Climate Policy in an Energy Boom

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Asilomar 2013

A Bit of Perspective…

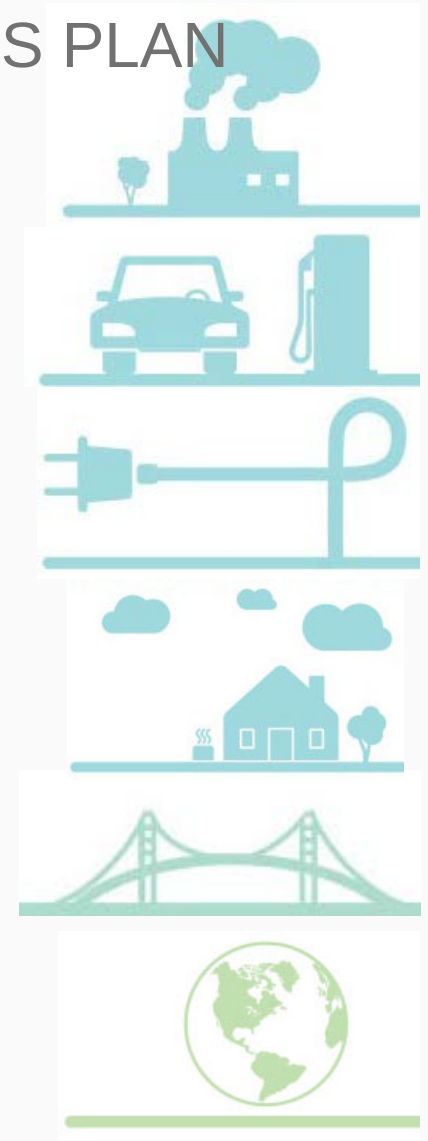
- Between now and 2050:
  - 9 Presidential elections
  - 18 Congressional elections
  - 9 elections for Governor in states
  - 7-12 product development cycles (3-5 year cycle)
  - 100s of lawsuits
- Long term view very important but do not want to lose sight of near term actions when given opportunities to act

PRESIDENT OBAMA'S CLIMATE PLAN

- Announced in June
- Calls on the federal government to work together with states, cities, industries, consumers and the international community to address one of the greatest challenges of our time.
- Reinforces the federal commitment to:
  - Cutting harmful pollution,
  - Protecting our country from the impacts of climate change, and
  - Leading an international effort to address a changing climate

EPA ACTION UNDER PRESIDENT OBAMA'S PLAN

- Reducing carbon pollution from power plants
- Building a 21st century transportation sector
- Cutting energy waste in homes, businesses, and factories
- Reducing methane and HFCs
- Preparing the U.S. for the impacts of climate change
- Leading international efforts to address global climate change



BUILDING A 21ST CENTURY TRANSPORTATION SECTOR

Heavy-duty vehicles (commercial trucks, vans, and buses) are currently the second largest source of greenhouse gas pollution within the transportation sector.

PROGRESS:

In 2011, the Administration finalized fuel economy standards for Model Year 2014-2018 for heavy-duty trucks, buses, and vans. This will reduce green-house gas emissions by about 270 million metric tons and save 530 million barrels of oil.

PROGRESS:

The Administration has already established the toughest fuel economy standards for passenger vehicles in U.S. history. These standards require an average performance equivalent of 54.5 miles per gallon by 2025.

CONTINUING THE MOMENTUM FOR THE FUTURE:

During the President's second term, the Administration will once again partner with industry leaders and other key stakeholders.

POST-2018

In partnership with industry leaders and other key stakeholders, the Administration will develop post-2018 fuel economy standards for heavy-duty vehicles to further reduce fuel consumption through the application of advanced cost-effective technologies.

