

The TPB What Would It Take Scenario: Meeting Regional Climate Change Mitigation Goals for the Mobile Sector

Presentation to TPB Technical Committee
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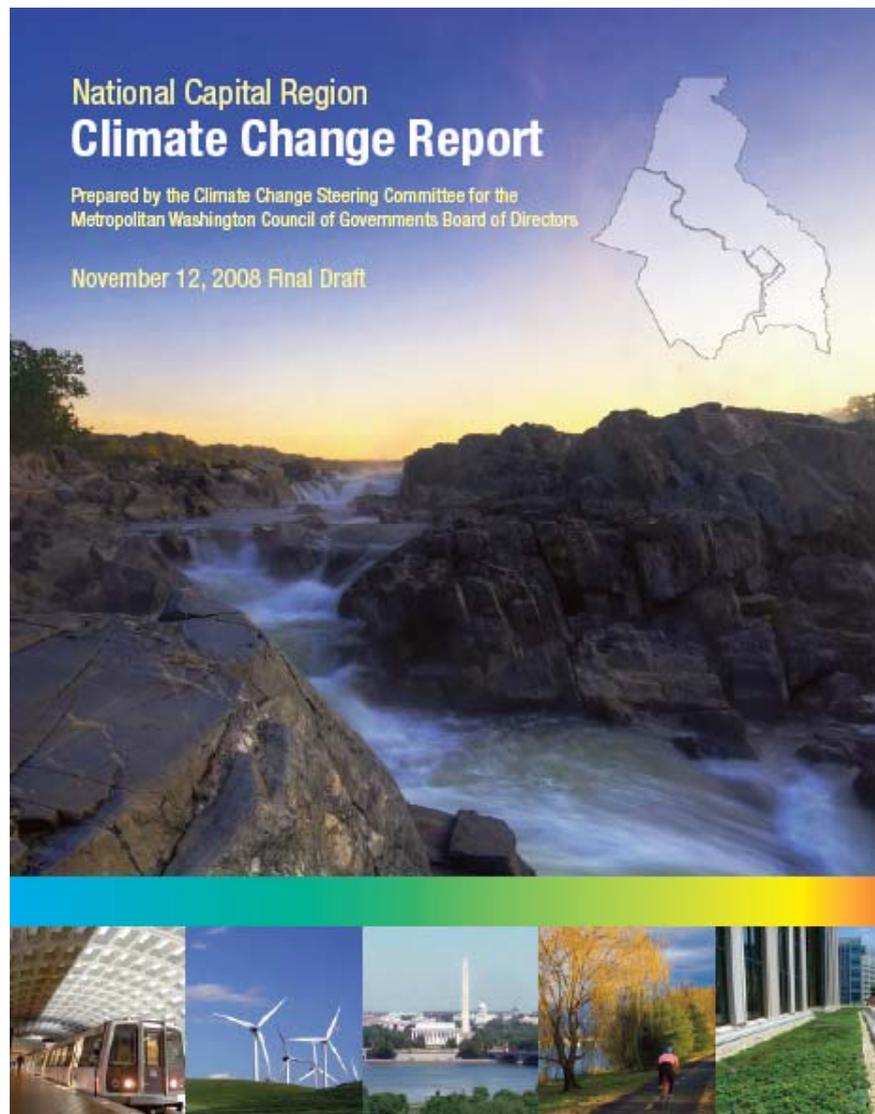
Metropolitan Washington Council of Governments (COG)

