
District of Columbia Priority Climate Action Plan

PREPARED FOR:

U.S. Environmental Protection Agency as a deliverable for the Climate Pollution Reduction Grants (CRPG) Program, section 60114(a) of the Inflation Reduction Act

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CPRG Background and Disclaimer

This project has been funded wholly or in part by the United States Environmental Protection Agency (EPA) under assistance agreement 5D - 95316301 – 0 to the District of Columbia Department of Energy and Environment (DOEE). DOEE engaged the Metropolitan Washington Council of Governments (MWCOG) through a subgrant (GAN-FY23-COG-189) to develop a regional Priority Climate Action Plan (PCAP) which has been separately submitted as part of this grant deliverable. The contents of this document do not necessarily reflect the views and policies of the EPA, nor does the EPA endorse trade names or recommend the use of commercial products mentioned in this document. This PCAP was developed to meet the requirements of the Climate Pollution Reduction Grants (CPRG) program, Inflation Reduction Act Section 60114(a). It does not replace or supersede Carbon Free DC, Clean Energy DC 2.0, Sustainable DC 2.0, or any other District plan, but rather it provides a set of priorities for the District that will enable governments and other stakeholder in the region to seek competitive implementation funding through the CPRG program, Inflation Reduction Act Section 60114(b).

Definitions and Acronyms

CCAP	Comprehensive Climate Action Plan
CEDC	Clean Energy DC
CFDC	Carbon Free DC
CJEST	Climate and Economic Justice Screening Tool
CPRG	Climate Pollution Reduction Grant
DDOT	DC Department of Transportation
DGS	DC Department of General Services
DOEE	DC Department of Energy and Environment
DPW	DC Department of Public Works
EJScreen	Environmental Justice Screening and Mapping Tool (EPA)
GHG	Greenhouse gas
LIDAC	Low-Income Disadvantaged Communities
MWCOG	Metropolitan Washington Council of Governments
MSA	Metropolitan Statistical Areas (as defined by the U.S. Census 2020 MSA population)
PCAP	Priority Climate Action Plan

Executive Summary

1 Introduction

The District Department of Energy and Environment developed this Priority Climate Action Plan (PCAP) to meet the requirements of the U.S. Environmental Protection Agency's (EPA) Climate Pollution Reduction Grants (CPRG) program. The CPRG program provides funding to states, local governments, tribes, and territories to develop and implement plans for reducing greenhouse gas (GHG) emissions and other harmful air pollution. By submitting this PCAP, the District is eligible to apply for implementation funds through CPRG.

1.1 CPRG overview

The Inflation Reduction Act (IRA), signed into law on August 16, 2022, directs federal funding to reduce carbon emissions, lower healthcare costs, and improve taxpayer compliance. The IRA contains provisions that directly or indirectly address climate change, including reduction of U.S. GHG emissions and promotion of adaptation and resilience to climate change impacts.¹ The law represents the largest investment toward addressing climate change in United States history, investing approximately \$369 billion in energy security and climate change programs over the next 10 years.²

The CPRG program, authorized under Section 60114 of IRA, provides \$5 billion in grants to states, local governments, tribes, and territories to develop and implement plans for reducing GHG emissions and other harmful air pollution. The program consists of two phases: planning and implementation. The planning phase provides \$250 million in noncompetitive planning grants for state and local agencies, tribes, and territories to develop a PCAP, CCAP and Status Report. The second phase provides \$4.6 billion for competitive grants to eligible applicants to implement GHG reduction measures identified in a PCAP.

1.2 PCAP Overview and Definitions

This PCAP identifies high priority, ready-to-implement GHG reduction measures that will provide significant GHG reductions and other benefits to the District, including to specific communities within it. Inclusion of a measure within a PCAP is a pre-requisite for agencies and organizations within an MSA or state to compete for implementation grant funding in the second phase of the CPRG program. Accordingly, the measures identified in this PCAP are designed to be broad enough to encompass local priorities for addressing climate pollution. The PCAP also serves as a starting point for a larger, more comprehensive region-wide climate planning effort to be conducted through 2025 (CCAP). This PCAP closely follows priority actions found in the District's related plans, including Carbon Free DC (CFDC), Clean Energy DC (CEDC) and 2.0 update-in-progress, Sustainable DC 2.0, moveDC, and more.

¹ 1 CRS. "Inflation Reduction Act of 2022 (IRA): Provisions Related to Climate Change," October 3, 2022. <https://crsreports.congress.gov/product/pdf/R/R47262>.

² Senate Democrats. "Summary: The Inflation Reduction Act of 2022," July 27, 2022. https://www.democrats.senate.gov/imo/media/doc/inflation_reduction_act_one_page_summary.pdf.

Table 1 outlines both the required and encouraged but not required information for a PCAP³ and where the relevant information may be found within this document.

GHG Inventory (required)	Section 2.1
Quantified GHG Reduction Measures (required) <ul style="list-style-type: none"> • Review of authority to implement • Timeline and metrics • Partners and implementing agencies • LIDAC benefits 	Section 2.3
Low-Income Disadvantaged Community (LIDAC) Benefits Analysis (required)	Section 2.4
GHG Emissions Projections (not required)	Section 2.2
GHG Reduction Targets (not required)	Section 2.2

Additional information on the PCAP elements can be found in EPA’s [CPRG: Formula Grants for Planning, Program Guidance for States, Municipalities, and Air Control Agencies](#)

1.3 Scope of the PCAP

This PCAP covers only the District of Columbia. However, the District of Columbia is also covered by the PCAP for the Washington-Arlington-Alexandria Metropolitan Statistical Area (MSA), led by the Metropolitan Washington Council of Governments (MWCOG). Measures included in either PCAP are eligible for Implementation funds by eligible entities within the District.

1.4 Approach to Developing the PCAP

Existing Targets

The District of Columbia has set an ambitious goal to be carbon neutral by 2045, and by 2040 for District Government operations. This means achieving net-zero greenhouse gas (GHG) emissions on an annual basis from buildings, industry, grid-supplied energy, transportation, and waste generated, including the use of local carbon sequestration strategies while limiting the purchase of carbon offsets to the maximum extent possible. The District will achieve this goal by following a deep decarbonization pathway, prioritizing the reduction of GHG-related consumption first, followed by the electrification of systems currently running on fossil fuels, and ultimately purchasing all electricity from 100% renewable sources.

Previous Climate Action Plans

This PCAP builds upon existing plans and resources – including [Carbon Free DC](#) (2023), [Clean Energy DC](#) (2018 with [2.0 update in progress](#)), annual citywide [GHG inventories](#) 2006-2020, and the Department of General Services’ [Energy Management Plan](#), to deliver a list of priority actions that could be accelerated with near-term implementation funding.

³ US EPA. “Climate Pollution Reduction Grants Program: Formula Grants for Planning,” March 1, 2023. <https://www.epa.gov/system/files/documents/2023-02/EPA%20CPRG%20Planning%20Grants%20Program%20Guidance%20for%20States-MunicipalitiesAir%20Agencies%2003-01-2023.pdf>

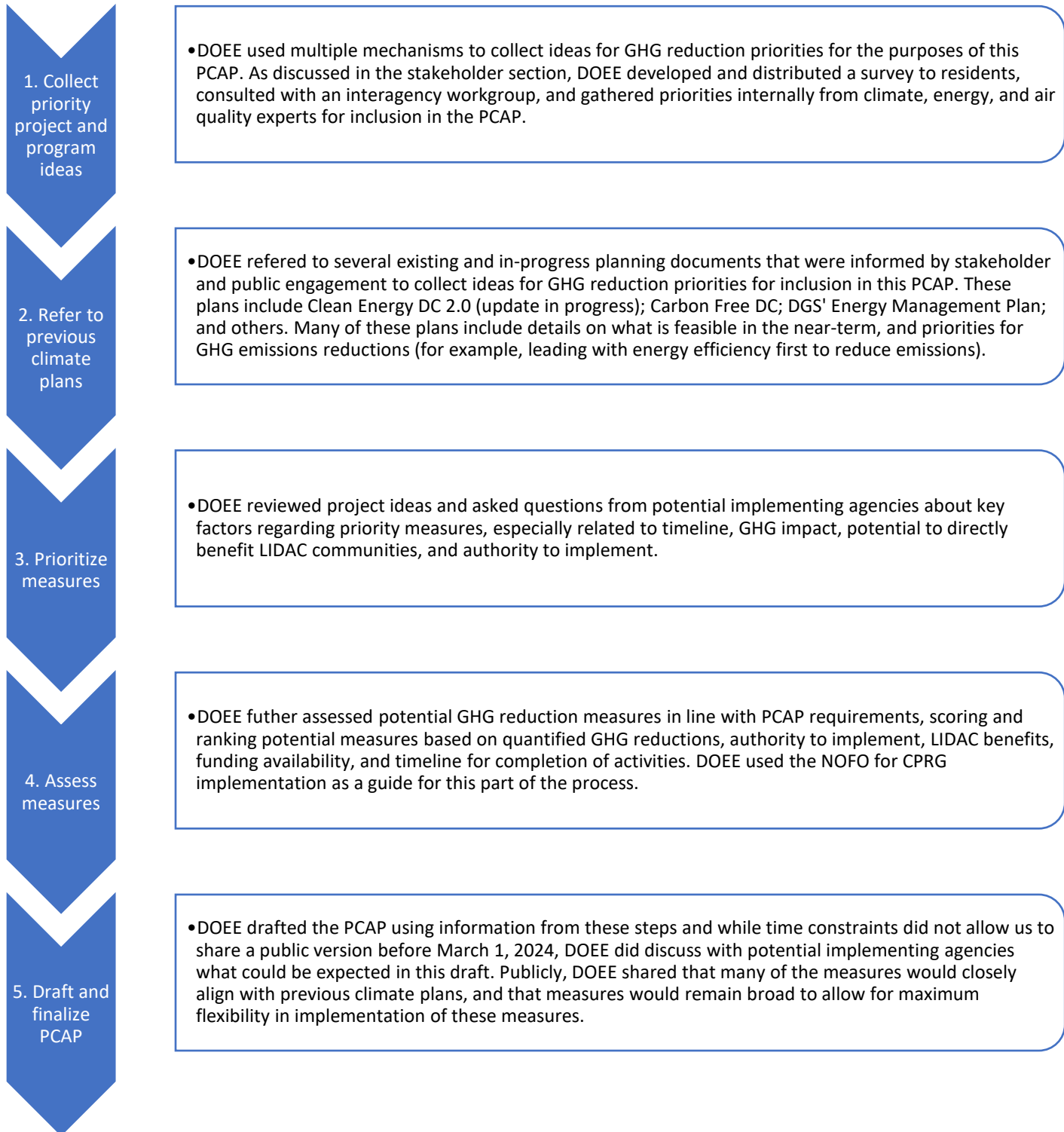
GHG Inventory

The District of Columbia has been calculating an annual inventory since 2009 using ICLEI's ClearPath tool, in accordance with the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC). DOEE leveraged existing 2006-2020 citywide inventories for this plan. Emissions reduction targets as well as tracking progress towards those targets are all based on the District's 2006 baseline. More information on DOEE's approach to the inventory can be found in Section 2.1.

Measure Selection

The District has engaged in on-going climate planning activities for several years, which provided a solid foundation of planned and ongoing actions to reduce GHG emissions for the PCAP. To identify, prioritize, and analyze GHG reduction measures DOEE used the process outlined in Figure 1. The stakeholder engagement activities discussed in this section were done continuously across all the steps discussed below.

Figure 1



Stakeholder Engagement

Under a new interagency taskforce established in the District's Climate Commitment Act Amendment of 2022, key agencies will collaborate to develop a plan to meet the accelerated target of carbon neutrality in District government operations by 2040. Select taskforce members served on an interagency working group to provide input for planning around carbon neutrality for District Government operations. Agencies whose operations are the largest drivers of GHG emissions for operations, including the Department of General Services (DGS) who manages the portfolio of buildings and land holdings, District Department of Transportation (DDOT), and Department of Public Works (DPW) who manages the District's fleet, took part in this interagency workgroup to provide measures for inclusion in this PCAP.

As part of the Clean Energy DC 2.0 plan update, launched in 2023, DOEE lead an interagency engagement effort that involved regular meetings, including bilateral meetings and sector-specific working groups, with agencies such as the Departments of General Services, Buildings, Parks and Recreation, Transportation, and Housing and Community Development, along with the Office of Planning, DC Public Schools, DC Public Library, and the DC Housing Authority. DOEE also worked with an interdisciplinary team to engage stakeholders, led by subgrantee Buro Happold. LINK Strategic Partners, the Institute for Market Transformation, Home Energy Efficiency Team, Emerald Cities Collaborative, and Lion Advisors provided additional support. The team conducted a city-wide survey; interviews with environmental organizations, transportation advocates, consumer groups, government agencies and industry representatives; a public townhall; two interagency meetings with representatives from 14 agencies; and three technical working groups with experts from the energy, buildings, and transportation sectors across industry, academia, government, and non-profits. Four ward-based public listening sessions (the District has eight wards with distinct geographical boundaries) were held in early summer 2023, along with "roadshows" to meet residents in their communities to solicit input.

