

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

IN THE MATTER OF THE IMPLEMENTATION)
OF THE 2019 CLEAN ENERGY DC OMNIBUS) **Matter No. GD-2019-04-M**
ACT COMPLIANCE REQUIREMENTS)

**COMMENTS OF THE SIERRA CLUB ON THE COMMISSION’S
NOTICE OF INQUIRY**

INTRODUCTION

Pursuant to the Public Service Commission of the District of Columbia’s (“Commission”) Notice of Inquiry (“NOI”) issued on November 5, 2019, Sierra Club submits the following comments on the “analytical approach [the Commission] should take when considering the effects of a utility proposal on global climate change and the District’s public policy commitments.”¹ Sierra Club applauds the Commission’s efforts to include stakeholders in the determination of how the Commission will incorporate into its regulatory framework the new mandate under the Clean Energy DC Omnibus Act of 2018 to uphold “the preservation of environmental quality,” including the “effects on global climate change and the District’s public climate commitments.”²

As further described below, Sierra Club’s recommendations will ensure that the Commission meets its mandate to uphold DC’s climate commitments and safeguard District residents from the worst effects of climate change. Sierra Club recommends that the Commission:

¹ GD-2019-04-M, *In the Matter of the Implementation of the 2019 Clean Energy DC Omnibus Act Compliance Requirements*, Notice of Inquiry at 1 (Nov. 5, 2019).

² *Id.*

- Commit to achieving the specific climate commitments outlined in the Clean Energy DC plan, Sustainable DC 2.0, and DC’s commitment to achieving carbon neutrality by 2050;
- Adopt a Climate Commitment Test requiring that all proposals from regulated utilities reduce greenhouse gas (“GHG”) emissions and move DC closer to net-zero GHG emissions on pace with the timing of the District’s commitments;
- Require the utilities to submit biennial plans detailing how they are reducing emissions to move DC toward carbon neutrality by 2050;
- Financially reward the electric and gas utilities for meeting annual GHG reduction rates that would achieve net-zero emissions per sector by 2050 and financially penalize those companies that fail to meet GHG reduction targets each year;
- Require the gas utility to change its business model from distributing gas and toward endeavors consistent with DC’s climate commitments;
- Recognize that adopting a social cost of carbon may not alone achieve carbon neutrality by 2050 and that to meaningfully move toward net-zero emissions the cost of carbon will have to be relatively high; and
- Request adequate funding to hire the staff necessary to meet the Commission’s new climate requirements.

I. The Commission is Mandated to Uphold DC’s Climate Commitments

The Commission must be a strong leader in the implementation of the District’s climate strategy. Compliance with the Clean Energy Omnibus Act of 2018 mandate that the Commission upholds the District’s climate commitments requires that:

1. The Commission adopts DC’s public climate commitments as its benchmarks to determine whether the Commission is meeting its statutory requirement to uphold “the preservation of environmental quality,” including the “effects on global climate change and the District’s public climate commitments.” DC’s climate commitments are:

- a. A 50 percent reduction of GHG emissions by 2032 and carbon neutrality by 2050,³ under which progress toward this goal is measured by an annual inventory of the city's GHGs.⁴
 - b. Meeting DC's emissions reductions under the Paris Agreement on Climate Change.⁵
2. Demonstrating consistency with DC's climate commitments should require that:
- a. Covered GHG emissions include, at a minimum, carbon dioxide and methane.
 - b. The District's climate commitments (to reduce GHG emissions 50 percent relative to 2006 levels by 2032 and achieve carbon neutrality by 2050) apply at the sector level of the regulated utility. This means that both the electric and gas utilities would be required to show achievement of the required emissions reductions in their sector without allowing one sector exceeding its target to allow another sector to fail to achieve its target, even if aggregate GHG reductions targets are met. Such a requirement is necessary because, eventually, all sectors must achieve carbon neutrality. Allowing one sector to lag significantly behind schedule will likely result in that the sector not being able to achieve the 2050 target of carbon neutrality.
 - c. An interim goal of 75 percent GHG reductions by 2040 is a necessary intermediate target for achieving carbon neutrality by 2050. Carbon neutrality is assumed to mean a reduction of GHGs sufficient that the natural carbon sinks (soil, trees, etc.) located inside the District of Columbia can absorb any residual emissions.