COG Climate Change Report

November 12, 2008

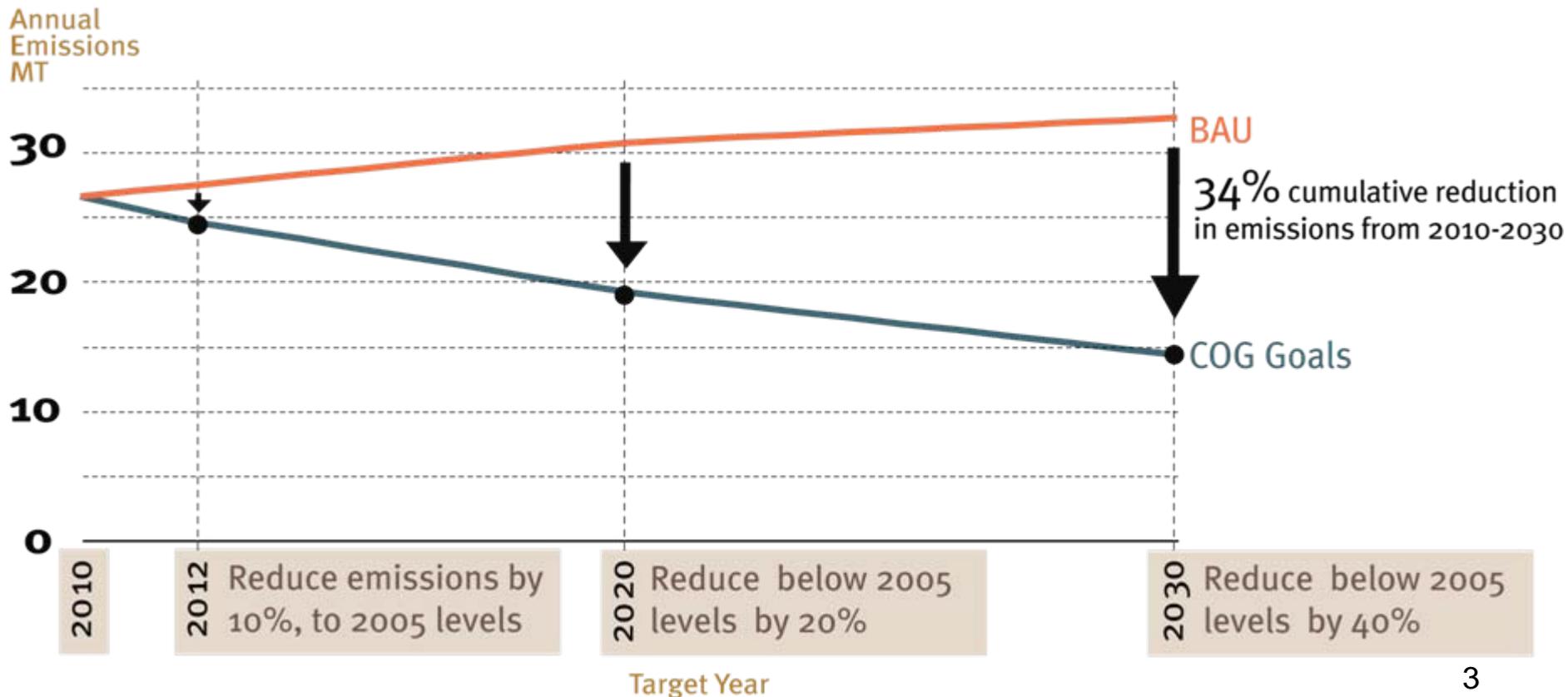
Regional GHG
reduction goals

Recommendations for
the mobile sector



COG Regional Goals

“Consistent with the climate science and the goals adopted by the state and local governments in the Washington region”



TPB's Current Climate Change Efforts

Using **goals** set in COG Climate Change Report

Developing **baseline mobile GHG projections** through 2030

Analyzing a “**What Would It Take?**” **scenario** to see what reductions in the mobile sector will be necessary to meet regional goals

Seeking **GHG reduction strategies** that could be included in the region's transportation plans and programs

Mobile CO₂ Projections

CO₂ Emissions from Cars, Trucks, and Buses Annual MT of CO₂ Emissions 8-hour Ozone Non-Attainment Area

	2005	2020	2030
Baseline Emissions (prior to 2007 CAFE)	24.03	30.81	32.71
% Change from 2005 levels	---	28.2%	36.1%
Emissions With 2007 CAFE (35 mpg by 2020)	24.03	24.80	23.93
% Change from 2005 levels	---	3.2%	-0.4%
Emissions With 2009 CAFE (35.5 mpg by 2016)	24.03	24.40	23.75
% Change from 2005 levels	---	1.5%	-1.2%
CCSC Proposed Regional Goal	24.03	19.23	14.42
% Change from 2005 levels	---	-20.0%	-40%

Source: 2008 CLRP

Two New Scenarios

CLRP Aspirations

Draws on past studies and public outreach to provide an ambitious yet attainable vision of land use and transportation for the 2010 CLRP update and to eventually serve as an unconstrained long range plan.

What Would it Take?

Starts with COG regional CO₂ goals and assesses what scales and combinations of interventions will be necessary to achieve the goal for the transportation sector.

What Would it Take?