Public engagement for the PCAP draws upon efforts from Clean Energy DC 2.0 and [Carbon Free DC](#) (published in December 2023). Carbon Free DC's series of community focus groups offered guiding questions for prioritizing actions for equity and environmental justice communities from the perspective of those communities, which served as a guide for analyzing community benefits of measures within this PCAP. DOEE has a foundation of knowledge and strong relationships already forged with community members from which we built by broadening engagement opportunities, and opening discussions with community members through stakeholder meetings and events, led by subgrantee Brick and Story specifically for this PCAP.

In order to center engagement efforts around environmental justice communities, DOEE and Brick and Story used the Climate and Environmental Justice Screening Tool (CEJST) and EJScreen tools to help identify LIDAC communities throughout the District. Noting these locations, we chose three community events in EPA-disadvantaged communities as indicated by the EJScreen (in Wards 5, 6, and 8) to share a survey, collect feedback, and understand community priorities around clean energy and climate change.

Initial outreach was conducted to a targeted list of community stakeholders, partner organizations, and government agencies with a connection to LIDAC communities in the District. The initial stakeholder list used for email outreach included 60 community partner organizations and 100 partners agencies. Email outreach included a link to the survey (and coordination of in-person drop offs) as well as an invitation to the webinar, among other information. Engagement materials were developed with a particular focus on using accessible language, based on prior experience on best vocabulary for meaningful engagement in LIDAC communities (for example, avoiding the term "electrification"). Materials continue to be

adapted based on feedback throughout this engagement process. All engagement events included at least one Spanish-speaker, and materials were also offered in Spanish.

LIDAC Priorities

Participants across all forms of engagement placed notable emphasis on environmental justice, particularly concerning the needs of LIDACs. Concerns included air quality, housing affordability, access to living-wage employment, energy affordability, transportation safety, and quality of life, underscoring the importance of ensuring that climate initiatives benefit people who have historically faced disproportionate environmental burdens.

The PCAP community survey results showed that the top three climate-related issues for DC residents were: (1) Healthy Homes: Indoor Air Quality and Mold (49.3% of respondents); (2) Traffic safety while Walking and Biking (47.9%); and (3) Affordability of Utility Bills (30.1%). Residents were permitted to select up to three issues on the survey. Additional written responses included road safety for pedestrians and cyclists, water pollution, appliances that use too much electricity, greenspaces/rain gardens, littering/dumping and plastic waste, and flooding. Notably, every respondent (100%) with an income under \$30,000 said healthy homes/air quality was an issue of concern. Indoor air quality and respiratory illness both also were also raised by community members who attended pop ups. Black residents were much more likely to prioritize Improved Comfort and Lower Costs for Heating and Cooling in Community Spaces.

Continued Engagement

There are three main elements of the District's CCAP engagement plan: at-large engagement, targeted engagement, and open house engagement. As we transition from the PCAP to the CCAP, we will revisit our list of targeted communities to ensure we continue to prioritize the needs and desired outcomes of LIDACs.

The engagement plan moving forward is designed to achieve meaningful, intentional engagement using a diverse range of tools to access various stakeholders within the LIDAC community, to meet people where they are and provide unique and engaging opportunities to provide feedback.

The next steps include (1) additional stakeholder mapping for focus groups and a possible open house; (2) develop key area of feedback and create CCAP engagement materials to continue community education and feedback collection; (3) targeted engagement through 5-6 strategically designed focus groups; (4) additional pop-ups at community events to build awareness, educate the public, gather feedback, and promote additional engagement opportunities; (5) host a community open house in LIDAC community for stakeholders. We will also use social media, e-letters, and flyers to increase awareness and participation in engagement District-wide.

2 PCAP elements

2.1 Greenhouse Gas (GHG) Inventory

DOEE leveraged its annual GHG inventory of priority sources of GHG emissions within the District for the year 2020. A detailed methodology including data resources for the preparation of this inventory are contained in Appendix C. Gross GHG emissions for the District were 6.3 million metric tons of carbon dioxide equivalent (MMTCO_{2e}) in 2020.

The District’s GHG inventory tracks emissions by both source and sector: sources refer to the fuels that produce energy, and sectors are the main energy-consuming areas of the economy. In the District, emissions come from three main sectors: buildings, transportation, and waste. In 2020, buildings continued to be the main driver of citywide emissions (72%) followed by transportation (21%) and waste (7%). Within these sectors, the main sources of emissions are electricity (49%), fossil gas (24%) and gasoline (17%). Table 1 below reflects the 2020 inventory by sector.

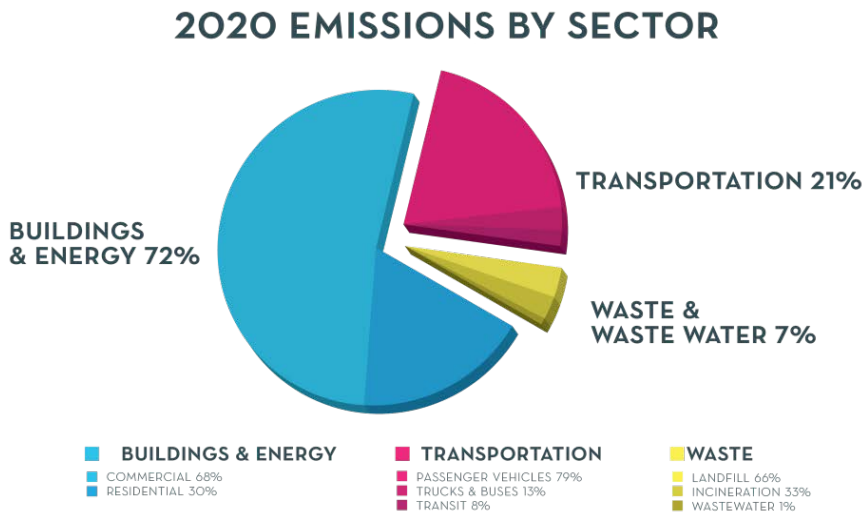
Table 1			
Year		2020*	
Sector	Units	Consumption	MTCO2e
Buildings & Energy			
Residential			
Gas	Therms	109,428,716	582,013
Electricity	kWh	2,470,432,911	734,319
Fuel Oil	Gallons	293,000	3,011
Residential Subtotal			1,319,343
Non-Residential			
Gas	Therms	153,508,038	819,275
Electricity	kWh	6,769,405,092	2,102,199
Fuel Oil	Gallons	2,943,000	30,239
Kerosene	Gallons	11,000	112
Non-Residential Subtotal			2,951,825
Grid Loss			
MT based on Total Residential Electricity Used (kWh)			38,919
MT based on Total Non-Residential Electricity Used (kWh)			125,248
Buildings & Energy Subtotal			4,435,335
Transportation			
Transit (Electricity)	kWh	320,160,899	95,165
Grid loss from transit	MT		5,044
Gasoline	VMT	2,756,650,866	1,060,769
Diesel	VMT	86,656,134	133,770
Transportation Subtotal			1,294,747
Waste			
Landfill	Tons	483,361	315,724
Incineration	Tons	372,117	128,979
Compost	Tons	26,848	3,784
Waste Subtotal			448,487

Fugitive Emissions		
Fossil Gas Distribution	Therms	88,560
Fugitive Emissions Subtotal		88,560
Water & Wastewater		
Process Emissions		22,592
Water & Wastewater Subtotal		22,592
TOTAL		6,289,722

*The 2020 inventory reflects impacts of the COVID-19 public health emergency. Future data is needed to assess the impact on the District's long-term emissions reduction pathway.

Figure 2 below similarly reflects the 2020 inventory by sector.

Figure 2.



GHG Accounting Methodology and Data Review

The District's inventory and previous inventories have been developed to be compliant with the U.S. Communities Protocol for Accounting and Reporting Greenhouse Gas Emissions (USCP), Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC), and Global Covenant of Mayors (GCoM) reporting framework. DOEE mainly follows the calculation guidance from USCP as the USCP identifies sources of data widely available to communities in the US. DOEE uses ICLEI's ClearPath tool Community Scale Inventory Module for preparing GHG inventories, which is consistent with both US and global accounting protocols. DOEE made every effort to capture a complete and accurate picture of GHG trends within the District, while also providing for a consistent methodology that is replicable across communities and inventory years. The GHG inventories follow an activities-based approach, meaning

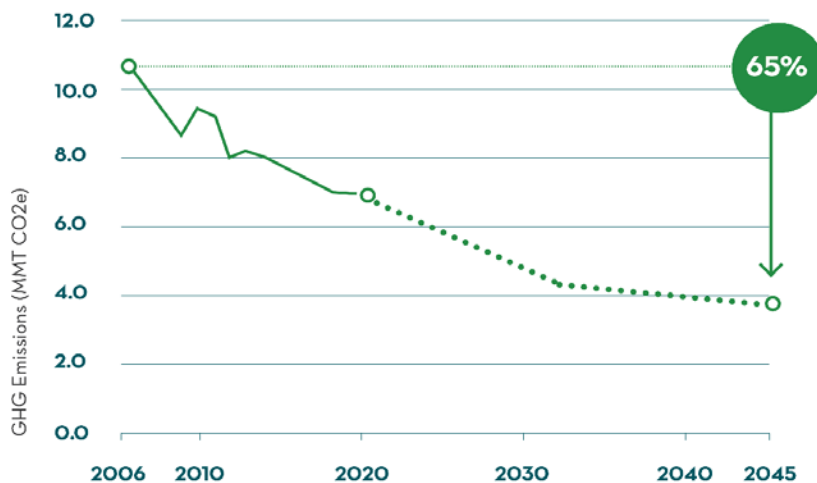
emissions are calculated based on the result of activities happening in the community. For a detailed description of the methodology, including data review and scope, see Appendix C.

The District uses 2006 as its base year for measuring emissions reductions over time. In 2020, the District’s citywide GHG emissions had fallen 40% compared to 2006. However, this figure reflects the impacts of the COVID-19 public health emergency, which likely reduced emissions across multiple sectors – notably, transportation. Future data is needed to assess the impact on the District’s long-term emissions pathway.

GHG Emissions Projections

Business-as-usual (BAU) projections provide a baseline scenario for future GHG emissions. BAU projections consider driving factors such as growth in population, housing and commercial development and the impact they will have on future GHG emissions. BAU projections generally reflect policies and practices in place and implemented to-date to reduce GHG emissions, but do not incorporate any additional GHG emission reductions from anticipated future action. In projecting scenarios out to the District’s 2045 carbon neutrality target, the District opted to use a modified BAU scenario that accounts for the District’s current trajectory to 2045, representing a projection of future emissions with existing programs and policies from the Clean Energy DC Omnibus Amendment Act and other legislation in place, but not implemented at the time of the modeling. Based on the assumptions used, total emissions continue to decrease out to approximately 2032, at which point they level off. Figure 3 shows the region’s anticipated BAU emissions projected out to 2045. By continuing its current trajectory, the District will meet its 60% emissions reduction goal by 2030. But without further action, reductions will level off and fall short of carbon neutrality by nearly 3.7 million MMTCO₂e in 2045.

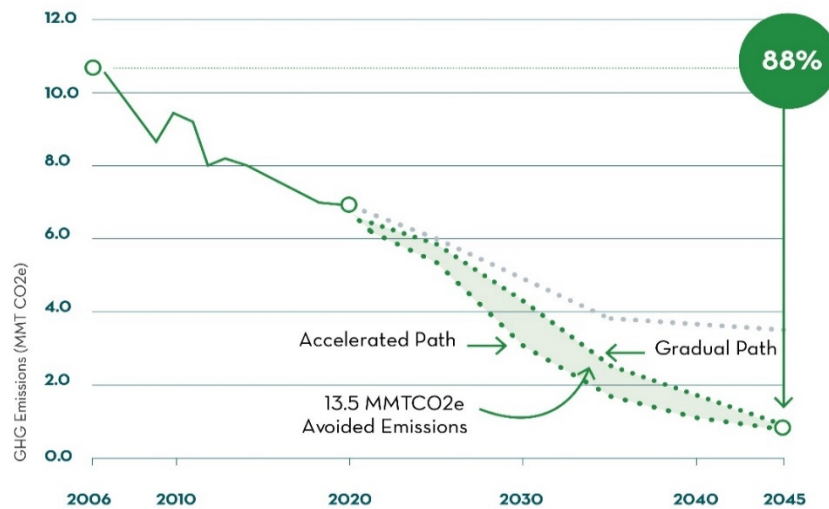
Figure 3.



The District has also modeled out a gradual path and accelerated path for emissions reductions. A gradual path scenario includes a combination of strategies to address energy supply, building energy consumption, transportation emissions, and municipal waste and wastewater. Under a gradual path, the District could reduce our annual emissions by more than 88% from 2006 levels by 2045, to reach 1.25

MMT CO_2e . With more aggressive regional and federal targets for renewable energy generation, we could reach 0.7 MMT CO_2e with technologies available today. The accelerated path to carbon neutrality reflects the urgency of the climate crisis, and the need to take immediate action. It includes the same set of strategies as the gradual path but implemented on an accelerated timeline. By acting quickly and aggressively, we can avoid nearly 13.5 MMT CO_2e in cumulative carbon emissions—roughly the same amount as the emissions from 34 fossil gas-fired power plants in one year. The accelerated path will also help us become stronger and more resilient, faster, so that we are adequately prepared for the heat waves, flooding, and storm events driven by climate change. Both models are included in Figure 4. The projected emissions reductions for the PCAP measures are derived from the Carbon Free DC modeling, to capture both short-term savings (2025-2030) and long-term savings (2025-2045). An overview of the modeling approach can be found in Appendix B.

