

METROPOLITAN WASHINGTON CLIMATE MITIGATION PLANNING

Multi-sectoral Greenhouse Gas Reduction Actions

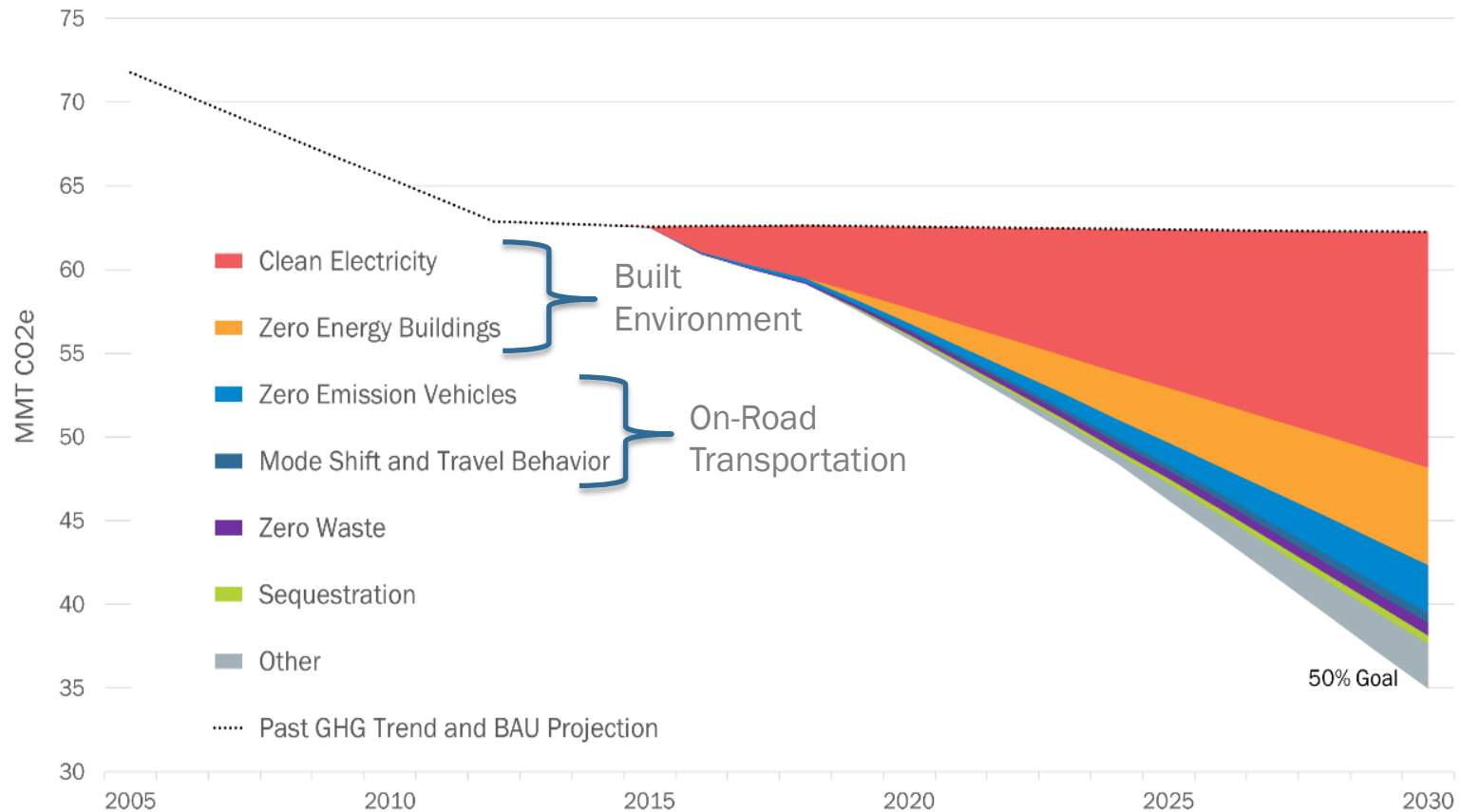
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Briefing Overview

- Regional Greenhouse gas (GHG) reduction goals
- Pathways to achieve 2030 GHG goal
- Most promising GHG reduction strategies
 - Built Environment
 - Transportation
 - Waste
 - Other
- Specific Actions to implement strategies

Regional 2030 Scenario



Built Environment – GHG Emissions

- Built environment GHG emission levels:*
 - 2005: 43.4 MMTCO₂e
 - 2018: 35.9 MMTCO₂e
 - 2030: 38.0 MMTCO₂e with no additional action (BAU)
 - 2030: 16.0 MMTCO₂e with action at levels to meet 50% goal
- Built environment actions are estimated to account for **73%** of avoided GHG emissions by 2030

