National Capital Region

Climate Change Report

Prepared by the Climate Change Steering Committee for the Metropolitan Washington Council of Governments Board of Directors

July 9, 2008 Review Draft

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NATIONAL CAPITAL REGION

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1. Preface

The coming decades will likely be a time of rapid change and uncertainty with dramatic changes in cost of energy and in the environment. The Metropolitan Washington region's historical growth trends in housing, land use and energy have been disrupted by recent events such as the price of oil and the uncertainty of mortgage lending. Energy, climate and environmental concerns are having profound effects on the region by reshaping development preferences and goals for the types of uses and transit options that are desired by communities. Future economic growth will likely depend on finding reliable low-carbon alternatives to build a sustainable future.

The Metropolitan Washington region has unique advantages that enable it to respond rapidly to increasing energy prices and vagaries of economic cycles. In facing the challenges of energy and climate, the region's advantages include one of the best transit systems in the country, thoughtful and progressive governments that are able to coordinate strategic responses to rapidly changing conditions, a diversified economy, excellent airport and high speed rail hubs, and many viable communities and "activity centers" around the area that provide transit options for future growth.

The region faces serious challenges in the near term dealing with the economy, environment and energy prices. In the longer term, responding to the potentially dramatic impact of global climate change will present an enormous challenge. Early action is needed to avert the worst predicted impacts from climate change. The region needs to transition to a low-carbon future starting today. This report provides the regional framework to do so.

Looking Back and to the Future

On April 11, 2007, the Metropolitan Washington Council of Governments (COG) celebrated its 50th anniversary. As part of its 50th anniversary year, the COG Board of Directors examined the extraordinary changes that took place during the first half century of its existence and how COG grew up along with the region and helped shape its growing and vibrant communities.

The Board then set its sights on the next 50 years. It recognized that one profound force fundamental to defining the decades ahead is global climate change. The Board resolved that the region would become a leader in the growing national and international effort to combat this major challenge to the region's quality of life.

Thus on April 11, 2007, the Board adopted Resolution R31-07 (see Appendix A), creating a regional climate change initiative. In its resolution, the Board stated: "The failure to reduce greenhouse gases can undermine the quality of life in our region and its economic and environmental sustainability." The Board action called for creating a regional climate change program that would include developing a greenhouse gas inventory, setting regional goals and identifying best practices for reducing emissions, advocating policies at the federal and state levels, making recommendations on regional climate change policy, and recommending a governance structure to guide COG's efforts in the future.

By adopting R31-07, the metropolitan Washington region joined more than 28 states and 200 local governments that are taking actions to mitigate and prepare for climate change. The COG initiative was among a handful of regional climate action programs. With its focus on the National Capital Region, COG placed itself front and center on the national landscape of those taking leadership action on climate change.

Resolution R31-07 established a Climate Change Steering Committee to guide the initiative. The committee's initial work, which began in May 2007, focused on examining climate initiatives in Maryland, Virginia, and the District of Columbia, as well as among its twenty-one member local jurisdictions. Between May, 2007 and May, 2008 this work included:

- Reviewing the work of the Intergovernmental Panel on Climate Change, as well as local assessments of potential impacts in the mid-Atlantic region;
- Preparing a report cataloguing best practices and greenhouse gas reduction activities already underway in the region;
- Developing an inventory of greenhouse gas emissions, and forecasting the future level of emissions out to 2050 under a "business as usual" scenario;
- Evaluating a wide range of potential regional greenhouse gas reduction goals, and reaching consensus on an aggressive sequence of reduction targets starting in 2012;
- Examining state and federal legislation;
- Preparing advocacy positions primarily focused on enhancements to local and regional roles and resources to support local and regional initiatives;
- Endorsing the Cool Capital Challenge, a grassroots effort to jumpstart emission reductions in the region;
- Reviewing a wide range of measures to reduce greenhouse gas emissions;
- Framing a regional Climate Action Plan; and
- Recommending a governance structure to guide COG's efforts in the coming years.

This report reflects the work of the COG Climate Change Steering Committee during the past year. It presents recommendations for regional action by proposing broad goals, identifying actions that will begin to reduce regional greenhouse gas emissions, and it setting in place a process to implement the regional framework crafted in this document.

An overarching tenet of this report is the Climate Change Steering Committee's acceptance of the overwhelming evidence presented by the Intergovernmental Panel on Climate Change, U.S. National Academies of Science, National Center for Atmospheric Research, and others that the Earth is gradually warming and this warming trend is due in large part to human activities. The Committee also acknowledged the need for taking action now in an effort to avoid the potentially catastrophic consequences of climate change forecast for the middle and latter parts of this century. The committee was motivated not only by the need for action to address global climate change, but also by the growing body of evidence that adverse consequences are already taking place in our region.

While climate change concerns provided the foundation for the action plan recommended in this report, the committee also notes that many, if not virtually all, of the recommended actions will provide very significant benefits and will enhance the future of the region's quality of life, irrespective of whether the anticipated climate changes materialize as predicted, or whether the collective intervention of those in this region, across the United States, and elsewhere in the world ultimately produce the desired greenhouse gas mitigation benefits.

