Interim Findings from the Multi-Sector Working Group

Greenhouse Gas Reduction Strategies in the Metropolitan Washington Region

Presentation to the Transportation Planning Board

September 16, 2015

Charge Given To Multi-Sector Working Group (MSWG)

TPB and MWAQC affirmed the region's greenhouse reduction goals and committed staff and resources to support a multi-sector, multi-disciplinary professional working group convened by COG to:

- **Identify viable, implementable local, regional, and state actions to reduce GHG emissions in four sectors (Energy, the Built Environment, Land Use, and Transportation)**
- **Quantify the benefits, costs and implementation timeframes of these actions;**
- Explore specific GHG emission reduction targets in each of the four sectors; and
- Jointly develop an action plan for the region

MSWG Organization and Oversight

Transportation Planning Board (TPB)

COG Board of Directors

Climate, Energy & Environment Policy Committee (CEEPC)

Metropolitan Washington Air Quality Committee (MWAQC)

Multi-Sector Working Group

(Local Jurisdiction, Regional & State Agency Staff)

Energy/Environment Subgroup – Energy & Built Environment Sectors

Planning Subgroup – Land Use Sector

Transportation Subgroup – Transportation Sector

COG/TPB Committee Input

Region Forward Coalition
Planning Directors
TPB Technical Subcommittee
Built Environment Energy Advisory Committee (BEEAC)
MWAQC – Technical Advisory Committee

Additional Input from

Subject Matter Experts
Citizen Advisory Committees
General Public

COG Staff Support

Consultant Support

MSWG Process

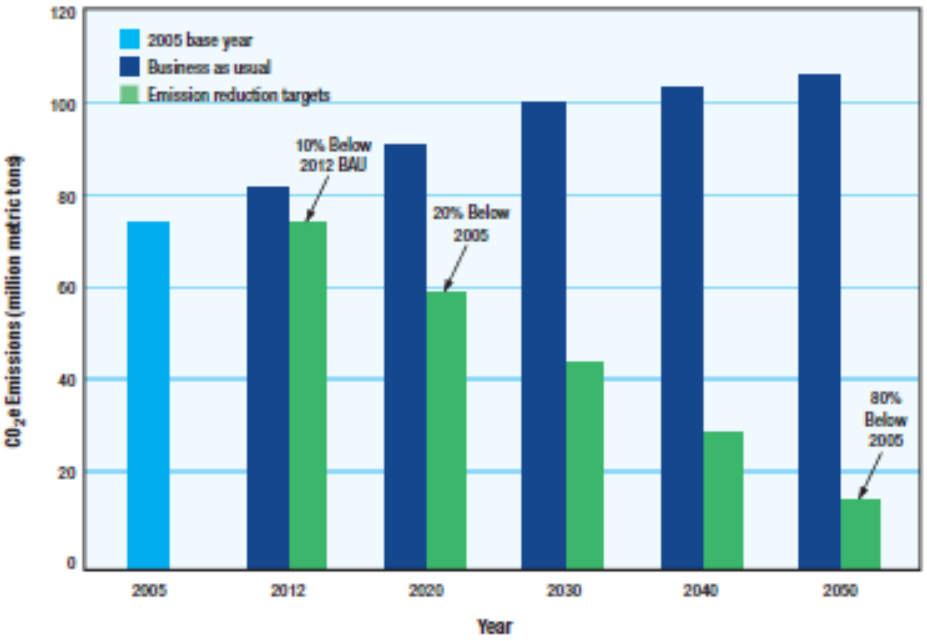
- **Subgroups identified "viable" and "stretch" strategies**
  - Viable – strategies assumed implementable by 2040
  - Stretch – strategies that "push the envelope" of implementation
- **Public comments solicited**
- **MSWG recommended strategies for detailed analysis**
- **Consultant team performed analysis of strategies for 2020, 2040, and 2050**
  - GHG reductions, co-benefits, cost range, and implementation elements
- **Results reviewed by subgroups and MSWG**
- **Staff presents interim findings to TPB, MWAQC, CEEPC, and COG Board**

Region's Voluntary GHG Reduction Goals

2005 - Baseline Emissions (74.5 MMT)

