

MIDCOURSE REVIEW - DRAFT

Climate and Energy Progress in Metropolitan Washington

The Midcourse Review examines the region's progress towards its 2030 climate and energy goals and plans.

March 2026



Metropolitan Washington
Council of Governments

MIDCOURSE REVIEW

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ABOUT COG

The Metropolitan Washington Council of Governments (COG) is an independent, nonprofit association that brings area leaders together to address major regional issues in the District of Columbia, suburban Maryland, and Northern Virginia. COG's membership is comprised of 300 elected officials from local governments, the Maryland and Virginia state legislatures, and U.S. Congress.

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EXECUTIVE SUMMARY

The COG Board adopted greenhouse gas (GHG) emission reduction goals to reduce GHG emissions 10 percent below projected 2012 levels (i.e. bring emissions back down to 2005 levels), 20 percent below 2005 levels by 2020, 50 percent below by 2030, and 80 percent below by 2050. The COG Board also endorsed additional goals and priorities to guide the climate work of the region and its members. In 2022, the COG Board identified electric vehicle (EV) deployment as a regional priority. In 2023, the COG Board endorsed a goal of 250,000 solar rooftops in the region by 2030, and in 2024, the COG Board endorsed a goal of maintaining a minimum tree canopy coverage of 50 percent across the metropolitan Washington region.

The region met the 2012 and 2020 GHG emission goals, and in 2020, COG's Climate, Energy, and Environment Policy Committee (CEEPC) adopted the Metropolitan Washington 2030 Climate and Energy Action Plan (2030 CEAP) to coordinate the region on working towards the new goal of 50 percent below 2005 levels by 2030. The objectives of the Midcourse Review are to assess the status of regional climate goals, key performance indicators, and implementation levels of key actions to provide direction-setting for regional action. The results of the Midcourse Review show if regional trends are headed in the right direction and identify where CEEPC may need to course-correct to stay on track toward regional 2030 goals. The Midcourse Review evaluates past to current trends of goals and key performance indicators to support CEEPC decision making and next step actions.

Each section of this report aligns with the climate mitigation action areas in the Metropolitan Washington 2030 Climate and Energy Action Plan (2030 CEAP). These sectors include Greenhouse Gases, Clean Electricity, Zero Energy Buildings, Zero Emission Vehicles, Mode Shift and Travel Behavior, Zero Waste, and Sequestration with equity being a priority across sectors. The approach for the Midcourse Review is three-fold: (1) develop performance indicators; (2) conduct a local government climate action implementation questionnaire; and (3) identify case studies of climate action implementation across the region. Each section of this report highlights performance indicators, questionnaire results, and case studies. The performance indicators are 1 to 2 key metrics per sector to examine closely to enable a reasonable assessment of progress.

Below are the leading highlights identified in each sector of this report.

Greenhouse Gas Emissions

The region met its 2012 and 2020 GHG emissions reduction goals. As shown in COG's periodic Community-Wide GHG Emissions Inventory Summary, metropolitan Washington community-wide GHG net emissions decreased by 20 percent between 2005 and 2023, despite a 23 percent growth in population. Forests and trees sequester more than 3 million metric tons of CO₂ equivalent (CO₂e) annually.

Factors driving down emissions are mainly a cleaner grid, cleaner cars, and reduced vehicle miles traveled (VMT) per capita. The main drivers that challenge GHG reduction in the region are growth in population and commercial space as well as increased commercial electricity energy intensity. Data centers, a high energy intensive industry, account for approximately 11 percent of total gross GHG emissions as of 2023. The projected exponential growth of data centers in the region could pose a

challenge in meeting regional 2030 GHG emission reduction goals.¹ Expedited cross-sectoral actions will be needed throughout the region to achieve the goal of 50 percent below 2005 levels by 2030.

Clean Electricity

Accelerating the deployment of renewable energy on the region's grid is crucial for reducing GHG emissions. The regional electric grid has reduced GHG emissions from more than 1,100 CO₂e in 2005 to below 600 CO₂e in 2023. This is the result of coal plants shutting down and fuel switching to natural gas and, to a smaller extent, increasing renewables powering the grid. With 35 percent of gross GHG emissions in the region associated with electricity consumption, state Renewable Portfolio Standards (RPS) programs that accelerate the deployment of renewable energy on the region's grid are crucial for reducing GHG emissions.

In addition, the region by far surpassed 30,000 grid-connected renewable energy systems in the region, which was the desired outcome targeted in the 2020 Regional Climate and Energy Action Plan. Distributed renewable energy deployment has grown at a tremendous rate from less than 500 systems in 2009 to more than 90,000 systems in 2024 operating with more than 1 gigawatt of capacity. Concerted effort is needed to meet the regional goal of 250,000 systems by 2030.

Zero Energy Buildings

Total electricity consumption has increased from 61.2 million megawatt hours (MWh) in 2005 to 85.95 million MWh in 2024, mainly driven by commercial building consumption increasing by 59 percent. High intensity energy industries, such as data centers, are contributing to significant growth in electricity consumption. Continued coordination is encouraged to build capacity as well as develop and advocate for local policy options for high intensity energy industries.

The region has achieved significant growth in certified green building projects. In 2005, there were 88 third-party certified projects, including 14 LEED certifications and 74 ENERGY STAR rated buildings. As of the end of 2024, there are 7,851 certified projects, including 5,175 LEED certified projects, 1,803 ENERGY STAR rated buildings, 57 projects recognized with Design to Earn ENERGY STAR, 715 EarthCraft certifications, more than 77 Green Globes rated, 20 Passive Houses, and 4 Living Futures Institute (LFI) projects. COG member jurisdictions will need to expand net zero energy building construction between now and 2030 through building codes, policies, and incentives.

Zero Emission Vehicles

Advancing electric vehicle (EV) ownership in the region is one of the most significant strategies to meet the 2030 regional GHG emission reduction goal. The region already experienced recent significant growth in battery electric vehicles (BEVs) and plug-in hybrid EVs (PHEVs) ownership from 33,175 in 2020 to 111,705 in 2023. The total electric and hybrid vehicle ownership in 2023 is 335,945 vehicles, which accounts for 8.6 percent of all light duty vehicles. Owners of BEVs and PHEVs need to be supported with a robust network of EV charging stations, particularly in areas with limited at-home charging, including multi-family developments, and disadvantaged communities. Total EV charging ports in metropolitan Washington have increased from 661 in 2013 to more than

¹ For more information about data center emissions projections, see the Comprehensive Climate Action Plan.

6,800 ports in 2025. This aggressive expansion of EV charging ports needs to continue to support the region's GHG emission reduction goals.

Mode Shift and Travel Behavior

Reducing VMT per capita is a goal in COG's Region Forward vision plan, which was adopted in 2010, and the region continues to experience a reduction in resident VMT per capita. While population and jobs grew 23 percent and 10 percent, respectively, from 2005 to 2023, VMT increased by only 4 percent, and VMT per capita decreased 14 percent. Between now and 2050 the region is expected to add 1.2 million people, 550,000 new households, and 800,000 new jobs, but the resident VMT per capita is forecast to decrease by 5 percent. Reducing overall VMT is challenging in a growing region; however, the reductions in VMT per capita both in the past and forecast for the future indicate that land use policies as well as investments in public transportation, pedestrian and bicycle infrastructure, and commuter policies and services are providing residents with alternatives to single occupant vehicle (SOV) travel.

Zero Waste

Zero Waste is a visionary goal that calls for society to use fewer resources as well as increase resource recovery, recycling, and composting. Zero waste strategies reduce emissions, save energy, and extend landfill capacity. Recent GHG strategy modeling assumed regional achievement of diverting 80-90 percent of all materials (including composting and recycling) from landfills and waste to energy (WTE) facilities. Expanding regional composting capacity, organics collection, and enforcement can support the region in meeting regional GHG emission reduction goals; however, the waste diversion rate is also impacted by the economy as well as industry and business trends. The regional waste diversion rate, one indicator to track progress towards zero waste, increased from approximately 35 percent in 2005 up to a high of 50 percent landing at 41 percent in 2023. The industry has been impacted by recent economic recessions, the COVID 19 pandemic, waste reduction of recyclable materials (such as paper), and lightweighting of recyclable materials.

Sequestration

As of 2021, COG is maintaining approximately 50 percent regional tree canopy. However, the COG region experienced a net loss of more than 28,000 acres of tree canopy between 2014 and 2021. To put this into perspective, approximately 21,500 football fields of tree canopy loss occurred in the region over the course of 7 years. That is an average of 4,050 acres of net loss per year during that timeframe. If the region experienced another 4,050 acres of tree canopy loss in 2022, that would already have put the region under the 50 percent tree canopy goal. The region would need to have a no net loss of tree canopy to maintain the goal.

Looking Ahead

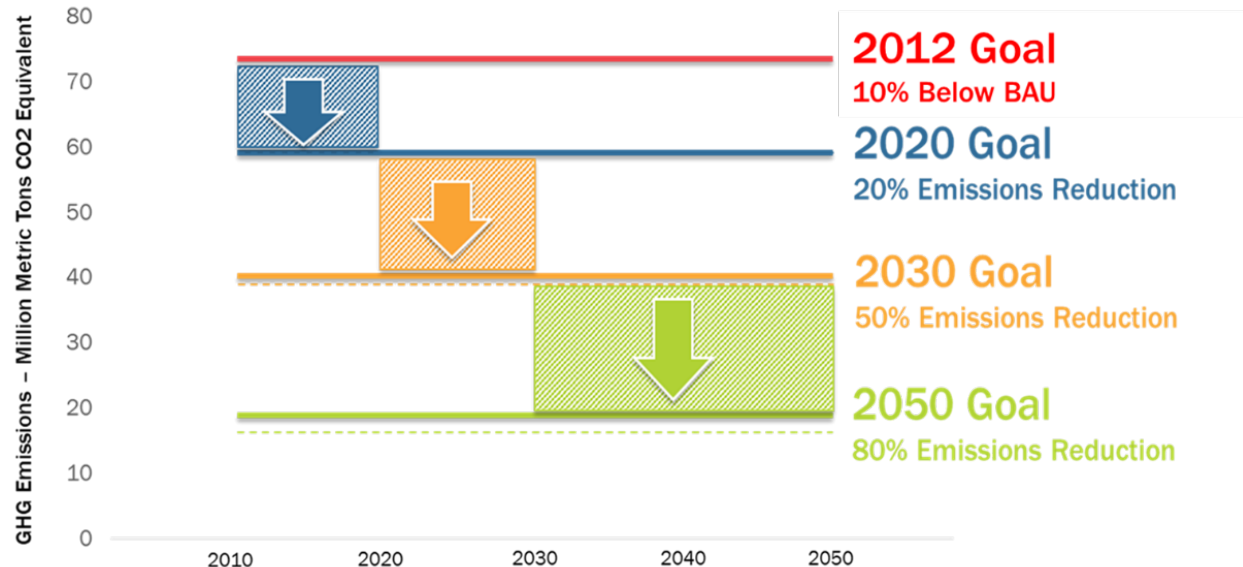
There has been tremendous progress made in the region to support the reduction of GHG emissions. There is still so much more climate action that needs to be done. The top priorities for regional climate action need to continue to be in the areas of advancing the deployment of renewables and electric vehicles between now and 2030. Bold action across all sectors will need to continue and expand to meet the region's 2030 goals. CEEPC has charted a path forward with the 2030 CEAP. Collaborative action will continue to deliver a cleaner future for all of us.