³ Government of the District of Columbia, *Sustainable DC 2.0 Plan*, at 43 (Apr. 23, 2019), http://www.sustainabledc.org/wp-content/uploads/2019/04/sdc-2.0-Edits-V4_web.pdf; Government of the District of Columbia, *Mayor Bowser Commits to Make Washington, DC Carbon-Neutral and Climate Resilient by 2050*, Office of the Mayor (Dec. 4, 2017), <https://mayor.dc.gov/release/mayor-bowser-commits-make-washington-dc-carbon-neutral-and-climate-resilient-2050>.

⁴ Department of Energy and the Environment, *Clean Energy DC: The District of Columbia Climate and Energy Action Plan*, (Aug. 2018) ("Clean Energy DC Plan"), https://doee.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/Clean%20Energy%20DC%20-%20Full%20Report_0.pdf.

⁵ PR22-0356 - Sense of the Council Regarding the Paris Agreement on Climate Change Resolution of 2017, approved with Resolution Number R22-0336 (Dec. 15, 2017), published in DC Register Vol 64 and Page 12581; Government of the District of Columbia, *Mayor Bowser Signs Executive Order Binding the District to the Paris Climate Accord*, Office of the Mayor (June 5, 2017) ("Mayor's Order 2017-142"), <https://mayor.dc.gov/release/mayor-bowser-signs-executive-order-binding-district-paris-climate-accord>.

- d. Electric and gas utilities must submit to the Commission biennially-updated long-term plans consistent with the District's climate commitments at the sector level of the regulated utility.

II. The Commission Should Require a Climate Commitment Test for Utilities

Sierra Club proposes that the Commission uphold the District's public climate commitments by requiring regulated electric and gas utilities to undertake a Climate Commitment Test ("CCT") for all proposals submitted to the Commission. The CCT would apply to all utility regulatory actions before the Commission. The CCT would require utilities to provide an independent third-party analysis assessing the GHG emission impact of any proposal submitted to the Commission. The CCT also would require the utilities to explain how any proposal would reduce emissions and move DC closer to its commitment of net-zero carbon emissions on pace with the timing of that commitment. If any proposal is inconsistent with the District's climate commitments, it would fail the CCT and be rejected by the Commission. This proposal is consistent with and helps to effectuate the Clean Energy DC Omnibus Act's requirement that the Commission upholds DC's climate commitments.

The CCT would be co-equal with the two tests the Commission currently applies (the All Ratepayers Test and the Societal Cost Test) when a new utility program is proposed. Thus, if a utility proposal fails any one of the Commission's tests, the Commission would reject that proposal. To meet the threat of climate change, the Commission needs to elevate GHG emissions reductions as one of its primary missions, alongside ensuring reliability and reasonable cost to ratepayers. This is required not only by the Clean Energy DC Omnibus Act of 2018 but also by the catastrophic threat climate change poses to the entire planet and the unique threat it poses to DC, a city that is bound by two tidal rivers and that sits at sea level in some areas.

Some elements of transitioning DC's grid to net-zero, such as some grid modernization initiatives, will have climate benefits that might be difficult to quantify, though modernizing the grid and expanding distributed energy resources ("DER") will significantly reduce GHG emissions. In these cases, a detailed narrative description of the impacts of utility proposals on DC's carbon emissions should be submitted in addition to any available quantitative analysis. Additionally, the electric utility should be given financial incentives to expand DER instead of relying on large and costly projects, such as construction of new substations.

In general, in evaluating the climate impacts of proposed utility actions, full lifecycle effects – including upstream impacts – must be considered. For example, if a proposal resulted in consumption of incremental fracked gas by residents of the District, the analysis must consider leakage of methane in the extraction, compression, and transport of that gas.

III. The Commission Should Require Biennial Climate Plans

Sierra Club proposes that any regulated gas or electric utility biennially present a resource planning document that performs the CCT. The main function of the CCT in the planning document is to establish a credible pathway for the utility to deploy its resources in a way that is consistent with achievement of the District's climate commitments at the sector level of the regulated utility.

The gas utility's biennial plan should outline how the utility will wind down its gas business over the next 30 years, including changes to its service obligations and procurement policies. There has been little progress toward decarbonization of heating (the primary use of gas in DC) even though the District's climate commitments will require a fundamental change to the gas utility's business model. This change in the business model will require long-term planning. The gas utility's 30-year plan should report to the Commission plans for ending new gas

interconnections, fuel-switching from gas to electricity, and shutting down the gas grid in specific geographic areas, starting with areas where significant near-term investment in upkeep of gas infrastructure would be required to avoid stranded assets.