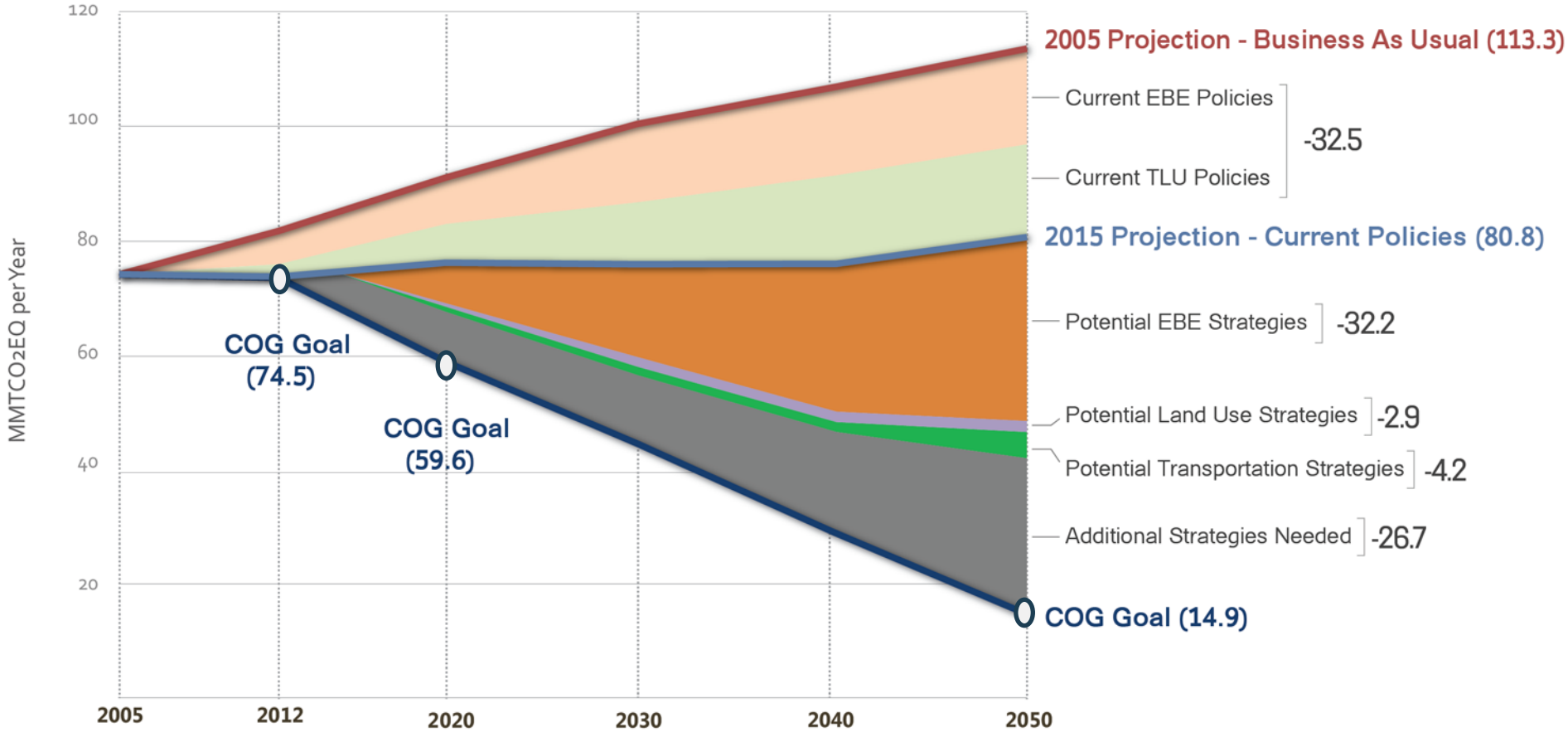
- **2012 – Reduce BAU emissions by 10%, to 2005 levels (74.5 MMT)**
- **2020 – Reduce emissions to 20% below 2005 levels (59.6 MMT)**
- **2050 – Reduce emissions to 80% below 2005 levels (14.9 MMT)**

COG Greenhouse Gas Reduction Goals



Notes:
1. The goals were adopted by the COG Board in November 2008
2. MMT = Million Metric Tons of CO2 Equivalent (CO2e)