INTRODUCTION

Goals and Objectives

In 2020, the Metropolitan Washington Council of Governments (COG) Board of Directors adopted a goal to reduce greenhouse gas (GHG) emissions 50 percent by 2030 below 2005 levels. This was an interim goal added to the Board's previously adopted GHG emission reduction goals to reduce GHG emissions 10 percent below projected 2012 levels (i.e. bring emissions back down to 2005 levels), 20 percent below 2005 levels by 2020, and 80 percent by 2050 (Figure 1). The region met the 2012 and 2020 GHG emission goals, and in 2020, COG's Climate, Energy, and Environment Policy Committee (CEEPC) adopted the Metropolitan Washington 2030 Climate and Energy Action Plan (2030 CEAP) to coordinate the region on working towards the new goal of 50 percent below 2005 levels by 2030.ⁱ

Figure 1: Metropolitan Washington Greenhouse Gas Emissions Reduction Goals



Area governments and stakeholders have worked together toward meeting regional GHG emission reduction goals for more than 15 years through CEEPC. CEEPC brings together representatives from local governments; state, regional and federal agencies, appointed members of the public, electric and gas utilities, environmental and business organizations, and the academic community to work together to address and minimize the impacts of climate change.ⁱⁱ

Members are continually working in partnership together to develop policies, programs, and projects in the areas of energy efficiency, renewable energy, energy infrastructure, clean vehicles, resiliency, and more. CEEPC has several subcommittees to support local implementation of climate action including the Built Environment and Energy Advisory Committee (BEEAC), the Air and Climate Public Advisory Committee (ACPAC), CEEPC Legislative Subcommittee, Solid Waste Managers and Recycling Committees, Regional Tree Canopy Subcommittee (RTCS), and the Regional Electric Vehicle Deployment (REVD) Working Group.ⁱⁱⁱ

CEEPC has been widely acknowledged for its efforts. COG and its members were named White House Climate Action Champions in 2014. In 2019, the committee was recognized by the Global Covenant of Mayors for Climate and Energy (GCoM) as a U.S. Metro Scale Climate Leader. CEEPC was designated as fully compliant with GCoM's global standards of best practices for climate planning in 2021 and again in 2024.^{iv}

The COG Board adopted additional priorities and goals to guide the climate work of the region and its members. In 2022, the COG Board identified electric vehicle (EV) deployment as a regional priority. In 2023, the COG Board endorsed a goal of 250,000 solar rooftops in the region by 2030, as recommended by CEEPC and in alignment with the 2030 CEAP. With the recommendation of RTCS, the COG Board endorsed a goal in 2024 of maintaining a minimum tree canopy coverage of 50 percent across the metropolitan Washington region.^v

In addition, from 2023 to 2025, COG developed the Metropolitan Statistical Area (MSA) climate action plans as part of the U.S. Environmental Protection Agency (U.S. EPA) Climate Pollution Reduction Grant (CPRG) Program, via a pass-through grant from the District Department of Energy and Environment (DOEE). The Washington-Arlington-Alexandria DC-MD-VA-WV MSA Priority Climate Action Plan (PCAP) was published and submitted to EPA in March 2024 and the MSA Comprehensive Climate Action Plan was submitted to EPA in December 2025.^{vi}

During the development of the PCAP and CCAP plans, regional stakeholders discussed existing regional GHG emission reduction goals. COG's Air and Climate Public Advisory Committee (ACPAC) submitted a letter to COG encouraging strengthening the goals, while other stakeholders expressed concern for the region's ability to meet current goals, with potential emissions increases since the height of the COVID-19 pandemic as well as a significant increase in data center expansion in the region since 2020. In response to these mixed viewpoints, COG launched the Midcourse Review to evaluate how the region is doing towards meeting the COG Board goals and began assessing what it would take to achieve a net zero emissions future as part of the development of CCAP.

The objectives of the Midcourse Review are to assess the status of regional climate goals, key performance indicators, and implementation levels of key actions to provide direction-setting for regional action. The Midcourse Review also informed measures and modeling in the CCAP. The results of the Midcourse Review will show if regional trends are headed in the right direction and identify where CEEPC may need to course-correct to stay on track to regional 2030 goals. The Midcourse Review evaluates past to current trends of goals and key performance indicators to support CEEPC decision making and next step actions. Please see the CCAP for information on future projections.

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action implementation questionnaire; and (3) identify case studies of climate action implementation across the region. Each section of this report highlights performance indicators, questionnaire results, and case studies. The performance indicators are 1 to 2 key metrics per sector to examine closely to enable a reasonable assessment of progress (Table 1).

Table 2: Performance Indicators

Sector	Performance Indicator
Greenhouse Gases	Greenhouse Gas (GHG) Emissions Contribution Analysis (drivers of GHG change)
Clean Electricity	Carbon Intensity of the Grid Grid Connected Renewables
Zero Energy Buildings	Building Energy Consumption Green Buildings
Zero Emissions Vehicles	Electric Vehicle (EV) Ownership EV Charging Stations and Ports
Mode Shift and Travel Behavior	Vehicle Miles Travelled (VMT) Transit Ridership
Zero Waste	Waste Diversion Rate
Sequestration	Tree Canopy Coverage

The local government climate action implementation questionnaire asked implementation questions for each of these sectors and the results summarize status of the collective priority climate actions in the region under the sub-headers Supporting Local Policies and Programs. The case studies identify best practices happening across the region and across sectors by a variety of local jurisdictions (small, medium, and large as well as urban, suburban, and rural communities). To meet GHG reduction goals, equity is a central component across all climate action sectors and is highlighted across sectors in this report.

GREENHOUSE GASES

Progress Towards 2030

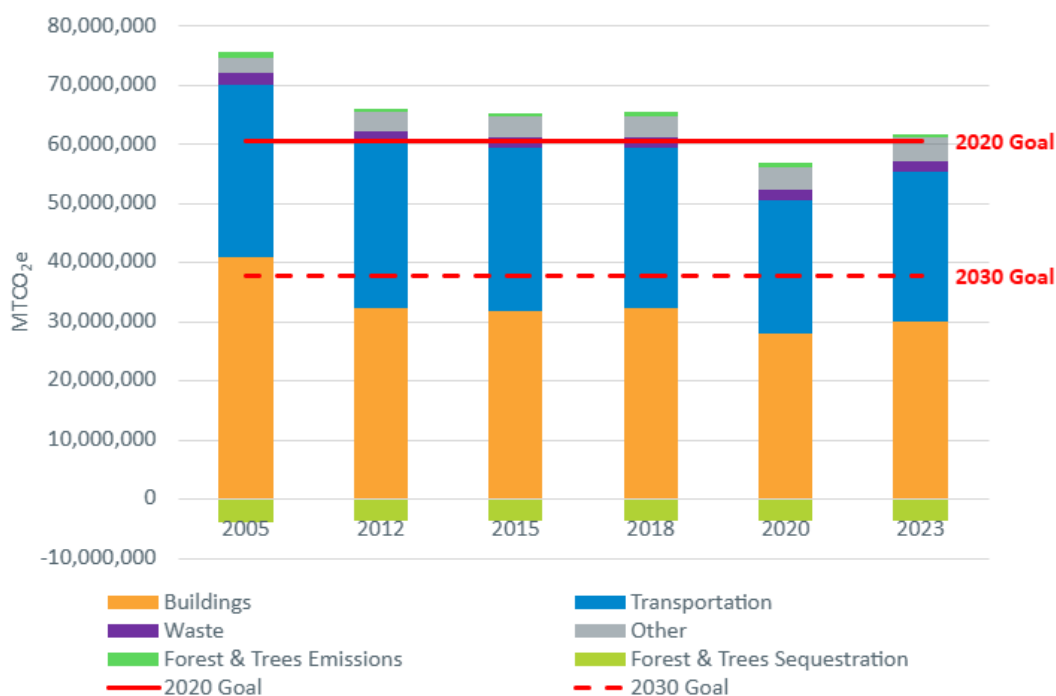
In 2020, the COG Board approved a new 2030 regional GHG emissions reduction goal of 50 percent below 2005 levels by 2030. The region surpassed its 2012 goal to reduce GHG emissions 10 percent below projected 2012 levels (i.e. bring emissions back down to 2005 levels). The region also met its 2020 GHG emission reduction goal of 20 percent below 2005 levels. Expedited cross-sectoral actions will be needed throughout the region to achieve the goal of 50 percent by 2030.^{vii}

PERFORMANCE INDICATORS

Greenhouse Gas Emissions

Approximately 90 percent of metropolitan Washington GHG emissions come from building energy consumption and transportation. The remainder of emissions comes waste, land use (agriculture, forests and trees), and fugitive emissions. Metropolitan Washington community-wide GHG net emissions decreased by 20 percent between 2005 and 2023, despite a 23 percent growth in population. Forests and trees sequester more than 3 million metric tons of CO₂ equivalent annually (Figure 2). Per the methodology developed in the CCAP, data centers account for approximately 11 percent of total GHG emissions as of 2023. Data centers, part of the buildings sector in Figure 2, are a high energy intensity industry with projected exponential growth in the region, which could pose a challenge in meeting regional 2030 GHG emission reduction goals.^{viii}