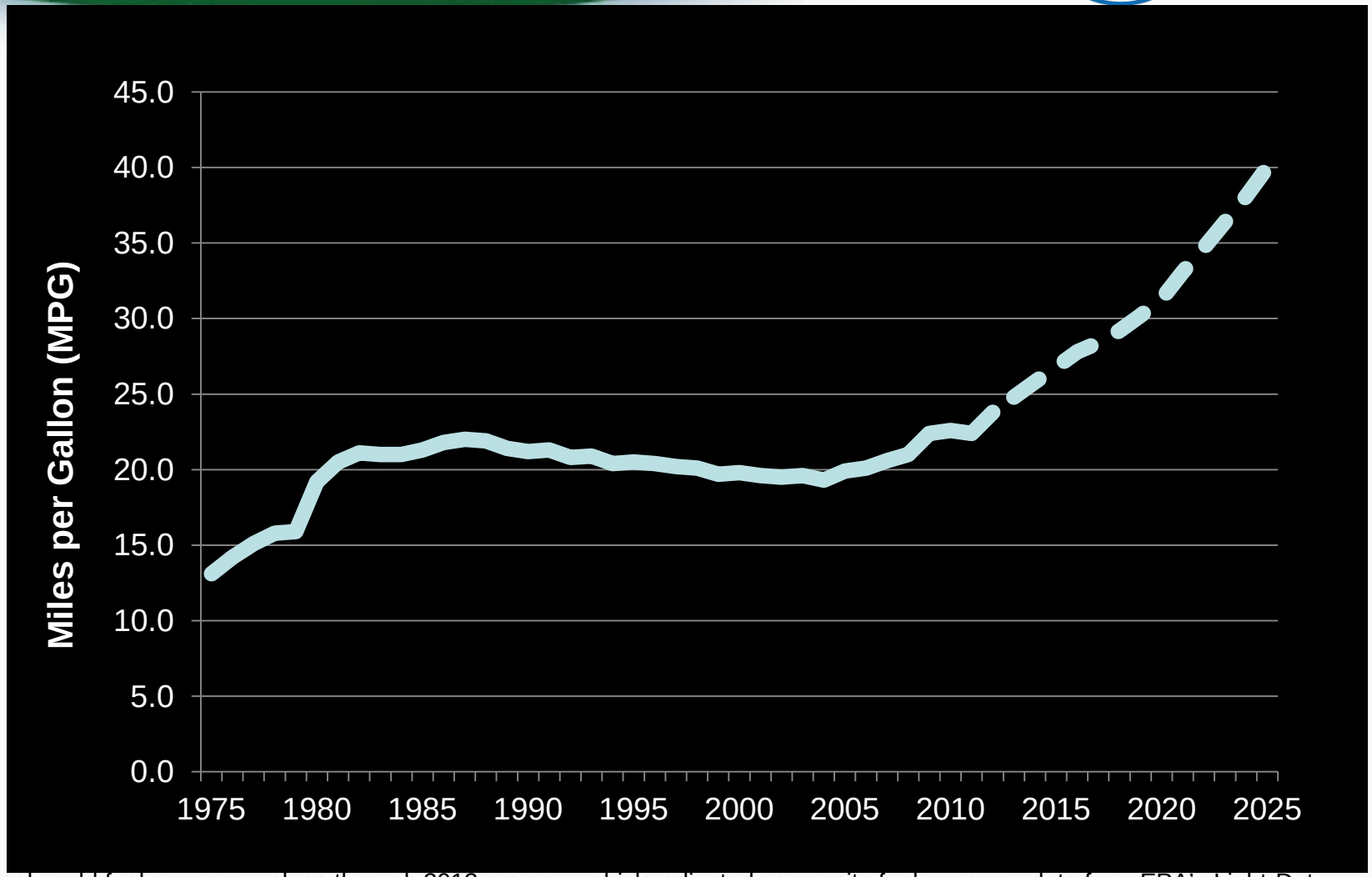
The Administration will also support the Renewable Fuels Standard and invest in research and development to help bring next-generation biofuels on line.

