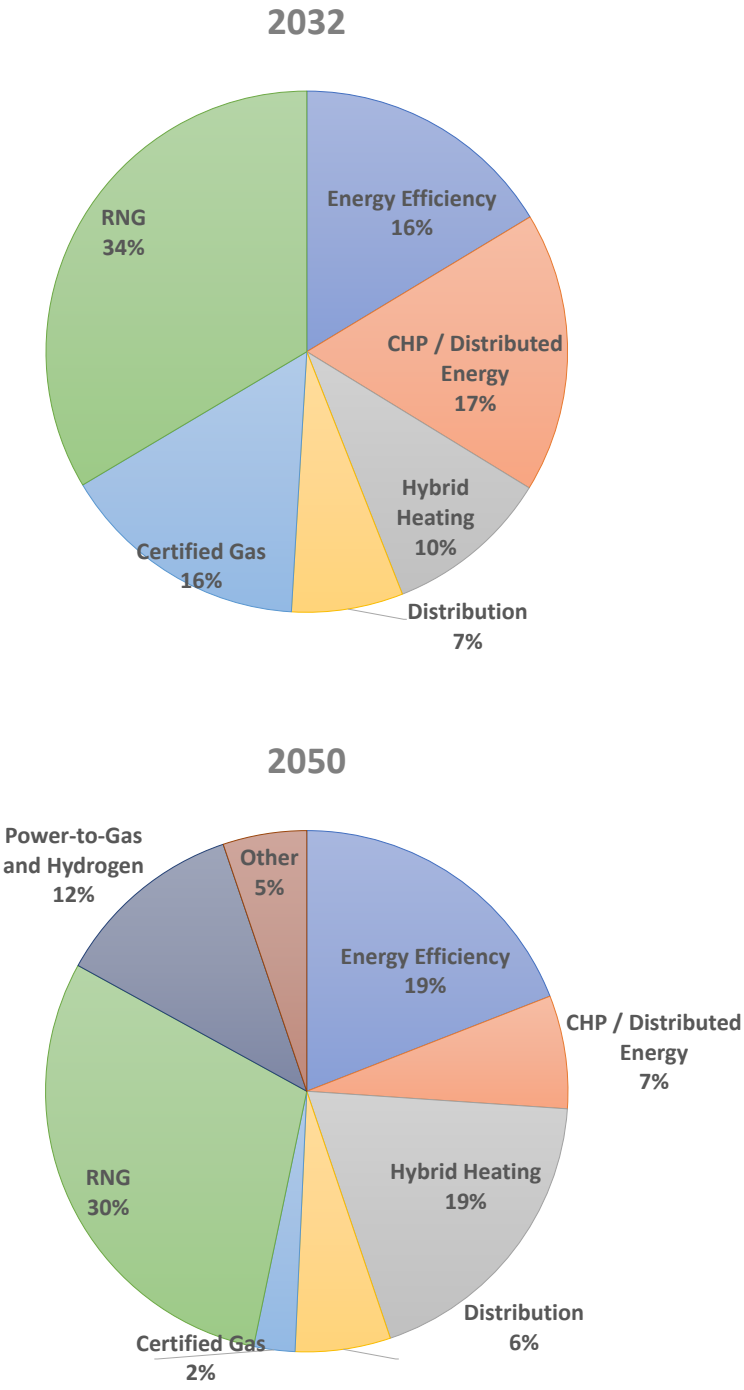


Table 1. Projected GHG Emissions reductions from AltaqGas' Climate Business Plan, and proposed emissions reductions relative to 2017 levels as reported in the DC GHG inventory.

		2032			2050		
		$MTCO_2e$ (000)	**% of Target Change**	**% of 2017 Emissions**	**$MTCO_2e$ (000)**	**% of Target Change**	**% of 2017 Emissions**
	2017 Emissions [1]	1,296			1,296		
	BAU Change from 2017 [2]	55			(41)		
	BAU Emissions [3]	1,351			1,255		
	Emissions Goal [4]	883			-		
	Total target change	***(469)***			***(1,255)***		
Plan Components	**Energy Efficiency**						
	EE	-78	16.6%	6.0%	-239	19.0%	18.4%
	Hybrid Heating	-49	10.5%	3.8%	-235	18.7%	18.1%
	CHP and Renewable Power	-83	17.7%	6.4%	-88	7.0%	6.8%
	EE Total	**-210**	**44.8%**	**16.2%**	**-562**	**44.8%**	**43.4%**
	Distribution System	**-33**	**7.0%**	**2.5%**	**-74**	**5.9%**	**5.7%**
	Gas Alternatives						
	Certified gas	-74	15.8%	5.7%	-32	2.5%	2.5%
	RNG	-160	34.2%	12.3%	-373	29.7%	28.8%
	Power to Gas	0	0.0%	0.0%	-74	5.9%	5.7%
	Hydrogen	0	0.0%	0.0%	-74	5.9%	5.7%
	Gas Alternatives Total	**-234**	**49.9%**	**18.1%**	**-553**	**44.1%**	**42.7%**
	Emerging and Offsets	**0**	**0.0%**	**0.0%**	**-65**	**5.2%**	**5.0%**
	Projected Emissions Reduction	***(477)***	***101.8%***	***36.8%***	***(1,254)***	***99.9%***	***96.8%***
	Projected Target Year Emissions	***874***			***1***		

Notes:

[1] From DC GHG emissions inventory

[2] "BAU change" projected in Climate Business Plan through 2032 and 2050, relative to 2017

[3] 2017 emissions + BAU Change

[4] for 2032, 50% of 2006 emissions; for 2050 net zero emissions.