Moving Towards COG's GHG Reduction Goals



EBE = Energy and Built Environment
TLU = Transportation and Land Use

Land use strategies include carbon sequestration from tree canopy strategy

Current Policies are Making a Difference – 33% towards 2050 goal

Energy

- Improved electric generation GHG emission rate
- Distributed solar system installations
- EPA Green Power Partners
- Renewable energy production tax credits
- Renewable Portfolio Standards

Built Environment

- More stringent building codes for energy efficiency
- Net-zero energy buildings
- Efficiency improvements in government facilities and operations
- Commercial building Energy STAR and LEED implementation

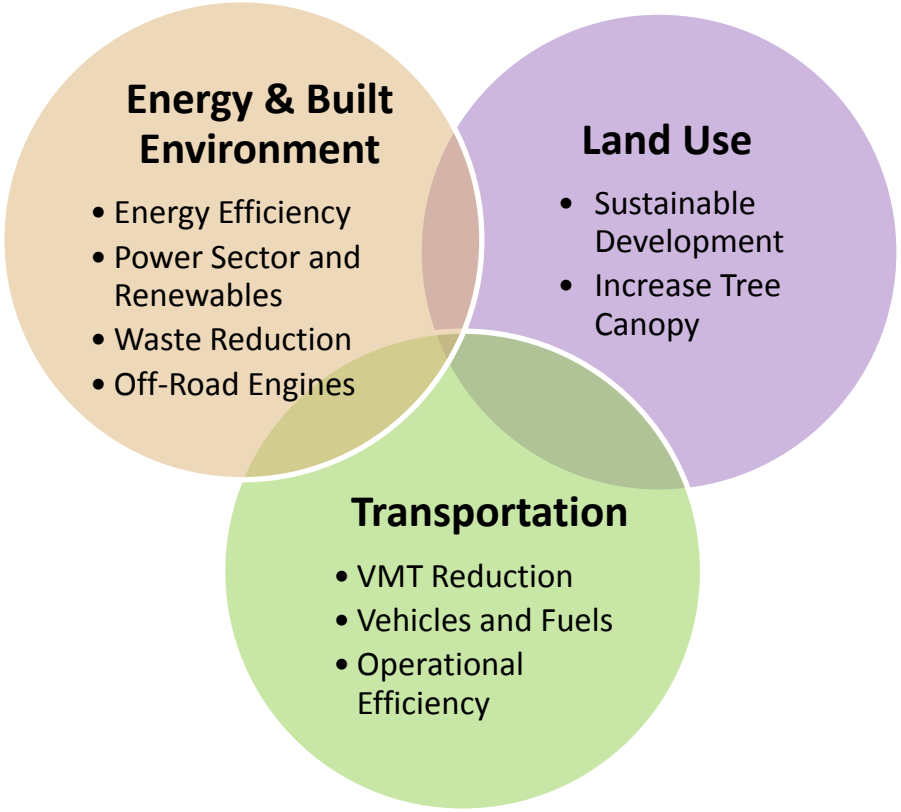
Land Use

- Focusing more of the region's future growth in walkable, mixed use, transit oriented centers

Transportation

- Transportation investments (CLRP and TIP) to support land use plans and provide more multimodal travel options
- Increased federal fuel economy standards for light-duty vehicles
- Federal fuel efficiency standards for medium- and heavy-duty vehicles

Potential Strategies for Additional Reductions



- Twenty one strategies, selected by MSWG, were analyzed at viable and stretch levels
- In addition, a public education & community engagement strategy was included to support implementation of strategies in all sectors

Key Energy and Built Environment Strategies

Energy efficiency strategies for existing and new buildings
(15 to 17.7 MMT reduction potential - 15% to 18% towards 2050 goal)

- Viable: 2% annual reduction in energy and water use in existing buildings; stringent energy code enforcement; WaterSense in all new buildings; 50% Net Zero energy in new buildings
- Stretch: 100% Net Zero energy in new buildings
- Significant Co-Benefits: Additional Reductions in air pollution, cost savings, local job growth and improved occupant comfort, health and safety
- Costs: Efficiency – Low incremental; Net Zero - Medium

Key Energy and Built Environment Strategies

Power sector and renewable energy strategies

(10.0 to 13.6 MMT reduction potential - 10% to 14% towards 2050 goal)

- Viable: Meeting clean power plan and increased renewable portfolio/solar standards
- Stretch: Additional carbon-free power supplies such as nuclear or off-shore wind
- Significant Co-Benefits: Additional reductions in air pollution, and job growth
- Costs: Medium to High