Historic Federal Climate Regulations

- National GHG emission standards under the Clean Air Act
  - 2012 – 2025 cars and light duty trucks
  - 2014-2018 model year MD and HD trucks

- How was this possible?
  - Coordinated with NHTSA and California
  - Supported by both industry and environmental communities
  - Net savings for consumers / operators

Fuel Economy Past, Present, and Future

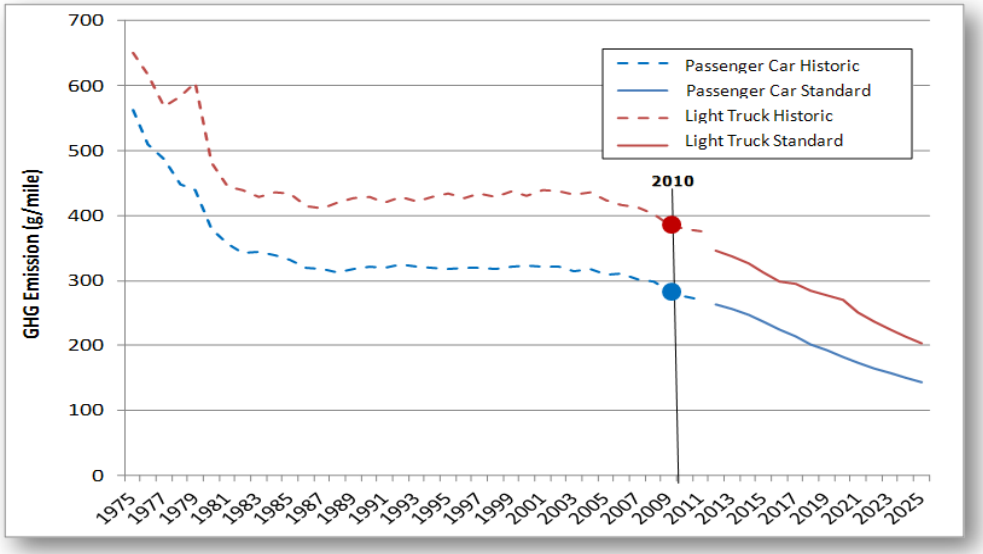


Real world fuel economy values through 2012 are new vehicle adjusted composite fuel economy data from EPA's Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2012. Projected fuel economy for 2013-2025 is based on the real world values projected to be associated with meeting the new 2025 standards. See http://www.epa.gov/otaq/fetrends.htm and http://www.epa.gov/otaq/climate/regs-light-duty.htm.