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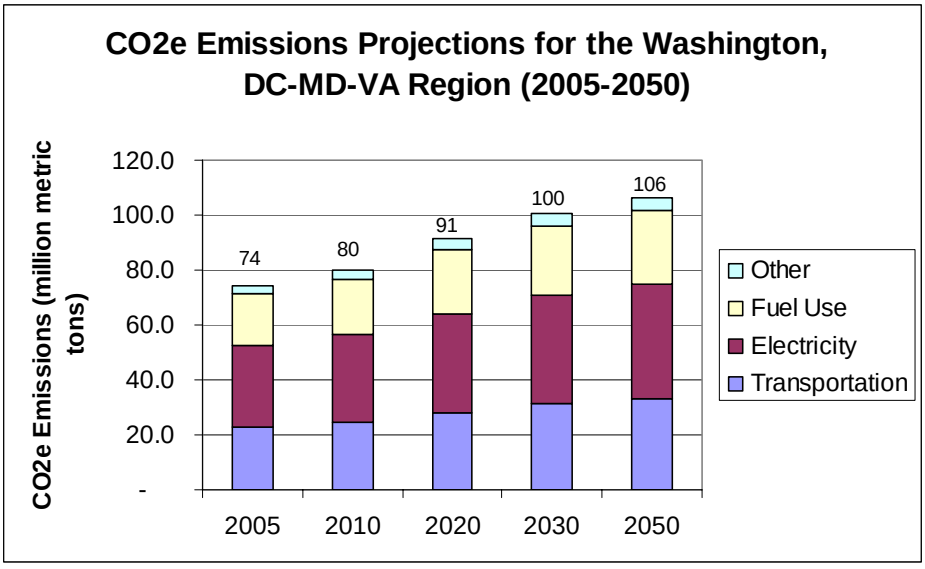
2. Executive Summary

Facing the Facts

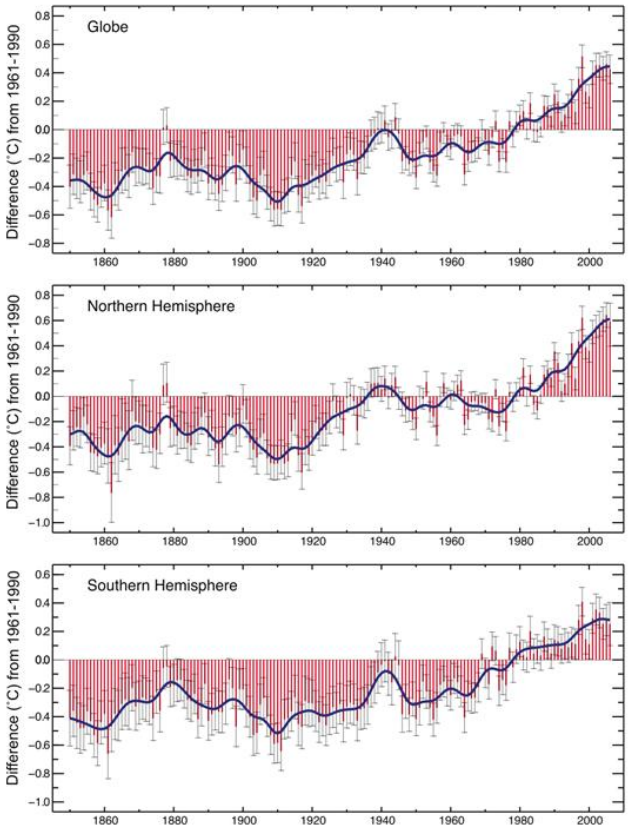
The Washington metropolitan region is growing. The Metropolitan Washington Council of Governments (COG) forecasts that between 2005 and 2030, the region will gain 1.6 million new residents and 1.2 million new jobs. The forecasts are based on historical growth patterns or "business as usual." The region's growth has been fueled by relatively inexpensive gasoline prices, encouraging development in outer suburbs and bringing more cars and traffic congestion to the region's roads. Population in the outer suburbs is predicted to experience the fastest growth, a 47 percent increase by 2030, compared to 18-20 percent in the regional core and inner suburbs (MWCOG 2007a). Based on current business-as-usual projections of growth in population, housing, employment, and energy use, total greenhouse gas emissions in the region will increase by 33 percent by 2030 and 43 percent by 2050. (see Figure ES-1)

Figure ES-1. Projected Growth in Regional Greenhouse Gas Emissions Under a Business As Usual Scenario



An enormous amount of energy is needed to fuel the region and the nation's economy and lifestyle. Industrial development and the spread of the automobile have created a strong, growing economy but the consequences are emissions that cause global warming. Global-warming is happening and leading to climate change that is accelerating faster than scientists anticipated as recently as three years ago (see Figure ES-2). The Intergovernmental Panel on Climate Change (IPCC) concludes "most of the observed increase in globally averaged temperatures since the mid-twentieth century is very likely due to the observed increase in anthropogenic (man-made) greenhouse gas concentrations." Scientists predict that irreversible changes in temperature and weather will occur by mid-century if current energy use, fuels and life-styles do not change. There is an urgent need to address the causes of global warming, as the costs of inaction are greater than the costs of mitigation and adaptation.