To aid DC's gas utility in setting appropriate objectives in the planning process, the Commission should direct the gas utility to achieve aggregate quantitative limits for GHG emissions (including fugitive methane emissions) that decline to zero by 2050, with appropriate interim targets at key intervals in prior years. The time path for those emission limits should be determined in consultation with the Department of Energy and the Environment and stakeholders. One way to ensure that these quantitative emissions limits are achieved in the aggregate in the District is to adopt a renewable thermal portfolio standard applicable to DC's gas suppliers.

On the electricity side, progress toward decarbonization is being made, largely because of the District's annually-increasing Renewable Portfolio Standard. The remaining climate-related challenges are procurement of standard offer service ("SOS") and integration of DER. Achieving these goals can be achieved through a planning process that is much shorter than the planning process for gas. The electric utility's biennial plan should address how it is ensuring that SOS is procured in a way consistent with DC's climate commitments and explain how it is deploying DER to support renewable energy in DC and to meet DC's growing solar requirements, which will eventually reach 10 percent of all electricity in DC.

Changing how SOS is procured could require changes to the Commission-approved SOS procurement processes and parameters. The Commission should explore options to ensure procurement processes are consistent with DC's climate commitments. The Commission should

engage with the electric utility and relevant stakeholders to develop recommended modifications to the procurement process.

The key components of each utility's biennial process should include:

1. The development of the resource plan with a specific explanation regarding how the utility will ensure continually declining GHG emissions and net-zero emissions by 2050;
2. Credible forecasts for energy demand over that period, taking into account the necessary shifts in energy use resulting from the District's climate strategy and other factors (e.g., reductions in building energy use due to increased building efficiency or a potential increase in electricity use due to electrification of transportation and heating);
3. Outlines for how the utility plans to meet that projected energy demand while increasing energy efficiency, relying on renewable energy, and reducing GHG emissions;
4. Outlines of the necessary capital expenditures and investments in infrastructure required to increase energy efficiency, rely on renewable energy, and reduce GHG emissions over the 30-year period;
5. Calculations of the projected associated emissions of the two main GHGs – carbon dioxide and methane – over the 30-year period. The plan should also track the emissions of gases that lack a directly significant climate change impact but affect environmental quality, such as byproducts of fossil fuel combustion that contribute to smog and ground-level ozone formation (e.g., nitrogen oxide); and
6. Identification of any additional authorization or guidance from the Commission that would be required to enable the utility to execute its plan.

For purposes of transparency, the utility should provide information on the different options available to meet the need in question (whether fossil fuel, renewable energy, storage, DER), their costs and benefits, a detailed explanation as to why the utility chose the option it did, as well as the assumptions made. This information should be made publicly available.

The Commission should evaluate the proposed resource plan and its projected associated GHG emissions to establish whether the plan is:

1. Sufficient to meet the CCT by setting out a pathway for continued emissions reductions to meet the 2050 climate commitment;
2. Based on credible estimates for the evolution of costs;
3. Based on best-available projections for the evolution of energy demand;
4. Based on best-available projections for available technologies; and
5. Consistent with the District's climate commitments.

If the projected emissions of GHGs are not consistent with DC's public climate commitments, or the resource plan is deficient in the underlying assumptions, the plan would fail the CCT, and the Commission would require the regulated utility to propose a new plan capable of meeting the requirements of the CCT. In rejecting the plan, the Commission should specify all actions that the utility must meet in its revised plan. These required actions should take into account the feedback from a variety of stakeholders about the resource plan.

IV. Commission Should Consider Long-Term Emissions & Cost Data

Sierra Club urges the Commission to meet its new statutory requirement to uphold DC's climate commitments by leading and overseeing the decarbonization of DC's electric and gas utilities. In the case of the gas utility, that will require the utility to focus over the next 30 years on winding down its gas business. Meeting the 100 percent decarbonization commitment by 2050 will require that the Commission consider long-term emissions, costs, stranded assets, up-stream emissions, and scalability of plans to meet DC's climate commitments. To successfully assess these issues in the long term, Sierra Club suggests:

1. Commission decisions need to use forward-looking data on costs and emissions, not just current data.

Decisions often involve investments in long-lived assets, for example, investing in maintenance and repair of gas pipeline versus promoting electrification for space and water heating.