Light-Duty Vehicle GHG Rule: Overview

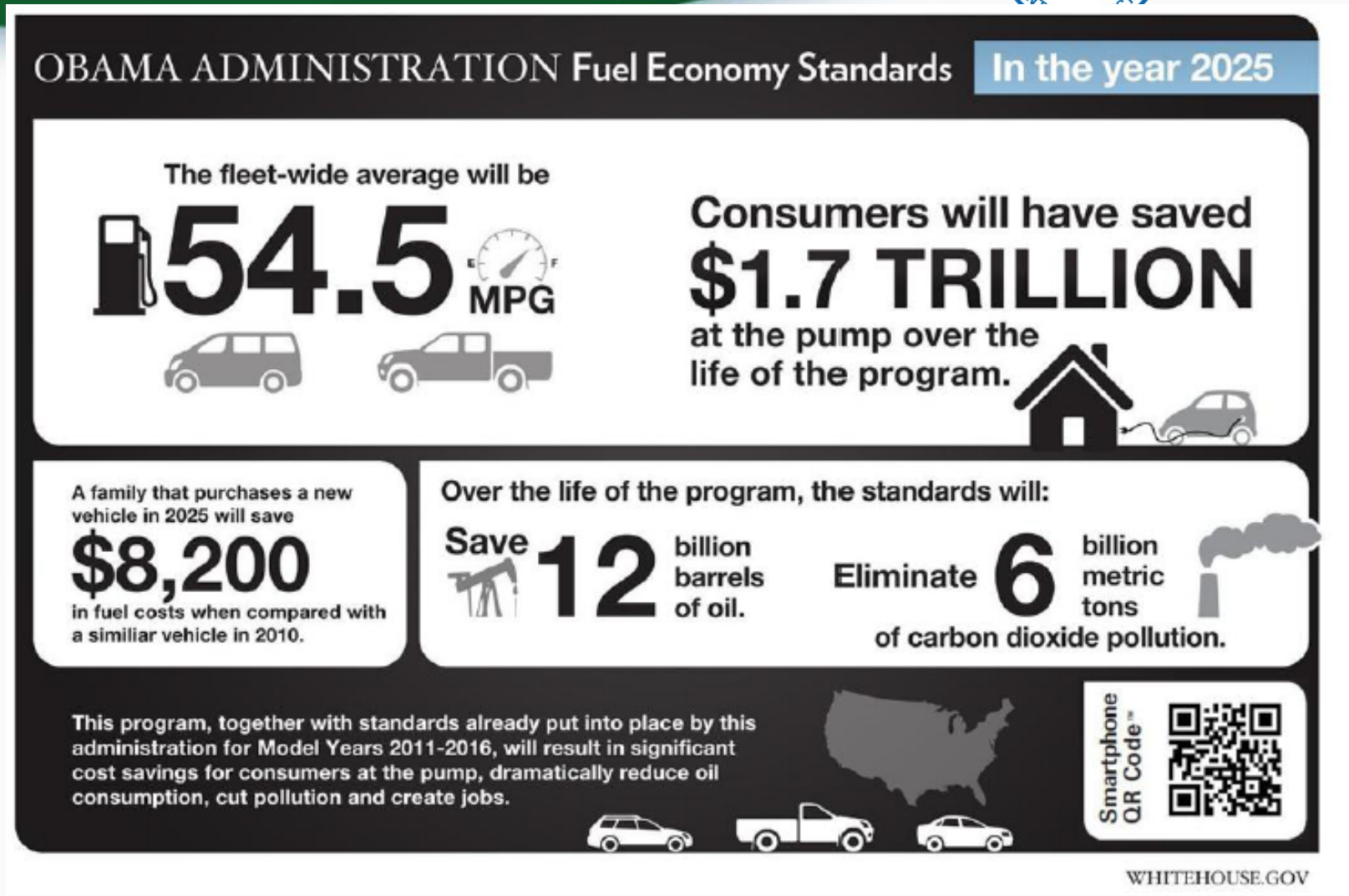
- Joint EPA/NHTSA rulemakings for MY 2012-2016 and MY 2017-2025
- Projected fleet performance of 163 grams/mile CO_2 emissions by 2025
  - Equivalent to 54.5 mpg (if from fuel economy improvements) test values, or 40 mpg real-world (label)
- Reduces new fleet GHG emissions by half -- doubling fuel economy -- compared to MY 2010 vehicles
- Allows manufacturers to build one national fleet