Figure ES-2. Global Temperature Trends



Observed Global Warming

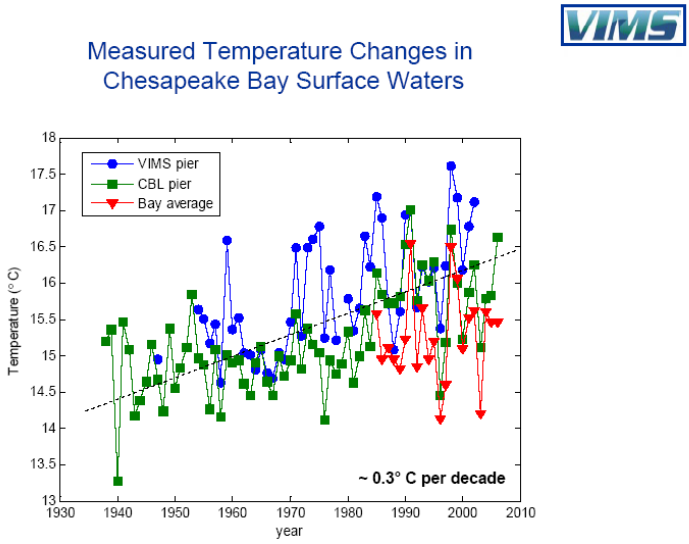
Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level

Global average warming in the past century is 0.74°C (1.3°F)

U.S. temperatures warmed during the 20th and into the 21st century; temperatures are now approximately 0.56°C (1.0°F) warmer than at the start of the 20th century, with an increased rate of warming over the past 30 years

The Metropolitan Washington Region is experiencing the effects of climate change with rising sea levels and a **warmer Chesapeake Bay;** more than 2°C (3.6°F) in the past 70 years (see Figure ES-3). With the warming, the Bay's ecosystems like submerged aquatic vegetation and oyster farming are adversely impacted. Changes in the climate will have significant effects on the region's natural environment, built environment, all sectors of the economy, and on residents of the region, their families, communities and workplaces.

Figure ES-3.



Taking Stock: Regional Inventory
Developing a greenhouse gas inventory is an important first step in reducing the region's contribution to global CO_2 levels. The inventory provides a basis for developing an action plan and setting goals and targets for future reductions, helps to identify the largest sources of greenhouse gases, enables tracking of trends over time, and documents the impacts of actions taken to reduce emissions.

In the base year, 2005, greenhouse gas emissions in the metropolitan Washington region totaled 74 million metric tons (MMt). As shown in Figure ES-1, the inventory includes emissions from electricity generation; on-road motor vehicle transportation; residential/commercial/industrial and commercial aviation fuel use; and other sources, including hydrofluorocarbons used as refrigerants and solvents, and methane from wastewater and landfills. In 2005 two sectors, transportation and electricity use, contributed more than 70 percent of regional CO_2 emissions.

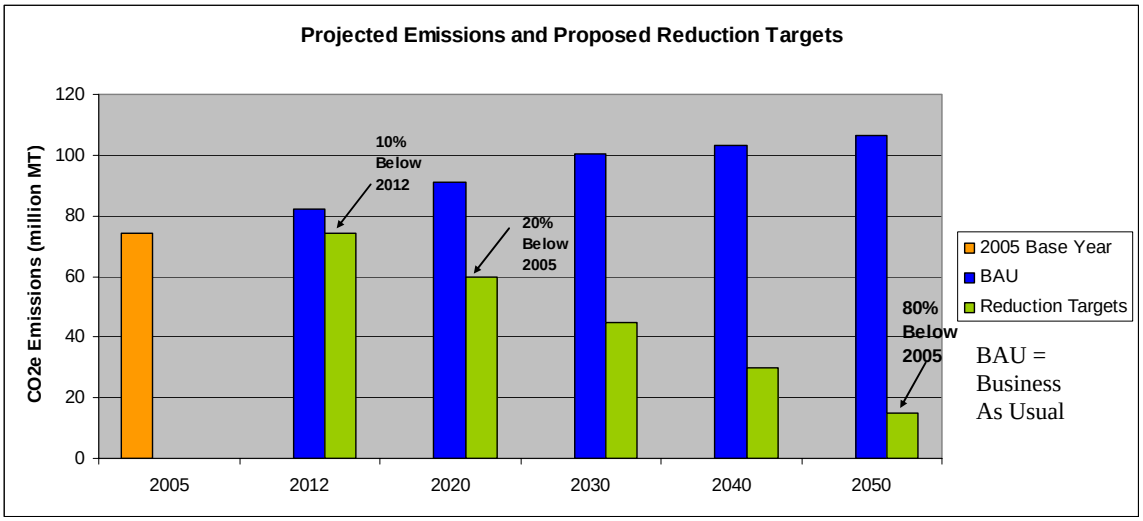
Projected Growth
Based on current business-as-usual (BAU) projections of growth in population, housing, employment, and energy use, ***total emissions from energy consumption (electricity and fuel use) in the region will increase by 35 percent by 2030 and 43 percent by 2050 and*** total emissions from ***transportation in the region will increase by 38 percent by 2030 and 47 percent by 2050 (see Figure ES-1).*** Energy consumption is 66 percent of the total inventory; transportation contributes 30 percent of the region's greenhouse gas emissions inventory.