Analyze three categories of strategies to reduce mobile CO₂ emissions for effectiveness, cost-effectiveness, and implementation timeframe

Assess combinations of strategies from these three categories:

Fuel Efficiency

Beyond CAFE standards

Fuel Carbon Intensity

Alternative fuels (biofuels, hydrogen, electricity)

Travel Efficiency

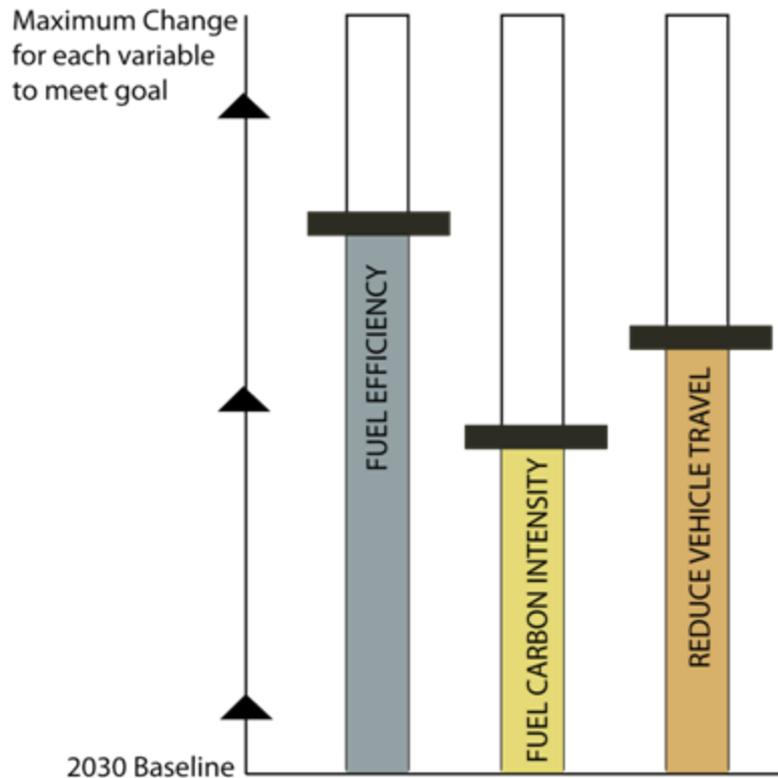
Reduce VMT through changes in land use, travel behavior, prices

Reduce congestion

Improve operational efficiency

Products

“Sliders” metaphor



How can strategies across these categories be combined to meet our regional climate change goals?

There are many different possible combinations.

Example Mobile GHG Reduction Strategies to be Examined

Fuel Efficiency

- Extending CAFE requirements to heavy trucks
- Cash for Clunkers programs
- Benefits of enhanced CAFE possibilities

Alternative Fuels

- Regional green fleet policy
- Accelerated adoption of clean-fuel vehicles (hybrids, flex fuel)

Travel Efficiency:

- Pricing policies to reduce VMT (tolling, congestion pricing, parking pricing)
- Shift short trips to non-motorized modes
- Increased transit capacity
- Land use shifts (TOD, walkable activity centers)
- Signal optimization