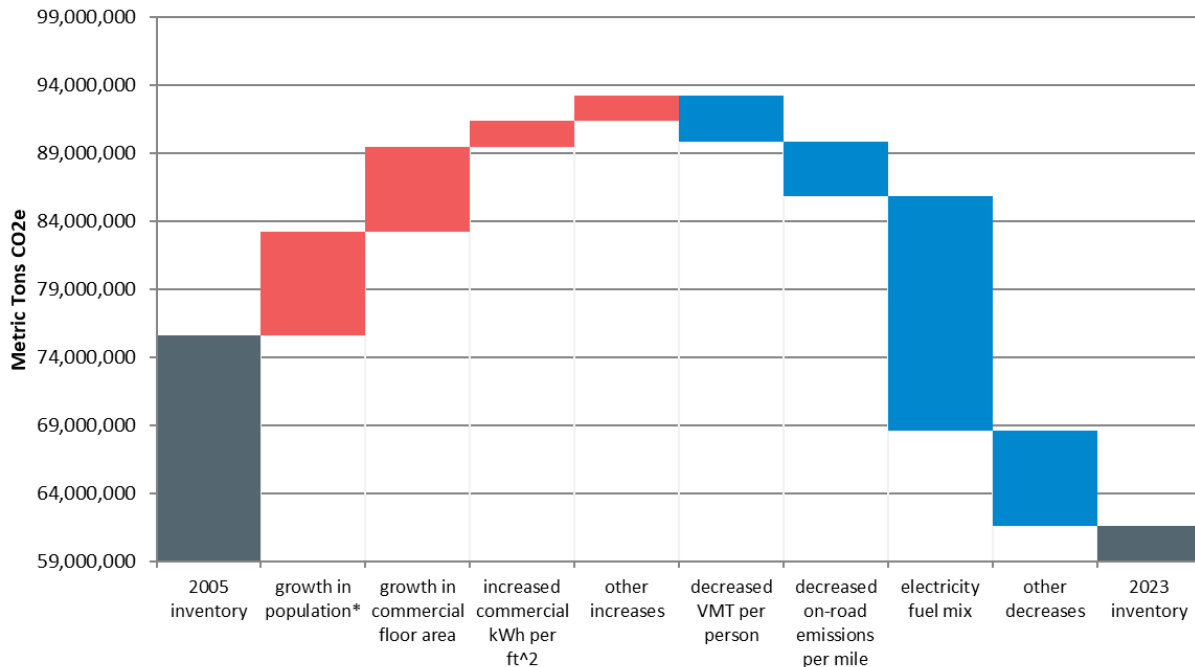
Figure 2: Metropolitan Washington Greenhouse Gas Emissions Trends, 2005 - 2023



Contribution Analysis

The metropolitan Washington GHG Contribution Analysis results show what has driven increases (red bars) and decreases (blue bars) in emissions between inventory years 2005 and 2023 (Figure 3). The graph shows the main drivers increasing emissions (red bars) are growth in population and commercial space as well as increased commercial electricity energy intensity (including from data centers). Driving down emissions (blue bars) are mainly a cleaner grid, cleaner cars, and reduced vehicle miles traveled (VMT) per person.^{ix}

Figure 3: Metropolitan Washington Drivers of Greenhouse Gas Change, 2005 - 2023



SUPPORTING LOCAL POLICIES AND PROGRAMS

Developing and implementing climate goals, equity-focused plans, and tracking progress lays the foundation for efforts to reduce GHG emissions 50 percent below 2005 levels by 2030. More than 66 percent of COG member jurisdictions have established community-wide GHG reduction goals and more than 57 percent have community plans to help meet that goal. Another 33 percent of local jurisdictions are currently developing a community-wide GHG reduction plan. More than 80 percent developed their plans with a focus on disadvantaged communities. Local jurisdictions are tracking their progress by leveraging the COG-developed GHG inventories, tracking local climate investments and savings, climate progress reports, and progress dashboards.^x

Note: * Includes effects of population on residential energy, VMT, and waste generation.

City of Rockville

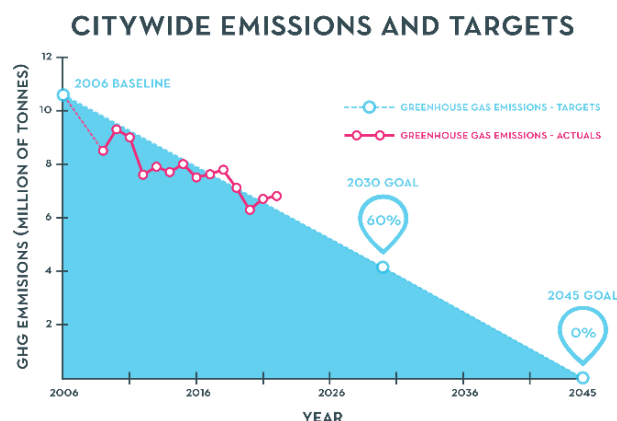
Developed as a part of their Climate Action Plan, the City of Rockville has a Climate Action Dashboard based off its Annual Report on the City's website. The dashboard displays its GHG reduction goals and the progress the City is making with achieving 50 percent reduction (from 2005) by 2030. Overall, residents can see that the City has completed 26.7 percent Climate Action Plan actions with 60 percent in progress and 13.3 percent has been phased in gradual stages. Having an interactive dashboard where residents may learn the status of specific sectors such as energy efficiency and transportation can increase community engagement in achieving progress towards climate goals.^{xi}

Description	Progress	Status
Energy Efficiency Increase energy conservation and efficiency and reduce fossil fuel use in all existing and new buildings and infrastructure.	53%	
Renewable Energy Increase the generation, use and access to affordable, reliable, and clean energy systems.	80%	
Transportation Expand safe, efficient, affordable, and equitable multi-modal transportation options that utilize clean and efficient energy sources.	76%	
Land Management Maximize the economic and social benefits of land while maintaining or enhancing natural systems and ecological health to ensure resiliency.	59%	
Materials and Waste Manage solid waste by reducing, reusing, recycling, composting, and sustainable purchasing.	55%	

City of Rockville Climate Action Dashboard
(Source: [City of Rockville Reduce Greenhouse Gas Emissions](#))

District of Columbia

The District Department of Energy and Environment (DOEE) regularly tracks the District's GHG emissions to measure their progress towards reduction goals of 60 percent by 2030. The District also has Sustainable DC 2.0, which is a user-friendly website to see the progress the District is making on a broad range of environmental efforts. The District saw a 35 percent reduction in GHG emissions in 2022 compared to the 2006 baseline inventory. Residents are able to see the progress the District is making to achieve the City's reduction goals each year with annual reports and on the Sustainable DC 2.0 website. Tracking progress allows for more transparency for what the City has done thus far to accomplish its goals.^{xii}



District of Columbia GHG Inventory Graph
(Source: [Department of Energy and Environment](#))

CLEAN ELECTRICITY

Progress Towards 2030

With 35 percent of gross GHG emissions in the region associated with electricity consumption,^{xiii} state Renewable Portfolio Standards (RPS) programs that accelerate the deployment of renewable energy on the region's grid are crucial for reducing GHG emissions. By 2030, states and utilities need to continue adding renewable generation capacity to achieve the renewable energy levels in the overall grid mix in line with the state RPS programs.

Washington, D.C.'s RPS requires 100 percent renewable electricity by 2032, including 5.5 percent from local solar. As of 2024, solar deployment is ahead of schedule with over 308 MW installed, but interconnection delays limit growth and drive-up compliance costs.^{xiv} The District's Public Service Commission (PSC) has granted an investigation of the implementation of interconnection standards, but infrastructure constraints remain. The District is broadly on track but needs grid upgrades to sustain progress and reduce ratepayer impacts.

Maryland's RPS requires 50 percent renewable electricity by 2030, with 14.5 percent from solar. While RPS targets are met via Renewable Energy Credits (RECs), in-state deployment has increased from 19 percent of RECs originating in-state in 2022 to 45 percent in 2024.^{xv} Solar and offshore wind have faced delays from siting, permitting, and interconnection bottlenecks.^{xvi} Recent reforms implemented by the Maryland Public Service Commission and the Maryland Energy Administration offer procurement flexibility and geothermal incentives respectively, but Maryland needs faster deployment and grid investment to meet 2030 goals meaningfully.

Virginia's RPS targets 100 percent carbon-free electricity by 2045 (for Dominion Energy). Dominion meets interim goals through owned renewable energy generation and renewable Power Purchase Agreements (PPAs).^{xvii} Key projects like Coastal Virginia Offshore Wind will begin generating power in 2026, but otherwise PPA reliance raises transparency concerns. Dominion's 2024 Integrated Resource Plan (IRP) shows plans for solar, storage, and banked PPAs, but interconnection backlogs and limited in-state mandates threaten long-term progress. Virginia risks compliance without real decarbonization.

PJM's interconnection queue faces significant delays due to a substantial backlog of renewable energy projects awaiting approval.^{xviii} Lengthy review processes, costly network upgrades, and a first-come, first-served model have slowed project timelines across the region. Although recent queue reform efforts are underway, these delays directly hinder states' ability to bring new clean energy online, making it harder to meet RPS targets.^{xix} Even when policy mandates and market incentives are in place, interconnection barriers prevent timely deployment, turning planned solar and wind into stranded projects and stalling progress toward the region's clean energy goals.

In addition to state RPS programs, local communities need to support the deployment of local solar. In recognition of this need, the COG Board adopted regional solar energy goals for 2030 in line with the regional 2030 Climate and Energy Action Plan (2030 CEAP). The COG Board endorsed the goal of deploying 250,000 solar rooftops in the region by 2030, urged COG members to install solar at

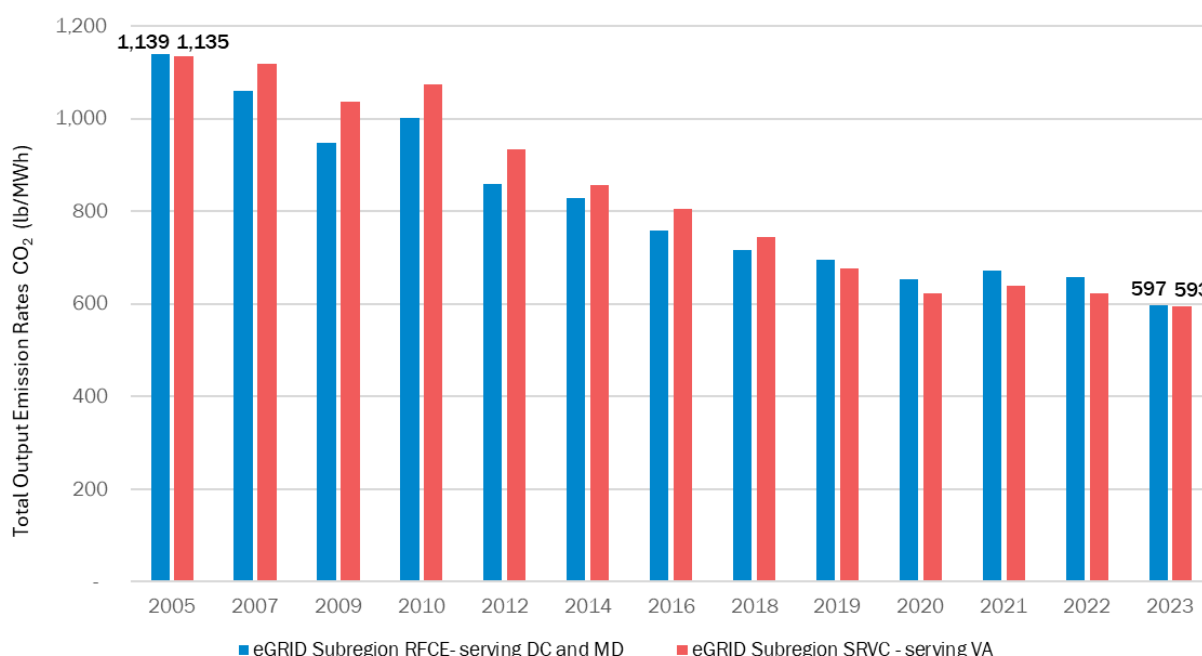
government facilities, urged COG members to procure 100 percent of electricity for government operations, encouraged deploying solar programs in support of low-income residents, and more.^{xx}