Electrification Alternative

AltaGas claims to have compared the costs of its preferred approach to the alternative of widespread electrification of end uses, which, given the DC 100% renewable portfolio standard, would allow building energy demand to be served without reliance on fossil fuels. While providing no details on how its costs

were derived, AltaGas claims that this approach would cost $2.7 billion more over 30 years than its preferred, gas-oriented approach to eliminating GHG emissions.[21]

This result is contrary to the wide range of independent, credible studies of deep decarbonization scenarios have found that electrification of end-uses is essential to meeting ambitious emissions reduction goals. For example, a recent study by Energy and Environmental Economics, Inc. (E3) on behalf of the California Energy Commission evaluated numerous scenarios to achieve an 80% reduction in California's GHG emissions by 2050. According to the E3 study:

> *These scenarios suggest that building electrification is likely to be a lower-cost, lower-risk long-term strategy compared to renewable natural gas (RNG, defined as biomethane, hydrogen and synthetic natural gas [SNG], methane produced by combining hydrogen and carbon). Furthermore, electrification across all sectors, including in buildings, leads to significant improvements in outdoor air quality and public health.*[22]

The study also finds excessive cost associated with any plan that relies on RNG:

> *Another key finding of this study is that relatively inexpensive RNG (for example, biomethane from landfills and wastes) is limited and cannot alone reduce the GHG intensity of pipeline gas enough to achieve 80 percent reduction. Once the biomethane portion of the RNG supply curve is exhausted, then the state must turn to more expensive hydrogen and yet more expensive SNG. The result is that by 2050, the commodity cost of blended pipeline gas is more than four to seven times that of natural gas today.*[23]

The AltaGas study does not address this issue. Instead it offers only statements about the comparative cost of residential gas versus electric use for heating, cooking and clothes drying *today*[24] – while the more applicable comparison would be a comparison to the much higher, and much less certain, cost of the speculative gas resources relied upon in AltaGas' plan.

One further significant advantage to an electrification strategy over relying on unknown future RNG resources is the asymmetry of risk. As described in the E3 study:

> *The main barriers to building electrification are upfront capital cost and consumer acceptance. However, once these costs are paid and consumers gain familiarity with electric appliances, even if inexpensive sources of RNG become available later, the*

[21] CBP, page 2. Also section 4.3 of the Technical Report.
[22] Aas, D. *et al*., *The Challenge of Retail Gas in California's Low-Carbon Future: Technology Options, Customer Costs and Public Health Benefits of Reducing Natural Gas Use.* California Energy Commission. Publication Number: CEC-500-2019-055-F, page iii. Available at: https://ww2.energy.ca.gov/2019publications/CEC-500-2019-055/index.html.
[23] *Ibid*, page 69.
[24] For example, on page 4 of the CBP, citing the "Playbook" of the American Gas Association.

> *state's climate goals will still be met, and residents will be able to heat their homes relatively affordably. In contrast, should building electrification be delayed in the hope that RNG technology will progress more rapidly than considered in the optimistic P2G [power-to-gas] cost scenario here, and these RNG cost reductions do not materialize, then it will be difficult to recover from delays in building electrification and it may prove difficult to reduce emissions at reasonable cost. Further, customers who do not electrify face the risks associated with high cost of gas, while customers who electrify, do not face the same level of rate impact risk.*[25]

Once again, the risks associated with these plausible scenarios are not addressed in the CBP or its supporting Technical Report, leaving the reader with an incomplete and misleading picture of the costs and risks associated with AltaGas' plan. If the company is asking the Commission to endorse a plan so thoroughly at odds with the body of scholarship and technical studies in this area, it bears a high burden of proof that its projections are realistic and that it has fully explored the risks. That burden has not been met.

IV. Components of AltaGas' Climate Business Plan

AltaGas claims that it has developed a plan to meet the District's climate commitments at an incremental cost of $3.8 billion between 2020 and 2050, in 2018 dollars.[26] But what, exactly, is the plan, and how are these costs derived? Despite providing a 236-page report, including appendices, followed by posting a 140 page "Technical Report" on its website, the details are scarce. AltaGas provides the general breakdown of components shown in Table 1, but many of these components are described only in general terms. AltaGas' consultant appears to have taken into account neither the great uncertainty in resource availability and cost, nor the competition for these resources from other uses. In fact, most viable bioenergy sources are already being used in a manner that is far more economic than the uses AltaGas envisions; other solutions, such as "green hydrogen," would have far more valuable applications in a low-carbon economy than displacing fossil methane in the gas distribution system. This is why the vast majority of deep-decarbonization studies, including the E3 study discussed above and the *Clean Energy DC* report,[27] conclude that electrification of end uses is the least-cost and most feasible approach to deep decarbonization.