The inventory projections do not account for the recently adopted federal CAFE and energy efficiency standards. The inventory also does not account for the 4.1 MMt of CO_2 emissions that are absorbed (or "sequestered") by the metropolitan area's 1.3 million acres of undeveloped forests and grassland. As development increases, these areas are expected to decline, reducing the region's overall capacity to absorb and temporarily store greenhouse gas emissions. Further research is needed to better project the anticipated loss of forest and grassland in the region.

Regional Targets
COG's Climate Change Steering Committee recommends establishing regional greenhouse gas reduction goals for three target years: 2012 to force early action, a medium-range goal (2020) to encourage expansion of recommended policies and programs, and a long-range goal (2050) to stimulate support for research into technologies and clean fuels needed to stabilize greenhouse gas emissions.

The goals are based on scientific evidence from the Intergovernmental Panel on Climate Change and are equivalent to similar goals adopted by jurisdictions in the Washington region. The recommended goals are to reduce greenhouse gas emissions 10% below business as usual by 2012; reduce 20% below 2005 levels by 2020; and reduce 80% below 2005 levels by 2050.

Figure ES-4. Comparison of Projected Regional Greenhouse Gas Emissions Under Business As Usual (BAU) and Proposed Emission Reduction Scenarios: 2005–2050



2012 Target: Reduce Business As Usual Emissions (BAU) by 10 Percent
Between 2005 and 2012, regional energy consumption and greenhouse gas emissions are expected to grow by about 10 percent under a Business As Ususal scenario. The goal is to stop projected growth in regional greenhouse gas emissions by achieving a 10 percent reduction in regional emissions between 2008 and 2012.

Strategy to Modify Energy-Consuming Behaviors
Changing the energy-consuming behavior of individuals, households and businesses offers a potentially significant gold mine for greenhouse gas reductions. Individuals and businesses can take simple measures to reduce energy consumed daily by driving, heating and cooling in the home and workplace, and disposing of trash. Opportunities for education and outreach efforts include persuading consumers to purchase more energy-efficient cars, appliances, and heating and air conditioning units, and to consider alternatives for commuting to work other than by driving alone, and increasing recycling. Many of the measures are relatively easy to achieve through incentives from utilities and local governments working together.

2020 Target: Reduce BAU Emissions by 20 Percent Below 2005 Levels
The Climate Change Steering Committee recommends an interim goal of 2020 to reduce emissions to 20 percent below 2005 levels. Some of the reduction will be achieved by a combination of federal, state, and local policies, such as the Energy Efficiency Act of 2007, the new federal CAFE standards, and regional cap-and-trade program for utilities, such as the Regional Greenhouse Gas Initiative (RGGI). To assess what would be involved in meeting the 2020 goal, the Climate Change Steering Committee prepared a preliminary analysis of current and potential future greenhouse gas reduction measures with an estimated reduction benefit by 2020. That reduction works out to be 55-57 percent of the quantity of reductions needed to reach the 2020 goal. The Committee believes that a plan for achieving the full reduction can be developed in the next 1-2 years.

2050 Target: Reduce BAU Emissions by 80 Percent Below 2005 Levels
An ambitious long-term goal of reducing emissions to 80 percent below 2005 levels by 2050 would present a challenge to the region and would place the region among national leaders calling for aggressive action to address climate change. Strategies to achieve the goal include energy efficiency and conservation; fuel switching and carbon capture and storage; renewable fuels and electricity/forest and soil storage, low-carbon vehicle technology; changes in development patterns in new and existing developments; and nuclear energy. All require a coordinated effort involving actions on the part of individuals, businesses, federal and state policy and regulations, academic research and development, and new technologies.

Cost of Meeting the Targets
McKinsey & Company and the Corporation Board (2007) studied the cost of measures to reach a 2030 goal. The most cost-effective options are improving the energy efficiency of buildings (e.g., lighting and heating, ventilation, and air conditioning systems) and appliances, and increasing the fuel efficiency of vehicles. Such investment in energy efficient technology can actually save consumers money. The most expensive options—but still less than $50 per metric ton of avoided emissions—involve shifting to less carbon-intensive energy sources, such as wind, solar, and nuclear power. The study concluded that the savings of these measures outweigh the costs, and the measures can significantly abate greenhouse gas emissions. A more intensive financial analysis of the specific measures identified in the report is recommended in the coming year.