Figure 4.



2.2 GHG Reduction Targets

The District has set ambitious climate and energy goals and is committed to being carbon neutral and climate resilient by 2045. The District has committed to the following targets (**denote targets codified by the [Climate Commitment Act of 2022](#), effective September 2022*)

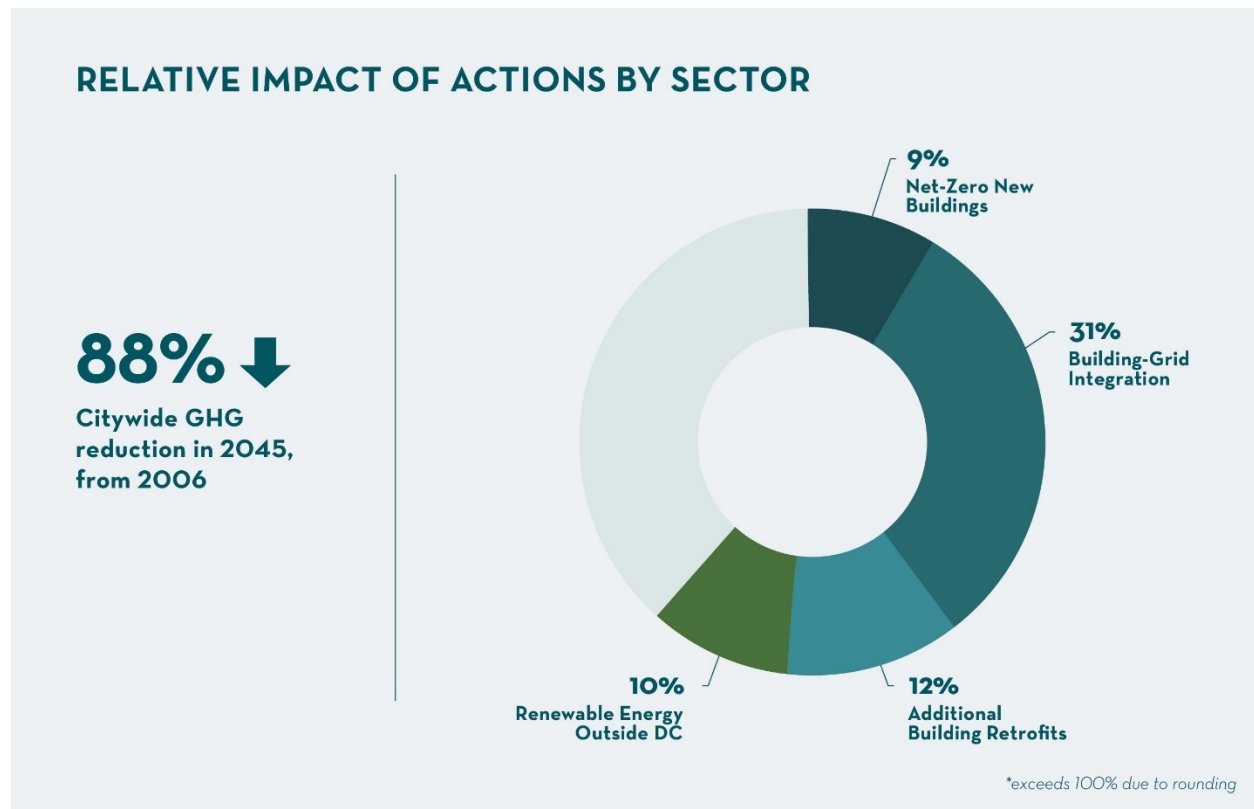
- 100% Carbon neutral by 2045*
- 100% Carbon neutral government operations by 2040*
- 70% Reduction in citywide emissions by 2035*
- 60% Reduction in emissions from transportation by 2032
- 50% Reduction in per capita energy use by 2032
- 50% Energy from renewable sources by 2032
- 60% Reduction in citywide emissions by 2030*
- 45% Reduction in citywide emissions by 2025*

2.3 GHG Reduction Measures

Reduction measures are also outlined in Carbon Free DC (CFDC). For more information on CFDC, refer to our website, which includes a Story Map: <https://doee.dc.gov/service/climate-change>

2.3.1 Buildings & Energy

In 2045, homes and buildings should be healthy, comfortable, and affordable places to live and work. They should also be designed to weather the impacts of a warmer, wetter, and wilder climate. Achieving this vision will require deep energy efficiency coupled with renewable energy. The Clean Energy DC plan identifies many of the steps in this transition: dramatically and systematically improving the efficiency of existing buildings, accelerating the transition to net-zero energy new construction, and powering all buildings with fossil fuel free energy from a modernized, responsive, and resilient local energy system. These core strategies are essential to meeting the 2045 target, even as we pursue additional steps necessary to fully decarbonize. The following actions to cut emissions from buildings and energy systems, the largest driver of carbon citywide, build on this foundation while prioritizing affordability, health, and resilience for residents and neighborhoods. Taken together, the actions listed below will avoid more than 1.6 MMTCO₂e per year by 2045 (an estimated 61% of emissions reductions in the District’s carbon neutrality strategy).



Measure 1. Accelerate the implementation of the District’s Building Energy Performance Standards.

Recognizing the importance of buildings as the largest driver of the District’s carbon emissions, the Building Energy Performance Standards (BEPS) Program was established in Title III of the Clean Energy DC Omnibus Amendment Act of 2018. The BEPS was created to help meet the District’s interim energy and climate goal to reduce greenhouse gas emissions and energy consumption by 50% by 2032, that has since been accelerated to a goal of 60% reduction by 2030. Building on the District’s energy benchmarking program, BEPS establishes minimum energy performance thresholds for certain property types, which will be re-established every six years, and aims to reduce energy use in existing buildings by 20 percent over the first six-year cycle. DOEE established the first set of BEPS on January 1, 2021, which applies to all privately-owned buildings with at least 50,000 square feet of Gross Floor Area (GFA) and all District-owned or District instrumentality-owned buildings with at least 10,000 square feet of GFA. In this first BEPS period, which ends December 31, 2026, all buildings whose performance falls short of the standard must provide end of cycle reporting by April 1, 2027. As the District’s energy benchmarking requirements decrease over time to include buildings of smaller square footage, the second BEPS period will also include private buildings $\geq 25,000$ ft², and the third BEPS period will include private buildings $\geq 10,000$ ft².

In December 2021, DOEE also launched the Affordable Housing Retrofit Accelerator to provide energy audits, one-on-one technical assistance, and direct financial assistance open to approximately 140 large multifamily affordable housing properties identified as falling below the 2021 BEPS. To date, the Retrofit Accelerator has provided 72 free energy audits to qualifying affordable housing buildings and completed 16 projects across the qualified buildings.

Additionally, the Department of General Services (DGS) released an Energy Management Plan in June 2022, establishing a roadmap to implementing building energy efficiency measures to reduce GHG emissions across the DGS portfolio of public buildings by 45,000 metric tons CO₂e by 2033.

IMPLEMENTATION STRATEGIES

A. Assist with BEPS compliance for select buildings in LIDAC communities

Implementation funding could support compliance for buildings $\geq 10,000$ ft² with high-needs and in low-income and disadvantaged communities to deliver lasting energy and GHG savings that target our largest driver of community-wide emissions. In the District, this could support upgrades to meet a demonstrated need for lower-resourced buildings, often with not-for-profit ownership status, such as houses of worship and senior care communities that are traditionally under-resourced and serve vulnerable residents. Drawing on experience from the creation and early operation of the Affordable Housing Retrofit Accelerator—which was created with and in response to identified needs from developers and owners of both covenanted and naturally-occurring affordable housing units—there exists a continued need for support for multifamily affordable housing, for whom external financing is often challenging. Assisting these buildings in making improvements advances the goals of both energy savings and improved comfort, health, livability, and affordability for residents, aligned with the District’s early commitment to ensure affordable housing residents are centered in how the District advances high-quality building policy. Implementation funds could also support improvements in Department of General Services (DGS) facilities identified in their Energy Management Plan to comply

with BEPS, which is important to ensuring the District Government is a leader on BEPS. Other buildings may also fall into this implementation strategy.

Quantified GHG reductions (MMTCO₂e), 2025-2030: 0.99

Quantified GHG reductions (MMTCO₂e), 2025-2045: 5.4

Workforce Analysis: In 2021, D.C.'s Department of Energy and Environment (DOEE) engaged Emerald Cities Collaborative (ECC) through the American Cities Climate Challenge (ACCC) to assess the impact of D.C.'s new Building Energy Performance Standards (BEPS) policy on the local economy, with a particular focus on identifying strategies to include D.C.'s underrepresented communities in the emerging jobs and business opportunities. Among several findings the report estimates that 3,000-4,000 full-time equivalent jobs will be needed to implement the District's carbon emission (net zero) targets, with 2,000 (about half) attributed to net new jobs and that an infusion of federal funding provides a unique opportunity to build out a robust workforce and community contractor eco-system to help meet the District's climate and economic recovery goals. The full report is included in Appendix D.

MILESTONES & TARGETS

1. Reduce greenhouse gas emissions 60% by 2030.
2. Reduce per capita energy use 50% by 2032.
3. The first BEPS compliance cycle ends December 31, 2026, with end-of-cycle reporting due April 1, 2027.

METRICS

1. Energy use intensity (EUI) by building type

FUNDING SOURCES

- U.S. Department of Energy (DOE) Energy Efficiency and Conservation Block Grants
- DOE Home Efficiency Rebates and Home Electrification and Appliance Rebates
- DOE State Energy Program
- U.S. Department of Housing and Urban Development (HUD) Green and Resilient Retrofit Program
- DOE and State Weatherization Assistance Programs
- DC Green Bank loans (initially funded using American Rescue Plan Act State and Local Fiscal Recovery Funds)
- Local funding from a surcharge on gas bills

IMPLEMENTING AGENCIES AND PARTNERS

- District Government agencies such as DOEE, DOB and DGS and others offer programs to provide funding and technical assistance for energy efficiency and electrification projects, as well as own buildings eligible for decarbonization.
- Energy utilities including the DC Sustainable Energy Utility (DC SEU). Utilities serve as providers of existing energy efficiency and buildings decarbonization programs to rate-payers.
- DC Green Bank. Offers a range of financing instruments to support investment in measures that reduce emissions, spur jobs and economic growth, and reduce residents' utility costs.

- Businesses, hospitals, private schools, universities, data centers, places of worship. These entities will implement building improvements and design/build decarbonized buildings
- Property owners, developers. While property owners and developers generally have more control over changes to and within buildings.
- Contractors and equipment service providers. These partners provide the services and equipment to decarbonize buildings.

AUTHORITY TO IMPLEMENT

The District's BEPS was established by Title III of the Clean Energy DC Omnibus Amendment Act of 2018. Subsequently, DOEE published regulations pertaining to the BEPS establishment, compliance, and infractions. Details available at: https://dc.beam-portal.org/helpdesk/kb/Laws_and_Regulations/48/

GEOGRAPHIC COVERAGE

This measure will reduce GHG emissions across the entire geography of the District.

LIDAC BENEFITS/CONSIDERATIONS

- Electrifying buildings to zero-NOx and zero-GHG reduces residents' exposure to harmful pollutants, improving air quality. The transition to more energy-efficient buildings requires consideration of the environmental and health impact of appliances. Electrification and implementation of energy-efficiency measures can also make a building more comfortable to live in.
- Where technically feasible, implementors shall pursue an approach that prioritizes building envelope and other energy efficiency measures to ensure that electrification measures do not increase overall utility costs.
- Low-cost financing will help to combat climate change by making it financially easier for businesses to invest in decarbonization projects by overcoming market barriers and reducing financial risk. The pathway to building decarbonization can be expensive for some building owners; low-cost financing makes these projects more feasible while minimizing or preventing rent increases for low-income households, enabling access to otherwise excluded communities.
- Large-scale building energy-efficiency and electrification is projected to create up to 2,000 new, living wage jobs in the District. Training and workforce development opportunities in this sector could be targeted toward underserved communities or those with higher rates of unemployment.

Measure 2. Accelerate the deployment of solutions such that homes and buildings are highly-efficient, comfortable, resilient, affordable to operate, healthy, and fossil fuel free.

This measure focuses on increasing opportunities for owners and users of all building types to access and install technologies to decrease overall energy consumption, increase energy efficiency, and reduce GHG emissions from buildings. Potential implementation strategies under this measure are outlined below.