Unadjusted GHG Emissions, 1975-2025

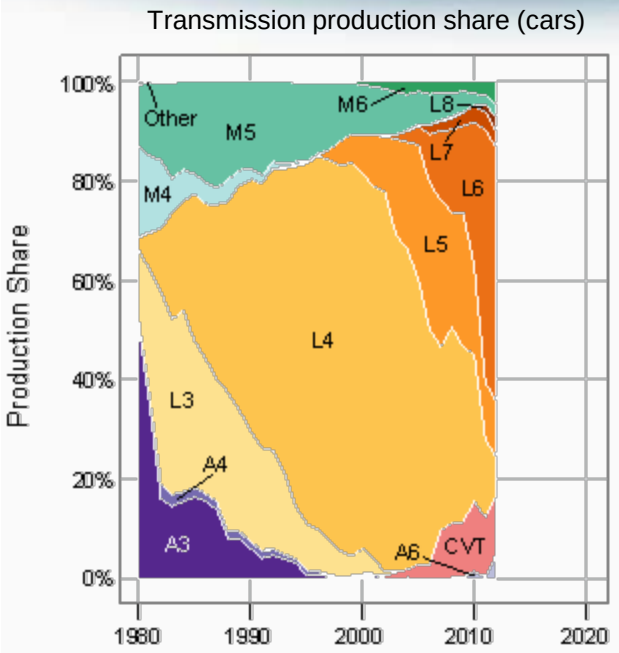


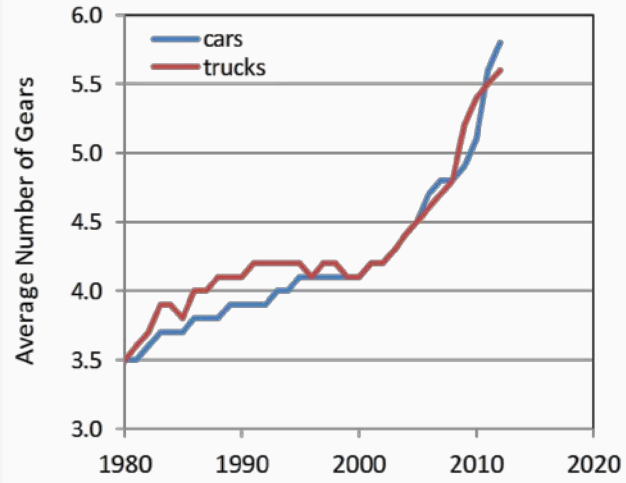
- *Historic values from 2012 EPA Trends Report*
- *Future projections from EPA GHG rules for MY 2012-2016 and MY 2017-2025*
- *No adjustments for emission credits*