Taking Action
Mitigating Emissions from Energy Consumption
The region has many advantages to help address the challenge of a changing climate. It has a good transit system, local governments have a history of working together to develop strategic response to changing conditions, the region has a diversified economy and serves as a hub for rail and air traffic. Reduced energy use provides significant regional benefits, such as enhanced quality of life, reduced energy expenses and less pollution in addition to reduced greenhouse gases. Rising to the challenge of transforming to a low-carbon economy will produce economic benefits for the region as well as helping to minimize the adverse impacts of changing climate.

COG's Climate Change Steering Committee recommends a number of measures to reduce regional carbon dioxide emissions, listed in Table ES-1. The Committee recommends reducing emissions from the energy sector, 66 percent of emissions in the region, by **improving energy efficiency**, **reducing demand for energy**, and **developing clean (alternative) energy sources**.

Mitigating Emissions from Transportation and Land Use
The Climate Change Steering Committee (CCSC) recommends reducing emissions from transportation (30%) by **reducing Vehicle Miles Traveled (VMT)**, **increasing fuel efficiency**, and **reducing the carbon content of fuel**. Changes to land use planning are recommended to reduce greenhouse gas emissions from future development. A list of recommendations for transportation and land use are given in Table ES-1.

Regional Economic Development
In the Washington region employment is projected to grow 39 percent by 2030. What types of jobs will be created in the next 20-25 years? Are we adequately training our workforce to assume these positions? The CCSC views environmental protection, greenhouse gas reduction, and green energy development as an opportunity to create new green jobs. The passage and expansion of renewable portfolio standards and increased purchases of renewable energy, plays an important role in stimulating the green economy and in creating new green jobs.

Preparing for the Impacts of Climate Change
The full scope of the impacts of climate change on the Washington region is yet to be analyzed. Risks and costs are critical to any set of decisions that will require an investment of substantial resources. That said, it's not too early for the region to begin a systematic investigation of high-priority program areas and initiate early planning. The state of Maryland has been actively addressing adaptation priorities and opportunities, but so far has focused mainly on coastal areas, which are particularly vulnerable. Virginia has also begun to assess the potential damage climate change could have on its coastal areas, agriculture and recreational resources.

Local governments and waste and wastewater utilities in the region are taking actions to adapt to the potential risks of climate change. CCSC recommends the region analyze changes and risks to the region's transportation infrastructure, buildings and population living in low-lying areas. Regional adaptation policies need to be developed for regional emergency response planning.

Financing Mechanisms
Local greenhouse gas reduction actions can help the region stabilize energy demand, diversify energy supply, lower utility bills, improve air quality, create more walkable community designs, and provide the region the chance to develop our impressive transit system, green collar workforce, and green building and technology base.

There are several ways area governments can cover the costs associated with climate change activities, such as paying for energy efficiency improvements through the use of energy performance contracting and using economies of scale through cooperative purchasing. Proceeds from federal energy block grants and proposed cap and trade legislation are also going to be essential for assisting the region to meet its greenhouse gas reduction goals.

Outreach and Education
The Climate Change Steering Committee (CCSC) believes that education and outreach is critical to meeting the region's target reduction goals. Developing a regional public education campaign to promote individual and institutional efforts to reduce greenhouse gases in the region is essential. Individual and institutional actions to achieve regional reduction goals include improved energy efficiency in buildings and residences, purchase of energy efficient appliances, driving less (public transit, bike, walk), recycling, and using less water. CCSC recommends developing partnerships with the private sector and other organizations such as ICLEI, Cool Counties, Cool Cities, and Climate Communities to achieve outreach goals.

Next Steps: COG Climate Change Initiative

Proposed Governance Structure for Ongoing COG Climate Change Initiative

The committee concludes that creation of a permanent COG Climate Change initiative is essential given the long-term nature of this challenge. To provide oversight and direction for the initiative, a COG Board **Climate and Energy Policy Committee** should be established with a broad membership from COG elected officials. State and federal agencies, and business and other key stakeholders should be requested to participate in this new committee.

Next Steps

The recommendations contained in this report fall broadly into several categories. Certain recommendations, such as the regional greenhouse gas emission reduction goals, are quantitative and time-specific. A significant number of the recommendations set the direction for regional policy, but require further analysis to support a definitive and quantifiable proposal, for example, setting a regional green power purchase goal, or a regional vehicle miles of travel (VMT) reduction goal. Other recommendations reflect policy principles to guide the region and COG's members as the climate change program moves forward.

To help define the work program in the coming year and beyond, the committee has developed the following matrix (Table ES-1) that contains, classifies, and analyzes all of the recommendations included in this report. The matrix provides a sense of timing, with many of the initiatives listed as having an immediate time frame. The initiatives identified as immediate necessarily will be the focus in the next year.

Partnership with regional stakeholders will be essential to carrying out most of the recommendations. In the next year CCSC recommends that COG develop detailed plans to achieve the reduction goals as well as to track progress toward the goals.