When making such decisions, the Commission needs to consider GHG emissions per kwh over the lifetime of newly installed equipment (typically the next 30 years or longer), not the carbon emissions of the grid *today*. Future electric emissions are likely to be much lower than current emissions. The Commission should make the same forward-looking calculations for

GHG emissions of gas pipelines, which will continue GHG emissions roughly equivalent to today's emissions and represent an increasing share of DC's GHG emissions.

2. Commission decisions need to recognize the extremely long lags in the effects of policymaking. Therefore, the Commission needs to be guided by the 2050 climate commitment today, not by the interim 2030 commitment.

The typical lag between a climate policy initiative and the major impact on household and firm behavior is often approximately 10 years. For example, the Clean Energy Omnibus Act of 2018 was preceded by a nearly two-year public debate about carbon taxes, then introduced in the summer of 2018, passed in December 2018, signed into law in January 2019, becoming partially effective in March 2019 and fully effective in October 2019. Still, the Building Energy Performance Standard ("BEPS") portion of the law requires energy use reductions only from 2026 onward, reaching a larger number of buildings in the years thereafter. This important part of the 2018 clean energy bill will only come into force a decade after advocates of climate action began working on this effort in DC.

The typical lag for an initiative that requires major change from individual homeowners is even longer, often 20 to 30 years. For example, many decisions about retrofitting major home heating appliances or making improvements to a building's envelope are only made when old equipment fails or when the home is sold or renovated. Those events occur infrequently, with decades of GHG emissions that remain constant during the interim period.

With these long lags, the decisions made today and over the next ten years will likely determine whether the District can meet its 2050 climate commitment.

3. Commission decisions need to take into account the risk of stranded assets.

The District has a stated climate commitment to encourage fuel switching away from gas and toward electrification. Reducing gas use in buildings will lead to a reduction in the gas

customer base and a diminished need for gas infrastructure in the District. The financial implications include the risk that some gas assets will no longer be used before the end of their service life. With increased building electrification, the legacy gas investments may cause substantial investment value to be “stranded.” Building electrification may also accelerate the time horizon for the decommissioning of the utility’s current gas assets. As a result, the District needs to plan now for this decommissioning.

4. Commission decisions need to consider the climate impact of leakage of methane.

Measured by its impact on warming over 20 years, methane is roughly 84 times more potent than CO₂.⁶ Fugitive methane emissions are substantial, with recent studies showing that leakage of methane from pipelines and distribution systems in large cities, including DC, is much higher than has been estimated in the past.⁷ It is not sufficient to focus only on carbon dioxide emissions in assessing the climate impact of decisions. The Commission should consider all emissions with climate impact and its decisions should take into account that methane is a major GHG.

5. Commission decisions should take into account all GHG emissions associated with the issue under study, including upstream emissions.

Upstream emissions of methane associated with the production of gas at fracking sites, or with transmission and distribution, should be included in any analysis. Methane emissions from the gas supply chain are 60 percent higher than EPA estimates, according to a study published

⁶ Adam Voiland, *Methane Matters*, NASA (Mar. 8, 2016), <https://earthobservatory.nasa.gov/features/MethaneMatters>.

⁷ Genevieve Plant et al., *Large Fugitive Methane Emissions From Urban Centers Along the U.S. East Coast*, *Geophysical Research Letters*, Vol. 46, Issue 14 (July 28, 2019), <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2019GL082635>.

last year in the journal *Science*.⁸ The official EPA estimate is that the U.S. oil and gas supply chain emits 8 million metric tons of methane annually, but the study found the real number is closer to 13 million metric tons. According to the study, the EPA estimate failed to include emissions resulting from faulty equipment and other problems in gas extraction, processing, transmission, and storage, according to the study.

6. The Commission should consider whether a proposal that is consistent with the District’s climate commitments is scalable.

Utility proposed programs should be examined to ensure that the proposal does not require the use of a scarce resource in a way that materially and substantially lowers the ability of other jurisdictions to achieve their climate goals, even when that proposal appears to be consistent with the District’s climate commitments. To avoid adverse effects on other jurisdictions, the Commission should deny approval to climate reduction approaches if they are not scalable, i.e., the District’s use of the approach would limit its use in other jurisdictions. One primary example of this type of scarce resource is renewable gas. “Renewable gas,” also referred to as “biogas” or “RNG” is in very limited supply, and if the United States continues to rely on gas infrastructure for heating, the limited “biogas” supply should not be used in places like DC where heating can be sufficiently supplied by heat pumps. Thus, the Commission should deny approval to any proposal that relies on RNG.

