



# 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

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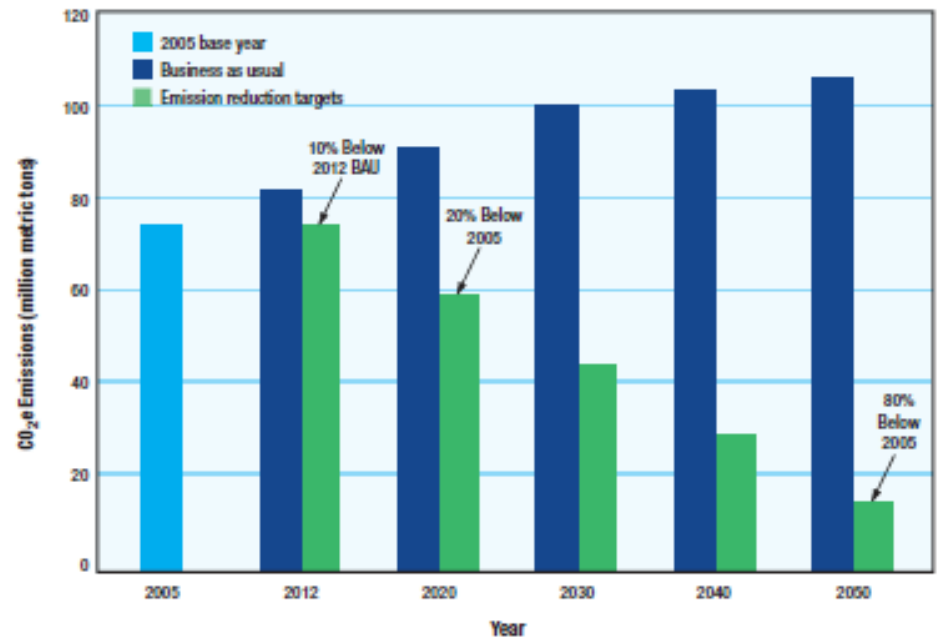
- **Subgroups identified “viable” and “stretch” strategies**
  - Viable – strategies assumed implementable by 2040
  - Stretch – strategies that “push the envelope” of implementation
- **Public comments solicited**
- **MSWG recommended strategies for detailed analysis**
- **Consultant team performed 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)**