**Getting to the goal of 40% reduction
below 2005 levels by 2030**

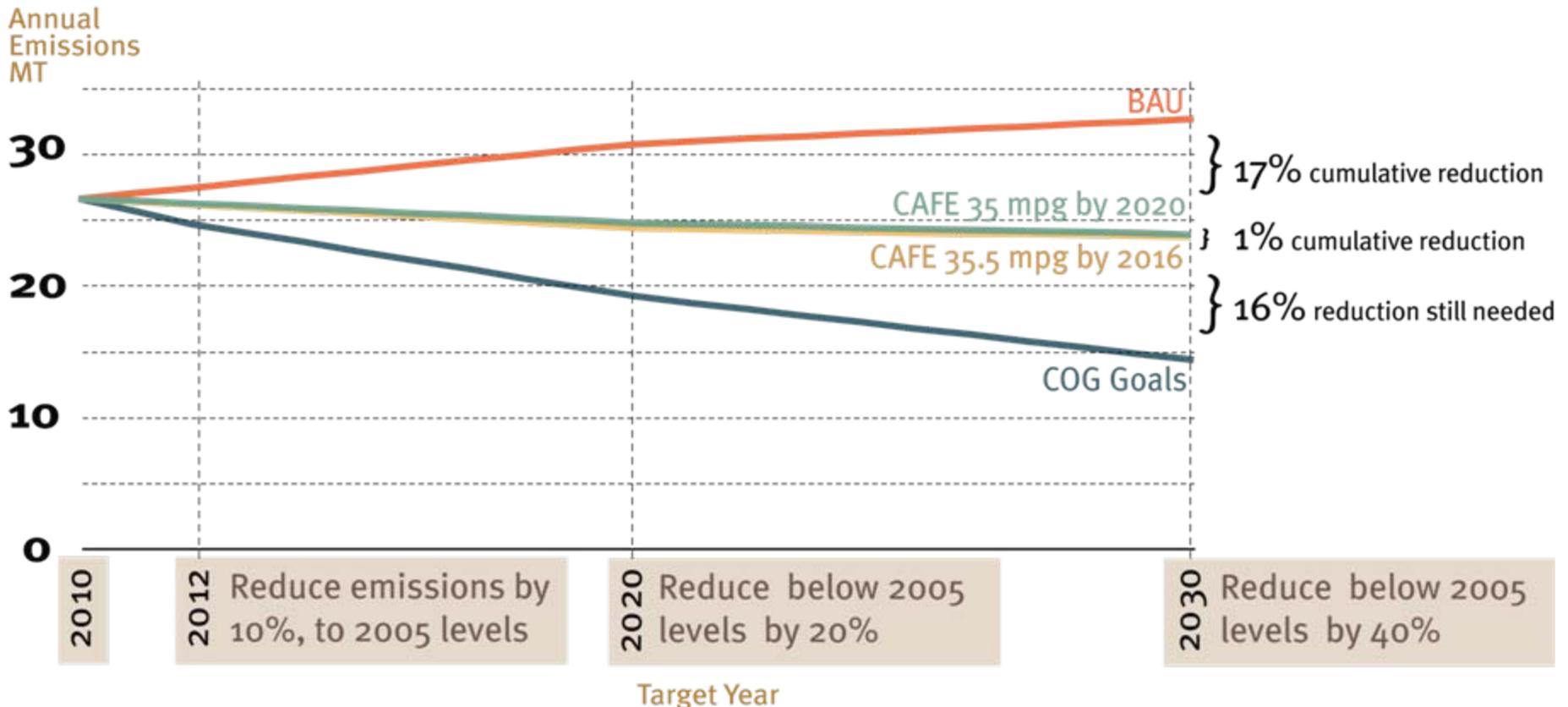
Can these strategies get us there?

Achieving the Goal

40% reduction in mobile CO₂ emissions below 2005 levels by 2030



Fuel Efficiency CAFE Standards



Achieving the Goal

40% reduction in mobile CO₂ emissions below 2005 levels by 2030

Fuel Efficiency

Beyond CAFE standards

Fuel Carbon Intensity

Alternative fuels (biofuels, hydrogen, electricity)

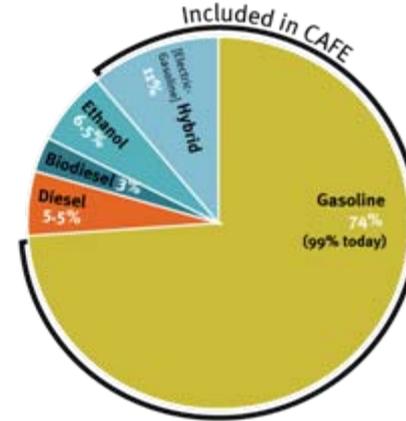
Travel Efficiency

Reduce VMT through changes in land use, travel behavior, prices

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Improve operational efficiency