PERFORMANCE INDICATORS

Carbon Intensity of The Grid

Two key factors impact GHG emissions from electricity – how clean the electric grid is and the region’s total building energy consumption. The U.S. EPA provides comprehensive data on electric power generated across the United States through the Emissions and Generation Resource Integrated Database (eGRID). EPA eGRID subregions serve the COG region - Reliability First Corporation-East (RFCE) serves DC and MD and SERC Reliability Corporation Virginia/Carolina (SRVC) serves Virginia. Figure 4 below shows how clean the grid in these subregions is getting over the years. Both RFCE and SRVC subregions reduced from more than 1,100 CO₂e in 2005 to below 600 CO₂e in 2023. This is the result of coal plants shutting down and fuel switching to natural gas and, to a smaller extent, increasing renewables powering the grid.^{xxi}

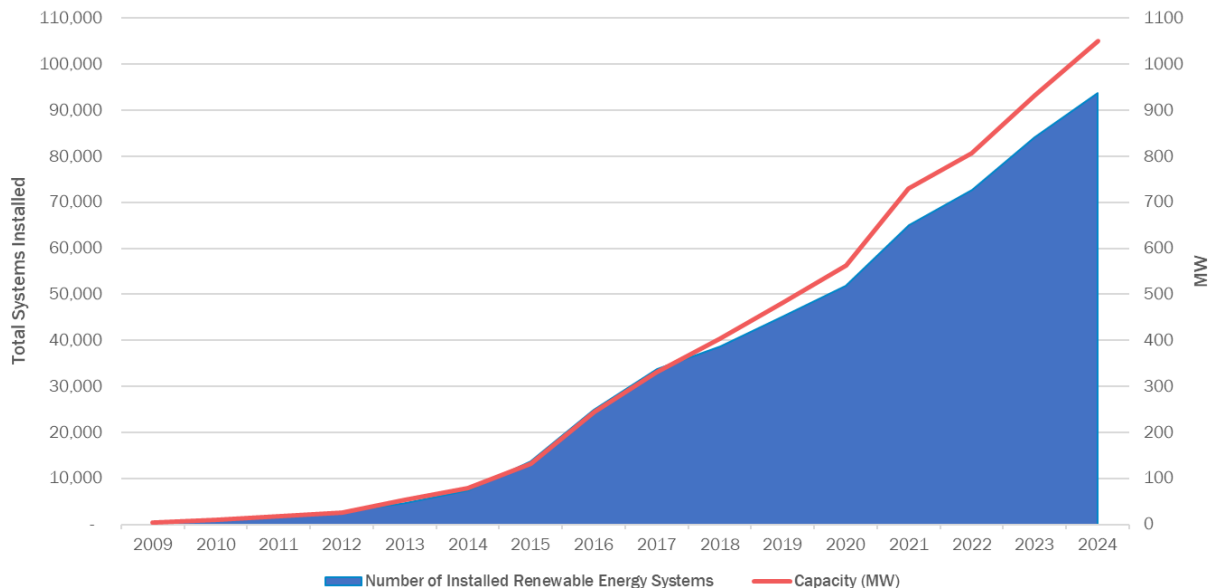
Figure 4: Carbon Intensity of the Grid Trends, 2005 – 2023



Grid Connected Renewables

CEEPC’s 2020 Regional Climate and Energy Action Plan (2020 CEAP) prioritized increasing renewables and worked toward the desired outcome of achieving the deployment of 30,000 grid-connected renewable energy systems. The region well surpassed this targeted outcome. Distributed renewable energy deployment has grown at a tremendous rate from less than 500 systems in 2009 to more than 90,000 systems in 2024 operating with more than 1 gigawatt of capacity (Figure 5). Concerted effort is needed to meet the regional goal of 250,000 systems by 2030.^{xxii}

Figure 5: Metropolitan Washington Grid Connected Renewables Trends, 2009 - 2024

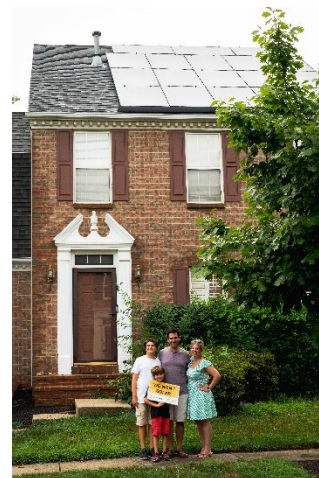


SUPPORTING LOCAL POLICIES AND PROGRAMS

COG member jurisdictions are deploying clean electricity solutions in government operations, including deploying 28,544.60 kW of solar capacity, 9 district energy/microgrid systems, 3 combined heat and power (CHP) systems, 33 geothermal systems, and 9 Power Purchase Agreements (PPAs). The majority of COG member local jurisdictions also provide or promote solar opportunities community-wide through solar co-ops, community solar, and financing solutions in disadvantaged communities. In addition, 79 percent of local jurisdictions have solar requirements or incentives available to the community.^{xxiii}

Solar Co-Ops

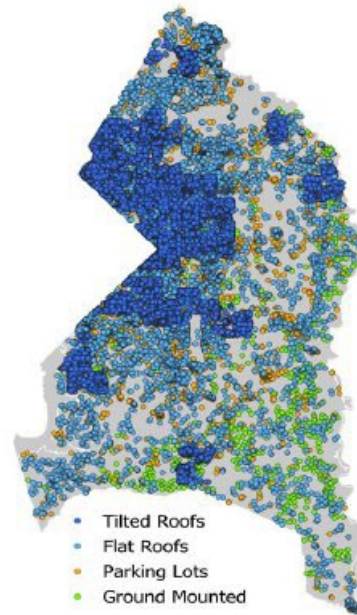
Solarize NOVA is a Local Energy Alliance Program that uses community-based outreach programs to reduce the cost and complexity of solar-installation projects in communities. Solar United Neighbors (SUN) is also a co-operative organization that arranges solar co-ops for group purchasing of solar panel installations. Solarize NOVA has installed 1,015 solar power system installations, totaling 9.3 MW of capacity. SUN has either installed or is currently in the permitting process for 31,036 kW (~31 MW) of rooftop solar across COG jurisdictions. Additionally, solar co-ops enable residents, communities, and businesses to find affordable and well-vetted contractors to implement solar installation projects at a discounted rate.^{xxiv}



Solar United Neighbors Participant
(Source: [Solar United Neighbors](#))

Prince George's County

Prince George's County developed a Clean and Renewable Energy Report and Siting Analysis to accelerate solar (and other clean electricity technologies) deployment in the County. This analysis simplifies future solar planning and expansion by identifying over 97,000 potential solar projects with over 7,000 MW_{AC} of total capacity. The Report and Analysis help the County progress towards expanding energy self-sufficiency while also enabling the County to support residents, businesses, and communities in their planning processes.



All Suitable Locations for Solar Installations in the County
(Source: Prince George's County State of Clean and Renewable Energy Report)

ZERO ENERGY BUILDINGS

Progress Towards 2030

Building energy consumption is the leading contributor to metropolitan Washington's GHG emissions, accounting for 49 percent of the total gross GHG emissions as of 2023.^{xxv} In order for the building sector to support the 50 percent by 2030 GHG emissions reduction goal, COG member jurisdictions will need to expand net zero energy building construction between now and 2030 through building codes, policies, and incentives. Continued coordination is encouraged to build capacity as well as develop and advocate for local policy options for high energy intensity industries.^{xxvi}

PERFORMANCE INDICATORS

Building Energy Consumption

Sustained reduction in energy consumption is an important component of meeting the region's GHG emission reduction goals. Weather as well as population and commercial growth impact energy consumption trends. Total electricity consumption has increased from 61.2 million MWh in 2005 to 85.95 million MWh in 2024, with residential consumption increasing only 5 percent and commercial increasing 59 percent (Figure 6). High energy intensive industries, such as data center, contribute to the overall growth commercial electricity consumption. Total natural gas consumption decreased from 1.59 billion Therms in 2005 to 1.47 billion Therms in 2024, with residential consumption decreasing more than 11 percent and commercial decreasing 2 percent (Figure 7).^{xxvii}