Benefits of LDV GHG Rules are Large



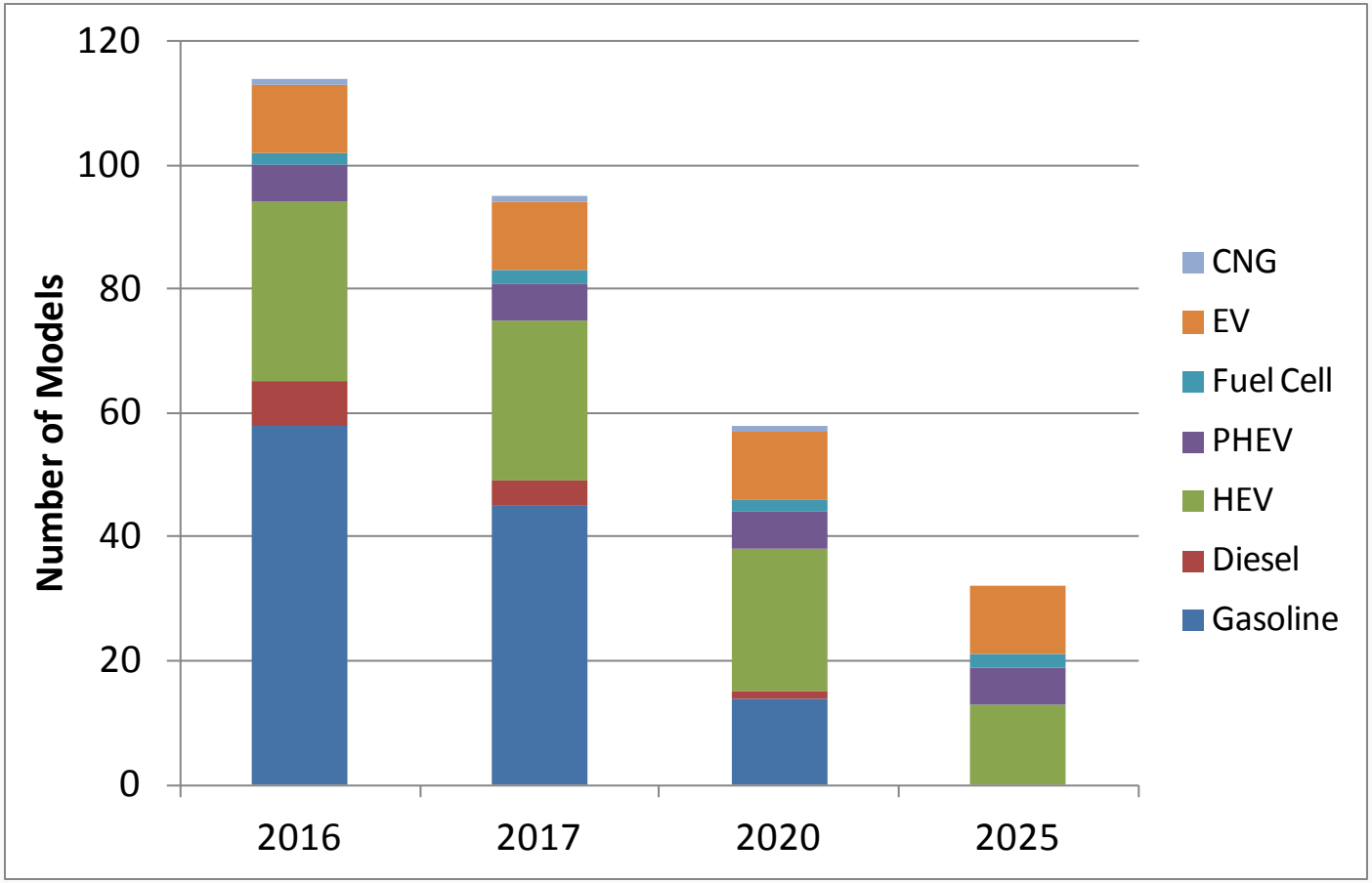
Technology is Changing Quickly





- For **25 years**, the most popular transmission in new vehicles was a 4-speed automatic (L4)
- In MY 2010, 6-speed automatics (L6) became the most popular choice
  - Skipped 5 speed transmissions entirely!
- 6 manufacturers had 8 speeds on the market by MY 2012, and 6 had CVTs (excluding hybrids)
- GM, Ford, VW (and others) are currently working on 10 speed transmissions
- Technology is changing quickly!
- We cannot anticipate the form ingenuity will take.
- Performance standards set the stage and get out of the way.

Current Vehicles that Already Meet Future Standards



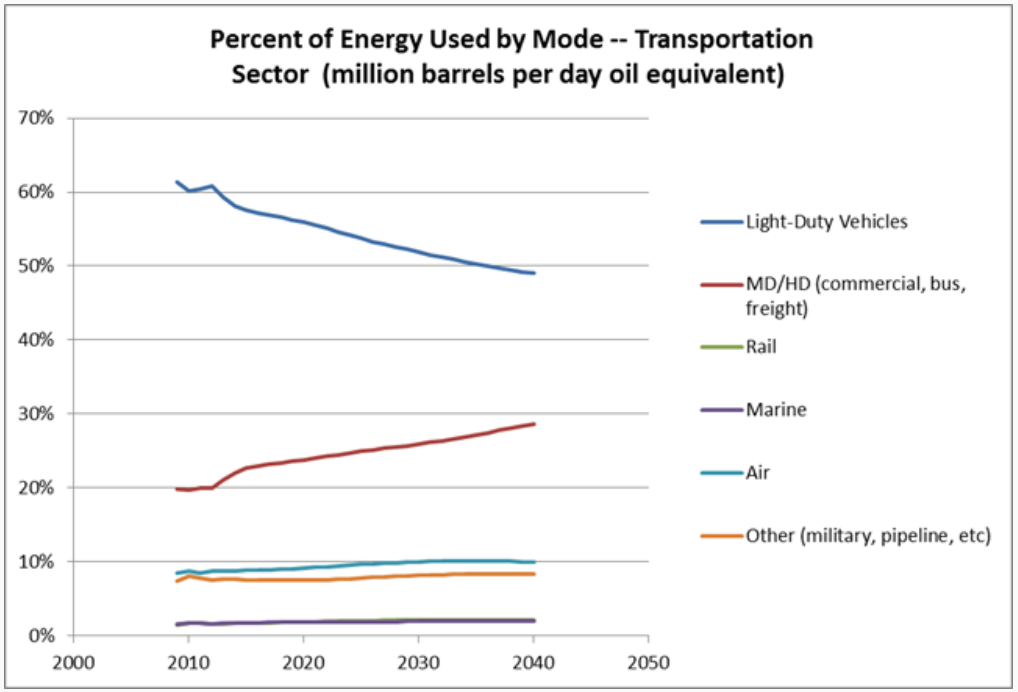
- MY 2013 and MY 2014 vehicles available as of 7/2013
- Assumes A/C credits consistent with FRM