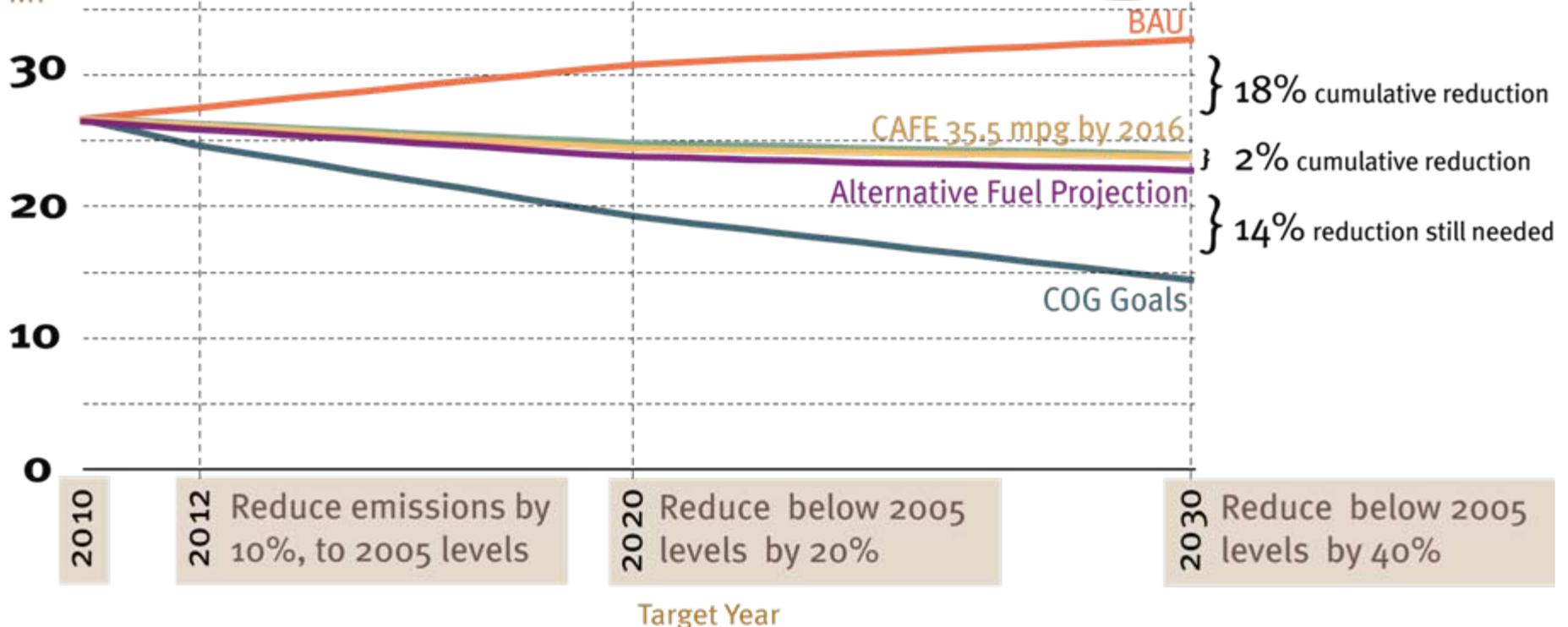
Alternative Fuels



2030

Source: US DOE, EIA, Annual Energy Outlook (AEO) 2008

Annual Emissions
MT



2010 2012 Reduce emissions by 10%, to 2005 levels 2020 Reduce below 2005 levels by 20% 2030 Reduce below 2005 levels by 40%

Target Year

Travel Efficiency

**An overview of the transportation
GHG reduction measures to be
included in the analysis**

Transportation measures analyzed to date:

Measure	Description	Reduction (tons)
SmartBike Regional Expansion	DC SmartBike Program regionally expanded by 30% (650 bikes)	20,375 (2010-2030)
BikeStation Regional Expansion	5 BikeStations in Bethesda, Silver Spring, Arlington, Alexandria and at Union Station	4,702 (2010-2030)
Carpool Incentive	SOV drivers receive \$1 per trip (\$2 roundtrip) taken by carpool on I-66, I-270, I-495 and I-395	62,031 (2010-2030)
TPB Bike and Ped Plan Construction	Fully fund and complete the construction of the TPB Bicycle and Pedestrian Plan by 2020	1,831,375 (2010-2030)
Achieve Goal of Shifting Short Auto Trips	Shift 20% of auto trips under 3 miles in length to non-motorized modes (walk or bike)	5,906,766 (2010-2030)

Achieving the Goal

40% reduction in mobile CO₂ emissions below 2005 levels by 2030

Fuel Efficiency

Beyond CAFE standards

Fuel Carbon Intensity

Alternative fuels (biofuels, hydrogen, electricity)