Figure 6: Metropolitan Washington Electricity Trends, 2005 - 2024

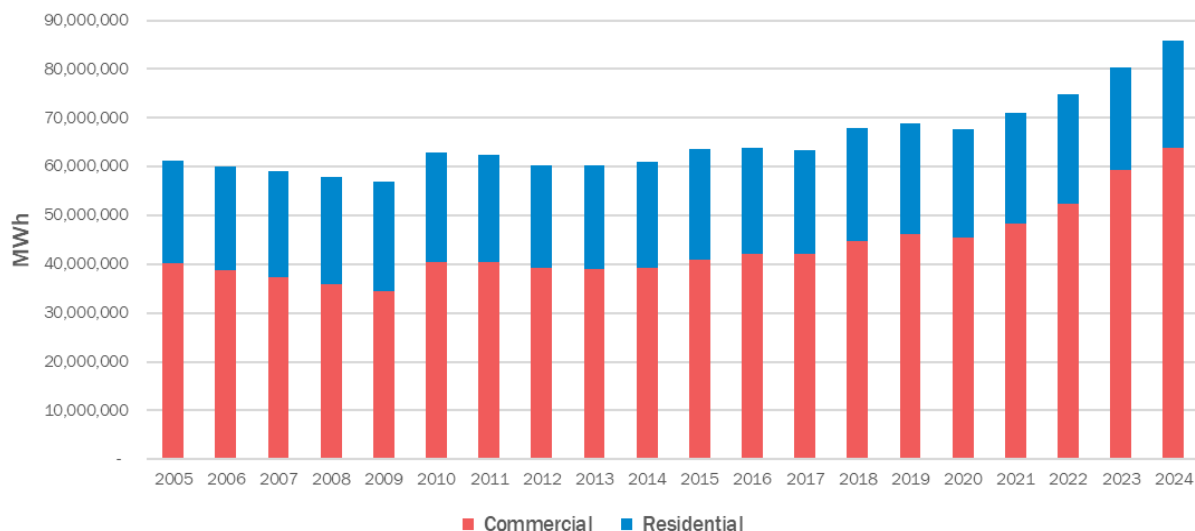
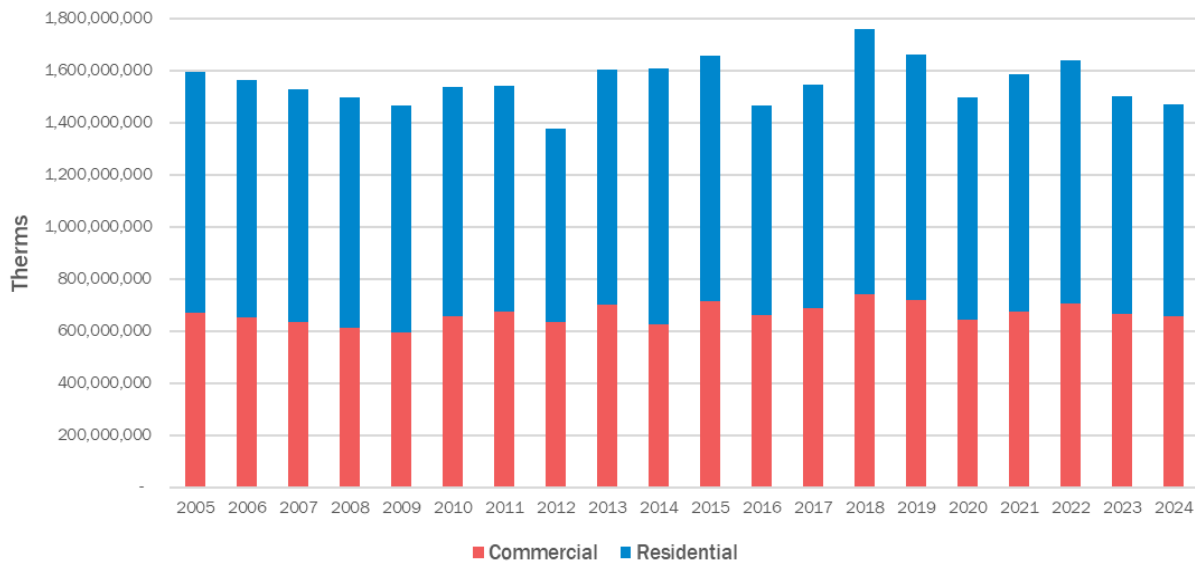


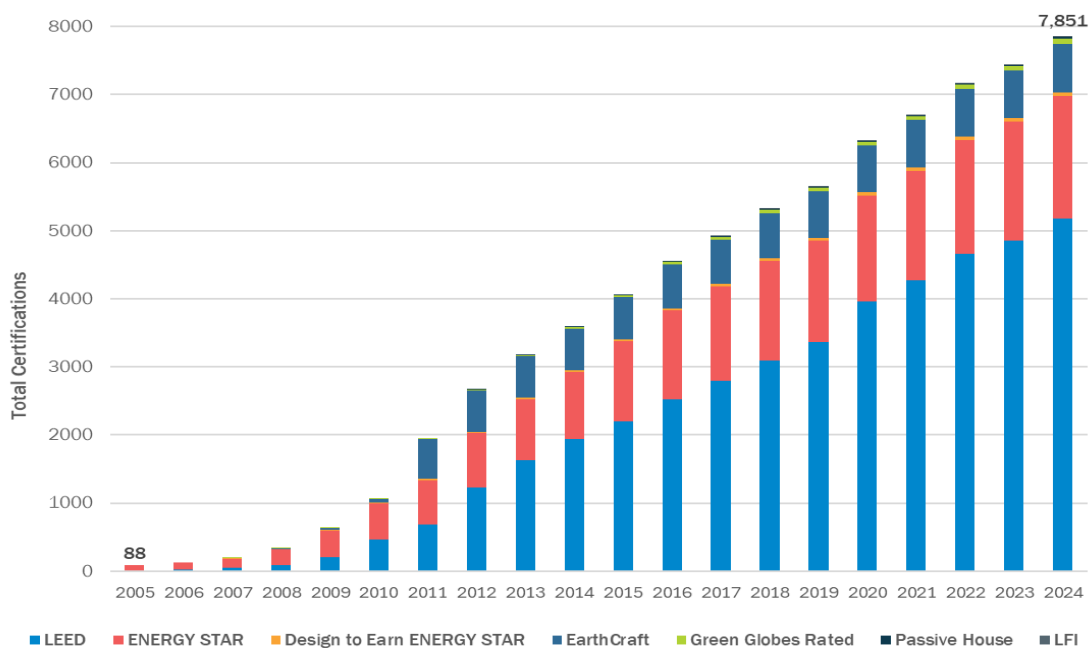
Figure 7: Metropolitan Washington Natural Gas Trends, 2005 - 2024



Green Buildings

GHG emission reduction is supported by development that prioritizes energy efficiency and renewable energy. Buildings with a higher level of environmental performance are verified through programs such as LEED, ENERGY STAR, EarthCraft, Green Globes, Passive House, and Living Futures Institute (LFI). In 2005, there were 88 third-party certified projects, including 14 LEED certifications and 74 ENERGY STAR rated buildings. As of the end of 2024, there are 7,851 certified projects, including 5,175 LEED certified projects, 1,803 ENERGY STAR rated buildings, 57 projects recognized with Design to Earn ENERGY STAR, 715 EarthCraft certifications, more than 77 Green Globes rated, 20 Passive Houses, and 4 LFI projects (Figure 8).^{xxviii}

Figure 8: Metropolitan Washington Green Building Certification Trends, 2005 - 2024



SUPPORTING LOCAL POLICIES AND PROGRAMS

There are a variety of initiatives underway across the region to advance net zero energy buildings. Thirty-five percent of COG member jurisdictions provide education and training on new and advanced green construction standards, 15 percent have a policy for all new local public facilities to be net zero energy, 10 percent have net zero energy codes or incentives for private development, and 10 percent include net zero energy goals or strategies in master, comprehensive, or small area plans. Jurisdictions will need to continue to expand and advance net zero energy building initiatives.^{xxix}

COG member jurisdictions are also implementing initiatives that support more energy efficient buildings. Benchmarking programs are popular with 65 percent of jurisdictions energy benchmarking local government facilities, 20 percent require benchmarking for commercial buildings, and another 25 percent are developing benchmarking programs. Local jurisdictions are implementing deep energy retrofit initiatives for residential and commercial sectors including 65 percent of jurisdictions provide or promote innovative energy financing solutions (e.g. green bank, PACE, loan loss reserves, etc.), 65 percent provide or promote state and utility incentives and technical assistance for energy efficiency retrofits and upgrades, 60 percent implement deep energy improvements in affordable housing and in disadvantaged communities, and 60 percent have energy efficiency education campaigns.^{xxx}

City of Alexandria

Alexandria City High School (ACHS) Minnie Howard Campus is a recently completed school building that is pursuing the LEED Gold certification and net-zero energy in line with Alexandria's Green Building Policy. Optimized building design and materials conserve energy and lower environmental impact. The building features solar panel installation on the roof and other areas as well as low flow water fixtures. The building is designed to save at least 25 percent more energy annually than a similar school designed to code-minimum levels allowing energy costs and the HVAC system's size to be reduced. Highly efficient water fixtures help reduce water use by 35-40 percent compared to a conventional building.^{xxxi}



Alexandria City High School (ACHS) Minnie Howard Campus Building (Source: [Learning by Design](#))

Arlington County

Arlington's Alice West Fleet Elementary school is a net-zero energy and LEED Gold-certified building. The school uses renewable energy, 20 percent of the land is vegetated by 85 different native species of plants and trees, and 90 percent of construction waste was diverted from landfills. The outdoor classrooms, terraces, and gardens connect students to nature and support hands-on learning. This includes a "Power Pole" that showcases real-time energy use and solar production, turning the school into a living lab for students to study. Additionally, the natural light and operable windows features, supplemented with LED lighting, create a vibrant, energy-smart learning environment for students.^{xxxii}



Alice West Fleet Elementary "Power Pole" (Source: [The American Institute of Architects](#))

ZERO EMISSION VEHICLES

Progress Towards 2030

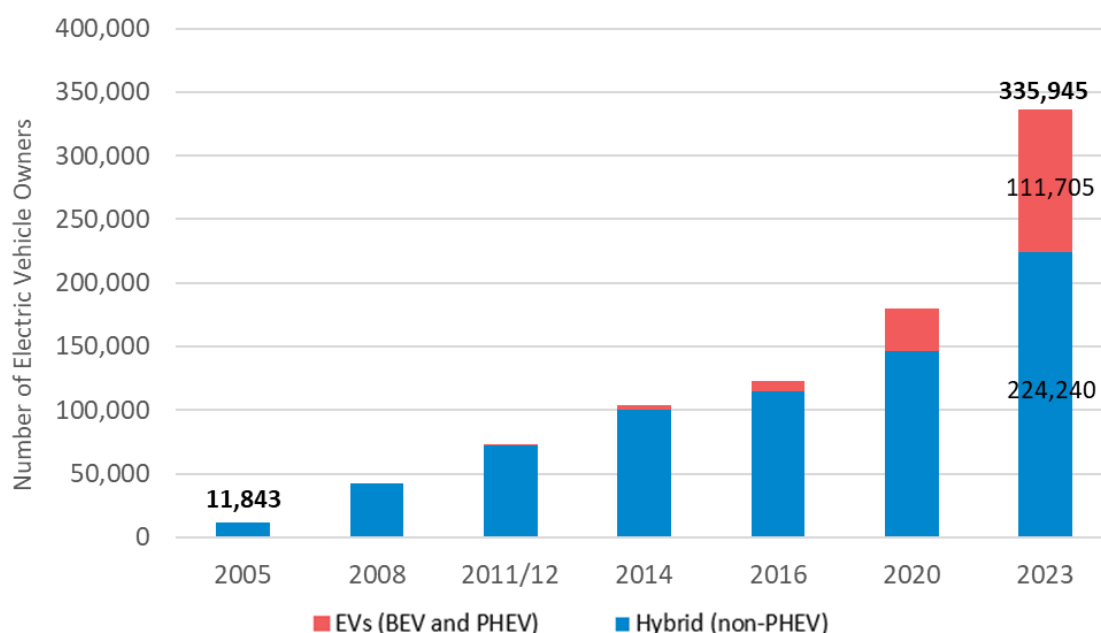
Thirty-three percent of total GHG emissions in metropolitan Washington come from on-road mobile transportation. Passenger cars and passenger trucks account for approximately 72 percent of on-road GHG emissions as of 2023. Advancing electric vehicle (EV) ownership in the region is one of the most impactful strategies to meet the 2030 regional GHG emission reduction goal. Based on the Regional Electric Vehicle Infrastructure Implementation (REVII) strategy that examined a range of vehicle electrification scenarios, in 2030, EV ownership in the region is estimated to range between 464,000 to 945,000 battery electric vehicles (BEVs) and plug-in hybrid electric (PHEV). These EV drivers will need an estimated 13,000 to 29,000 publicly available Level II EV charging ports and 485 to 1,000 publicly available DC fast charging ports. Recent GHG strategy modeling shows the region will need to achieve closer to the higher end of the projected range of EV adoption to meet the regional GHG emission reduction goals. Continued exponential expansion of EVs in the regional market and development of a robust network of EV chargers will be important to meet the 2030 GHG emission reduction goals.^{xxxiii}