---

[25] E3 Study, page 70.
[26] Appendix E, ICF Technical Study Summary, page 18. AltaGas claims that its Case 2, the "Partial Decarbonization" case, would cost $0.6 billion over BAU, and that its preferred Case 4 would cost $3.2 billion more than Case 2.
[27] https://doee.dc.gov/cleanenergydc.

AltaGas' alternative approach, which it claims is less costly, includes the components was shown in Figure 1 and Table 2. A narrative description of the components is provided on pages 11 through 20 of the CBP.[28] These components are each explored and evaluated below.

a. Change since 2006

GHG emissions in DC from transportation and use of natural gas have decreased by approximately 469,000 $MTCO_2e$ between 2006 and 2017, according to the DC GHG inventory,[29] consistent with the claim in the CBP. The GHG inventory shows that the overwhelming sources of this decrease are a 60% decrease in nonresidential gas use in the District, along with a 30% decrease in fugitive emissions from the distribution system.[30]

b. Reduced Gas Use through Energy Efficiency

AltaGas includes three strategies under the rubric of "energy efficiency" in its plan: (1) Equipment and building upgrades ("Energy Efficiency" in Figure 2); (2) combined heat and power ("CHP and Renewable Power" in Figure 2); and (3) "Hybrid Heating', which appears to include gas heat pumps. AltaGas relies on these three strategies for almost 45% of its 2032 and 2050 emissions reductions (see Table 2.)

- ***Energy Efficiency.*** Today, energy efficiency, including equipment and building upgrades, is the lowest-cost way to reduce both energy bills and emissions, but most current gas efficiency goals are much less ambitious than the levels projected in the CBP. For example, New Jersey has recently enacted one of the most aggressive statewide energy efficiency programs in the country, which calls for reaching an annual reduction in sales of gas of 0.75% over the next five years. AltaGas' projection equates to approximately a 6% reduction in energy use by 2032 and 18% by 2050. I am unaware of any state that has long-term gas efficiency goals that approach this level of savings, and doing so would almost certainly require electrification of many end-uses. This is in part because most of today's modern gas appliances are already extremely

[28] The narrative description on pages 11 through 20 include large-font "enables us to achieve" percentages claimed for each category of strategies, with ambiguous and apparently erroneous labeling (i.e., the reference to a "2050 50% GHG reduction target.") Based on my analysis, I conclude that these numbers are intended to refer to what percent of 2006 emissions AltaGas projects could be avoided by applying each category of strategies by 2032 and 2050. The claimed emissions benefit for energy efficiency savings in 2050 includes 4% savings for "emerging and technology and offsets" which are left undefined.

[29] https://doee.dc.gov/service/greenhouse-gas-inventories.

[30] Fugitive methane emissions have historically been difficult to measure, and some research suggests that they are consistently underreported. See Alvarez, R. *et al.,* "Assessment of methane emissions form the US oil and gas supply chain." Science, Vol. 361, Issue 6398, pp. 186-188, July 13, 2018.

efficient, meaning that significant further reductions in gas use from increased appliance efficiency cannot be attained.

In ICF's Technical Report, the authors claim that "building shell improvements" will "reduce energy consumption by 2% per building," [31] and the authors predict an aggressive penetration rate of 71% of building meters by 2050. ICF also cites "behavioral programs" that can reduce residential energy use by 0.85% for each participant, although such measures cannot continue to produce incremental savings every year for the same customers, and their impact may in fact deteriorate over time.[32] AltaGas and ICF provide no further information on how these very high levels of gas savings would be achieved, nor any specific estimate of their cost.

In sum, there has been simply no evidence presented to the public to support AltaGas' aggressive gas savings projections based on the building and equipment upgrades and behavioral programs described in the Technical Report, and I conclude that they are unfounded.

- ***Combined Heat and Power.*** The CBP assumes that "penetration of CHP units in the District could grow to 12 units per year by 2026 and remain stable through 2034" before the rate of new installations begins a "gradual decline."[33] This scenario, undergirding AltaGas' projection of a 6.4% reduction in today's emissions through CHP by 2032, is extremely optimistic. Largescale adoption of CHP has generally been found to be difficult because of the necessity of having a large thermal or steam load, and because of complex market and regulatory barriers such as interconnection rules, net metering, standby rates, and other issues.[34] Further, the thermal load must be present 24 hours per day for CHP systems to achieve high efficiency.[35] According to the U.S. Department of Energy (DOE) CHP database,[36] there has been approximately one CHP installation per year in the District over the last five years, including very small (130 kW) installations at multifamily buildings. ICF's Technical Report assumes DC can achieve 5% of the "technical potential" for CHP systems of under 1 MW and 15% for CHP systems of over 1 MW

[31] The report does not specify if these savings reflect gas or electricity usage, or both.
[32] See Allcott, H. and T. Rogers, "The Short-Run and Long-Run Effects of Behavioral Interventions: Experimental Evidence from Energy Conservation," NBER Working Paper No. 18492, Revised January 2014. Available at https://www.nber.org/papers/w18492.
[33] Climate Business Plan, page 13.
[34] *See,* https://www.aceee.org/toolkit/2020/02/deploying-combined-heat-and-power-chp-projects.
[35] Oak Ridge National Laboratory, "Combined Heat and Power: Effective Energy Solutions for a Sustainable Future," December, 2008. Available at https://info.ornl.gov/sites/publications/files/Pub13655.pdf.
[36] https://doe.icfwebservices.com/chpdb/state/DC

by 2050.[37] Based on the DOE technical potential study used by ICF,[38] this would be approximately 11 new sites over 1 MW and 34 new sites under 1 MW by 2050[39] – a level that is quite aggressive, but still far *below* the "12 units per year" projected in the CBP. No explanation is provided for this apparent contradiction.