Key Land Use Strategies

Concentrate more of the region's anticipated growth in walkable, mixed-use, transit-oriented activity centers
(1.5 to 1.9 MMT reduction potential - about 2% towards 2050 goal)

- Viable: Future growth within each jurisdiction is concentrated in: 1) Activity Centers with premium transit; 2) other locations with premium transit; or 3) other Activity Centers without premium transit
- Stretch: Regional job-housing imbalances are addressed by shifting future growth across jurisdictional boundaries, and then concentrated as described as above
- Significant Co-Benefits: Additional reductions in air pollution, increased accessibility, reduced stormwater run-off and pedestrian-oriented community amenities
- Costs: Complex trade-off between cost and savings, but overall reductions in per-capita infrastructure and service costs should out-weigh other costs. Greater investments in transit would be required

Key Land Use Strategies

Reduce the loss of natural land cover and expand the region's tree canopy
(0.8 to 1.0 MMT reduction potential – about 1% towards 2050 goal)

- Viable: Concentrate development in Activity Centers; reforestation; natural landscaping
- Stretch: Further concentrate development in Activity Centers and expand tree canopy by 5%
- Significant Co-Benefits: Reduced stormwater run-off , increased resiliency, reduced urban heat island effect, and urban area amenities
- Costs: Low incremental costs

Key Transportation Strategies

Vehicle and fuels strategies
(1.7 to 3.5 MMT reduction potential - 2% to 4% towards 2050 goal)

- Viable: 15% zero emissions vehicles (e.g. EVs) in on-road light-duty fleet (LDV) and public sector heavy-duty fleet (PSHD); reduce on-road fuel emissions by 10% by reducing carbon content of fuel
- Stretch: 25% zero emissions vehicles (e.g. EVs) in on-road LDV fleet and PSHD; reduce on-road fuel emissions by 15% by reducing carbon content of fuel
- Significant Co-Benefits: Additional reductions in air pollution from criteria pollutants
- Costs: Medium

Key Transportation Strategies

Travel demand management, transit, and pricing strategies
(0.4 to 1.60 MMT reduction potential - <1% to 2% towards 2050 goal)

- Viable: $50/month subsidy for 80% of employers; increased parking charges in 90% of Activity Centers; $5 cordon pricing entering downtown DC; reduce transit fares by 25% regionally
- Stretch: $80/month subsidy for 100% of employers; increased of parking charges in 100% of Activity Centers; $5 cordon pricing entering downtown DC; $0.10/mile VMT charge; reduce transit fares by 40% regionally
- Significant Co-Benefits: Additional reductions in air pollution, congestion reduction, and safety
- Costs: TDM - Low; Transit - High; Road pricing - Medium

Additional Measures for 2050 Goal

27 to 38 MMTCO$_2$e GHG emission reductions (27% to 39% from 2050 BAU projections) still needed to achieve COG's 2050 goal

Additional measures may include

- More aggressive local strategies such as increased financial support for efficiency, renewables, and transit strategies
- Technology improvements
- New fuel efficiency standards for medium and heavy-duty vehicles and engines
- New Natural Gas Pipeline Rule
- New DOE energy efficiency standards for buildings, appliances and equipment
- Increased fuel taxes / carbon tax
- Reduction in commercial aviation GHG emissions
- Faster deployment of zero emission vehicles
- Expanded use of biofuels
- Decarbonize power sector and carbon capture and storage; more nuclear power; improvements to solar; offshore wind power
- Lifecycle GHG reductions from products

Key Interim Findings

- Current policies will slow the growth of GHG emissions to 10% above 2005 levels while accommodating a 48% increase in population
- The region has the potential to reduce emissions between 29 to 39 MMT (29% to 40%) by pursuing multiple strategies across sectors, but state and local action is required
- The region will need an additional 27 to 38 MMT (27% to 39%) of GHG reductions to achieve its goal
  - Achieving this goal will require additional measures – federal, state and local

Next Steps

September – October 2015

- Review of Interim Report findings by TPB, MWAQC, CEEPC and COG Board
- Exploration of potential goals and targets by sector

November – December 2015

- Draft Final Report including exploration of goals and targets prepared by consultant and reviewed by TPB, MWAQC, CEEPC

January 2016

- Final Report to COG Board
- Begin development of Action Plan