PERFORMANCE INDICATORS

EV Ownership

Improving fuel economy will help reduce GHG emissions from passenger cars and trucks. The region experienced recent significant growth in BEV and PHEV ownership from 33,175 in 2020 to 111,705 in 2023. The total electric and hybrid vehicle ownership in 2023 is 335,945 vehicles, which accounts for 8.6 percent of all light duty vehicles (Figure 9).^{xxxiv}

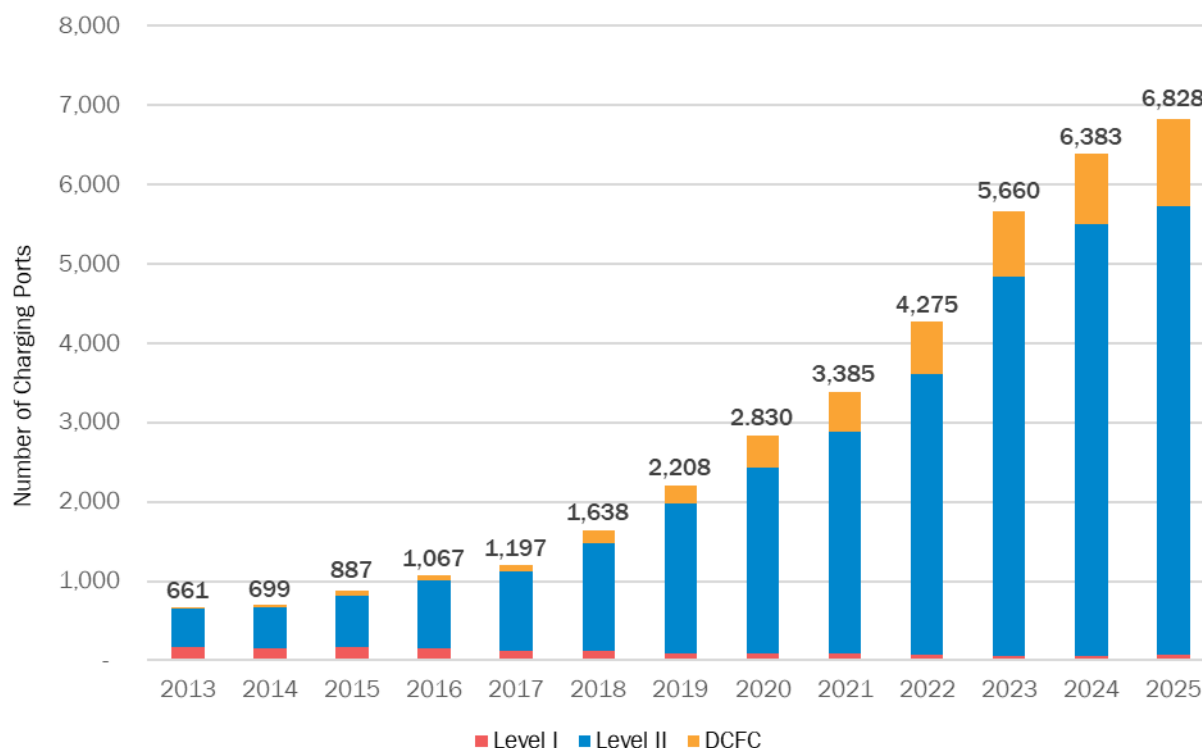
Figure 9: Metropolitan Washington Electric Vehicle Ownership Trends, 2005 - 2023



EV Charging Ports

Owners of BEVs and PHEVs need to be supported with a robust network of EV charging stations, particularly in areas with limited at-home charging, including multi-family developments, and disadvantaged communities. Total EV charging ports in metropolitan Washington have increased from 661 in 2013 to more than 6,800 ports in 2025 (Figure 10).² This aggressive expansion of EV charging ports needs to continue to support the region's GHG emission reduction goals.^{xxxv}

Figure 10: Metropolitan Washington Electric Vehicle Charging Station Trends, 2013 - 2025



SUPPORTING LOCAL POLICIES AND PROGRAMS

COG member jurisdictions are accelerating EV and EV chargers deployment in government operations. Eighty percent of jurisdictions have evaluated their fleet for opportunities to electrify, 70 percent have developed an EV charger deployment strategy for its fleet, and 20 percent are piloting new EV charger technologies. Local jurisdiction report that 19 percent of all fleet vehicles are electric vehicles, including battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs), and hybrid electric vehicles (HEVs). Additionally, there are a variety of ways local jurisdictions are supporting EV and EV charger deployment community-wide including developing EV plans for community deployment, promoting incentives to buy EVs and deploy EV chargers, EV-friendly zoning

² EV charging ports in Figure 10 include public and private ports, while the REVII Strategy and Visualize 2050 only include public ports. They each source the U.S. DOE Alternative Fuels Data Center, which includes multi-family and non-residential ports, but does not include single-family home charging ports.

and building codes, encouraging employers to deploy EV chargers, supporting multi-family EV charger deployment, and EV events and education.^{xxxvi}

Fairfax County

Charge Up Fairfax is a program that supports homeowners associations (HOAs) and other community organizations in installing EV chargers. The program provides free technical assessments and reimbursement grants to cover some expenses. Communities can also leverage Charge Up Fairfax and Dominion's Level 2 Program to reduce installation and maintenance costs of charging stations. Thus far, 17 communities participated in the program and five communities have successfully completed their charging station installations. The program incentivizes residents of the neighborhood to consider buying an EV, simplifies regulatory processes, and supports coordination efforts between stakeholders.^{xxxvii}



Bladensburg

From 2023 to 2024, EV charging stations were installed at multiple city buildings including, Bladensburg Town Hall, Bladensburg Community Center, and Bladensburg Branch Library. This created greater opportunities for those traveling within the area to access charging in a safe location 24/7. Bladensburg has also recently received additional funding from the State of Maryland through Community Electric Vehicle Supply Equipment Grant Program to further expand the town's EV program. The installation of EV chargers encourages the use of electric cars among residents and improves air quality in the area.^{xxxviii}



EV charging stations at Bladensburg Community Center
(Source: [Town of Bladensburg](#))

MODE SHIFT AND TRAVEL BEHAVIOR

Progress Towards 2030

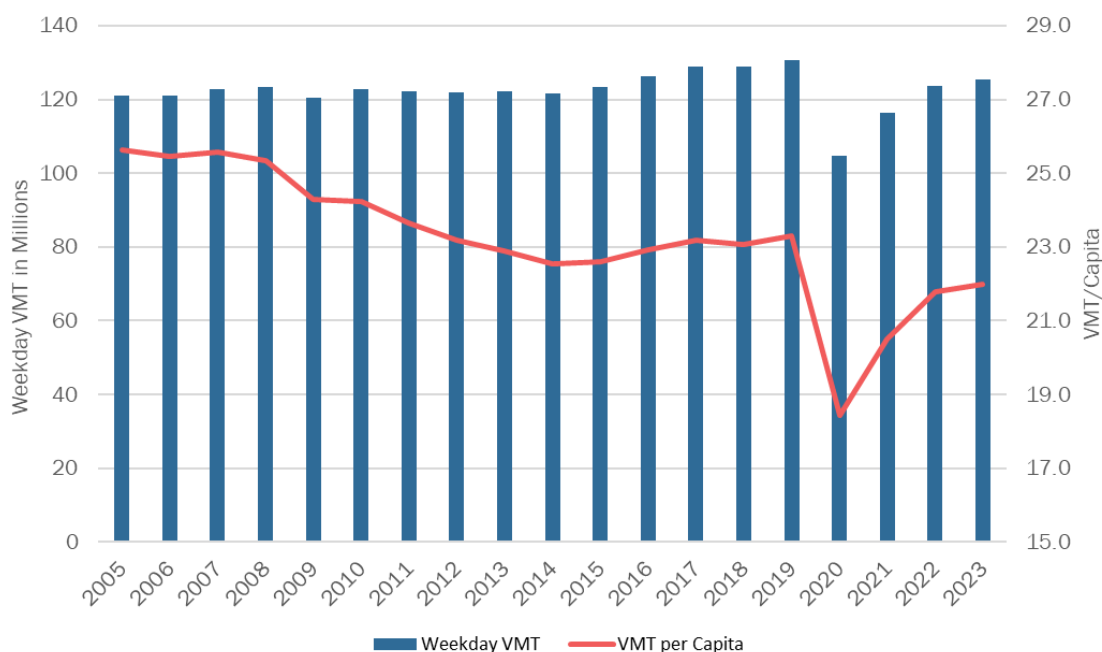
Reducing vehicle miles of travel (VMT) by encouraging residents to shift away from single-occupant vehicle (SOV) travel supports GHG reduction; however, reducing overall VMT in a growing region is challenging. Policies, programs, and investments that support transit, carpooling, flexible work schedules, teleworking, and growth in regional activity centers and high-capacity transit areas can encourage residents to shift their mode of travel or possibly eliminate a trip, thus reducing resident VMT per capita. Reducing VMT per capita is a goal in COG's Region Forward vision plan adopted in 2010, and data shows that the region saw a 14 percent decrease in VMT per capita between 2005 and 2023.