Table ES-1. Recommendations: Summary and Preliminary Assessment

Recommendations	Emission Impact	Implementation Timing	Cost	Economic Co-Benefits	Potential Partners
I. Regl GHG Reduction Goals					
1. 2012: Reduce 10% by 2012	Medium	Immediate	Low	Medium-High	COG Members, Fleet, Energy, and Building Managers, General Public, Board of Trade, Procurement Officers
2. 2020: Reduce 20% below 2005	High	Midrange-Long Term	Low-Medium	Medium-High	COG Members, Federal Government, Board of Trade, WMATA, MWAA, Procurement Officers
3. 2050: Reduce 80% below 2005	High	Midrange-Long Term	Medium-High	Medium-High	All
II. Energy					
1. Regional green building policy	High	Immediate-Midrange	Varies	Medium-High	COG Members, IGBG, Facilities Managers, GSA, USGBC
2. Energy performance goals for public buildings	High	Immediate-Midrange	Varies	Medium-High	COG Members, IGBG, Facilities Managers
3. Incentives/outreach to improve private building efficiency	High	Immediate-Midrange	Varies	Medium-High	COG Members, IGBG, Facilities Managers, GSA, USGBC
4. Identify best practices for private buildings, improve efficiency	High	Immediate-Midrange	Varies	Medium-High	COG Members, IGBG, Facilities Managers, GSA, USGBC
5. Green affordable housing policies/programs	Medium-High	Immediate-Midrange	Varies	Medium-High	COG Members, IGBG, Facilities Managers, Housing Directors, MDPC, Planning Directors, GSA, USGBC
6. Energy conservation and efficiency goals, plan	Medium-High	Immediate-Midrange	Low-Medium	High	COG Members, Energy Advisory Committee, State Energy Offices, Utilities, Universities, Businesses, General Public, ACEEE
7. Home weatherization program, energy audits, retrofits	Medium-High	Immediate-Midrange	Low-Medium	High	COG Members, Utilities, State Energy Offices
8. Best practices to reduce methane, use biosolids	Medium-High	Midrange-Long Term	Medium-High	Medium-High	COG Members, Wastewater Treatment Facilities, Landfills, EPA
9. Identify best practices for local govt, reduce 15%	Medium-High	Immediate-Midrange	Low-Medium	High	COG Members, Energy Advisory Committee, State Energy Offices, Utilities, Universities, Businesses, General Public, ACEEE
10. Energy Use: Energy Star goals for new buildings	Medium-High	Immediate-Midrange	Low-Medium	High	COG Members, EPA, Energy Advisory Committee, Board of Trade, AIA, Trade Asscns
11. Green Power: utilization goals	Medium-High	Immediate-Midrange	Medium-High	Medium	COG Members, EPA Green Power Partnership, Energy Managers, Utilities, Procument Officers
12. Green Power: regional cooperative purchase	Low-Medium	Immediate-Midrange	Medium-High	Medium	COG Members, Energy Advisory Committee, Energy Managers, Utilities, Procument Officers
13. Regional street lighting analysis	Low-Medium	Immediate	Medium-High	Medium	COG Members, Energy Managers, Utilities, Board of Trade, Private Sector
14. Regional energy performance contracting	Low-Medium	Immediate-Midrange	Medium-High	Medium	COG Members, Energy Managers, State Energy Offices, Utilities, Private Sector
15. Long term goal: carbon neutrality for public buildings	High	Long-Term	Varies	Medium	COG Members, IGBG, Facilities Managers, USGBC, AIA
16. Recycling programs	Low-Medium	Immediate-Midrange	Varies	High	COG Members, Recycling Committee
17. Partnership programs	Medium-High	Immediate-Midrange	Low-Medium	Medium-High	COG Members, EPA Energy Star, USGBC, Board of Trade, Utilities
18. Promote 20% RPS, including imports	High	Immediate-Midrange	Medium-High	Medium	COG Members, Energy Advisory Committee, Energy Managers, Utilities, State Energy Offices
19. RGGI - Expand to DC & VA	Medium-High	Immediate-Midrange	Medium-High	Low-Medium	Virginia, DC, Maryland, RGGI States
20. RGGI funds for efficiency and renewables	Medium-High	Immediate-Midrange	Low-Medium	High	COG Members, Maryland, RGGI States