IMPLEMENTATION STRATEGIES

A. Existing Buildings:

Invest in efficient and healthy existing buildings: Most of the buildings that will be standing in 2045 already exist today, so investment is critical to make them highly efficient, healthy, and affordable to keep comfortable. The District has made significant progress with the Building Energy Performance Standard (BEPS), targeting large buildings. But to reach a carbon-free future, strategies that support deep upgrades in homes and smaller buildings are essential to ensuring all residents can enjoy the benefits of living and working in high-quality spaces that provide more comfort, better indoor air quality, and lower utility bills. Using less energy overall also makes a citywide transition to renewable energy easier and less costly. While building design and technology are important, strategies that arm residents with the tools and information needed to understand their energy use and learn to operate new systems that maximize affordability and efficiency are an essential part of the pathway. Policies that address the tension between valuable upgrades and long-term affordability, prioritizing investments that benefit residents who need it most, will be critical as we work to dramatically improve the performance of our buildings.

Preserve and upgrade existing housing: Housing is such a critical need for the District, therefore our pathway to 2045 must include strategies to preserve, rehabilitate, and modernize existing units. A commitment to ensuring all residents have safe and healthy homes guides the District's efforts to address environmental health threats, such as mold, lead, and carbon monoxide. It should also drive the next steps in addressing indoor air quality and making homes more resilient and affordable to heat and cool in the face of climate change. As we look to 2045, strategies that improve the quality of homes while simultaneously maintaining affordability are critical. This is possible by investing in holistic solutions like upfront incentives that enable critical upgrades without jeopardizing the long-term affordability of units. Strategies could include coupling deep energy retrofits that combine efficiency, renewable energy, and storage, which will make buildings more affordable to operate in the long run, with funding and financing options that lower upfront costs. Preserving and upgrading existing units are already priorities in meeting the District's housing and health equity goals. By prioritizing rehabilitation over demolition, these strategies can cut both the energy used daily in homes and the carbon embodied in the materials needed to build them.

Invest in Preserving and Upgrading Existing Buildings		
ACTIONS	Implement and evaluate building energy performance standards to drive continued efficient operations in large buildings	Evaluate program performance and ability of available assistance (technical and financial) to meet evolving needs of regulated buildings
	Develop a strategy to achieve deep energy retrofits in single-family homes and small multi-family residential buildings while preserving and expanding the affordability and availability of housing units	Require asset and energy usage disclosure at time-of-sale/time-of-lease
		Establish performance standards for homes, small multifamily buildings, and rental units
		Require energy audit and upgrades at time-of-sale
		Create pay-for-performance incentives or pay-as-you-save financing
		Expand and deepen weatherization assistance and home efficiency support for low- and moderate-income households
	Expand the range of options available to enable the preservation, rehabilitation, upkeep, and modernization of housing units, without sacrificing the availability or long-term affordability of those units	Aggregate projects of similar scales to create time and cost efficiencies
		Partner with manufacturers and the building community to drive consumer education, deliver quality installations, and develop a trained workforce
	Encourage and incentivize energy and water efficiency to improve building performance and reduce utility costs	Maximize the natural opportunities in building life and investment cycles to support deep energy retrofits as part of full-building rehabilitation
		Track neighborhood change to identify areas that are experiencing or likely to experience displacement pressure, and target resources to help residents stay in their communities
Support appliance standards that drive energy- and water-efficiency by implementing local standards and advocating for continued improvement of federal regulations		
	Craft incentives that encourage and enable installing efficient equipment and maximizing its performance in daily operations	

B. Accelerate net-zero energy, resilient new construction: In 2045, buildings should produce as much energy as they use, burn no fossil fuels, and be prepared to withstand future climate impacts. New construction is a prime opportunity to transform buildings into climate assets and lock in decades of carbon and energy savings. Clean Energy DC calls for net-zero energy construction codes by 2026, which will require buildings to be highly efficient and use renewable energy to meet their entire annual energy demand. Achieving this milestone, and encouraging buildings to meet it early, will cut emissions while building an experienced workforce ready and able to scale-up to meet growing demand. Integrating resilient design—which starts with maximizing passive heating and cooling—into these high-performance buildings supports long-term affordability and emissions reductions with the added benefit of making communities more prepared for the impacts of climate change. For example, a highly-efficient building with solar panels and battery storage— enough to run critical systems for a few days— provides a safe place for residents in an emergency and enables lower utility costs year-round. By encouraging “building-grid integration” that enables homes and buildings to respond to changing energy demands, we can improve the reliability of wind and solar power generation. By accounting for climate risk as we design and build, the District can deliver climate-ready community assets in every neighborhood that are more affordable to operate and more reliable in an emergency.

Resilient, Net-Zero Energy New Construction

ACTIONS	POSSIBLE POLICIES	Resilient, Net-Zero Energy New Construction	
		ACTIONS	POSSIBLE POLICIES
Adopt fossil fuel free net-zero energy construction codes by 2026 for commercial and residential buildings		Lead by example in District Government-funded projects, in advance of code requirement	
		Create a suite of funding and financing strategies to make new affordable housing projects net-zero energy in advance of code requirement	
		Provide an incentive package that drives market shift toward net-zero energy construction in advance of code requirement	
Incorporate resilient design into new construction		Require climate risk assessment and resilient design for District Government-funded projects	
		Incentivize and require new construction design to evaluate and account for climate risk	
		Maximize and incentivize passive heating and cooling strategies in building design, to reduce reliance on mechanical systems to provide comfortable indoor temperatures	
Support construction of grid-responsive buildings		Develop construction codes that encourage resilient design, including energy storage to provide backup power for critical needs	
		Allow submetering in all types of buildings	
		Provide technical assistance to building owners and operators implementing demand responsive systems	
		Establish incentives in partnership with utilities that encourage buildings to become demand-response capable	
		Incorporate demand response capability into criteria for evaluating green buildings, such as in grants and awards, and in selecting green building rating standards guiding local construction	

C. Phase out on-site fossil fuel combustion, starting with new construction: The District’s buildings must be fossil fuel free by 2045 to achieve carbon neutrality. By designing new buildings to run without fossil fuels, and replacing old gas equipment—furnaces, boilers, hot water heaters, and kitchen appliances—with efficient electric systems, buildings can reduce emissions while improving air quality, indoors and out. Strategies that push new construction to be fossil fuel free, such as construction codes, and programs that help residents and buildings convert existing systems to zero-carbon alternatives will be key. Equity must guide new policies and programs during this critical transition. Prioritizing low income customers is essential at every stage, both to ensure that compatible technologies—like heat pumps, electric water heaters, induction cooktops and battery storage systems—are accessible to all residents and affordable to operate, but also to guard against the District’s least-resourced residents paying more as the city transitions away from fossil fuels. This will be an incremental transition that must start now to eliminate fossil fuel use by 2045.

Phase Out Fossil Fuels

ACTIONS	POSSIBLE POLICIES	Phase Out Fossil Fuels	
		ACTIONS	POSSIBLE POLICIES
Develop a plan to phase-out fossil fuels, leading with an integrated suite of incentives and programs to support 100% fossil fuel free buildings, starting with heat and hot water systems		Realign and expand incentives to encourage efficient fossil fuel free end-of-life replacement heat and hot water systems before 2035	
		Partner with manufacturers and the building community to support high-performance installations and maintenance	
		Incentivize coupling solar, weatherization, and other efficiency measures with systems replacements	
		Aggregate similar projects to build workforce and cost efficiencies (e.g., slate of fuel oil to heat pump conversion projects)	
		Develop a plan for integrating fuel transition into emergency replacement programs	

D. Encourage zero carbon homes and buildings: The pathway to a zero-carbon future also includes addressing the impact of materials used to construct and operate buildings. Strategies targeting the design phase, to assess the carbon embodied in construction materials—particularly carbon-intensive products like concrete and steel— and minimize their usage, by design or by finding low-carbon alternatives, will become increasingly important. Going one step further, the District could also encourage planning for the end of a building’s lifecycle, so structures are built in ways that support eventual deconstruction rather than demolition, to enable material reuse. At the systems level, as more technologies like heat pumps evolve to rely on refrigerants, the pathway to 2045 also requires strategies

to ensure careful management and leak prevention while simultaneously encouraging a market shift toward green refrigerants. Together these strategies will further reduce the carbon footprint of already efficient construction.

Zero Carbon & Sustainable Buildings

ACTIONS	POSSIBLE POLICIES
Develop a suite of refrigerant management strategies and support a market shift toward green refrigerants	Engage with federal, state, and regional partners to transition away from carbon-intensive refrigerants like HFCs and encourage manufacturers to expedite phasing-in alternatives
	Require disclosure of refrigerants used in utility-scale projects
	Partner with building community to understand refrigerants in use, and strategies to prevent and mitigate leakage
	Support ongoing maintenance and good state of repair with programs to educate and train building operators and HVAC professionals on best practices
	Develop construction codes that encourage using green and efficient refrigerants
Work with the building community to establish a baseline and best practices for reducing embodied carbon in typical building and infrastructure projects	Incorporate use of green refrigerants into criteria for evaluating green buildings, such as in grants and awards, and in selecting green building rating standards guiding local construction
	Phase in lifecycle carbon analysis for construction projects, starting with District Government-funded projects and expanding to other large-scale projects
	Partner with building community to collect data on current practices and materials used, by project type
	Consider requiring projects to measure and disclose their embodied carbon footprint
	Encourage and incentivize rehabilitation and adaptive reuse of existing homes and buildings as strategies to reduce lifecycle carbon impacts
Promote health and sustainability through building design and operations	Develop construction codes and related resources to reward low-embodied carbon, circular design
	Collaborate and coordinate with local and federal partners to align goals and support building the technical expertise and market demand for services and materials
	Encourage strategies that incorporate indoor air quality improvements alongside energy efficiency projects and systems replacements
	Encourage buildings to incorporate zero waste design principles and best practices to support material separation in commercial and institutional buildings

Quantified GHG reductions (MMTCO₂e), 2025-2030: 0.35

Quantified GHG reductions (MMTCO₂e), 2025-2045: 17.3

MILESTONES & TARGETS

1. Net-zero, fossil fuel free construction codes adopted by 2026
2. Climate Ready new construction by 2032
3. By 2035, no fossil fuel heat or hot water appliances installed
4. Limit energy burden to 3% for low- to moderate-income households and establish a target for utility burden (energy + water) by 2024
5. By 2045, the average home should be 60% more efficient than today, and buildings should be 70% more efficient

METRICS

1. Energy use intensity (EUI) by building type
2. Annual consumption of on-site fossil fuel (gas, fuel oil), residential v. non-residential
3. Utility cost burden: % of income spent on energy + water, by income, race, age, building age

FUNDING SOURCES

- U.S. Department of Energy (DOE) Energy Efficiency and Conservation Block Grants
- DOE Home Efficiency Rebates and Home Electrification and Appliance Rebates
- DOE State Energy Program

- U.S. Department of Housing and Urban Development (HUD) Green and Resilient Retrofit Program
- DOE and State Weatherization Assistance Programs
- Federal tax incentives, e.g., the 179D Commercial Buildings Energy-Efficiency Tax Deduction, the 45L Tax Credit for Zero Energy Ready Homes, and the 25B Energy Efficient Home Improvement Credit

IMPLEMENTING AGENCIES AND PARTNERS

- State and local governments. Government agencies such as DOEE, DOB and DGS and others offer programs to provide funding and technical assistance for energy efficiency and electrification projects, as well as own buildings eligible for decarbonization.
- Energy utilities. Utilities serve as providers of existing energy efficiency and buildings decarbonization programs to ratepayers.
- The DC Sustainable Energy Utility (DCSEU) can help to administer funding and technical assistance to owners and renters.
- Businesses, hospitals, private schools, universities, data centers, places of worship. These entities will implement building improvements and design/build decarbonized buildings.
- Property owners, developers, renters. As end users, homeowners, property owners, developers, and renters can make behavior changes and decisions that affect building efficiency. While property owners and developers generally have more control over changes to and within buildings, renters can also make behavior and other changes that will result in GHG reductions.
- Contractors and equipment service providers. These partners provide the services and equipment to decarbonize buildings.

AUTHORITY TO IMPLEMENT

The District of Columbia regularly adopts its own construction codes through a rulemaking process. The [Clean Energy DC Building Code Amendment Act of 2022](#) mandates the adoption of a net-zero energy code by December 31, 2026. Additionally, the Greener Government Buildings Act has accelerated the net-zero energy provisions for District Government owned and financed properties, which became enforceable October 1, 2023, and the Climate Commitment Act of 2022 disallows the installation of fossil fuel appliances or purchase of fossil fuel-powered vehicles for District Government, starting in 2025 and 2026 respectively. All other activities mentioned above can be implemented or are being implemented through existing voluntary or regulatory programs.

GEOGRAPHIC COVERAGE

This measure will reduce GHG emissions across the entire District.

LIDAC BENEFITS/CONSIDERATIONS

- Replacing appliances with zero-NOx and zero-GHG reduces residents' exposure to harmful pollutants, improving air quality. The transition to more energy-efficient buildings requires consideration of the environmental and health impact of appliances. As certain appliances are used, they can release nitrogen oxide (NOx) and GHGs, among other pollutants. By setting and

progressively implementing appliance standards, we can significantly reduce harmful pollutants that adversely affect indoor air quality and human health.