**Built environment emissions include residential energy, commercial energy, and fugitive emissions.*

Built Environment Actions

Climate Action Area	Action ID	Priority Collaborative Action	Level of Implementation Needed by 2030
Clean Electricity	CE - 1	Advocate for Aggressive Renewable Portfolio Standards	Renewable energy % of overall grid mix: D.C. - 87%, MD - 50%, and VA - 35%
	CE - 2	Accelerate Development of On-Site Renewables	200,000 more rooftop solar systems, equivalent to 24% of single-family homes
	CE - 3	Accelerate Deployment of Battery Storage	10% of PV installations will need to be paired with battery storage
	CE - 4	Accelerate Development of Microgrids for Critical Infrastructure	Development of microgrids at critical facilities like schools and hospitals
	CE - 5	Accelerate Development of Large-Scale Off-Site Renewables	9.5% of total electricity supplied in the region will need to come from 100% renewable electricity
	CE - 6	Advocate for and Implement Community Choice Aggregation	



Built Environment Actions (continued)

Climate Action Area	Action ID	Priority Collaborative Action	Level of Implementation Needed by 2030
Zero Energy Buildings	ZEB - 1	Expand Building Benchmarking Requirements	117 million square feet of multi-family and commercial space will need to have been benchmarked
	ZEB - 2	Accelerate Deep Building Retrofits	Annually, 2% of all residential and commercial buildings will need to receive a deep retrofit
	ZEB - 3	Enhance Green Building Codes and Policies to Facilitate Net Zero Energy Building Development	All jurisdictions will need to implement building codes that require net zero energy standards in new construction by 2030
	ZEB - 4	Expand Proper Disposal and Leak Detection of Refrigerants	By 2030, refrigerant emissions will need to be reduced by 66%



Transportation – GHG Emissions

- Transportation GHG emission levels:*
 - 2005: 26.3 MMTCO₂e
 - 2018: 25.0 MMTCO₂e
 - 2030: 22.3 MMTCO₂e with no additional action (BAU)
 - 2030: 21.5 MMTCO₂e with action at levels to meet 50% goal
- On-road transportation actions are estimated to account for **13%** of avoided GHG emissions by 2030

**Transportation emissions include on-road, off-road, rail and air.*

On-Road Transportation Actions

Climate Action Area	Action ID	Priority Collaborative Action	Level of Implementation Needed by 2030
Zero Emission Vehicles	ZEV - 1	Expand Light-Duty Electric Vehicle Deployment	34% or 1.4 million vehicles will need to be battery electric (BEV) or plug-in hybrid-electric (PHEV)
	ZEV - 2	Accelerate Electrification of Medium- and Heavy-Duty Vehicles	7% of medium-duty, 6% of heavy-duty vehicles, 30% of buses will need to be BEVs or PHEVs
	ZEV - 3	Build Out Regional Electric Vehicle Charging Network	71,000 workplace level 2, 42,000 public level 2, and 7,600 DC fast chargers
Mode Shift and Travel Behavior	MSTB - 1	Invest in Infrastructure that Increases Transit, Carpooling, and Non-Motorized Travel	Improve transit travel times and reduce headway by 12.5%. Reduce transit fares by 22.5%.
	MSTB - 2	Bring Jobs and Housing Closer Together	75% of new housing must be developed in Activity Centers and near high capacity transit
	MSTB - 3	Enhance Options for Commuters	TDM strategy implementation, majority of employees receive monthly transit benefits

Waste Sector– GHG Emissions

- Waste GHG emission levels:*
 - 2005: 1.5 MMTCO₂e
 - 2018: 1.4 MMTCO₂e
 - 2030: 1.6 MMTCO₂e with no additional action (BAU)
 - 2030: 0.6 MMTCO₂e with action at levels to meet 50% goal
- Waste actions are estimated to account for **3%** of avoided GHG emissions by 2030

**Waste emissions include solid waste and wastewater.*

Waste Sector Actions

Climate Action Area	Action ID	Priority Collaborative Action	Level of Implementation Needed by 2030
Zero Waste	ZW - 1	Implement Curbside Organics Recycling Programs	Divert 80% of all materials from landfills and WTE facilities. Significant expansion of curbside composting, single-use plastics bans in most jurisdictions, and reuse of materials maximized are needed to meet 80% diversion goal.
	ZW - 2	Reduce Solid Waste Generation	
	ZW - 3	Build Markets for Circularity	



Sequestration And Other Actions

Climate Action Area	Action ID	Priority Collaborative Action	Level of Implementation Needed by 2030
Sequestration	SQ - 1	Strategically Plant New Trees on Publicly Owned Land	Increasing regional tree canopy cover 2.4% above 2012 levels by 2030
	SQ - 2	Enhance Regulatory Capacity to Manage Tree Canopy and Forest Protection	
	SQ - 3	Enhance Tree Planting and Preservation on Privately Owned Lands	
Other		Renewable Natural Gas (RNG)	>16% of gas supply comes from RNG
		Repair Gas Leaks	20% reduction in methane emissions
		Commercial Aviation Improvements	>16% reduction in CO ₂ emissions
		Non-Road Engine Emission Reduction	30% reduction in CO ₂ emissions

WHAT ACTIONS CAN THE REGION AND LOCAL JURISDICTIONS TAKE?