Beyond its optimistic assumption about penetration rates, AltaGas' assumption about emissions benefits from CHP appears to be overstated and unfounded.[40] AltaGas' consultant appears to be assuming that the energy used for the heat load would be unchanged, while electricity generation in the PJM region would be avoided based on the size rating of the CHP system. This is simply not the case – under favorable conditions CHP systems are more efficient than separate thermal and electric systems, but there is still a significant fuel cost for simultaneously serving both electric and steam loads. Thus both AltaGas' scenario for penetration rate of new CHP systems and its projection of emissions benefit from each system appear to be exaggerated and unrealistic.

- ***Hybrid Heating / Heat Pumps.*** AltaGas relies on "hybrid heating" for achieving 10.5% and almost 19% of its emissions reductions by 2032 and 2050, respectively. This strategy appears to include both gas-fired heat pumps and electric heat pumps with gas backup.[41] There is no indication in the CBP or the Technical Report of what mix of electric heat pumps versus hybrid heating systems is assumed in the company's analysis, what they would cost, or exactly how the emissions benefit was calculated. However, the Technical Report projects that gas heat pumps will become "readily available" between 2026 and 2039 and that they are expected to have a coefficient of performance (COP) of 1.4.[42] On the other hand, according to a 2016 review, "COP

[37] Technical report, page 22.
[38] https://www.energy.gov/sites/prod/files/2016/04/f30/CHP%20Technical%20Potential%20Study%203-31-2016%20Final.pdf
[39] The DOE report finds a "technical potential" of 681 sites under 1 MW and 75 sites with capacity of 1 MW or greater in Washington, DC. Although the DOE study uses four size categories, no information is given in the CBP or the Technical Report on what size installations were assumed beyond the greater or less than 1 MW categories.
[40] As with many elements of its analysis, the details provided are insufficient to fully explain AltaGas' and its consultant's assumptions and approach. The actual MW, cost, and emissions benefit calculation for CHP have not been provided and can only be deduced based on the scant clues provided.
[41] The summary chart on page 10 of the CBP includes only "hybrid heating," but the text discussion on pages 13 and 14 describes these technologies separately.
[42] Technical report, page 8. The US Department of Energy reports that gas-fired "absorption" heat pumps are "mainly used in industrial and commercial settings" and are "only appropriate for homes on the scale of 4,000 square feet or more." See https://www.energy.gov/energysaver/heat-pump-systems/absorption-heat-pumps.

values for market available [electric] heat pump units lie in the range of 3.2 to 4.5 for air source heat pumps (ASHP) and between 4.2 and 5.2 for ground source heat pumps (GSHP)."[43] The only argument provided for using a far less-efficient gas heat pump is that for periods that are below the efficient temperature range for heat pumps, it is less costly to use gas than electric resistance heating, assuming today's natural gas prices. However, today's heat pump technology now allows them to operate efficiently even in colder climates.[44] Further, were AltaGas to rely on more expensive sources of "renewable" gas such as proposed in the CBP, any current cost advantage over electric resistance for backup heating would likely be reversed.

I conclude that gas heat pumps are not an appropriate technology for most DC residents, and that they fall far short of the efficiency of electric heat pumps for most applications.