- Eliminating fossil gas eliminates the risk of harmful pollutants emitted from methane leaks. In the building electrification transition, we must ensure that the ratepayers, particularly low-to-moderate income households, do not bear unfair burdens like unaffordable energy costs, utility shutoffs, and lack of resources.
- In the electric transition, it is important that any additional costs incurred during this transition not be passed on to remaining utility ratepayers and avoid undue financial burdens on low-income residents.
- Where technically feasible, implementors shall pursue an approach that prioritizes building envelope and other energy efficiency measures to ensure that electrification measures do not increase overall utility costs. Partners should also enroll income-qualified households receiving electrification upgrades in LIHEAP and the District's low-income Solar for All to provide those households with additional assistance toward their utility bills.
- Low-cost financing will help to combat climate change by making it financially easier for individuals and businesses to invest in decarbonization projects by overcoming market barriers and reducing financial risk. The pathway to building decarbonization can be prohibitively expensive for some building owners; low-cost financing makes these projects more feasible while minimizing or preventing rent increases for low-income households, enabling access to otherwise excluded communities.

Measure 3. Accelerate the deployment of local, clean, renewable, and resilient energy.

This measure focuses on energy supply, generation, and resilience both within the District and at the regional grid level. Potential implementation strategies under this measure are outlined below.

IMPLEMENTATION STRATEGIES

A. Expand options for zero-carbon heating and cooling

There are already buildings in the District using alternative heating and cooling technologies compatible with zero-carbon fuels, including wastewater heat recovery and geexchange, but more options are necessary to meet diverse needs citywide and accelerate the District’s transition from fossil fuels. By expanding the options available for individual buildings and for district energy and neighborhood-scale systems, the District can cut emissions while increasing resilience to future shocks. A range of strategies, from addressing barriers to integration of these technologies into current projects, to piloting neighborhood-scale renewable energy microgrids, and even turning local food waste into biogas to meet specific high-heat processes, are needed. Some technologies are ready to scale-up today, while others will require a longer transition. To capitalize on natural investment opportunities in equipment lifecycles, development timelines, and infrastructure replacement plans, the District needs neighborhood-scale energy plans that outline a suite of options for clean, resilient, local power, and establish a pathway to decarbonize energy systems to ensure alignment with Carbon Free DC’s 2045 goals. Together, these actions will support zero-carbon homes and buildings that are comfortable, affordable, and climate-ready.

Zero Carbon Heating & Cooling

Zero Carbon Heating & Cooling		
ACTIONS	Increase deployment of non-fossil fuel technologies to heat and cool spaces, such as geexchange, wastewater heat recovery, and emerging technologies	Identify and address barriers to current projects (e.g., permitting, local expertise)
		Lead by example in District Government projects, building examples of breakthrough design and performance
		Craft incentives to encourage integrating these technologies into a range of projects.
	Support the transition to zero-carbon energy including for District energy systems	Explore governance and regulatory reform to support the transition to a zero-carbon future
		Partner with current system owners to identify upcoming investment cycles and opportunities to shift to technologies compatible with zero-carbon thermal sources
		Require new systems to use technologies compatible with zero-carbon thermal sources
	Implement neighborhood-scale energy plans	Pilot renewable energy neighborhoods and innovation districts that encourage innovative energy management strategies and cross-sector partnerships
		Facilitate local multi-customer energy systems that provide neighborhood-scale resilient, clean energy, like renewable microgrids, by developing a clear regulatory framework to encourage, interconnect, and incorporate these systems into grid planning and operations
		Assess neighborhood-scale methane leaks and develop a suite of solutions, including non-pipe alternatives, for resolving non-hazardous leaks
	Develop a system to recover food waste and generate carbon neutral biogas that can be used in high-heat applications and processes	Establish an organics recovery program for commercial and institutional sources as a pipeline for a carbon neutral feedstock
		Identify infrastructure and other needs to carbon neutral biogas generation and develop a framework for assessing its most suitable end-uses
		POSSIBLE POLICIES

B. Plan for resilience, with storage and more

As the District faces more frequent and intense storms, and longer, hotter heatwaves, ensuring residents have resilient, clean power is critical. Climate Ready DC established goals prioritizing resilient power for critical facilities and ensuring every resident is within walking distance to a community resilience hub where they can go for information, to stay cool or warm when the power is out, recharge a cell phone, or keep food and medication cold. Energy storage technology—such as solar panels with a battery—is key to supporting all these needs. A first step is identifying where, when, and how storage resources can be encouraged and embedded into the planning and operations of the electric grid. This includes outlining a pathway to eliminate fossil fuels from back-up power systems to transition away from loud and polluting diesel technologies toward clean and renewable solutions. By prioritizing resources for critical facilities—like hospitals, fire stations, and telecommunication infrastructure—planning for neighborhood-scale resilience solutions, and piloting emerging technologies, the District can make our power system more resilient and reliable while cutting emissions. These solutions both increase the District’s preparedness in an emergency, but also contribute to a more reliable, responsive, and affordable future when combined with other priorities to maximize energy efficiency and renewable generation.

Resilient Clean Energy

ACTIONS	Develop and implement a strategic energy storage technology deployment plan	Adopt a framework for recognizing and valuing customer-sited distributed energy resources, and a process for embedding those outputs into grid planning and operations	
	Outline a pathway to carbon-free emergency and back-up power by 2045		Establish energy storage incentives for current and emerging technologies
			Develop construction codes that encourage resilient design, including energy storage
			Implement neighborhood-scale resilience solutions to develop resilient districts and community resilience hubs
			Prioritize distributed energy resources for locations that can provide backup power to critical facilities
			Consider requiring new back-up systems to pair and prioritize renewable energy generation and storage alongside any fossil fuel generator, such as a hybrid system with solar, battery storage, and a diesel generator
	Pilot emerging technologies that can provide zero-carbon back-up power		
POSSIBLE POLICIES			

C. Accelerate a 100% renewable electric grid

To date, the regional grid’s transition away from coal-fired power plants has been the biggest driver of local carbon emissions reductions citywide. However, the grid will not be 100% renewable by 2045 if advancements continue at the current pace. The District has already taken important steps to encourage renewable generation within our grid region and we should continue to use our purchasing power to drive development of additional renewable sources that green the whole region’s electricity supply. Clean Energy DC recommends providing carbon free electricity for most customers by default and setting a maximum greenhouse gas intensity for electricity supplied to the District. Over the next 25 years, the District should continue to evaluate and exercise our options as an energy consumer to accelerate the rate at which our electricity gets cleaner, even as the District concentrates on using less energy overall and investing in local renewable generation.

Greening the Regional Grid

ACTIONS	Use the District’s purchasing power to drive development of additional renewable generation and supply of zero-carbon electricity	Provide carbon-free electricity to standard offer electricity customers by default
		Enact legislation that sets a maximum greenhouse gas intensity for electricity supplied to the District
		Facilitate energy aggregation and support Power Purchase Agreements (PPAs)
POSSIBLE POLICIES		

Quantified GHG reductions (MMTCO₂e), 2025-2030: 1.2

Quantified GHG reductions (MMTCO₂e), 2025-2045: 5.5

MILESTONES & TARGETS

1. 50% of energy consumed comes from clean, renewable sources
2. Establish a target for reducing peak demand

METRICS

1. Annual % of energy consumed from renewable sources
2. Annual peak demand (MW)
3. Installed storage capacity (MW)
4. Grid emissions factor

FUNDING SOURCES

- DOE Energy Efficiency and Conservation Block Grants
- EPA Greenhouse Gas Reduction Fund
- DOE State Energy Program
- Federal tax incentives

IMPLEMENTING AGENCIES AND PARTNERS

- State and county government agencies (DPW, DOEE). Local governments may need to adjust zoning regulations and work through environmental permitting processes for systems.
- Public Service Commission, Utilities, Energy Suppliers. Participation and/or approval by energy utilities (Pepco) and their regulators, is critical for microgrid owners and operators
- Private sector. Support from the private sector, including key implementers and partners mentioned above, will be required for feasibility assessments, construction planning and development, and potential maintenance and operations
- District's Pilot Projects Governance Board
- PJM (regional transmission organization) and neighboring states to decarbonize the regional grid

AUTHORITY TO IMPLEMENT

The authority to implement on-site renewable energy falls on governments in partnership with utilities and the private sector. On-site solar development is pursued where feasible, but off-site options, such as community solar, come into play when on-site solutions are not viable. The District's Public Service Commission certifies renewable energy generators for compliance with the District's Renewable Portfolio Standard (RPS). Most recently updated by the Local Solar Expansion Amendment Act, the RPS requires an increasing portion of energy to be generated by local solar, ramping up 15% by 2041. Certified systems may produce compliance-eligible renewable energy credits (RECs) and solar renewable energy credits (SRECs). Retail choice, allowing customers to choose alternative energy suppliers, is authorized in DC. The District's Pilot Projects Governance Board oversees efforts to support the District's energy delivery system modernization efforts and to advance the District's clean energy goals. This body is tasked with overseeing the implementation of early grid modernization efforts and to document lessons learned to influence future planning and adoption.

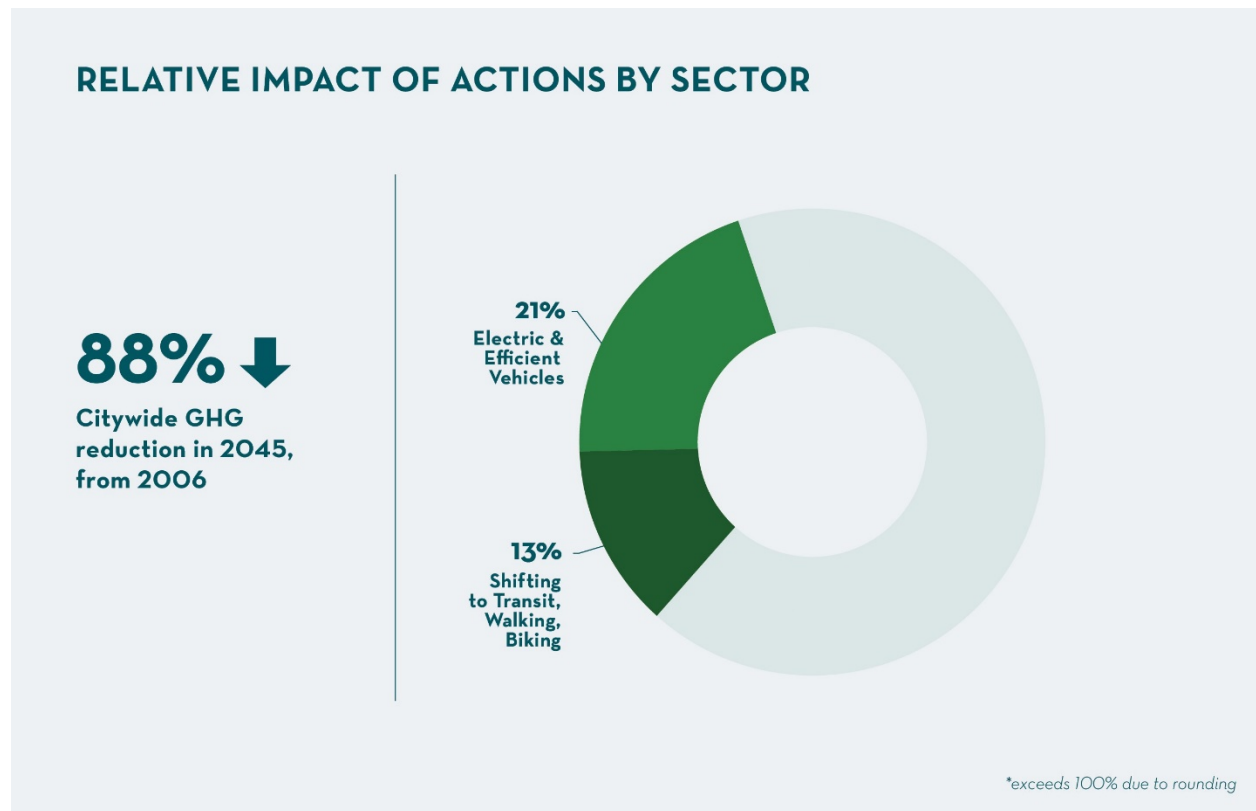
LIDAC BENEFITS

- The combustion of fossil gas releases pollutants that contribute to poor air quality and respiratory illness. Based on their concentrations of ozone and particulate matter, and the prevalence of asthma within them, LIDAC areas in Wards 5, 8, and 7 should be prioritized in emission reduction tactics. Targeted emissions reduction mechanisms can lead to improved air quality, benefiting the health and well-being of overburdened communities.
- Priority LIDAC communities for near-term action should include those who are facing high energy burdens and/or are in areas of the District where the fossil gas infrastructure is older and susceptible to methane leaks. This effort can also help to deliver co-benefits, including: 1) direct health benefits by stopping methane leaks and removing fossil fuel combustion from homes, 2) economic prosperity by protecting affordable utility costs, and 3) expanded availability of incentives and funding opportunities to these communities.

2.3.2 Transportation & Land Use

More than 990,000 residents will call the District home in 2045. This is good news for carbon emissions, as city residents generate far fewer greenhouse gas emissions than people living outside urban centers, because denser housing and development and public transportation help reduce the amount of energy use required for daily living.