PERFORMANCE INDICATORS

Vehicle Miles Travelled and VMT per Capita

While population and jobs grew 23 percent and 10 percent, respectively, from 2005 to 2023, total VMT increased by only 4 percent and VMT per capita decreased 14 percent (Figure 11). The dip in 2020 was a result of the COVID-19 pandemic. Between now and 2050 the region is expected to add 1.2 million people, 550,000 new households, and 800,000 new jobs, but resident VMT per capita is forecast to decrease by 5 percent. The reductions in VMT per capita both in the past and forecast for the future indicate that land use policies as well as investments in public transportation, pedestrian and bicycle infrastructure, and commuter policies and services are providing residents with alternatives to SOV travel.^{xxxix}

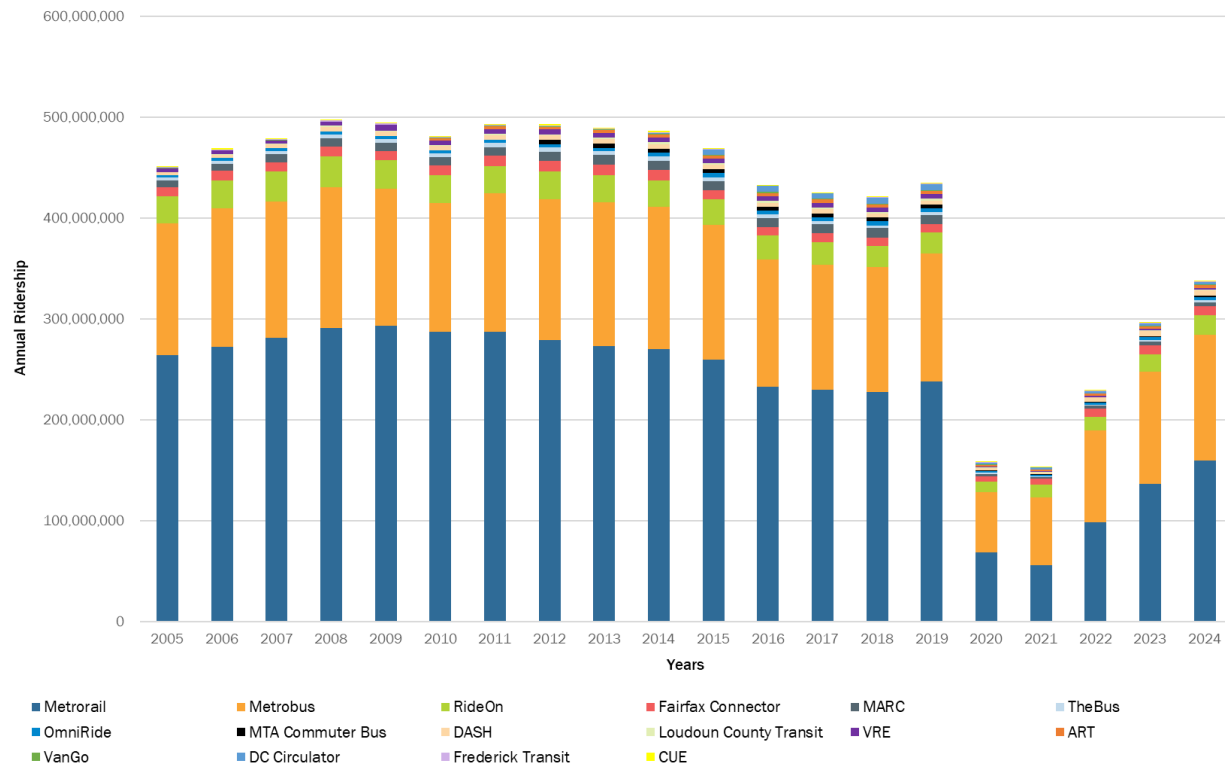
Figure 11: Metropolitan Washington Vehicle Miles Travelled and VMT per Capita Trends, 2005 - 2023



Transit Ridership

Public transportation supports VMT and VMT per capita reduction by serving as an alternative to SOV travel. Public transportation can also reduce congestion and offset GHG emissions. More than a dozen agencies across the region provide public transportation options including rail, bus, microtransit, and paratransit services (Figure 12). The COVID-19 pandemic caused wide-spread disruption in transit ridership. While riders continue to return to public transportation, habits and routines continue to change. Many agencies have adjusted services to address shifts in demand and improve on-time performance and service frequency.^{xi}

Figure 12: Metropolitan Washington Transit Ridership Trends, 2005 - 2024



SUPPORTING LOCAL POLICIES AND PROGRAMS

COG member jurisdictions support mode shift and travel behavior strategies through their plans and policies. Eighty percent of jurisdictions have local land use policies or plans promoting design that support walking and biking within activity centers and near high-capacity transit (i.e. Metrorail, commuter rail, light rail, and bus rapid transit). Eighty percent of jurisdictions also have complete streets policies or roadway design improvements that make walking and biking safer (i.e. adding bike pathways on the road, expanding sidewalks, improving crosswalks, etc.). Seventy percent of jurisdictions have local land use policies or plans that promote the development of additional housing units within activity centers and near high-capacity transit.^{xli}

Jurisdictions are working to improve “first and last mile” connections to transit trips by improving biking and walking access to high capacity transit, providing secure bike storage at high capacity transit stations, providing micromobility options (i.e. expanding shared bikes, e-bikes, and scooters),

microtransit services (i.e. typically on-demand services that use app-enabled trip requests and payment to complement fixed-route transit service), and providing or promoting shuttles from transit to employment centers. Thirty-five percent of jurisdictions are working to enhance “first and last mile” connectivity options in disadvantaged communities.^{xlii}

COG member jurisdictions also support mode shift and travel behavior strategies through encouragement and incentives. Eighty-five percent provide teleworking opportunities for its employees and 55 percent provide transit benefits to employees, as well. Community-wide, local jurisdictions are promoting transit benefits for private sector employees, carpool and vanpool opportunities, incentives for ride sharing, ride matching, teleworking for private sector employers, and more.^{xliii}

Montgomery County

Ride On Flex, established in 2019, is an on-demand bus service with zones in the areas of Glenmont/Wheaton, Rockville, and White Oak/Sandy Spring. As with Ride On’s fixed route services, Flex is zero fare, which allows increased accessibility for people of all socioeconomic backgrounds. Montgomery County was awarded technical assistance from TPB’s Transportation Land-Use Connections (TLC) Program to develop a performance assessment for the use of Flex. A second TLC project conducted a Flex Expansion Study to provide a performance assessment to inform future planning efforts to develop on-demand transit services. The study engaged a variety of stakeholders to increase the equitability and efficiency of the routes for the community. COG’s Equity Emphasis Areas and Montgomery Planning’s Equity Focus Areas were used to analyze and determine which zones would benefit the most from the Flex bus from an equity perspective.^{xliv}



Falls Church

Falls Church implemented the South Washington Street multimodal improvement project to improve walkability and access to transit. The project included the construction of a transit plaza, new crosswalks, streetscape improvements, signal upgrades, stormwater infrastructure, and storytelling history panels. The project has provided pedestrian safety and access, increased access to transit, improved stormwater retention, and interpretative signage sharing the City’s history. The project improved multimodal connections to the City’s downtown area, North Washington Street, and the East Falls Church Metrorail station.^{xlv}



South Washington Street Intermodal Transit Plaza
(Source: [City of Falls Church](#))

ZERO WASTE

Progress Towards 2030

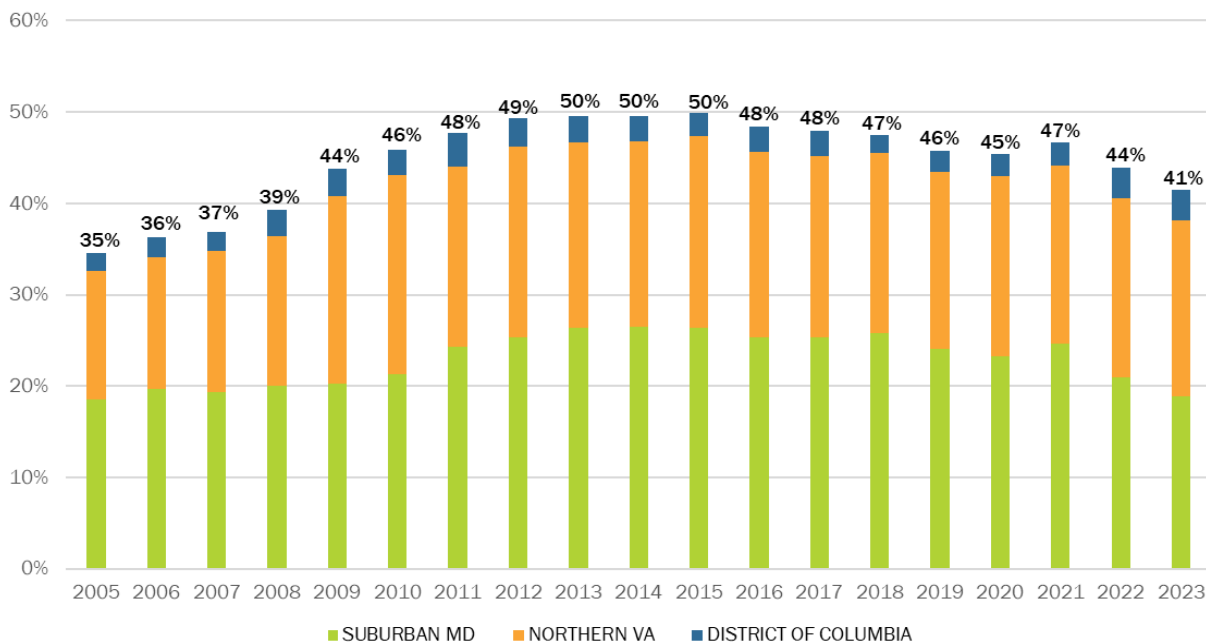
Zero Waste is a visionary goal that calls for society to use fewer resources as well as increase resource recovery, recycling, and composting. Zero waste strategies reduce emissions, save energy, and extend landfill capacity. Recent GHG strategy modeling assumed regional achievement of diverting 80 to 90 percent of all materials (including composting and recycling) from landfills and waste to energy (WTE) facilities. Expanding regional composting capacity, organics collection, and enforcement can support the region in meeting regional GHG emission reduction goals; however, the waste diversion rate is also impacted by the economy as well as industry and business trends.^{xlvi}

PERFORMANCE INDICATOR

Waste Diversion

The regional waste diversion rate, one indicator to track progress towards zero waste, increased from approximately 35 percent in 2005 up to a high of 50 percent landing at 41 percent in 2023 (Figure 14).