c. Distribution System

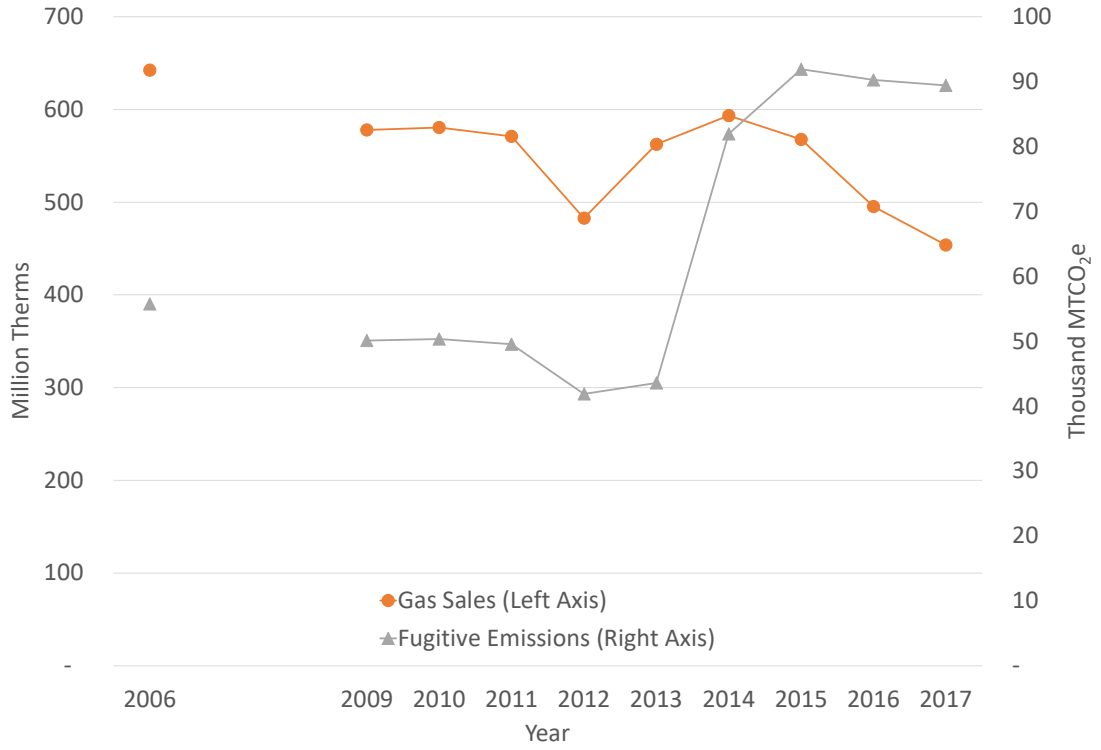
It is certainly the case that addressing leaks in the natural gas distribution system is an important, and often cost-effective, way to both conserve gas and reduce GHG emissions, especially considering the greenhouse potential of methane, which is 84-86 times more powerful a greenhouse gas as CO_2 over a 20-year timeframe.[45] Further, fugitive emissions may have increased substantially since 2006, even as gas sales in the district have fallen (see Figure 3.)[46] Washington Gas should be encouraged or even required to address these wasteful and dangerous emissions. AltaGas asserts that it could eliminate 2.5% and 5.7% of GHG emissions associated with natural gas by 2032 and 2050, respectively, and proposes to "reduce methane emissions associated with the WGL distribution system by 80% per unit of throughput by 2050."[47] This is a worthy goal and may be attainable.

However, whether the company should be permitted to engage in a full overhaul of its gas distribution system at ratepayer expense should be weighed against the need to dramatically reduce gas sales in keeping with the District's climate commitments. AltaGas notes that there is a risk of imposing large

[43] Fischer, David, & Madani, Hatef. (2017). On heat pumps in smart grids: A review. http://doi.org/10.1016/j.rser.2016.11.182.
[44] See https://www.energy.gov/energysaver/heat-and-cool/heat-pump-systems.
[45] Intergovernmental Panel on Climate Change (IPCC) Working Group 1 Fifth Assessment Report, Chapter 8, "Anthropogenic and Natural Radiative Forcing," Table 8.7. Available at https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf.
[46] Based on Washington DC Greenhouse Gas Inventory. However, I consider these fugitive emissions data suspect, given the apparent step-function increase between 2013 and 2014. It may be that a change in measurement or definition is responsible for this change, or it may be that it reflects a real change in operational practices.
[47] Technical report, page 10.

costs on remaining customers if gas sales decrease substantially.[48] The best way to avoid this outcome is to reduce investment in the gas distribution system as quickly as possible, focusing investment on the very few gas leaks that are generally responsible for most fugitive emissions.[49] The goal would be to ensure that the distribution system is largely depreciated by the time it is retired. It is also worth noting that the Commission will not be required to allow full recovery of undepreciated assets if it finds that the company's investments were not used and useful, or if the company spent imprudently in the face of the need to dramatically reduce gas use.

Figure 3. Total gas deliveries vs. fugitive emissions from distribution system as reported in the DC Greenhouse Gas Inventory. These data suggest that fugitive emissions may have increased substantially over the last decade, even as gas sales in the district have fallen. Data from 2007 and 2008 were not available.



d. Gas Alternatives

Reliance on "gas alternatives" is a fundamental part of AltaGas' Climate Business Plan, comprising 50% of its 2032 emissions reduction strategy and almost 44% of its strategy for 2050. The primary

[48] See, for example, page 61 of the Technical Report.
[49] Von Fisher, J., *et al.*, "Rapid, vehicle-based identification of location and magnitude of urban natural gas pipeline leaks." *Environ. Sci. Technol.* 2017, 51, 7, 4091-4099. https://pubs.acs.org/doi/full/10.1021/acs.est.6b06095.

component of this strategy is so-called "renewable natural gas," or RNG. AltaGas also includes "certified natural gas," "power-to-gas," and hydrogen. Each of these will be discussed below.

- ***RNG.*** Following the gas industry lobbying group, the American Gas Association, AltaGas states that "Renewable natural gas (RNG) is derived from biomass or other renewable resources and is a pipeline-quality gas that is fully interchangeable with conventional natural gas."[50] The CBP goes on to claim, without attribution or evidence, that "RNG is carbon neutral."[51] AltaGas relies on RNG for approximately 34% and 30% of its 2032 and 2050 reduction strategies, respectively.