As the District and the region grow, there is an opportunity to reimagine an inclusive and sustainable city. Encouraging housing in all eight Wards and addressing affordability for renters and owners are key to accommodating incoming residents and providing homes for housing insecure residents without displacing existing residents. The type of housing constructed or preserved, the cost of that housing, and where it is built influence the health, opportunity, and prosperity of the District and our residents. These considerations are also foundational to meeting our climate goals: by making it easier for people to live in the city, especially close to transportation and commercial corridors, getting to work, school, and daily activities becomes easier and more convenient, and cuts travel times and pollution. Together, these measures will result in more livable neighborhoods for all residents while reducing greenhouse gas emissions by approximately 690,000 MTCO_{2e} per year in 2045, an estimated 34% of emission reductions in this strategy.



Measure 4: Ensure residents’ daily needs are a safe, comfortable, convenient walk, ride, or roll from their front door, through quality housing in all eight wards that provide housing security for current and future residents in vibrant, accessible neighborhoods.

Potential implementation strategies under this measure are outlined below.

IMPLEMENTATION STRATEGIES

A. Encourage housing city-wide

Increasing the supply of quality housing is one important factor in ensuring all residents have a place to call home. Key steps to encourage equitable development throughout the city are supporting housing development where little has occurred, and enhancing transit-oriented development in neighborhoods that are already well-connected. Guided by the District’s Comprehensive Plan, this could include increasing the intensity of land use to allow and encourage growth throughout the District, while also leveraging the draw of existing transit stations and corridors to support larger, efficient buildings that allow more residents to live in walkable, accessible communities. To achieve the District’s vision for housing affordability, stimulating housing production must center around community needs, including opportunities for residents of all incomes to rent and own, and units that accommodate different household sizes and residents of all ages and abilities. With this focus, the District can retain and attract residents while helping the region grow sustainably.

Encourage Housing Citywide

ACTIONS	POSSIBLE POLICIES	Reduce barriers to allowing denser, more efficient buildings, particularly near transit and commercial corridors
		Support existing neighborhoods while considering strategic rezoning of areas currently developed with low-density housing (e.g., single-family homes, duplexes, rowhouses) for small apartment buildings
		Create housing options near high-capacity transit corridors that serve a range of household sizes and incomes, including affordable options to rent and own

B. Bring housing, jobs, and daily needs closer together

Too often, residents must live far away from their jobs or other amenities to afford to live comfortably. In the District’s vision for 2045, more housing that is affordable and located in connected, walkable neighborhoods will allow residents to live closer to where they need to go, saving time and money. This will require approaching the connections between housing and transportation from both sides: bringing more housing to neighborhoods that are already commercial and transportation corridors through transit-oriented development and preservation, while simultaneously improving and increasing the coverage, speed, and reliability of the transportation network, particularly in areas underserved by transit. Providing residents with multiple travel options that don’t require a car is central to the vision for a sustainable DC where an accessible, resilient transportation network improves health and cuts pollution.

C. Prioritize moving people, not cars

Bring Housing, Jobs & Daily Needs Closer Together

ACTIONS	Encourage and incentivize transit-oriented development	Continue to offer and expand incentives for production of housing to rent and own, particularly affordable housing, near transit	
	Reduce travel times by improving and increasing transportation choices	POSSIBLE POLICIES	Identify transit deserts and develop specific steps to improve resident access to jobs
		Implement a transit priority network to improve bus reliability and travel speeds	
		Pilot programs that encourage transit ridership by reducing cost barriers, such as free and reduced fares	
		Continue to develop and refine services that provide last-mile connections	
		Integrate and expand the bike and pedestrian networks to ensure safe, connected, and more equitable infrastructure for all users	
Implement pricing and other tools to support efficient movement and roadway management			

Enabling more residents to walk, bike, roll, and take public transit to reach their destination is the most efficient use of public space and energy. Currently, just over half of all commute trips are taken by bike, walking, or public transit. The District has a goal of shifting the way people move around the city such that 75% of commute trips are made without a car by 2032. To achieve a carbon-free future, this should be expanded to all trips, to curtail the total vehicle miles traveled both in the District and the region. As the region continues to grow, curbing vehicular traffic is the key to reducing roadway congestion and pollution and increasing safety. The District’s moveDC commitments to building 25 miles of dedicated bus lanes, maintaining all sidewalks to a state of good repair, and ensuring 90% of residents live within a quarter mile of a Capital Bikeshare station are examples of current efforts that will support this transition. And there is more to do to ensure accessibility for all residents, regardless of when they need to travel, their income, or mobility level. This may include reducing costs for transit with free or reduced fares, expanding late night services, expanding e-bike availability and access, and providing options that meet the specific needs of historically under-resourced communities. For the District, making active and public transit options the most convenient, reliable, affordable, and safest ways to get around is foundational to becoming a carbon-free and even more livable city.

Prioritize Active & Public Transportation

ACTIONS	Support accessible, walkable neighborhoods and connected bike networks	Integrate and expand bike and pedestrian networks to ensure safe, connected, and more equitable infrastructure for all users	
	Improve transit coverage, reliability, and speed	POSSIBLE POLICIES	Design infrastructure to improve safety, focusing on the most vulnerable roadway users
		Implement a transit priority network to improve bus speeds and reliability	
		Identify transit deserts and develop specific steps to improve resident access to jobs	
		Expand off-peak and late-night services	

Quantified GHG reductions (MMTCO₂e), 2025-2030: 0.2

Quantified GHG reductions (MMTCO₂e), 2025-2045: 6.2

MILESTONES & TARGETS

1. 75% of commute trips made without a car by 2032
2. Establish a target to reduce vehicle miles traveled in the District
3. 36,000 new housing units by 2025, including 12,000 affordable units
4. By 2050, no less than 15% of housing is affordable, by planning area

METRICS

1. Annual modal split: % walking, biking, transit, passenger vehicles
2. Annual vehicle miles traveled (VMT) total, and per capita
3. % of population with proximity to high-quality transit, by neighborhood
4. Time-in-transit/commute length, by race, income, neighborhood
5. Housing + Transportation cost burden (% income spent on housing + transportation), by income, race, neighborhood
6. # of total housing units, and # of dedicated affordable units (by income)

FUNDING SOURCES

- Federal Transit Administration (FTA) Grants – Urbanized Area Formula Program
- FTA –Bus and Bus Facility Grants
- FTA – Capital Investment Grants
- Federal Highway Administration (FHWA) Carbon Reduction Program
- FHWA Congestion Mitigation and Air Quality Improvement (CMAQ) Program
- FHWA Highway Safety Improvement Program (HSIP)
- FHWA Surface Transportation Block Grant (STBG) Program

IMPLEMENTING AGENCIES AND PARTNERS

- DDOT and the Office of Planning have responsibility for comprehensive and land use planning, zoning, transportation planning, development and operations, including local transit; program development and administration (e.g., travel demand management programs), and local policies, aligned with the District’s overarching climate and sustainability plans.
- DDOT and transit agencies like WMATA are key partners in transportation infrastructure planning, development, and operations, such as rail and changes to roads to prioritize bus transportation along state routes, as well as policies related to toll roads.
- Regional planning organizations and commissions. Plan for, evaluate, and in some cases fund transportation infrastructure investments and programs. This includes COG, TBP, and other regional planning agencies.
- Private sector partners. Private sector partners, such as land use owners, developers, and businesses play a key role in development decisions and design that affect the viability of using alternatives to driving. Business can also implement telecommute policies and other policies that help manage travel demand.

AUTHORITY TO IMPLEMENT

The actions associated with making changes to increase pedestrian and bicycle infrastructure can be administered by the District Government. Policies that impact land use can similarly be administered by District Government though zoning codes and potential changes and developers can act on where to build based on these policies. Actions related to public transportation may need approvals from regional or state transportation agencies, such as WMATA, to be implemented and will need higher levels of authority depending on the scope and scale of changes to public infrastructure. Additional agencies and approvals will be needed for any actions related to charges such as congestion pricing and VMT pricing.

Employers also play a key role in providing company policies to allow for teleworking.

GEOGRAPHIC COVERAGE

This measure will reduce GHG emissions across the entire District.

LIDAC BENEFITS

- Prioritizing transit improvements in areas most in need of service ensures equitable access to essential resources and opportunities; moveDC, for example, is identifying transit deserts to develop specific actions that DDOT can take to improve access.
- Buses contribute less GHG emissions and co-pollutants per rider than private vehicles, and an expanded and more easily accessible bus network can contribute to cleaner air in overburdened neighborhoods.
- More connected communities allow for better access to living-wage jobs, schools, and other community needs.
- Housing options near high-transit corridors serving a range of household sizes with affordable options to rent and own.

Measure 5: Zero emission buses and vehicles move more people and freight with less noise and pollution.

A. Accelerate and enable a shift to zero emission transportation, prioritizing buses and trucks

Following a shift in how we get around the city, the next step is to ensure that the vehicles left on the road produce zero emissions. By cutting air and noise pollution, electric vehicles will make it healthier and more enjoyable to be outside. As the District implements a roadmap to electrify transportation, the biggest benefits will come from prioritizing electric options to replace buses, trucks, and other vehicles that are high-capacity, high-mileage, and the most polluting, particularly those serving communities with the poorest air quality. Leading with District Government fleets, this includes continuing to electrify the DC Circulator buses, transitioning the school bus fleet, and piloting new technologies for heavy-duty vehicles like refuse trucks and street sweepers. Recognizing that a significant portion of the traffic on DC roads comes from out-of-state, the District's continued commitment to work collaboratively to drive electrification of buses and heavy-duty vehicles is key. For example, a coordinated regional effort should focus on ensuring an adequate and seamless charging network with infrastructure that is interoperable and flexible to adapt to evolving technologies and charging patterns. In parallel with electrifying on-road vehicles, the District should also evaluate strategies to phase out fossil fuels for off-road vehicles and equipment—from railways and waterborne vessels, to construction and landscaping equipment—to be fully aligned with a net-zero carbon 2045. With all these strategies together, all District residents can benefit from zero-emission technologies that make neighborhoods quieter and cleaner.

Phase Out Fossil Fuels, Prioritizing Buses and Trucks

ACTIONS	<p>Implement the Clean Vehicle Transition plan to electrify vehicles, leading with District Government and large fleets and prioritizing communities overburdened by air pollution</p>	<p>Lead by example with District Government fleets, prioritizing transit vehicles, school buses, and vehicles serving communities overburdened by air pollution</p>
		<p>Align resources and incentives to support electrification, prioritizing vehicles with high passenger capacity and higher tailpipe emissions</p>
		<p>Pilot new technologies for zero emission medium- to heavy-duty vehicles for a range of vehicle types</p>
	<p>Ensure charging infrastructure is available and adaptable to meet current and future charging needs and supports our overall goal of enabling most trips without use of a car</p>	<p>Support programs that make the benefits of electric vehicles accessible to all residents, such that vehicle ownership is not a requirement (e.g., zero emission car-sharing or other programs)</p>
		<p>Adopt the transportation electrification roadmap and establish a charging infrastructure target necessary to meet the zero-emission transition targets</p>
		<p>Encourage and incentivize deployment of an optimally designed charging infrastructure network that serves a variety of users, supports the District's modal priorities, and is designed for flexibility</p>
	<p>Exercise regional leadership to drive electrification of buses and other medium- to heavy-duty vehicles</p>	<p>Leverage the growing network of electric vehicles and chargers to support overall grid efficiency and reliability goals, using dynamic pricing and other pricing signals to encourage off-peak charging and vehicle-to-grid capabilities</p>
		<p>Coordinate with regional and federal partners to pursue common and interoperable charging infrastructure, to provide a seamless network that supports regional service</p>
		<p>Ensure that transportation infrastructure investments for projects located in the District are compatible with the city's climate and vehicle transition goals</p>
		<p>Implement a medium- to heavy-duty zero emission vehicle (MHDV ZEV) action plan, in line with the multi-state effort to accelerate electrification</p>
<p>Pursue a parallel transition to eliminate transportation fossil fuels for off-road uses</p>	<p>Work with surrounding jurisdictions, regional, and federal partners to advance emissions reductions for moving people and freight by rail and water</p>	
	<p>Evaluate and adopt strategies to reduce emissions from construction sites and heavy machinery, including implementing emerging technologies and design practices</p>	
	<p>Implement gas leaf blower ban and pursue electrification of other fossil fuel-powered equipment, such as lawn and landscaping machinery</p>	

Quantified GHG reductions (MMTCO₂e), 2025-2030: 0.82

Quantified GHG reductions (MMTCO₂e), 2025-2045: 10

MILESTONES & TARGETS

1. 100% of public buses will be zero-emission by 2045
2. New medium- to heavy-duty vehicles registered will be 100% zero emission by 2050, with 30% of new medium- to heavy-duty vehicles being zero emission by 2030
3. Reduce greenhouse gas emissions from transportation 60% by 2032

METRICS

1. % of public fleet that is zero emission (by vehicle class: light-duty, buses, medium- to heavy-duty)
2. % EVs registered by vehicle class in the District annually
3. % VMT traveled by ZEVs annually
4. Annual GHG emissions from transportation (MTCO₂e and % of citywide)

FUNDING SOURCES

- EPA Clean Heavy-Duty Vehicle Program
- EPA Clean School Bus Program
- Federal tax incentives, e.g., 45W Commercial Clean Vehicle Credit and 30C Alternative Fuel Refueling Property Credit
- Federal Transit Administration (FTA) Grants – Urbanized Area Formula Program
- FTA –Bus and Bus Facility Grants

- FTA – Capital Investment Grants
- Federal Highway Administration (FHWA) Carbon Reduction Program
- FHWA Congestion Mitigation and Air Quality Improvement (CMAQ) Program
- FHWA Highway Safety Improvement Program (HSIP)
- FHWA Surface Transportation Block Grant (STBG) Program
- Volkswagen funds
- Diesel Emission Reduction Act (DERA) funds
- FHWA Charging and Fueling Infrastructure Grant Program

IMPLEMENTING AGENCIES AND PARTNERS

- DOEE, DDOT, and other agencies responsible for land use planning and comprehensive planning; transportation planning, development and operations, including local transit; program development and administration (e.g., travel demand management programs), and local policies.
- DDOT and transit agencies like WMATA are key partners in transportation infrastructure planning, development, and operations, such as rail and changes to roads to prioritize bus transportation along state routes, as well as policies related to toll roads.
- Regional planning organizations and commissions. Plan for, evaluate, and in some cases fund transportation infrastructure investments and programs. This includes COG, TBP, and other regional planning agencies.
- Private sector partners. Private sector partners, such as land use owners, developers, and businesses play a key role in development decisions and design that affect the viability of using alternatives to driving. Business can also implement telecommute policies and other policies that help manage travel demand.