LDV GHG Rule: Midterm Evaluation

- EPA, NHTSA, and CARB committed to a midterm evaluation of the standards for 2022-2025 vehicles
- Timing:
  - Agencies will issue draft Technical Assessment Report for public comment by November 2017
  - EPA final determination of whether the standards should be revised by April 2018 (after public comment)
- EPA utilizing extensive stakeholder outreach – starting now to hear from interested parties of new data/information that can inform midterm evaluation

Heavy-Duty: 2nd Largest & Fastest Growing

- Heavy-duty trucks are the second largest and fastest-growing contributors to greenhouse gas emissions **within the transportation sector**
- Their fuel consumption accounts for a significant portion of domestic oil use.



Source: U.S. Department of Transportation's Research and Innovative Technology Administration, John A. Volpe National Transportation Systems Center

Heavy Duty Truck Phase 1 GHG Standards

Projected to Save

- **530 million barrels** of oil
- **270 MMT** of carbon pollution
- **$50 billion** in fuel costs for vehicle owners and operators
- Net savings for a semi-truck operator of **$73,000** through reduced fuel use over the truck's useful life

Heavy Duty Truck GHG Standards Phase 2

- Build on the success of HD Phase 1
  - Single National Program with NHTSA and CARB
  - Push the envelope on advanced technologies in Phase 2
- More stringent standards for HD pickups, vans, vocational vehicles and combination tractors
  - Considering including trailers in Phase 2
- HD advanced and innovative technology credits in Phase 2
  - Considering refining HD GHG emissions credit program to provide more credit generation opportunities and to further drive technology innovation

Fuels Challenges

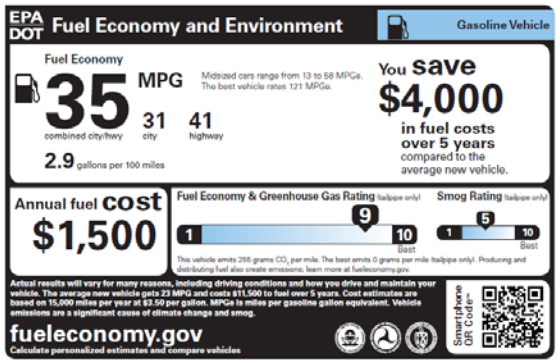
- Petroleum continues to compete on cost and availability

- Biofuels:
  - interaction with food supply
  - Slow growth of advanced biofuels

- Infrastructure for alternative fuels
  - Lack of E85 stations limits expansion
  - EV recharging in infancy
  - Natural gas refueling required on corridors to support long trips