  Even its own RNG study does not make the extraordinary claim of carbon neutrality, instead using a more credible definition from the National Association of Regulatory Utility Commissioners (NARUC) that RNG is "Pipeline-compatible gaseous fuel derived from biogenic or other renewable sources that **has lower lifecycle carbon dioxide equivalent (CO_2e) emissions than geological natural gas**."[52] This distinction notwithstanding, the RNG report later describes RNG as "a valuable renewable resource with carbon-neutral, and in some cases carbon-negative, characteristics"[53] and later states that "RNG has a carbon intensity of zero."[54]

  AltaGas and its consultant ICF do not reveal the actual composition or cost of its assumed RNG utilization, making its claim of carbon neutrality particularly difficult to assess. Nor do the authors acknowledge the high level of uncertainty in the cost of developing this resource and delivering it to the gas pipeline system, or the fact that to the extent that it is a viable resource, there is likely to be significant competition for other applications that may be more economically viable. For example, many landfills today collect and combust landfill methane on-site either to power on-site operations or to generate power for the grid. In fact, as stated in the RNG report (page 27, emphasis added):

  > *EPA's [Landfill Methane Outreach Program] database shows that there are about 620 operational [landfill gas (LFG)] to energy projects nationwide; however,* ***only 60 (10%)***

[50] CBP, page 18. AltaGas does not provide a specific citation for this quote, but it is similar to one found on the American Gas Association website at https://www.aga.org/natural-gas/renewable/.
[51] *Ibid*.
[52] RNG Report, page 12, citing GA, 2019. RNG: Opportunity for Innovation at Natural Gas Utilities, https://pubs.naruc.org/pub/73453B6B-A25A-6AC4-BDFC-C709B202C819. Emphasis added.
[53] *Ibid*, page 5.
[54] *Ibid*, page 84.

of them produce RNG, and only 52 of those actually inject RNG into the pipeline*. Most of the projects capture LFG and combust it in reciprocating engines to make electricity (72%) or have a direct use (18%) for the energy (e.g., thermal use on-site).*

It is illogical for AltaGas to assume that it would be more economical to collect, dry and condition the gas and invest in the infrastructure to deliver it into the municipal gas distribution system when on-site combustion is cost-effective today; nor could this possibly provide an emissions benefit relative to using the resource on-site, both because of the cost and energy requirement for transportation, and because some degree of leakage from the pipeline system is inevitable.

The RNG report is silent on these practical considerations. Instead, the authors present a "combined RNG supply-cost curve"[55] and assume that AltaGas would have access to the lowest-cost resource at their cost of production. In addition to ignoring uncertainty, this approach violates basic economic principles of how markets work and disregards the likely competition for these resources from other regions or other applications. In reality, a single consumer (i.e., Washington Gas) would not get to claim all the lowest-cost resource in a market before anyone else, nor can it force each producer to sell at the cost of production when the market clearing price is higher. Indeed, the RNG Report acknowledges that: "In principle, the RNG price should reflect the marginal cost of RNG production on the system."[56] However, AltaGas' consultant then goes on to "posit" that AltaGas would essentially be able to cherry-pick the lowest-cost resources on the supply curve at their production cost,[57] in clear violation of these basic market principles.

- ***Certified Natural Gas.*** In theory, certified gas would be gas that has achieved a "best-in-class" certification from some certifying authority for reducing environmental impacts, similar to LEED certification for sustainable building practices.[58] However, it is entirely unclear what specific environmental qualities AltaGas is referring to, or how it could have calculated emissions

[55] RNG Report, page 79. ICF does not identify what the quantities and costs of each resource underlying the "supply curve are or how they were established, despite the significant uncertainty in both parameters.
[56] *Ibid*.
[57] This is my interpretation of the vague and ambiguous language used to describe ICF's pricing assumptions on page 79 of the RNG Report. As noted throughout this report, ICF and AltaGas never actually reveal the cost or quantity assumptions for this or any other resource used in its plan, so it is impossible to be certain.
[58] https://www.usgbc.org/leed.

reductions or costs for this purported resource. According to the CBP, "Washington Gas is currently in talks to collaborate with the Rocky Mountain Institute and others to more clearly quantify GHG emissions reductions from gas supply produced by best practice companies. With the necessary government policy and regulatory support, certified natural gas can be blended into existing gas supply **and is expected to result in a 1 – 2 percent GHG emissions reduction.**"[59]

The Technical Report, on the other hand, states that "ICF has assumed that most of the natural gas consumed in the District of Columbia in the future will be sourced from certified natural gas, and that the certification process will lead to **a reduction in methane emissions associated with the production and processing of natural gas of 0.2% of natural gas throughput**."[60] This Technical Report description paints a far less rosy picture for the emissions impact of certified gas than seen in the CBP; it would affect only a very small portion of the gas, and would only reduce emissions associated with the production and processing of that gas, but not with combustion. Once again there is no explanation for the very different assertions in the CBP and the supporting Technical Report. Even with the higher 1-2% reduction in emissions, it is hard to square AltaGas' projection for emissions benefits with this resource, which comprises almost 16% of its strategy for meeting the District's 2032 climate commitment. Without further explanation for these inconsistencies and enigmas, AltaGas' claimed emissions benefit associated with certified natural gas should be disregarded.