Table ES-1. Recommendations: Summary and Preliminary Assessment

Recommendations	Emission Impact	Implementation Timing	Cost	Economic Co-Benefits	Potential Partners
III. Transportation and Land Use					
1. Promote adoption of clean vehicles, including CAL LEV II	High	Immediate-Midrange	Medium-High	High	COG Members, State Legislature, Fleet Managers, Auto Manufacturers
2. Provide incentives for early vehicle retirement	Low-Medium	Immediate-Midrange	Medium-High	Low-Medium	COG Members, Local and State Govt, Auto Dealers
3. Green fleet policy	Medium-High	Immediate-Midrange	Medium-High	Medium-High	COG Members,
4. Traffic engineering and roadway improvements	Low-Medium	Midrange-Long Term	Varies	High	COG Members, DOTs, TPB
5. Anti-idling initiatives: rules and enforcement	Low-Medium	Immediate	Low-Medium	Low-Medium	COG Members, Local Govt, Police
6. VMT Reduction: goals	Medium-High	Midrange-Long Term	Medium-High	Low-Medium	COG Members, TPB, DOTs, Local Govt, Transit Authorities
7. VMT Reduction: shift short trips	Low-Medium	Immediate-Midrange	Low	Medium-High	COG Members, Local Govt, Transit Authorities, Commuter Connections
8. VMT Reduction: financial incentives	Low-Medium	Immediate-Midrange	Medium-High	Low	COG Members, State and Local Govt
9. VMT Reduction: car sharing	Low-Medium	Immediate-Midrange	Medium-High	Low-Medium	COG Members, Local Govt, Zipcar, Flexcar
10. VMT Reduction: parking policies	Low-Medium	Immediate-Midrange	Medium-High	Low-Medium	COG Members, State and Local Govt
11. VMT Reduction: financial and other incentives	Low-Medium	Immediate-Midrange	Medium-High	Medium-High	COG Members, State and Local Govt, Private Sector
12. Develop conformity process for GHGs	Medium-High	Midrange-Long Term	Medium-High	Low	COG Members, TPB, DOTs
13. Stated goal of GHG reduction in transportation planning	Medium-High	Midrange-Long Term	Medium-High	Low	COG Members, TPB, MDPC, DOTs, WMATA
14. Direct development to activity centers	Low-Medium	Midrange-Long Term	Varies	High	COG Members, Planning Directors, MDPC, TPB, Board of Trade, DOTs, WMATA
15. Expand transit infrastructure and use	Medium-High	Midrange-Long Term	Medium-High	Medium-High	COG Members, Transit Authorities, TPB, DOT
16. Alternative Modes: exclusive transit routes	Low-Medium	Midrange-Long Term	Medium-High	Medium-High	COG Members, TPB, DOTs, State and Federal Govt, Transit Authorities
17. Alternative Modes: promote increase transit use	Low-Medium	Immediate-Midrange	Low-Medium	Medium-High	COG Members, Commuter Connections, TPB, DOTs, Local Govt, Transit Authorities
18. Targets for shifting modes	Low-Medium	Midrange-Long Term	Medium-High	Medium-High	COG Members, Private Sector
19. Alternative Modes: enhance access	Low-Medium	Immediate-Midrange	Medium-High	Medium-High	COG Members, TPB, DOTs, Local Govt, Transit Authorities
20. Travel management plan for new developments	Medium	Midrange-Long Term	Low-Medium	Low-Medium	COG Members, Private Sector, Planning Directors, MDPC
21. Equalize transit and parking benefits	Low	Immediate-Midrange	Low	Low	COG Members, State and Local Govt
22. Bicycle/pedestrian programs	Low-Medium	Immediate-Midrange	Medium-High	Medium-High	COG Members, TPB, DOTs, Local Govt, WMATA
23. Land Use Planning: Tree canopy preservation	Low-Medium	Midrange-Long Term	Low-Medium	High	COG Members, State and Local Forestry Agencies, U.S. Forest Service, Casey Trees, Center for Chesapeake Communities
24. Land Use Planning: Promote location & design of new development around regional activity centers	Medium-High	Immediate-Midrange	Low-Medium	High	COG Members, Local Planning Agencies, Local Developers, Greater Washington 2050
25. Land Use Planning: Promote walkable communities and affordable housing near transit	Medium-High	Midrange-Long Term	Medium	High	COG Members, MDPC, Planning Directors, Local Planning Agencies, Local Developers, WMATA
26. Evaluate LEED-ND Standards	Medium-High	Immediate-Midrange	Medium	Varies	COG Members, Planning Directors, MDPC, TPB, Board of Trade, DOTs, WMATA
27. Comprehensive Planning: best practices	Low-Medium	Immediate-Midrange	Low-Medium	Medium-High	COG Members, MDPC, Planning Directors, Local Planning Agencies, Local Developers
28. Comprehensive Planning: environmental review	Low-Medium	Immediate-Midrange	Low-Medium	Low-Medium	COG Members, MDPC, Planning Directors, Local Planning Agencies, Local Developers