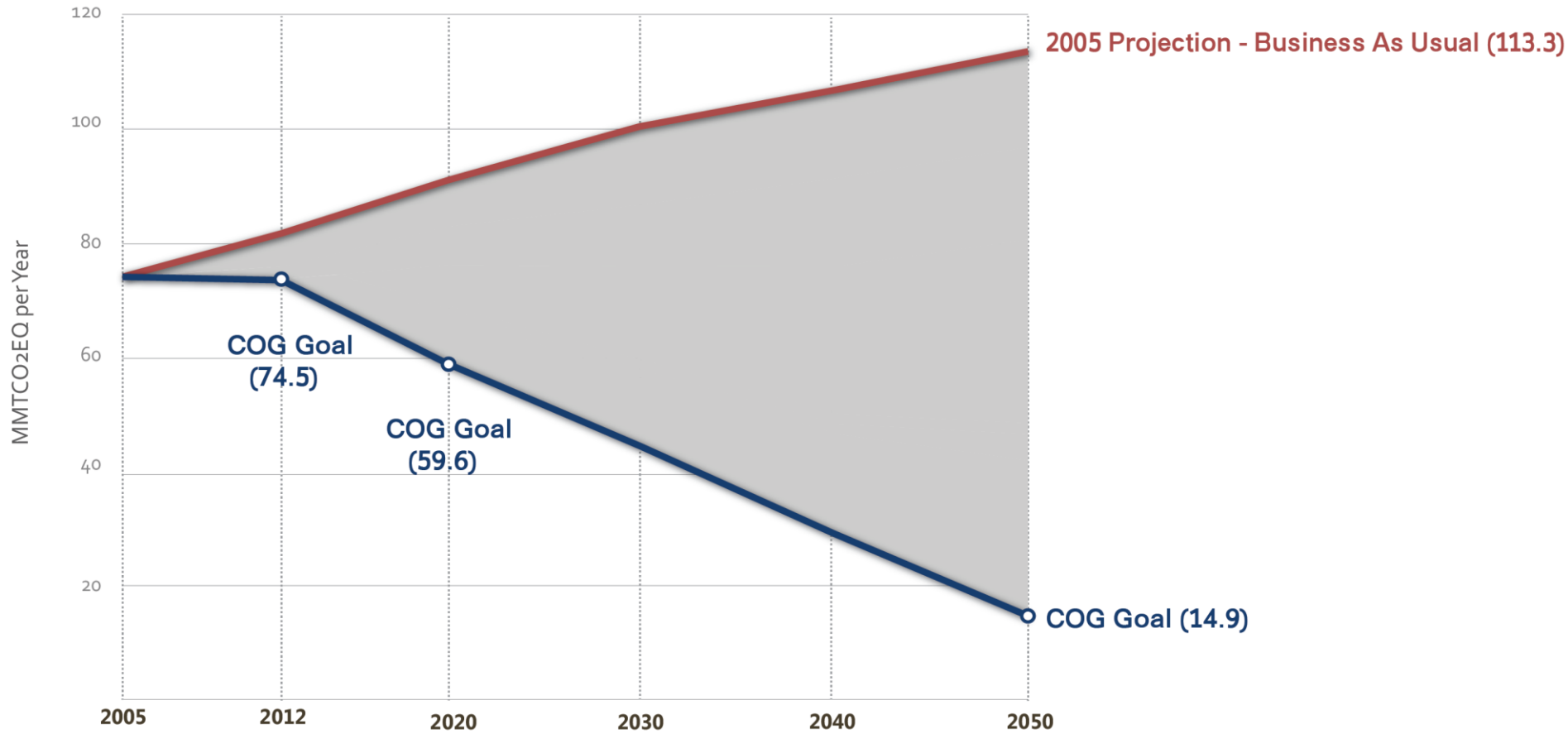
COG Greenhouse Gas Reduction Goals



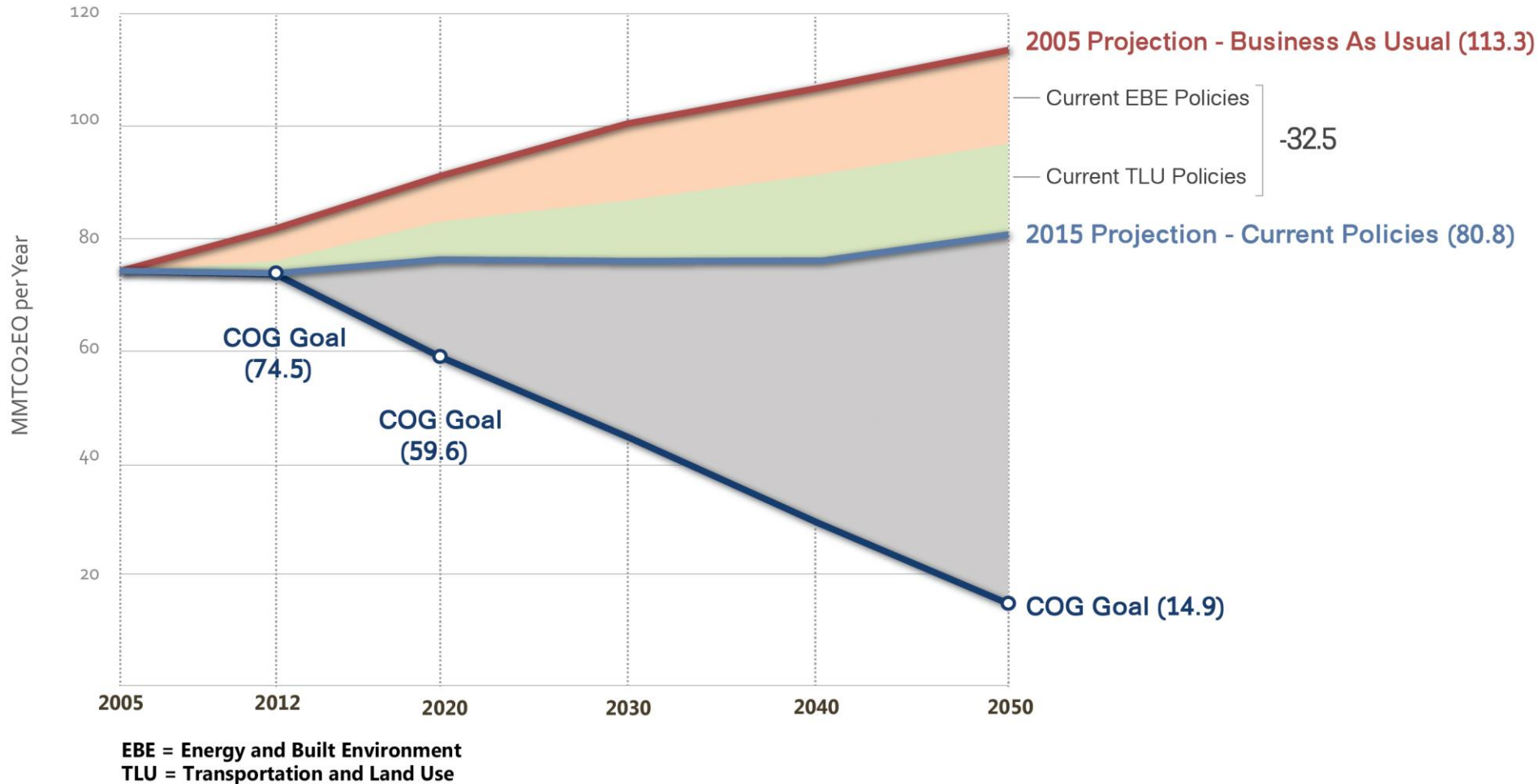
### Notes:

1. The goals were adopted by the COG Board in November 2008
2. MMT = Million Metric Tons of CO<sub>2</sub> Equivalent (CO<sub>2</sub>e)

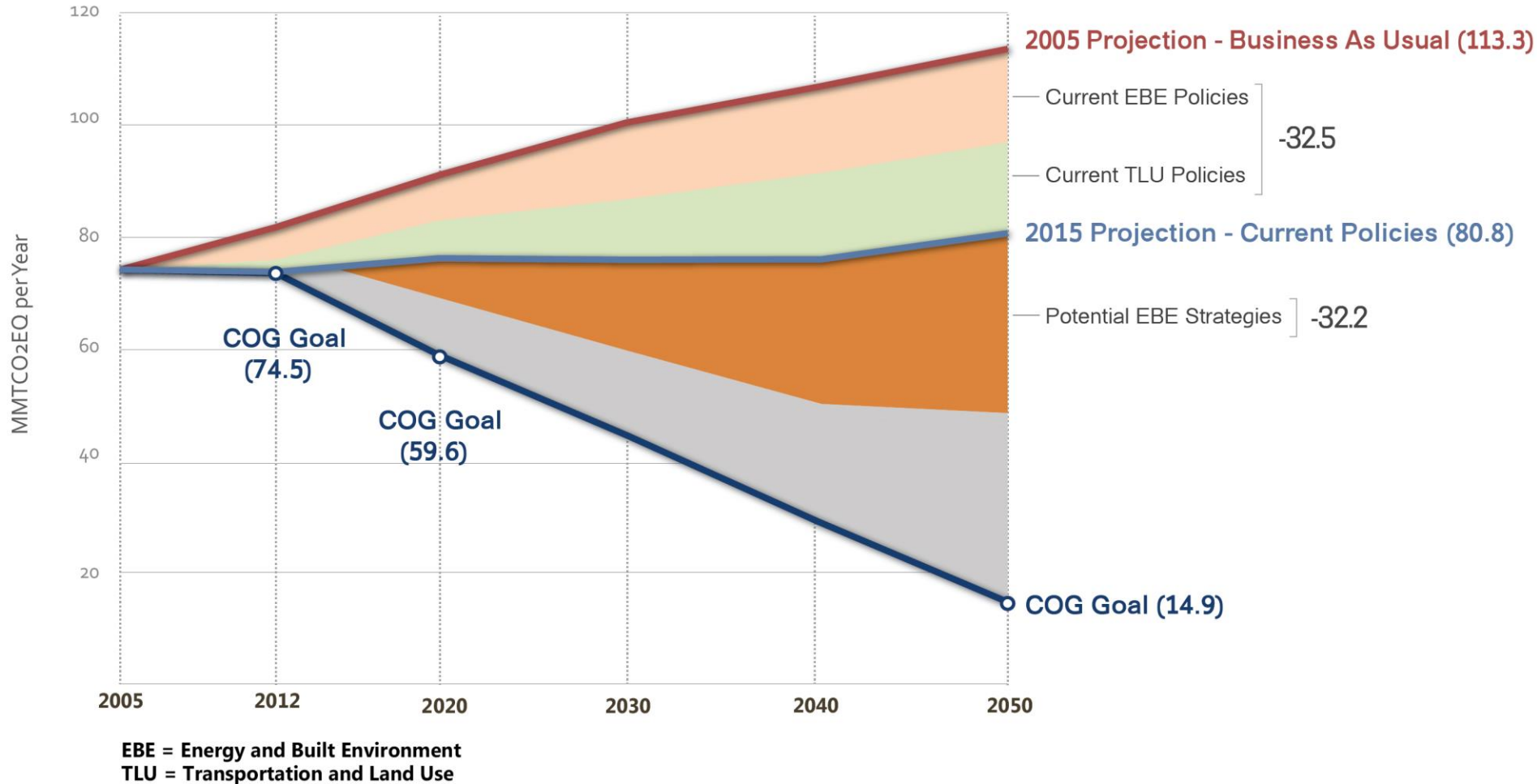
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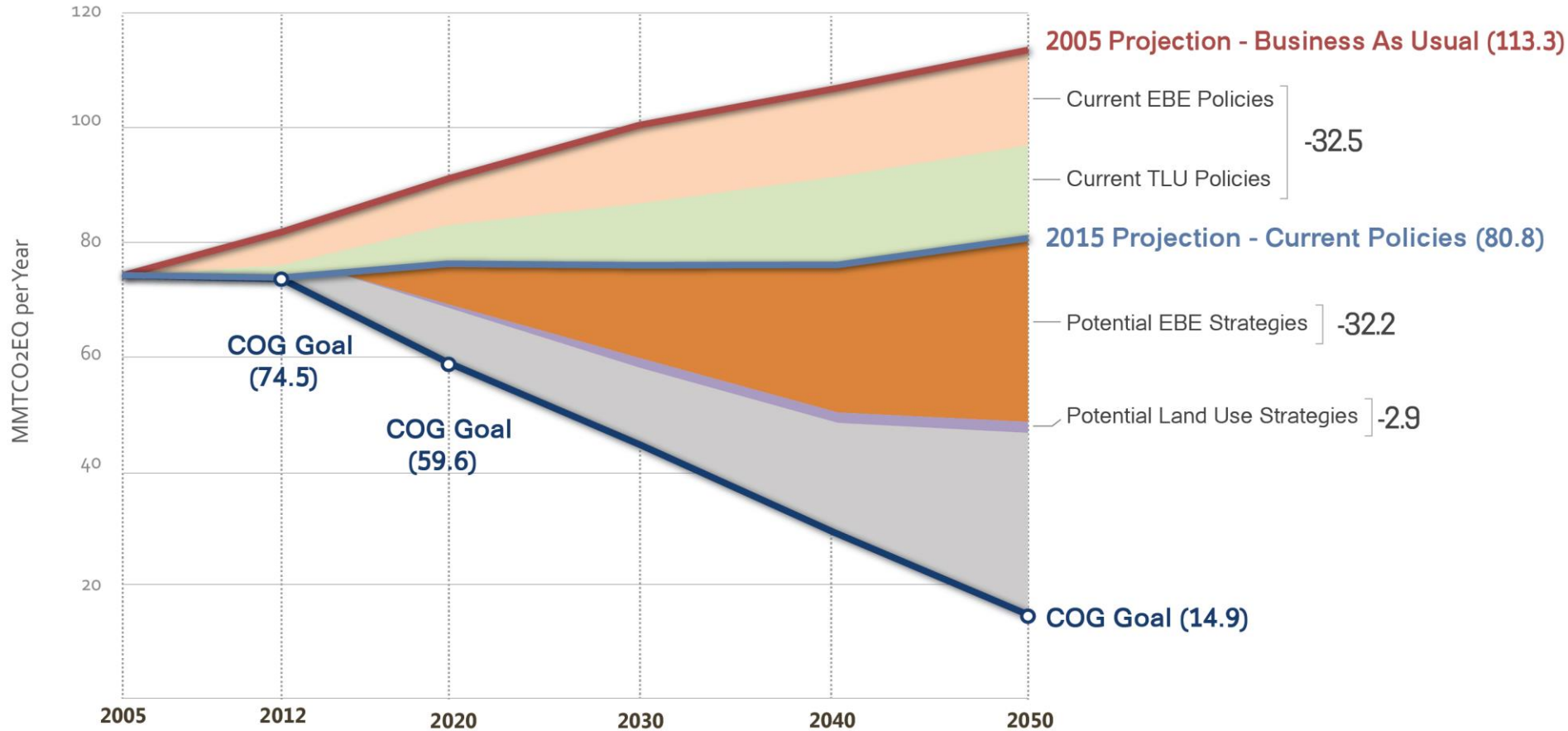