V. Utilities Should be Financially Incentivized to Reduce Greenhouse Gas Emissions

To meet DC’s public climate commitments, the Commission must hold both electric and gas utilities accountable to reduce GHG emissions. To meet DC’s climate commitment of 50 percent GHG reductions by 2032 and net-zero emissions by 2050, DC’s utilities will need to

⁸Ramón A. Alvarez et al., *Assessment of methane emissions from the U.S. oil and gas supply chain*, *Science*, Vol. 361, Issue 6398 (July 13, 2018).

incrementally reduce emissions each year. Sierra Club suggests the following actions by the Commission to ensure the Commission is meeting its statutory requirement to reduce GHG emissions:

1. If a utility cannot credibly demonstrate it has reduced its annual GHG emissions in its sector (electricity or gas) consistent with an annual rate that would achieve net-zero emissions per sector by 2050, the Commission should use its statutory authority to assess ongoing financial penalties against the utility until the utility can prove it is reducing year-over-year emissions.
2. If a utility credibly demonstrates it has reduced its annual GHG emissions in its sector (electricity or gas) by a certain percentage that would achieve net-zero emissions per sector by 2050, the Commission should allow a financial incentive for the utility.
3. The percentage of GHG reduction required each year should be set by the Commission. Reducing GHG emissions 100 percent from 2006 levels by 2050 would require a reduction from the 2006 baseline of 2.3 percent annually.
4. The Commission should recognize fuel switching from gas and toward clean electricity as a path for the gas utility to achieve its GHG reduction commitments. The Commission should adjust financial penalties and incentives such that the gas utility is financially rewarded for fuel switching away from gas and financially penalized for failing to do so.

VI. DC Climate Commitments Require Transitioning Away From Gas

In the case of DC's gas utility, the 2018 AltaGas-WGL merger agreement as well as DC's climate commitment of carbon neutrality by 2050, require that the utility implement a credible transition plan beginning in 2020 to ramp down its gas distribution business and replace its old business model with a new one focusing on renewable energy.

The AltaGas-WGL merger agreement states:

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 products instead of relying only on selling natural gas). After the business plan is filed,

AltaGas will hold bi-annual public meetings to report on and discuss its progress on the business plan.⁹

If the gas utility fails to begin this transition by 2020, the Commission should assess ongoing financial penalties against the gas utility until it begins to wind down its gas business, as required by the 2018 merger and DC's public climate commitments. Continuing to burn gas for any purpose is inconsistent with DC's public climate commitment of carbon neutrality by 2050 and thus inconsistent with the Commission's statutory requirement to uphold DC's climate commitments.

The Public Service Commission should set requirements for the basic steps of phasing out gas in the District, namely:

1. No longer interconnecting new gas (and removing any incentives for doing so);
2. Eliminating efficiency incentives for new gas appliances (while retaining incentives for building envelope improvements);
3. Requiring that all newly constructed and substantially renovated buildings are all-electric, which will require the Commission to prohibit the gas utility from connecting its gas network to any newly constructed or substantially renovated building;
4. Incentivizing fuel switching from gas to electricity in existing buildings, focusing on geographically targeted conversions from gas to electric that will enable phase-outs of discrete sections of the existing gas infrastructure. These should start with areas where significant near-term investment in upkeep of gas infrastructure would be required. Focusing on these areas will avoid stranded assets;
5. Commissioning a feasibility study and stakeholder working group for neighborhood district heating systems using renewable thermal heat based on geothermal energy and/or sewage waste heat recovery; and
6. Expanding energy efficiency, renewable energy generation, and DER to meet electricity needs as buildings decarbonize.