AUTHORITY TO IMPLEMENT

The District has the authority to purchase vehicles for fleets; such purchases have already been started across agencies like DPW and DDOT. Private and personal purchasing of zero emissions vehicles do not have any statutory limitations. Local zoning or code changes may need to be made for charging and fueling infrastructure.

GEOGRAPHIC COVERAGE

This measure will reduce GHG emissions across the entire District.

LIDAC BENEFITS

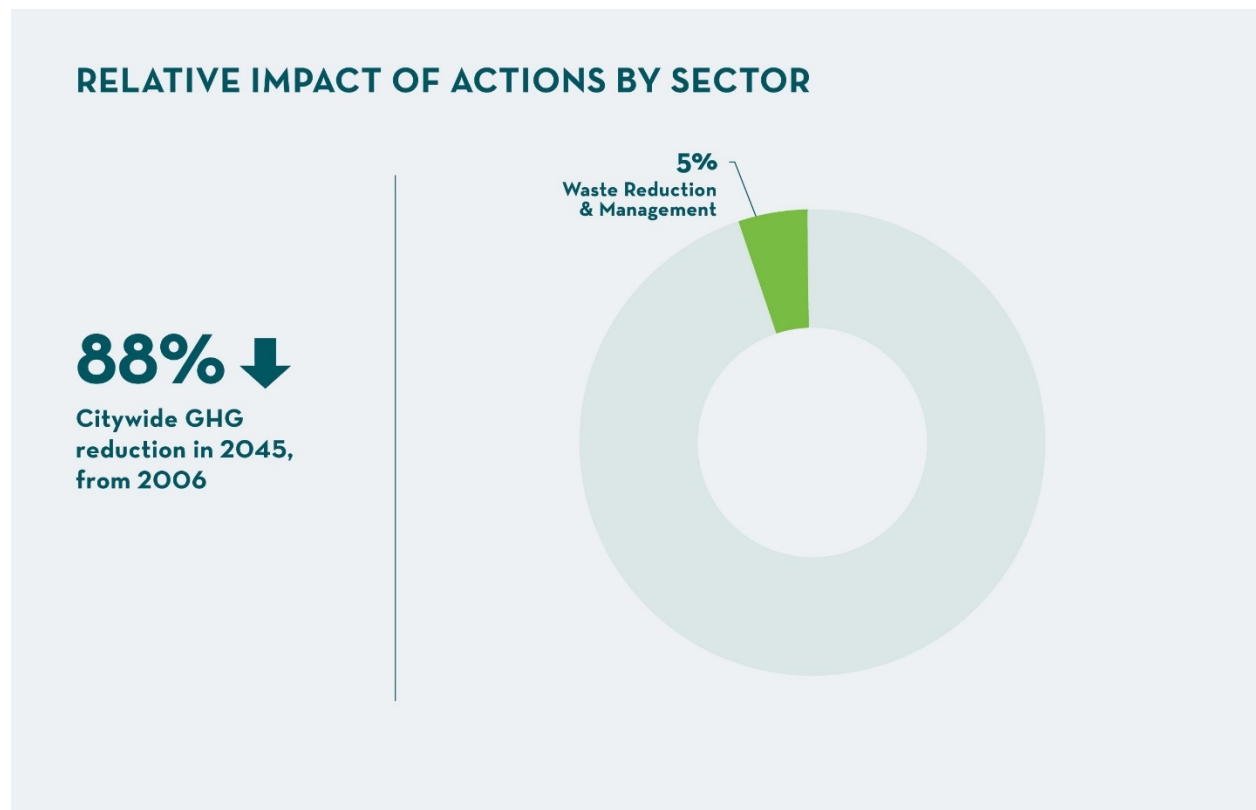
- Expanding EV charging infrastructure to low-income communities and communities underserved by transit increases accessibility of sustainable transportation.
- Incentives reduce the cost barriers preventing low and moderate income residents from participating in the transition to electric vehicles.
- Electrifying gasoline and diesel vehicles reduces exposure to air pollutants in nearby communities. The transportation sector continues to be the largest source of emissions that

contribute to air pollution in the District, particularly in areas close in proximity to heavy traffic.⁴ Historically DC has struggled to meet EPA’s ground-level ozone air pollution standard, largely due to the emissions from combustion vehicles. The pollutants emitted from combustion vehicles such as nitrogen oxides (NOx), particulate matter (PM), lead to adverse health outcomes and contribute to ground-level ozone.

2.3.3 Waste and Embodied Carbon

In 2045, a circular economy that prioritizes reusing, repairing, and repurposing materials—and recycling what remains—will enable the District to be a zero waste city. Achieving this goal will require the District to divert 80% of waste from landfills and incinerators by 2032.

Reducing the waste generated citywide—from businesses, offices, schools, and homes—is the most efficient and effective pathway to meeting this goal. By targeting waste at the source and meeting the District’s goal to cut the amount of waste generated per person by 15%, we can reduce carbon and air emissions not only from hauling and disposal, but across products’ lifecycles. Taking the next step toward this goal, the District will quantify the city’s consumption-based carbon footprint by 2024 to include the carbon embodied in the things we buy. Yet quantifying those reductions should not delay action. We will first develop strategies targeting the most carbon-intensive waste streams, such as food waste, and begin purchasing low-carbon materials, goods, and services.



⁴ District of Columbia DOEE. (n.d.) “Healthy Air Actions.” <<https://doee.dc.gov/service/healthy-air-actions>>

Measure 6: Accelerate and ensure a circular economy, supporting a zero waste DC and low-carbon choices.

IMPLEMENTATION STRATEGIES

A. Reduce first to achieve Zero Waste

Reducing waste is the first priority in the waste management hierarchy and should be the central focus of the District's first Zero Waste DC plan. Everyone has a role to play in a zero waste future. District Government can lead, both in piloting strategies to achieve reduction goals in offices, schools, and other facilities, and in deliberate procurement of materials to prevent waste from the start. Specific strategies for the city's largest waste generators—commercial offices, restaurants, cafeterias, hotels—could deliver significant savings and spur innovation in reuse and recovery. And ensuring that residents have both the information and the necessary infrastructure to enable them to prevent and reduce waste will move us closer to realizing a shared vision for clean communities, parks, and waterways.

Focus on food and organics: While reducing the overall waste generated in the city is the ultimate goal, swift progress to shrink carbon-rich waste streams that are ripe for recovery should be a first step. Organic waste, including food, leaves, and yard waste should be a priority, as, according to a calendar year 2018 analysis, it makes up approximately 20.1% of the District's waste stream but 60% of citywide emissions from waste when sent to a landfill or incinerator. Addressing these sources could make a big difference to residents, the local economy, and the environment. For example, accelerating a comprehensive strategy to address food waste, from rescue to recovery, could feed food-insecure residents, create compost to enrich local soils, and even provide high-quality feedstocks for local carbon-free energy generation while saving 62,000 MTCO₂e by 2045.

Encourage recycling and reuse: The District has also seen the benefits of strategies that extend producer responsibility for materials throughout their entire lifecycle, moving from a cradle-to-grave system in which materials are sent to a landfill at the end of a products' useful life to a closed loop system of recycling and reuse. True extended producer responsibility systems have the potential to incentivize the design of products with repair, reuse, and recyclability in mind. Building on the successes within the city and across the country, a zero waste strategy that employs all the tools available is essential to taking responsibility for our impact on the natural environment.

Reduce First to Achieve Zero Waste

ACTIONS	Develop and implement a comprehensive Zero Waste plan that achieves source reduction goals, and encourages recycling and reuse	POSSIBLE POLICIES	Provide targeted recommendations and technical assistance to reduce waste generated, focusing on the commercial sector as the largest generator, and on carbon-rich waste streams, such as paper, food, and other organics
	Establish a food waste strategy that prioritizes food rescue, and provides a clear pipeline to recover remaining waste, keeping it out of landfills and incinerators		Lead by example in District Government operations by piloting strategies to reduce waste in offices, schools, and other facilities Expand current fees and bans to reduce problem products and packaging that are hard to reuse, recycle, or compost Extend producer responsibility for additional product streams, to encourage material recovery and reuse Provide community-centered education and infrastructure to encourage household waste reduction Incentivize, increase convenience, and reduce perceived risk of food donations from businesses, institutions, and schools to promote food rescue Align policies and incentives to target commercial and institutional food waste generators to collect, separate, and divert organics into high-quality feedstocks for next-level uses, including composting and local biogas generation Expand partnerships and services that enable convenient and accessible residential food waste recovery, such as through year-round neighborhood drop-offs, expanded community and home composting, curbside collection and more

B. Incubate a local circular economy

Since the District’s waste goals were first established there has been a dramatic shift in how we think about discarded materials—not as trash, but as potentially valuable resources. Reusing, reimagining, and transforming waste as the foundation for creating new products and businesses are all key to building a local circular economy. This will require support to ensure that infrastructure, systems, and education all work together to build a pipeline, from collecting and separating waste into clean streams, to providing local business development opportunities that encourage repair and reuse. One starting place should be with the local building community, to ensure we reach the District’s Sustainable DC 2.0 target of reusing or recycling 50% of commercial construction waste by 2032. By collaborating with entrepreneurs, industries, and regional partners, there is tremendous opportunity to both grow the local economy and shrink our climate impact.

Incubate a Local Circular Economy

ACTIONS	Work with businesses, community organizations, and surrounding jurisdictions to reuse, repair and repurpose more goods, to capture value before disposal	POSSIBLE POLICIES	Collaborate with the building community to identify policies, programs, and opportunities to support tracking commercial construction waste and achieving the goal of reusing or recycling 50% by 2032
			Support opportunities for local business development that encourage and enable product reuse and repair
			Facilitate separation of waste into commodity streams to support a local circular economy

C. Assess and reduce embodied carbon

A next step in the District’s commitment to bold climate action is taking our first actions to assess and reduce the carbon embodied in the goods, services, and activities on which the city runs. The food we eat, materials we use to build our homes and roads, devices that connect us, and energy that powers our daily lives all have an environmental footprint of their own. What we buy, and how much, triggers emissions elsewhere that are currently unaccounted for in the District’s assessment of our climate impact. As a starting point for addressing this impact, the District will undertake a baseline assessment of our consumption-based emissions, adopt interim reduction targets, and

chart a pathway to achieving those goals. District Government can be a leader, both in achieving reductions within its own operations, and in piloting strategies that pave the way for collaboration with local businesses and institutions. Harnessing the power of government purchasing can directly reduce emissions and support the market for low-carbon products. From incorporating lifecycle carbon and recycled content minimums into specifications for environmental preferred purchasing, to adopting carbon standards for commonly procured carbon-intensive materials such as concrete, the District can align spending with sustainability and equity goals, rewarding products and businesses that grow the local green economy, improve the quality and nutrition of institutional food, and expand socially responsible businesses.

Assess and Reduce Embodied Carbon

ACTIONS	Establish a target for reducing the District's consumption-based carbon footprint, and a pathway to achieve that goal	POSSIBLE POLICIES	Conduct a baseline assessment
	Lead by example in District Government operations by purchasing low-carbon materials and goods		Adopt interim reduction targets based on best practices, by sector and for government procurement Develop recommendations, resources, and requirements to achieve these goals in District Government operations Encourage business and institutional engagement by providing ongoing best practices and technical resources Adopt low-carbon procurement standards for commonly procured materials that are carbon-intensive, such as concrete and steel Require procurement of environmentally preferred products and services across all categories, integrating lifecycle carbon into the guiding specifications Develop procurement standards and related resources that reward products and services that provide additional benefits in line with the District's sustainability and equity goals, such as growing the local green economy, improving the quality and nutrition of institutional food, and expanding socially responsible businesses (pay living wages, provide benefits, etc.)