Clean Electricity

Advocate for Aggressive Renewable Portfolio Standards

- Continue to support strong state-level RPS and encourage REC markets.

Accelerate Development of On-Site Renewables

- Establish residential and commercial new construction ordinances or incentives that require the installation of solar or solar-ready construction to enable solar installation at a later date.
- Achieve and maintain EPA Green Power Partner status at government operations and community levels.

Accelerate Deployment of Battery Storage

- Advocate for utility-scale battery storage deployment.

Clean Electricity

Accelerate Development of Microgrids for Critical Infrastructure

- Assess feasibility of and implement microgrids at critical infrastructure.

Accelerate Development of Large-Scale Off-Site Renewables

- Establish power purchase agreements (PPAs) to provide clean electricity to local government facilities, potentially aggregating demand with other local jurisdictions or large local businesses to reduce cost.

Advocate for and Implement Community Choice Aggregation

- Advocate for State policy to support authorization of CCAs and reduce barriers to CCA adoption.

Zero Energy Buildings

Expand Building Benchmarking Requirement

- Develop and implement or expand community commercial and multifamily building benchmarking ordinances (applicable in MD, DC).
- Provide financial or development incentives (such as floor-to-area ratio, streamlined permitting, tax incentives, etc.) to buildings that agree to annual benchmarking (applicable in MD, VA, DC).

Accelerate Deep Building Retrofits

- Offer innovative energy financing solutions for residential or commercial sectors (e.g. green bank, PACE, loan loss reserves, etc.).
- Promote state and utility incentives and technical assistance for residential and commercial deep energy retrofits. Consider supplementing with local incentives.



Zero Energy Buildings (continued)

Enhance Green Building Code and Policies to Facilitate Net Zero Energy Building Development

- Include net zero energy goals and strategies in master, comprehensive, and small area plans.
- Adopt policy for all new local public facilities to be net zero energy.

Expand Proper Disposal and Leak Detection of Refrigerants

- Institute best practices in refrigerant management in government operations, including leak detection and monitoring, leak reporting, reporting and record keeping and retrofitting or retiring older systems.



Zero Emissions Vehicles

Light-Duty Electric Vehicle Deployment

- Transition fleets to zero emission vehicles. Adopt green fleet policy and plans or cooperative procurement for public fleets.

Electrification of Medium- and Heavy-Duty Vehicles

- Advocate for regional, state and national actions, mandates, or incentives to fund MHDV electrification.

Build Out Regional Electric Vehicle Charging Network

- Develop EV infrastructure plans for community deployment.
- Develop EV infrastructure strategy for the public fleet and deploy EV infrastructure at public facilities, garages, and refueling facilities.

Mode Shift and Travel Behavior: Select Regional and Local Actions

Increase Transit, Carpooling, and Non-Motorized Travel

- Coordinate to transform region's bus systems to an efficient, heavily-used, high-quality service.
- Enhance bicycle and pedestrian infrastructure and access to transit stations
- Complete the National Capital Trail Network to increase non-motorized transportation.

Bring Jobs and Housing Closer Together

- Local land use planning and zoning to allow more people to live closer to jobs.
- Achieve the regional housing targets that provide for additional housing units in Activity Centers and near high capacity transit, especially underused Metro stations.



Mode Shift and Travel Behavior: Select Regional and Local Actions

Enhance Options for Commuters

- Widespread transit benefits and increased teleworking for public and private sector employees.
- Discontinue free parking at employment sites within Activity Centers and near high capacity transit stations.

Zero Waste

Implement Curbside Organics Recycling Programs

- Implement composting programs.

Reduce Solid Waste Generation

- Implement single-use plastic and polystyrene bans.

Build Markets for Circularity

- Implement strategies and good practices for circular consumption.

Sequestration

Strategically Plant New Trees on Publicly Owned Land

- Maintain or improve community initiatives supporting tree management or planting.

Enhance Regulatory Capacity to Manage Tree Canopy and Forest Protection

- Calculate and establish tree canopy goals for major land use categories.
- Dedicate budget and staff time to manage tree planting and preservation initiatives.

Enhance Incentives and Funding Mechanisms for Tree Planting and Preservation on Privately Owned Lands

- Establish local tree planting and preservation incentives, funding mechanisms and policies.

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