- ***Power-to-Gas and Hydrogen.*** It is possible to use renewable energy to separate water into hydrogen and oxygen, and the hydrogen would constitute an energy-dense fuel with numerous possible applications. It is certainly also possible to chemically convert this hydrogen into methane. As with landfill gas, however, it is extremely unlikely that the economics would support use of this fuel to displace fossil gas in municipal distribution systems. As the United States moves toward a very low-carbon economy, the likely most economic uses of this resource will be (1) high-density energy storage to accommodate very high penetration of variable-output renewable generation, and (2) transportation fuel, and in particular aviation fuel. The first application will be crucial to maintaining electric reliability, and it has the substantial benefit that the combustion of the fuel would take place at the same location as its production, eliminating transportation losses and costs. The second application reflects the fact that there is

[59] CBP, page 20, emphasis added.
[60] Technical Report, page 10, emphasis added.

essentially no other known non-fossil source of aviation fuel, making this an extremely high-value application. AltaGas' assumption that it could achieve almost 12% of its 2050 emissions reductions from such resources is inconsistent with these economic and technical realities.

AltaGas' projections for each gas alternative in its plan is vague to silent on specific resource mix, market conditions including competing uses, and cost. In this author's opinion, the only way any of these resources would play a significant role in DC's energy future would be through extreme market-distorting policies and subsidies, diverting them away from uses that would be more efficient and have more significant environmental benefits.

The cost and availability of low-carbon fuel feedstocks are crucial considerations in evaluating AltaGas' plan. In its RNG report, AltaGas' consultant ICF presents a range of costs for each of the RNG feedstock types considered, concluding that "RNG will be available from various feedstocks in the range of $7/MMBtu to $44/MMBtu."[61] Further, ICF estimated that RNG can provide "GHG emission reductions at a cost of $55 to $295 per ton of carbon dioxide equivalent (tCO_2e)." [62] These reported ranges should not be mistaken as an acknowledgement or analysis of uncertainty. To the contrary, ICF used these ranges to produce a "combined RNG supply-cost curve"[63] and assumed that AltaGas would have access to the lowest-cost resource at their cost of production. In addition to ignoring uncertainty, this approach violates basic economic principles of how markets work, and ignores any possible competition for these resources from other regions or other applications. Nor does AltaGas or ICF identify the sources of the cost projections in either the RNG report or the CBP, or provide crucial details such as whether the costs include transportation or other processing costs. Any of these omissions would seriously compromise the credibility of AltaGas' cost analysis. Together, they render such projections essentially meaningless.

Finally, it should be noted that AltaGas' plan does not actually call for the elimination of fossil gas from its system. The table on page 18 of the CBP shows that by 2050, the company proposes to use "low-carbon gas" of the kinds described above to replace 58% of its gaseous fuel, with the remainder presumably being fossil gas. The report is silent on the clear contradiction between continuing to rely on fossil gas, while claiming to eliminate 100% of GHG emissions from gas.

[61] RNG Study, page 67.
[62] *Ibid*, Table 3, page 69.
[63] *Ibid*, page 79.

V. Equity and Ratepayer Considerations

The *Clean Energy DC* Climate and Energy Action Plan includes an entire chapter on "An Equitable Transformation," recognizing that climate change is likely to affect certain groups more than others, and that these groups are often vulnerable populations that "are more exposed to climate hazards, have less capacity to adapt to climate hazards, and have increased sensitivity to those hazards."[64] Given this, it is crucial that climate and energy planning in the District retain a focus on consumer protection, job creation, and environmental justice concerns.

AltaGas' Climate Business Plan fails this test. While the plan is vague on the details and cost of every resource AltaGas proposes to pursue in reducing its carbon footprint, it is specific in one area: ratepayers, including the District's low income population, would bear all of the cost and risk of the company's speculative and expensive strategy. AltaGas states that: "The significant reductions in GHG emissions available through the utilization of low carbon fuel supply are predicated upon the timely approval of supportive policy."[65] Translating the regulatory jargon, "supportive policy" means (1) legislation or rulemakings insulating the company from all risks that its investments are unwise or more costly than anticipated;[66] (2) "decoupled" ratemaking meaning that if load decreases *for any* reason, including an economic downturn, the company will be made whole for any revenue losses;[67] and (3) a *bonus* ROE for doing what it is required to do anyway to serve customers in a low-carbon future.[68]

In warning against an approach that would wean DC customers off the gas distribution system, the Technical Report further states that "the…Electrification Case is likely to lead to the shut-down and decommissioning of the natural gas distribution system, leading to significant stranded assets and unrecovered ratebase for the gas distribution system that would need to be recovered."[69] Although

[64] *Clean Energy DC*, page 42.
[65] CBP page 29.
[66] For example, page 28 and 29: "Developing a cost recovery mechanism that would socialize the costs and benefits of gas use to all energy users." Also, "Ensuring cost recovery and enabling utilities to earn a return on investment (ROI) for investments in next-generation end-use technology" and "Allocate incremental cost of low carbon gas supply to all customers in the District."
[67] *Ibid*.: "Decoupling rates from volumetric throughput. This will enable Washington Gas to support energy efficiency while recovering operating costs to preserve safety and reliability."
[68] *Ibid*.: "Utilizing accelerated recovery mechanisms to support infrastructure investment in service areas of high CHP/demand potential" and "Applying tiered performance incentives (e.g. ROI adders) to support the implementation of behavioral energy efficiency programs" and "Built-in incentives for performance that reward timely deployment and results."
[69] Technical Report, page 61.