Quantified GHG reductions (MMTCO₂e), 2025-2030: .24

Quantified GHG reductions (MMTCO₂e), 2025-2045: 1.36

MILESTONES & TARGETS

1. 15% reduction in per capita waste generated by 2032
2. 80% waste diversion by 2032
3. 50% Commercial construction waste reused or recycled by 2032
4. By 2024, conduct a citywide consumption-based inventory
5. By 2024, establish embodied carbon reduction goal

METRICS

1. Annual tons MSW generated per capita
2. Citywide waste diversion rate
3. Waste characterization over time, including % organics
4. % construction and demolition waste diverted
5. Baseline consumption-based inventory footprint
6. Reduction in citywide carbon footprint over time, based on procurement data and policy requirements
7. % of consumption-based emissions associated with policies to target low-carbon procurement for District Government

FUNDING SOURCES

- EPA Solid Waste Infrastructure Recycling Grant Program

- EPA Consumer Recycling Education and Outreach Grant Program

IMPLEMENTING AGENCIES AND PARTNERS

- Local government departments of public works (DPW). Oversees landfills, solid waste management and recycling, wastewater treatment operations and facilities. Other agencies, like DOEE, can support specific implementation strategies.
- Private sector. Including Solid Waste Authorities and privately-owned sanitation centers, and waste-related businesses support local and state governments in waste collection and management.

AUTHORITY TO IMPLEMENT

The implementing authorities for this measure are District government agencies (e.g., Department of Public Works, Department of Energy and Environment, etc.) in partnership, where applicable, with private utilities, landfills, and composting facilities. Public waste management, demonstration projects, waste-related policies, and public education campaigns can all be carried out under the existing powers of local governments. Support from the private sector, including key implementers and partners mentioned above, will be required for projects that expand to private landfills.

GEOGRAPHIC COVERAGE

This measure will reduce GHG emissions across the entire District.

LIDAC BENEFITS

- Improved public health resulting from reductions in co-pollutants (ozone, PM2.5 and hazardous air pollutants) such as reductions in new asthma cases and reductions in hospital admissions and emergency department visits.
- Creation of jobs, workforce development, and new economic development and investment opportunities in low carbon/circular economy industries, with an emphasis on expanding opportunity for workers from disadvantaged populations and under-represented small businesses/contractors
- Indirect benefits could include a reduction in the use of pesticides on farms in the Washington region due to an increase in availability of compost and fertilizers created using local organic waste

2.4 Low Income Disadvantaged Communities Benefits Analysis

CPRG planning guidance specifies that a PCAP LIDAC analysis needs to include:

- LIDACs as identified using Census block or tract IDs.
- Specific climate impacts or risks to which LIDACs are vulnerable.
- Expected benefits to LIDACs associated with PCAP GHG reduction measures. Please refer to each measure for more details on these benefits.
- A summary of planned and/or ongoing engagement with representatives and residents of LIDACs to inform PCAP and CCAP development and implementation. Please refer to stakeholder engagement section for this information.

District of Columbia LIDACs

Low-Income and Disadvantaged Communities in DC are identified using EPA's recommended tools, the Climate and Economic Justice Screening Tool and EJScreen. Identification of these priority areas will follow the EPA guidance for Low-Income and Disadvantaged Communities (LIDACs):

- Any Census tract that is included as disadvantaged in the Climate and Economic Justice Screening Tool (CEJST); and/or,
- Any census block group that is at or above the 90th percentile for any of EJScreen's Supplemental Indexes when compared to the nation as included in EJScreen.

The Council on Environmental Quality (CEQ) developed CEJST as an interactive map that uses datasets that are indicators of burdens in eight categories: climate change, energy, health, housing, legacy pollution, transportation, water, and workforce development. For seven of the eight categories, the census tract must meet at least one indicator's threshold and be at or above the 65th percentile for low-income. Federal agencies use this tool to help identify disadvantaged communities that will benefit from programs included in the Justice40 initiative. EJScreen has a slightly different methodology. It incorporates fewer environmental indicators and four additional population indicators: unemployment, limited English speaking, less than high school education, and low life expectancy. Combining these tools to identify disadvantaged communities cross-validates the analysis to minimize the risk of overlooking communities overburdened by climate and environmental hazards. Appendix A lists LIDAC communities according to the CEJST tool, as well as LIDAC communities according to EJScreen for all supplemental indexes included in EJScreen.

Climate Impacts and Risks to LIDAC communities

Minority and low-income communities are more likely to suffer the consequences of climate change due to heightened exposure to climate risks and inaccessibility to resources, such as adequate infrastructure and proper insurance. Many factors contribute to this inequality, including historical discriminatory practices in housing, education, and employment. Pre-existing health status and living conditions are two key components of climate vulnerability, which are often determined by economic power, social policies, political influence, and structural racism.⁵ Within the District, the most prevalent climate risks are extreme heat, extreme precipitation events, sea level rise, and storm surge. These climate risks were evaluated as part of [Climate Ready DC: the District of Columbia's Plan to Adapt to a Changing Climate](#).

Life expectancy varies drastically by geography, income and race in the District. On average, residents in predominantly Black Wards 7 and 8 have life expectancies 10 years lower than White residents in high-income areas, with a 21-year difference between neighborhoods in highest and lowest economic strata.⁶ One in six District residents have asthma, but children living in predominantly Black communities have 20-25 times more asthma-related emergency department visits than children in predominantly

⁵ Patnaik, A., Son, J., Feng, A., Ade, C., 2020. Racial Disparities and Climate Change. Princeton Climate Action. <https://psci.princeton.edu/tips/2020/8/15/racial-disparities-and-climate-change>

⁶ Health Equity Report: District of Columbia 2018 [website]. Washington (DC): Department of Health; 2018 (<https://dchealth.dc.gov/publication/healthequity-report-district-columbia-2018>, accessed 27 October 2021).

White communities.⁷

The District has committed to integrate equity in climate action planning and provide support for vulnerable communities. Each recommended action in this PCAP was evaluated to ensure it addressed equity issues, using both community feedback and internal products as a guide. Additionally, the District's Office of Racial Equity is working with agencies to incorporate a Racial Equity Impact Assessment tool during policy and program development, and DOEE has localized the REIA to guide development and implementation of climate-related programs and projects. Similarly, DOEE has developed an Equity Framework (Appendix E) to guide its work, and potential projects and programs using the defined PCAP measures should refer to "Guiding Questions to Prioritize Equity & Environmental Justice Communities" developed as part of the Carbon Free DC strategy during project planning and implementation.

In addition to planning, the District is currently working with community members to pilot a community-led resilience hub to enable neighbors to help one another in the event of emergencies such as heatwaves and storms. Additional detail about the climate risks facing the District are as follows:

Sea-level Rise: Local sea levels have risen more than 12 inches in the last century, due to both global sea level rise and local subsidence. Sea levels are projected to rise as much as 1.4 feet by 2050, and up to 3.4 feet by 2080. Coastal flooding due to sea level rise puts the District's critical infrastructure systems at risk and will likely have a larger impact on the physical and mental health of the already vulnerable populations in Wards 7 and 8.⁸

Flooding: The number of days per year with greater than 1 inch of rain in a 24-hour period in the District is projected to increase to 13 days by the 2050s. Increases in rainfall will negatively impact drainage infrastructure and sewage systems, making efforts to improve water quality more challenging. In addition to being home to a number of highly vulnerable residents, the District's Ward 7 is home to the largest number of community resources at risk of surface flooding.⁹

Heat: The number of extreme hot days (over 95 °F) is expected to increase to 30 to 45 days by midcentury, while average heatwaves are projected to lengthen to eight to nine days by the same time. Those particularly at risk of heat stroke and other heat-related health conditions include older people, people experiencing homelessness, those with underlying medical conditions, and low-income residents who either don't have access to or cannot afford adequate cooling.

Air Quality: Climate change is likely to contribute to an increase in poor air quality (AQ) days in the District. Increasing temperatures and warm season duration will exacerbate the formation of ground-level ozone. Under the RCP4.5 scenario, the Northeast could see high ozone days double by the 2050s compared to the early 2000s. Severe weather conditions caused by climate change also contribute to

⁷ Asthma surveillance in DC emergency departments and hospitals. Washington (DC): Children's National Medical Hospital; 2017 (<https://childrensnational.org/-/media/cnhs-site/files/departments/impactdc/impact-dc-surveillance.pdf?la=en&hash=4235C55A9C1DE9DE9725D8D5D99D30831FCA18CF>, accessed 27 October 2021).

⁸ Health And Climate Change Urban Profile for Washington, District of Columbia. 2022. https://cdn.who.int/media/docs/default-source/climate-change/55232_o3_who-city-profile_washington_web.pdf?sfvrsn=ee7b4a6b_3&download=true

⁹ Ibid

the incidence of wildfires that increase the concentration of PM 2.5 and ozone. In 2023, the District experienced eight days when air quality was unhealthy due to wildfires in North America. Of those eight days, PM2.5 was the primary pollutant for five days, and ozone was the primary pollutant for three.

Benefits of a Carbon Free DC

This strategy is focused on reducing GHGs, but we know the District’s vision for every resident to have health, opportunity, prosperity, and equity goes far beyond climate action. The District’s approach to this and previous planning processes center community priorities. We first identified broad community goals and then looked for connections to the systems that we know must change to reach carbon neutrality, such as the energy used in our homes and transportation.

Shifting to a carbon free future will not solve all the challenges identified by the community. But the scale of transformation needed to achieve carbon neutrality—in the way we build and power our homes, move around the city and the region, and think about the materials we use and repurpose—offers many opportunities to advance core community values and begin to address key challenges in health and economic inequality. Examples of how District residents may benefit from these changes include:

- Affordable Comfort, Healthy Heating & Cooling: Efficient electric heat pumps can provide heating and cooling with zero on-site pollution, keeping indoor air healthier to breathe. High-performance construction, more insulation, and better windows can lower utility bills and make homes quieter and more comfortable.
- Safe and Accessible Streets, Cleaner Air: Electric buses and cars, and fewer idling vehicles, will reduce noise and improve air quality, making it easier to breathe when walking or exercising outside. Better pedestrian signals, sidewalks, and protected bike lanes, and slowing down traffic, will make it safer for more people to walk, bike, and roll.
- Green Jobs, Clean and Faster Commutes: Green jobs will be necessary in every sector of the economy, from businesses that create and sell green products, to construction workers and architects who build energy efficient housing, to operators and technicians to keep an all-electric fleet running. Bringing housing and jobs closer together, and workplace flexibilities, like telework or commuting at off-peak hours, may save time and money, cutting traffic congestion and saving valuable space and time for those who need to travel.

3 Next Steps

The District’s CCAP approach will build on efforts already underway to complete an implementable, comprehensive climate and energy action plan for the District of Columbia. DOEE is leading an interagency engagement effort that involves regular meetings with District agencies, including bilateral meetings and sector-specific working groups. Using CPRG resources, we will expand public engagement with low-income and disadvantaged communities, analyze benefits for District residents, provide an updated and expanded inventory to include all required gases and sectors, and refine and update models and estimates for GHG reductions associated with recommended actions. As part of the CCAP, DOEE will issue subawards (yet to be determined) to take deep dives into specific sectors that require

additional climate planning work, including decarbonizing District government operations and planning for clean construction. The District has also hired staff to supporting adopting and implementing a net-zero energy code by 2026.

The District has a robust annual reporting process to evaluate progress toward the targets and actions in its Sustainable DC 2.0, Clean Energy DC, and Climate Ready DC plans. This annual interagency effort will be the foundation for the Status Report's assessment and each GHG reduction measure identified in the CCAP. This annual reporting process in the years leading up to the Status Report, including an annual update to the GHG inventory, will allow DOEE to evaluate where updated analysis is needed most.

Appendix A

Any Census tract in the District of Columbia that is included as disadvantaged in the Climate and Economic Justice Screening Tool (CEJST) or EPA EJ Screen.

LIDAC Census Tracts	LIDAC Block Groups (note: these are outside of previously designated CEJST Census Tracts)
11001009807	110010005011
11001009802	110010010021
11001009803	110010019011
11001002900	110010019012
11001007407	110010019014
11001007401	110010019022
11001007403	110010020022
11001009804	110010021012
11001001804	110010021015
11001004703	110010021024
11001004704	110010021026
11001009510	110010022012
11001009511	110010022013
11001007406	110010022021
11001007604	110010024002
11001007605	110010025031
11001007603	110010025042
11001007703	110010027021
11001007707	110010027024
11001007601	110010027042
11001007803	110010030001
11001007804	110010030002
11001008803	110010032001
11001008804	110010032002
11001008903	110010032003
11001009204	110010032004
11001007304	110010034001
11001007502	110010034004
11001007503	110010035001
11001009603	110010035002
11001009602	110010036002

11001002001
11001007708
11001007504
11001009601
11001006804
11001007901
11001001803
11001010400
11001009903
11001009904
11001009905
11001009906
11001006400
11001007408
11001007409
11001008904
11001009810
11001009000
11001009102
11001009811
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11001002802
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11001007809
11001009907
11001002501
11001007100
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110010048022
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110010092032
110010093021
110010094001
110010095031
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110010095084
110010096041
110010096042
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110010102025
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110010105005

110010106011
110010106021
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110010106024
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110010108006
110010110011
110010111001
110010111003