The Clean Energy DC plan, which constitutes part of DC's public climate commitments, states that fuel switching from gas to electricity "is required to reduce the greenhouse gas

⁹ Public Service Commission of the District of Columbia, Formal Case No. 1142, *In the Matter of the Merger of AltaGas Ltd. and WGL Holdings, Inc.*, Order No. 19396 at Appendix A, p. 29 of 30 (June 29, 2018).

intensity (or carbon intensity) of a building’s energy.”¹⁰ The Clean Energy DC plan further states that using gas instead of electricity is “contrary to the long-term carbon reduction goals of the District.”¹¹

Because the Commission is statutorily bound by DC’s public climate commitments, which include fuel switching from gas to electricity to meet DC’s GHG reduction targets, the Commission should reject any gas utility proposal that seeks a continuation of reliance on gas via “renewable gas,” also known as “biogas” or “RNG.”

An analysis commissioned by the DC Department of Energy and Environment found that even under the most optimistic scenarios claimed by the American Gas Foundation, a group funded by the gas industry, “biogas” could supply only 32 percent of the region’s gas consumption. The analysis, conducted in 2017, found that only 36 landfills and seven farms in the entire country produce gas that can be transported through pipelines. None were located in DC, Maryland, or Virginia.¹²

The Department of Energy and Environment analysis found that the gas industry’s best-case scenario would require DC to consume more than its share of “biogas.”¹³ If DC uses proportionally more “biogas,” other areas would have to consume less. Climate change is a global problem and not one facing DC alone, so it makes little sense to use “biogas” to heat homes and water in DC when our temperatures allow those functions to be achieved by highly efficient heat pumps.

¹⁰ Clean Energy DC Plan at 80.

¹¹ *Id.* at 86.

¹² Public Service Commission of the District of Columbia, Formal Case No. 1142, Direct Testimony of Asa S. Hopkins on Behalf of the District of Columbia at 45–46 of 95 (Sept. 29, 2017).

¹³ *Id.* at 46–47 of 95.

If the gas utility fails to submit adequate plans to the Commission for how it will transition its business away from reliance on gas – without relying on “renewable gas,” “biogas,” or “RNG” – and toward renewable energy, the Commission should assess continuous financial penalties against the gas utility until it meets its commitments in the WGL-AltaGas merger agreement and the Commission imposed requirements designed to uphold DC’s climate commitments. These penalties should not be borne by ratepayers, but instead by the company and its investors, because they will be the responsible parties if the utility fails to meet its own commitment, under the merger, to zero emissions by 2050.

VII. Social Cost of Carbon and DC’s Climate Commitments

Sierra Club’s suggested approach goes beyond specifying social costs for GHGs. To be clear, we do not rule out that the social cost of carbon can play an important role in the deliberations of the Commission, but the framework must go beyond simply using of the social cost of carbon. Specifying a social cost of carbon alone will not incentivize the necessary changes to end all GHG emissions by 2050. Merely requiring a cost-benefit analysis using such social cost will likely not be effective because a social cost of carbon does not specify any mechanism that requires the utilities to actually move forward with action to achieve the District’s climate commitments at the sector level of the utility.

Importantly, the District’s climate commitments are not formulated in terms of a carbon price, but instead in terms of quantities, namely GHG reduction goals for 2032 and 2050. Therefore, any approach that uses a social cost of carbon as a principal tool in upholding the District’s climate commitments would need to demonstrate that using a specific assumed social cost of carbon would in fact result in the required reduction in GHG quantities. Such a mapping

between costs of carbon and emissions reduction is difficult, but estimates do exist. For a social cost of carbon to be effective at reducing GHG emissions to zero by 2050, the cost must be high.

The International Monetary Fund estimates that a carbon tax of \$75 per ton would reduce CO₂ emissions in the United States by about 30 percent by 2030.¹⁴ Achieving carbon neutrality by 2050 would require a far higher cost. Simple linear approximation suggests at least tripling the carbon cost, to above \$200, though a linear approximation is likely to understate the cost since later emission reductions are likely to be proportionally more expensive.

DC has committed to carbon neutrality by 2050, not 2030, which could be viewed to suggest a social cost of carbon lower than our estimate. However, achieving additional emissions reductions beyond 30 percent would certainly be more costly, because the easiest and least expensive pathways to reduced emissions – the “low-hanging fruit” – would already have been accomplished. Given these factors, a carbon cost well above \$200 per ton will likely be needed. A social cost of carbon of \$200 per ton may seem high, but it is of the same order of magnitude as the social cost of carbon in the high-impact calculation that the Environmental Protection Agency (“EPA”) performed in 2016.¹⁵

Other countries have already imposed a cost of carbon of roughly that order of magnitude. For example, the carbon tax applied to industries and households in Sweden was about \$130 in 2018.¹⁶ Notably, economic growth in Sweden has thrived in the years since a

¹⁴ International Monetary Fund, *Fiscal Monitor: How to Mitigate Climate Change*, at 7, Figure 1.2 (Oct. 2019), <https://www.imf.org/en/Publications/FM/Issues/2019/10/16/Fiscal-Monitor-October-2019-How-to-Mitigate-Climate-Change-47027>.