# Moving Towards COG's GHG Reduction Goals





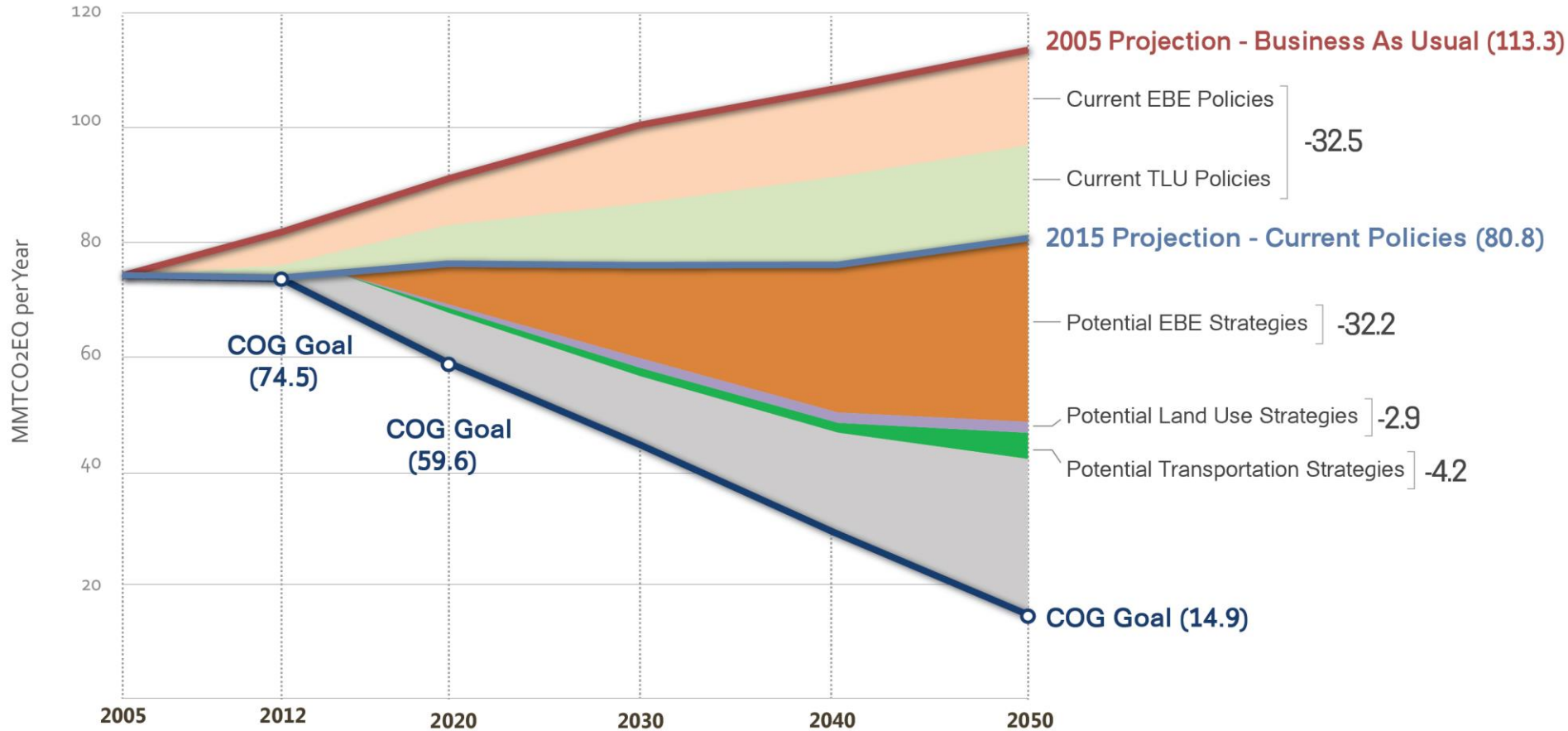
# Moving Towards COG's GHG Reduction Goals