Travel Efficiency

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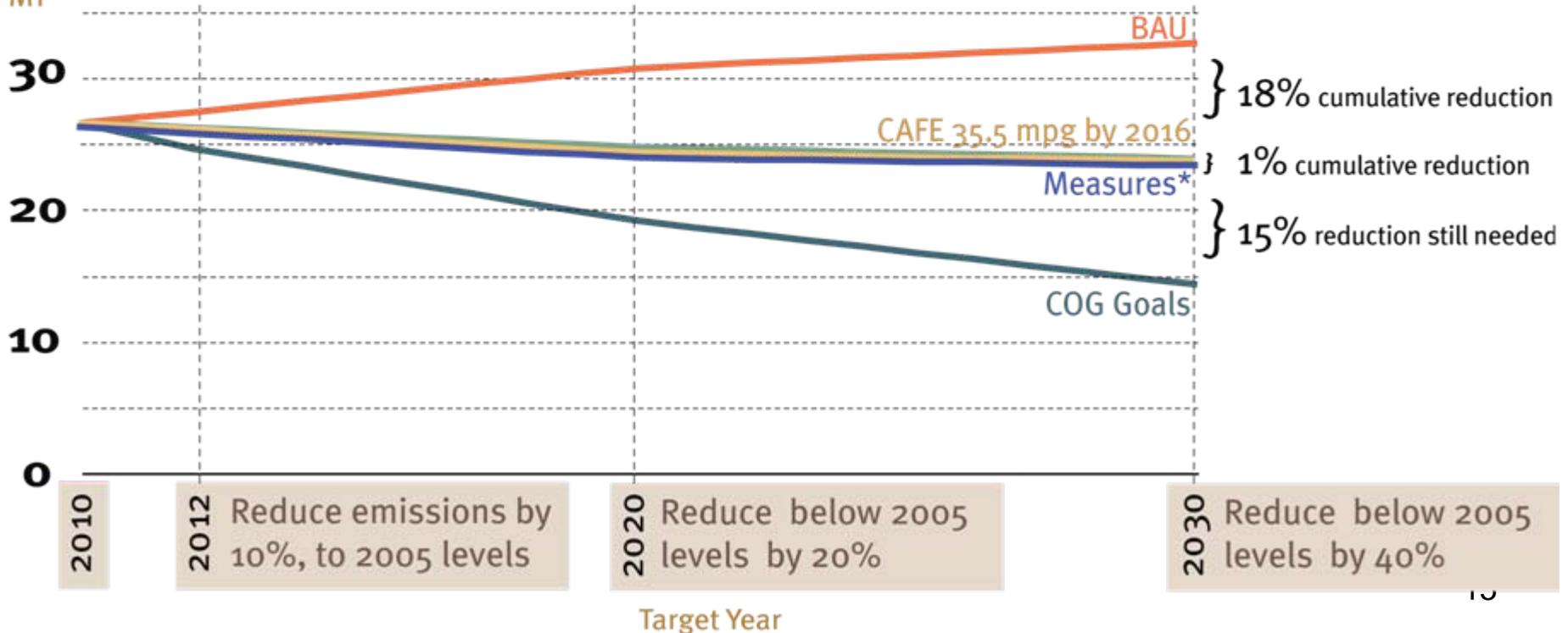
Improve operational efficiency

Travel Efficiency

Measures Analyzed to Date

SmartBikes, BikeStations, TPB Bike/Ped Plan, Carpool Incentive, Shifting Short Auto Trips

Annual Emissions MT



* Measures are shown as additive, though the individual measures may have overlapping benefits

Other Measures to be Analyzed

Measure	Description	Reduction (tons)
Increase Fuel Efficiency Beyond CAFE Requirements	Extending CAFE requirements past 2020 Extending CAFE to heavy trucks Incentive programs for fuel efficient vehicles	
Cash for Clunkers Program	Analysis of bill signed into law on June 24, 2009.	
Regional Green Fleet Policy	Examine a green fleet policy for public and private fleets, transit, and others possibly based on other regional models	
Expand existing commuter options	Expand existing programs: commuter connections, guaranteed ride home, telework, park & ride lots and bike/ped access	
Use of financial incentives	Examine tolling, parking pricing, congestion pricing	

Looking beyond current policies and forecasts

Enhanced CAFE (eg 45 mpg or 55 mpg by 2030)

Increased use of alternative fuels or hybrids beyond current projections and CAFE standards (eg high penetration of plug-in hybrids and increased use of cellulosic ethanol)

Land use shifts, transit increases, and pricing policies (eg congestion charging in region)

Next Steps

Complete analysis of transportation GHG reduction measures

Complete analysis of scenario-related strategies, such as GHG benefits of transportation/land use scenario (CLRP Aspirations Scenario)

Complete cost-effectiveness analysis

Complete draft report of analysis