AltaGas does not include the cost of these "stranded assets" in its analysis, it appears to be claiming that it would continue to invest in upgrading its distribution system even in the face of a switch to end-use electrification, and would then expect the Commission to allow it to continue recovering those costs (presumably at its full ROE) from DC ratepayers long after the assets were used and useful. Thus in either case, the company's proposal is to impose all costs and risks on its ratepayers while rewarding its shareholders with a generous return on equity.

There are other approaches that better serve DC customers and the DC economy. Investments in energy efficiency and electrification are particularly effective in supporting local employment, in contrast to fossil or other imported resources for whom the primary benefit is reaped by outside investors. Energy efficiency saves ratepayers money immediately – switching to electric heat pumps, for example, can reduce heating costs by a factor of three or four,[70] far more than the Company's proposal of gas heat pumps. Electric heat pumps are also a well-established and commercially available technology, while gas heat pumps are available only for limited applications and offer only a comparatively small reduction in energy use. Renewable energy involves significant up-front capital costs but the energy itself is free – again contrasting with the company's proposed resources, which involve high capital costs and ongoing likely very high energy costs for resources like RNG.

Any approach to meeting DC's climate commitments will require investments in new infrastructure and energy resources. Companies like Washington Gas have an obligation to serve customers for a guaranteed, generous return on investment.[71] AltaGas' presumption that it should earn at this level *or higher* while shifting significant additional costs and current and future risks to ratepayers is inconsistent with its obligation to serve at just and reasonable rates. For all of these reasons, the "Climate Business Plan" may be an attractive blueprint for investors, but it represents unnecessary risk and cost for ratepayers in the District.

VI. Conclusion

Because of the ambiguity, inconsistencies, and numerous unsupported and unrealistic assumptions underlying AltaGas' Climate Business Plan and its Renewable Gas Study, I find that the company has not

[70] See footnote 43.

[71] According to Washington Gas' 2019 form 10-K, page 189, its 2018 ROE was 9.53%, which was 7 basis points *higher* than its allowed ROE. Available at https://www.washingtongas.com/-/media/465cda57d589485a9f635d3465e40b74.pdf.

met its obligation under ¶79 of its settlement agreement in any meaningful sense. The CBP relies on misleading nomenclature and false comparisons to support the continued use of gas in the District, and the claimed future cost savings relative to an electrification scenario are without foundation. In both reports, fundamental uncertainties are routinely brushed aside in favor of overly-optimistic projections that support AltaGas' preferred approach. Key assumptions on which the authors rely in both studies cannot be validated because they are described only vaguely and often inconsistently, without references, or sometimes referenced to unreliable and biased sources such as the "Playbook" of the American Gas Association,[72] a gas industry lobbying group. These shortcomings cast serious doubt on the validity of the reports' findings, at best making them impossible to credibly assess. Even taken at face value, the "plan" would not eliminate gas-related emissions by 2050 as the company claims, because it would continue to rely on combustion of fossil gas for 42% of its fuel supply.

The authors appear to assume that Washington Gas would have unfettered access to low-carbon gas alternatives at essentially the cost of production, ignoring likely competition from other states or utilities, along with likely more economically justified uses for these resources such as supporting electric system resiliency and low-carbon aviation fuel. AltaGas further assumes that no other states or utilities would take any actions during the study period to address GHG emissions beyond current RPS rules, ignoring for example the recent Virginia Clean Economy Act mandating that Virginia reach 100% clean energy resources by 2045.[73] There is no recognition at all of the impact that a nationwide switch to low- or zero- GHG sources of energy would have on the availability of fuels such as "renewable" natural gas (RNG) and hydrogen fuels, or on the operation of the electric grid.

AltaGas' wholly unsupported cost assessment for its policy options cannot be taken at face value. To the extent that any assumptions are shared with the reader, they are wild and largely unsupported guesses about future resource availability and cost with no attempt to analyze the impact of uncertainty. Nowhere in ICF's 150-page RNG study or its 140-page "technical report" has it provided the cost assumptions underlying its analyses, including specification of the actual sources of RNG used in developing and analyzing the Climate Business Plan. In the not unlikely event that the speculative

[72] https://www.aga.org/news/aga-playbook/ The term "Policy-Driven Electrification", which appears frequently in AltaGas' reports, also appears to derive from AGA publications.
[73] https://www.washingtonpost.com/local/virginia-politics/virginia-dominion-energy-bill/2020/03/06/4524cd20-5fc1-11ea-b29b-9db42f7803a7_story.html.

resources envisioned by AltaGas turn out to be significantly more expensive than assumed in the CBP, its preferred scenario could turn out to be far more costly than a focus on electrification.

Through its policy proposals, AltaGas shows that it is unwilling to assume any of the risk associated with the speculative and costly strategies outlined in its plan, and instead recommends that Washington DC ratepayers cover all costs and risks while compensating AltaGas for any lost sales and rewarding the company with a generous bonus ROE for meeting its climate commitments. This places an unfair burden on the District's ratepayers, and especially on its lower-income ratepayers, while ensuring that its stockholders will continue to be rewarded no matter how wrong its analyses or how imprudent its actions.

Overall, I conclude that AltaGas has failed in its commitment under its settlement agreement to credibly "file with the Commission a long-term business plan on how it can evolve its business model to support and serve the District of Columbia's 2050 climate goals."