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

Land use strategies include carbon sequestration from tree canopy strategy

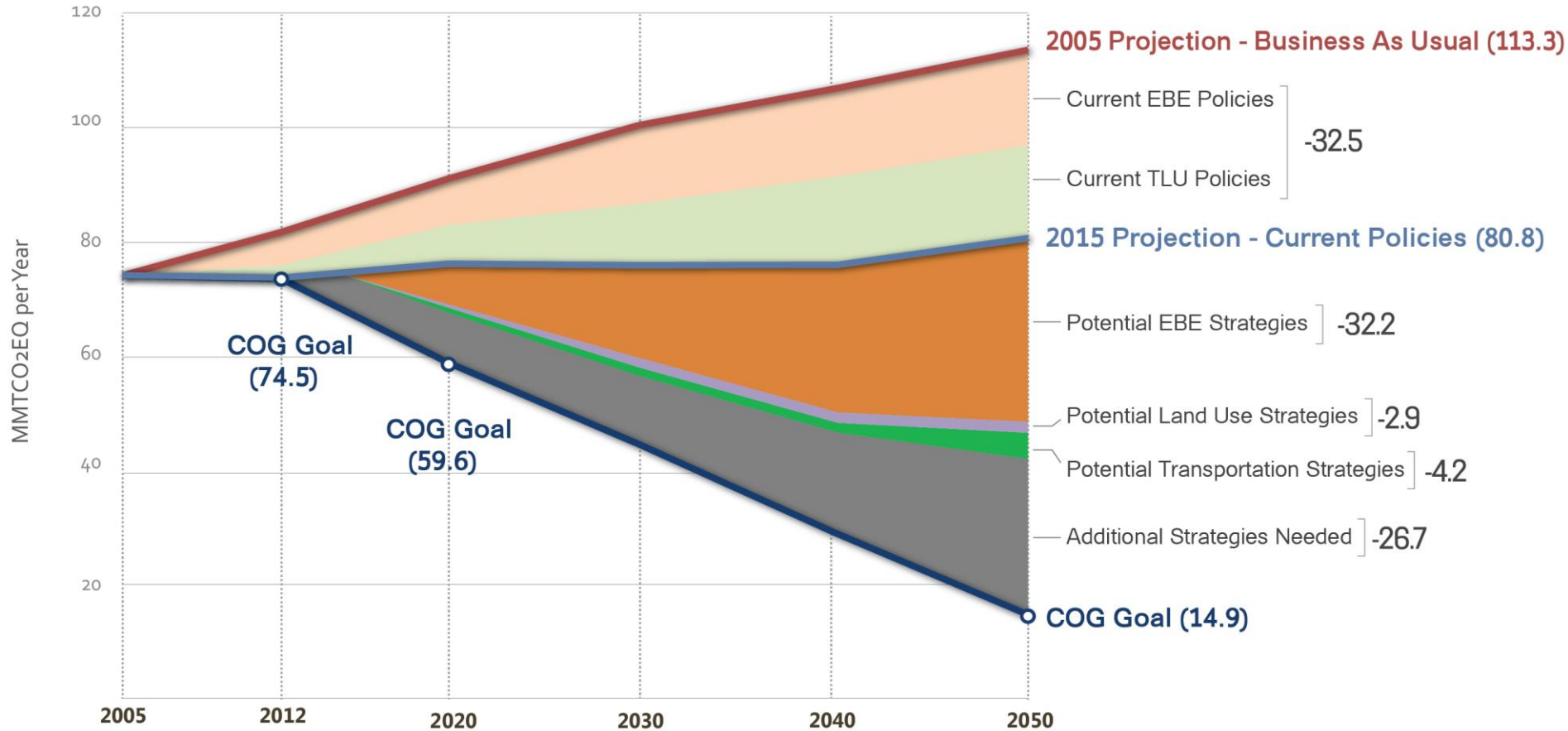
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# Current Policies are Making a Difference – 33% towards 2050 goal