Table ES-1. Recommendations: Summary and Preliminary Assessment

Recommendations	Emission Impact	Implementation Timing	Cost	Economic Co-Benefits	Potential Partners
IV. Economic Development					
1. Promote green business & green jobs	Low	Immediate-Midrange	Medium-High	Medium-High	COG Members, Board of Trade, Universities, Sustainable Business Alliance
2. Promote eco-business or green business zones	Low	Immediate-Midrange	Medium-High	Medium-High	COG Members, Board of Trade, Universities
3. Promote cooperative green purchasing	Low-Medium	Immediate-Midrange	Low-Medium	Medium-High	COG Members, Procurement Officers, Board of Trade
4. Promote local food production options	Low-Medium	Immediate-Midrange	Low-Medium	Medium-High	COG Members, State and Local Govt, Farmer's Cooperatives, Regional Agricultural Workgroup, Community Supported Agriculture, Freshfarm Markets
5. Promote local vendors and suppliers	Low-Medium	Immediate-Midrange	Low-Medium	Medium-High	COG Members, State and Local Govt, Farmer's Cooperatives, Economic Development Authorities
6. Regional green jobs analysis	Low	Immediate	Low-Medium	Medium-High	COG Members, Board of Trade, Universities, Sustainable Business Alliance
V. Adaptation					
1. Partner w/ university to develop 2050 Impacts Report	Low	Immediate-Midrange	Medium	Medium	COG Members, University of Maryland, NOAA
2. Develop adaptation policies based on report	Low	Midrange-Long Term	Medium	Medium	COG Members, Utilities, Private Sector, State and Federal Govt.
3. Conduct regional adaptation workshops	Low-Medium	Midrange-Long Term	Medium	Medium	COG Members, University of Maryland, NOAA
VI. Financing					
1. Evaluate financing mechanisms for GHG reduction & Energy Efficiency Projects	Medium-High	Immediate-Midrange	Low-Medium	High	COG Members, Chicago Climate Exchange, MD Strategic Energy Fund, Block Grants, Energy Efficiency Partnership of Greater Washington
2. Regional offset fund for tree canopy enhancement	Medium	Immediate-Midrange	Medium	Medium	COG Members, State and Local Forestry Agencies, U.S. Forest Service, Casey Trees, Center for Chesapeake Communities
3. Identify funding for transit	Medium-High	Immediate-Midrange	High	High	COG Members, State and Federal Govt, WMATA
4. Identify funding for building retrofits	Medium-High	Immediate-Midrange	High	High	COG Members, State and Federal Govt, ESCOs
VII. Outreach & Education					
1. Citizen Outreach Campaign	Medium-High	Immediate-Midrange	Medium-High	Low-Medium	COG Members, Clean Air Partners, Commuter Connections, Wise Water, Recycling Committee, IGBG
2. Develop partnerships w/private sector & others	Medium-High	Immediate-Midrange	Medium-High	Low-Medium	COG Members, Board of Trade, Federal Government, WMATA, MWAA, Cool Capitol Challenge
3. COG member outreach (assistance)	Low-Medium	Immediate-Midrange	Low-Medium	Low-Medium	COG Members, Cool Capitol Challenge, EPA, ICLEI, Sierra Club
4. Recognition program	Low-Medium	Immediate-Midrange	Low-Medium	Low-Medium	COG Members, EPA, ICLEI, US Conference of Mayors
5. COG Climate Change website	Low-Medium	Immediate	Low-Medium	Low-Medium	COG Members, ICLEI, EPA

Table ES-1. Recommendations: Summary and Preliminary Assessment

Recommendations	Emission Impact	Implementation Timing	Cost	Economic Co-Benefits	Potential Partners
VIII. COG Climate Change Program					
1. Establish the COG Climate and Energy Policy Committee	-	Immediate	Low-Medium	-	COG Members, State/Local Govt
2. Identify work program priorities, products and timetables	-	Immediate	Low-Medium	-	COG Members, State/Local Govt
3. Design outreach and education program	-	Immediate	Low-Medium	-	COG Members, State/Local Govt
4. Develop advocacy positions for federal and state legislation	-	Immediate	Low-Medium	-	COG Members, State/Local Govt
5. Evaluate recommended greenhouse gas reduction measures for cost effectiveness	-	Immediate	Low-Medium	-	COG Members, State/Local Govt
6. Identify regional goals for recommended greenhouse gas reduction measures	-	Immediate	Low-Medium	-	COG Members, State/Local Govt
7. Prepare plan to reach 2012 goal	-	Immediate	Low-Medium	-	COG Members, State/Local Govt
8. Develop system for tracking progress toward greenhouse gas reduction goals	-	Immediate	Low-Medium	-	COG Members, State/Local Govt
9. Seek additional resources such as in-kind contributions from stakeholders, partners, consultants	-	Immediate-Midrange	Low-Medium	-	COG Members, Greater Washington Board of Trade, EPA, DOE
9. Seek additional funding from foundations, grants to support selected work program elements	-	Immediate-Midrange	Low-Medium	-	COG Members, Foundations

Key:

Timing:
Immediate - Now to June 2009.
Midrange - 1-3 years.
Longterm -More than 3 years.

Emission Impact:
Low - Minimal emission reduction expected.
Medium - Some emission reduction anticipated.
High - Significant emission reduction anticipated.

Cost:
Low - Relatively low cost.
Medium - Moderate financial costs.
High - Expensive option to implement.

Economic Co-Benefits:
Low - Action will have limited impact on other areas of the economy.
Medium - Some economic synergies are anticipated.
High - Significant enhancement to the economy or sector are possible.