Figure 14: Metropolitan Washington Recycling Rate Trends, 2005 - 2023



There are several potential reasons for an overall decrease in regional waste diversion rates over the last several years. Waste generation, in general, tends to follow economic growth, which had been down post pandemic. There can be lower the generation of certain recyclable materials from sectors like business during economic downturns. Also, business has historically generated a lot of recyclable paper. If economic activity is down and commercial office space is less occupied, a

decrease in recyclable paper generated and collected can be expected. There are also the general industry trends of going more digital (not using paper in the office, not subscribing to paper news at home), the continued lightweighting of recyclable shipping/packaging materials—whether by making them thinner or by switching from heavier glass and steel to plastic.^{xlvi}

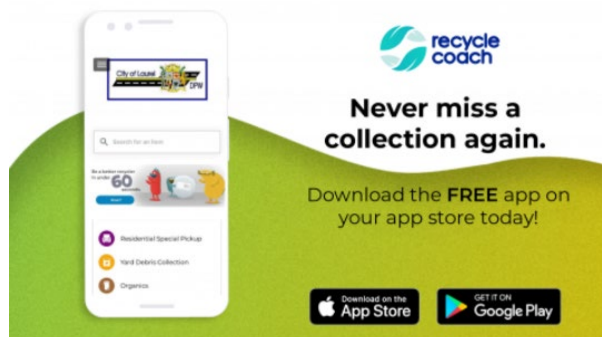
SUPPORTING LOCAL POLICIES AND PROGRAMS

In order to move toward zero waste, first and foremost jurisdictions need to have foundational strategies in place to reduce solid waste. Ninety-five percent of COG member jurisdictions conduct waste education campaigns to promote behavioral changes that encourage waste reduction and diversion at the source. Additional waste reduction strategies include 75 percent of jurisdictions provide free recycling bins to residents, 60 percent have recycling requirements for businesses, 60 percent have recycling infrastructure in the community and at events, 45 percent have single-use plastic and polystyrene bans, 35 percent are investing in new waste collection systems that increase waste reduction and increase recycling, and 30 percent have a zero waste plan, policy or initiative.^{xlvi}

To further move communities toward zero waste jurisdictions are enhancing organics collection and composting and supporting building a market for circularity. Examples of popular organics and composting initiatives include 70 percent of jurisdictions have food composting drop off sites, 55 percent offer residential curbside organics collection, and 40 percent have residential composting incentives. Examples of circularity initiatives in the region include repair and restoration services such as fix-it fairs, exchange and sharing opportunities such as tool sharing, and incentivizing second-hand products and upcycling.^{xli}

City of Laurel

Laurel has an app, Recycle Coach, that provides information about the City's trash and recycling program. Residents can access the schedule and events, learn about the accepted materials, set reminders to never miss the weekly collection day, receive instant updates, and can export calendar events to their own calendar application. The app lowers the barrier to entry when gaining knowledge and understanding about recycling (i.e. how to and what is allowed to be recycled). In addition, it keeps residents properly informed on any trash and recycling updates.^l



Recycle Coach Marketing Screenshot (Source: [City of Laurel](#))

Compost Crew

The Cities of Frederick, Greenbelt, Falls Church, and Manassas are all under contract with Compost Crew, a locally owned business based in Rockville, MD, to provide weekly curbside food scrap collection services for households in their communities. The Cities are providing an easily assessable option for their communities to compost the food scraps, reducing waste going to landfills and converting the food scraps into a rich soil amendment. The Cities' contracts offer the neighborhoods lower or free rates for their curbside composting pickup which allows for an equitable and low effort way for members of various communities in Metropolitan Washington to compost and lower their waste.^{li}



Compost Crew (Source: [Compost Crew About Us](#))

SEQUESTRATION

Progress Towards 2030

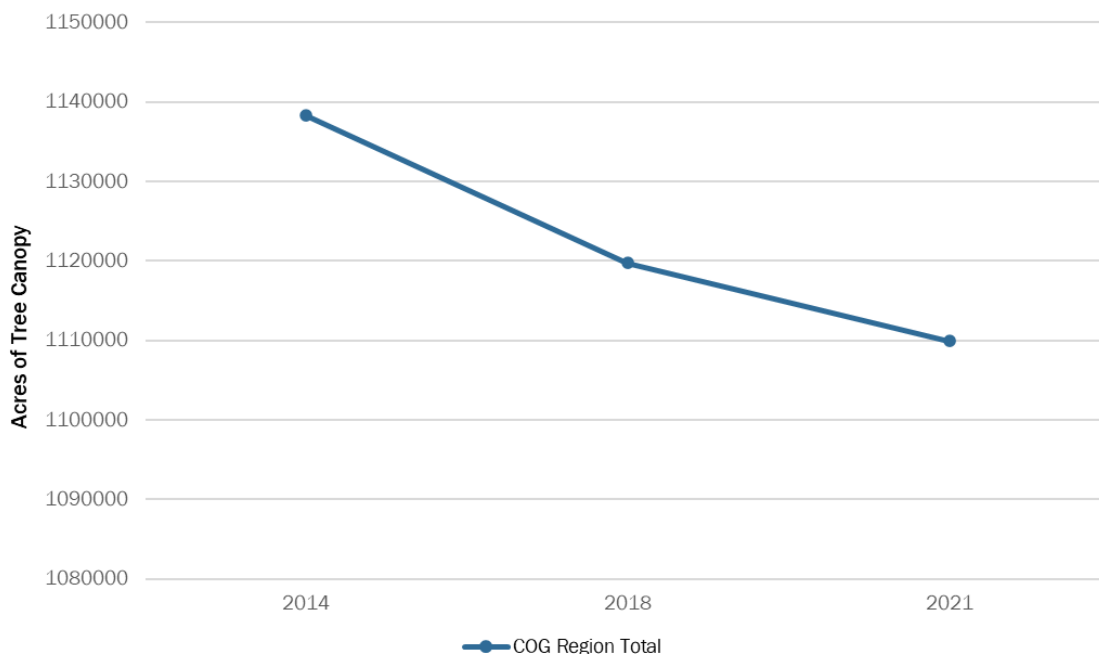
In 2024, the COG Board adopted a new regional tree canopy goal. The Board endorsed a goal of maintaining a minimum tree canopy coverage of 50 percent across metropolitan Washington to help ensure the region meets its climate goal of 50 percent reduction in GHG emissions below 2005 levels by 2030. As of 2021, the region had a 50 percent tree canopy; however, to maintain this goal, the region needs to have a “no net loss of tree canopy.”ⁱⁱⁱ

PERFORMANCE INDICATOR

Tree Canopy Coverage

As of 2021, COG is maintaining approximately 50 percent regional tree canopy. However, the COG region experienced a net loss of more than 28,000 acres of tree canopy between 2014 and 2021 (Figure 15). To put this into perspective, approximately 21,500 football fields of tree canopy loss occurred in the region over the course of 7 years. That is an average of 4,050 acres of net loss per year during that timeframe. If the region experienced another 4,050 acres of tree canopy loss in 2022, that would already have put the region under the 50 percent tree canopy goal.ⁱⁱⁱⁱ

Figure 15: Metropolitan Washington Tree Canopy Trends, 2014 - 2021



SUPPORTING LOCAL POLICIES AND PROGRAMS

COG member jurisdictions are enhancing their capacity to retain carbon stored in existing trees and forests through tree conservation policies and practices. A few examples include 60 percent of local jurisdictions have adopted a jurisdiction wide tree canopy goal, 60 percent have local ordinances to increase tree conservation during land development processes, and 40 percent have tree and forest conservation outcomes in their comprehensive land use policies and plans.^{liv}

COG member jurisdictions are also strategically protecting, maintaining, and planting trees on both publicly owned land and private land. On public land, 85 percent of jurisdictions are protecting, maintaining, and planting trees to improve water quality and flood control, 65 percent are planting trees to reduce heat island in low-income disadvantaged communities, and 60 percent are supporting community initiatives. On private lands, 55 percent of jurisdictions offer tree planting & protection incentives, 35 percent have tree mitigation bank or fund(s), and 35 percent have partnerships with community organizations in low-income disadvantaged communities.^{lv}

City of Bowie

Plant One Tree On Us is a program for Bowie residents to pick out a tree from their list of acceptable native species, decide where they want to plant it on their property, and have it planted by the government's contractors. In terms of outcomes, the program has resulted in 442 trees being planted in the city. Residents are able to contribute to the city's goal of 45 percent tree canopy coverage, while also learning about native trees to the area and how to properly maintain their new tree with the city's support.^{lvi}



Green Bowie Logo (Source: City of Bowie)

City of Fairfax

The SPROUT Initiative engages members of the community to plant, take care of, and learn about trees that make up their urban forest. The program delivered 365 trees to residents and 320 trees were planted on public land. This culminated in 550 volunteer hours in non-native and invasive removal and tree planting with an additional 320 workforce development hours in the City Jobs Program. The initiative lowers the barrier to access information on the removal of invasive species and the planting and maintenance of native trees. It has also increased participation in the development of the Urban Forest Master Plan, which is focusing on creating community-focused goals and priorities.^{lvii}



A tree planting event with Providence ES Students (Source: City of Fairfax)

LOOKING AHEAD

Closing Remarks

In summary, the COG Board adopted the 2030 climate mitigation goals of 50 percent reduction in GHG emissions and 250,000 solar rooftops as well as a 50 percent tree canopy. The COG Board also established EVs as a priority. The 2030 CEAP and CCAP concur that clean energy and zero emission vehicles are the top two action areas that will help the region achieve the regional GHG emission reduction goal. That will require states to meet their renewable portfolio standards, advancing local deployment of renewables, and advancing clean cars standards. Each one of these goals and priorities will be a significant challenge to achieve and will need to continue to be the focus of climate action if the region is to achieve its GHG emission reduction goal. Meeting these goals will require exponential action and outcomes across all sectors.

There has been tremendous progress made in the region to support the reduction of GHG emissions. As of 2023, the region is still meeting the goal to reduce GHG emissions 20 percent by 2020. The electric grid continues to get cleaner, and the region continues to experience significant growth in green buildings and solar. However, additional action could be taken to advance zero energy buildings across the region. There has been exponential growth in EV ownership and the charging infrastructure that supports EV drivers. In addition, VMT per capita has decreased since 2005. Local jurisdictions are taking proactive action across sectors to support positive change and progress towards climate goals.

There are additional trends to continue to monitor and address. The significant increases in commercial energy consumption could impact the region's ability to meet its 2030 GHG emission reduction goals. Regional stakeholders are coordinating to build capacity and develop local policy options on high energy intensive industries, such as data centers. VMT, transit ridership, and waste diversion trends were all impacted by the 2020 COVID pandemic. Local governments and transit agencies continue to implement and expand measures to meet the shifting demand and need of commuters. While the regional waste diversion rate hasn't peaked above 50 percent, the industry was not only impacted by COVID, but the economy and lighter materials being recycled. This needs to be factored in as the waste diversion trends are considered. Finally, while tree canopy was maintained at 50 percent as of 2021, the rate at which the region has been losing tree canopy acreage may put the region under the 50 percent goal. The region is at the point where it needs a no net loss of trees moving forward, perhaps even needing a slight net gain.

In conclusion, there is still so much more climate action that needs to be done. The top priorities for regional climate action need to continue to be in the areas of advancing the deployment of renewables and electric vehicles between now and 2030. Bold action across all sectors will need to continue and expand to meet the region's 2030 goals. CEEPC has charted a path forward with the 2030 CEAP. Collaborative action will continue to deliver a cleaner future for all of us.

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