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## 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

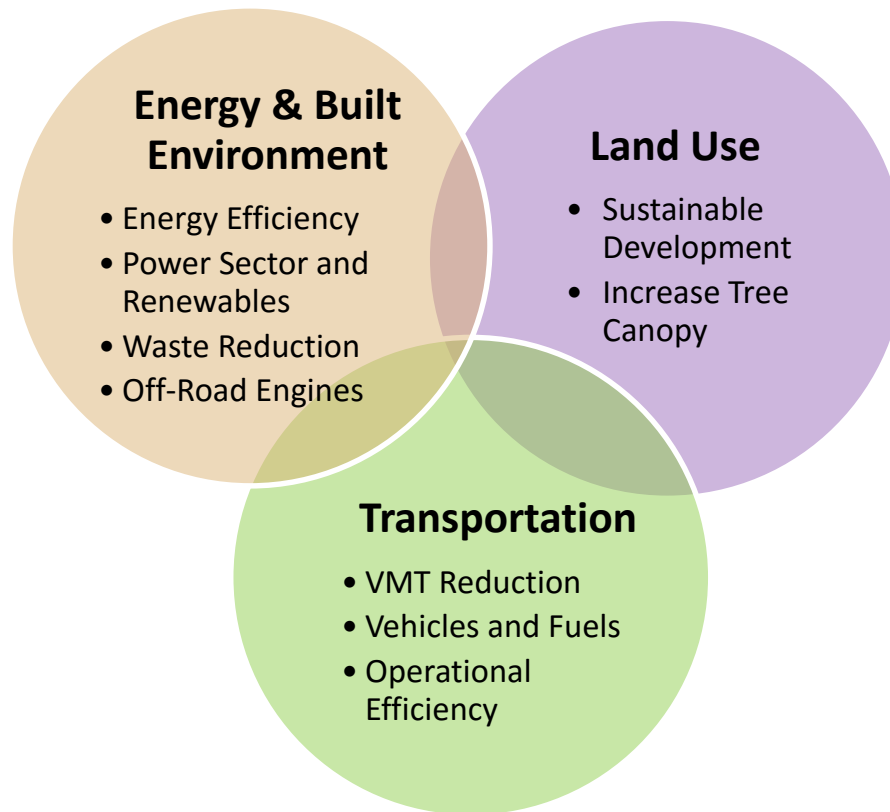
- Focusing more of the region's future growth in walkable, mixed use, transit oriented centers

## 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

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- 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

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## 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

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## 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

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### **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 outweigh other costs. Greater investments in transit would be required



## Key Land Use Strategies

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### **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

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## 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

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## **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

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**27 to 38 MMTCO<sub>2</sub>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

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- 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

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## **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