¹⁵ Those calculations arrive at a social cost of carbon in 2020 of \$123 per ton that rises over time, to \$152 in 2030, \$183 in 2040, and \$212 in 2050. U.S. Environmental Protection Agency, *The Social Cost of Carbon: Estimating the Benefits of Reducing Greenhouse Gas Emissions*, (Jan. 19, 2017 Snapshot), https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon_.html.

¹⁶ Johannes Ackva and Janna Hoppe, *Fact Sheet: The Carbon Tax in Sweden*, Ecofys and Adelphi (Sept. 3, 2018), <https://www.euki.de/wp-content/uploads/2018/09/fact-sheet-carbontax-se.pdf>.

carbon tax was introduced. Sweden has reduced its CO₂ emissions to levels almost 40 percent below those in 1990 when the tax was first introduced. It is likely that the carbon tax will still need to rise for Sweden to achieve its target of carbon neutrality by 2050.

A social cost of carbon for emissions in 2020 of at least \$200 per ton is appropriate. The social cost of carbon should then rise at a rate of between 1 and 3 percent per year. As time progresses, the more severe consequences of climate change become more “front-loaded,” meaning the consequences increasingly occur in the near-term. As we move closer to the most severe ramifications of climate change, the cost of additional carbon emissions rises. This effect is called the “discount factor.”

The District is exceedingly vulnerable to climate change because much of DC is barely above sea level and the value of DC’s assets threatened by climate change is comparatively high. Moreover, the District’s climate commitments are appropriately ambitious, given the threat to DC. All of these factors call for a high social cost of carbon.

If a social cost of carbon is used in the Commission’s framework, Sierra Club requests that it be applied to both CO₂ and methane emissions, as a social cost of GHG emissions, rather than carbon alone. The EPA arrived at a much higher social cost for methane than carbon because methane is 84 times more powerful a greenhouse over a 20-year timeframe than carbon. Sierra Club asks that if a social cost of GHGs is used by the Commission, the cost for methane should reflect that it is much more damaging to the climate than carbon and follow the high impact social cost calculations by the EPA. In 2016, the EPA arrived at a high impact social cost of methane of \$3,200 per ton in 2020, \$4,200 in 2030, \$5,500 in 2040 and \$6,700 in 2050.¹⁷

¹⁷ U.S. Environmental Protection Agency, *The Social Cost of Carbon: Estimating the Benefits of Reducing Greenhouse Gas Emissions*, (Jan. 19, 2017 Snapshot), https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon_.html.

VIII. The Commission Needs Resources to Carry Out New Climate Commitment Mandate

Meeting the Commission's new mandate to uphold DC's climate commitments will not be easy. For the Commission to effectively lead the utilities' transition to net-zero GHG emissions, and for the Commission to determine whether utility proposals are credibly moving to net-zero emissions, the Commission will need added expertise on climate and clean energy issues. Sierra Club suggests that the Commission seek the necessary funding to hire additional staff to assess the environmental and climate impact of matters before the Commission. These topics are of grave importance to the District because of the existential threat climate change poses to our low-lying city. The climate and clean energy issues facing DC are sufficiently important and complex for the Commission to hire its own in-house experts on these environmental and climate issues.

CONCLUSION

For the reasons described above, Sierra Club recommends that the Commission adopt a Climate Commitment Test in conjunction with the quantitative District-wide benefit-cost analysis framework proposed by Solar United Neighbors of D.C. and Pace Energy and Climate Center; set forth a process and schedule for the development of both tests, and adopt guiding principles to ensure a transparent and effective process. Sierra Club looks forward to continuing to work with the Commission and other stakeholders in developing a comprehensive framework to evaluate the impacts of utility proposals on global warming and the District's public climate commitments.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this 13th day of January, 2020, I caused true and correct copies of the **COMMENTS OF THE SIERRA CLUB ON THE COMMISSION'S NOTICE OF INQUIRY** to be electronically transmitted to the following:

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