Voluntary and Consumer Information Success

- **FE labeling and web site information encourage positive consumer action**

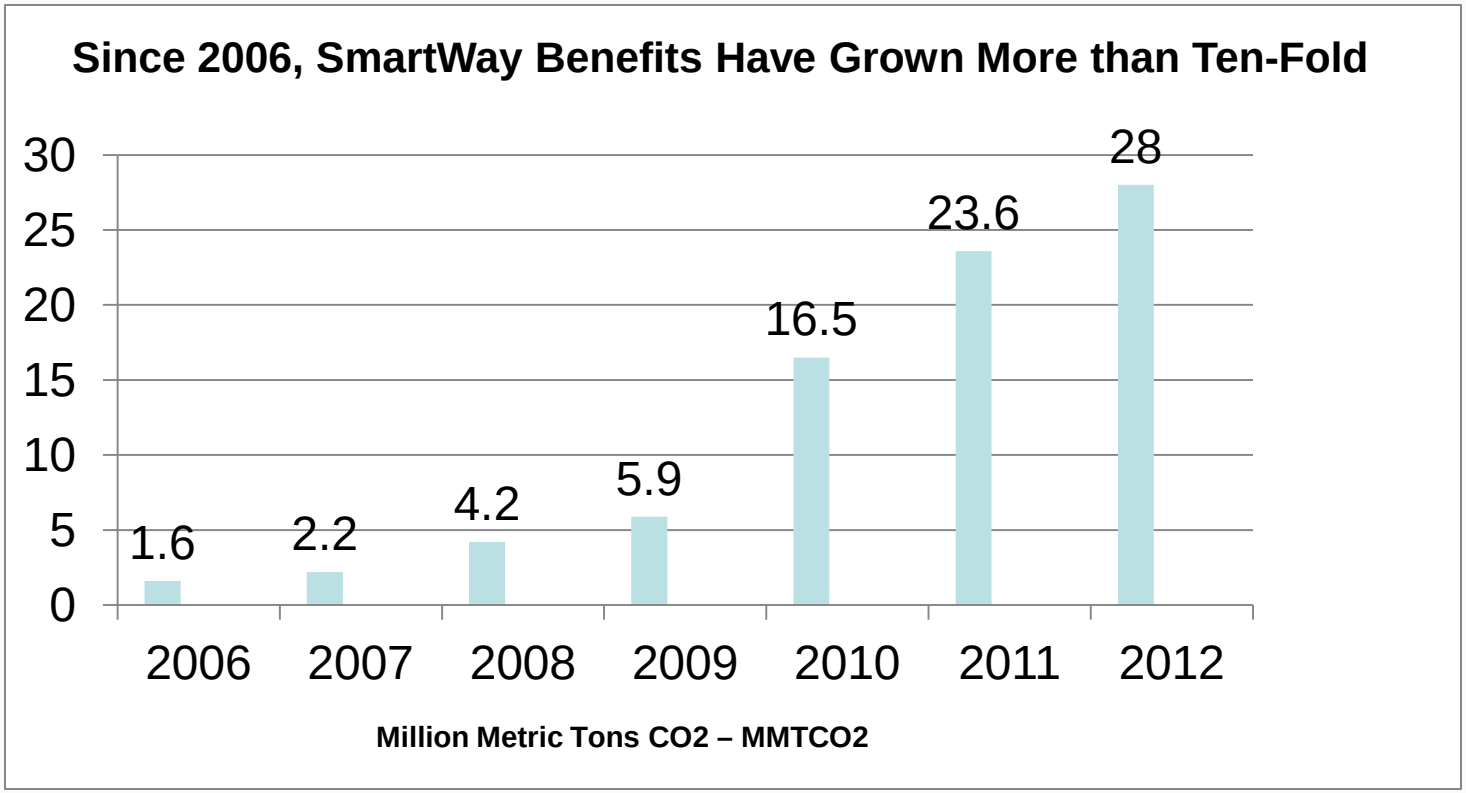


- **Cross-cutting industry partnerships like SmartWay**
  - Enable businesses across multiple economic sectors and freight modes to assess and improve the environmental and energy performance of goods movement
  - Covers vehicles, retrofits, fuels, driver behavior and operations
  - Includes technical assessments for new and older vehicles and equipment

How SmartWay Works

SmartWay Results to Date

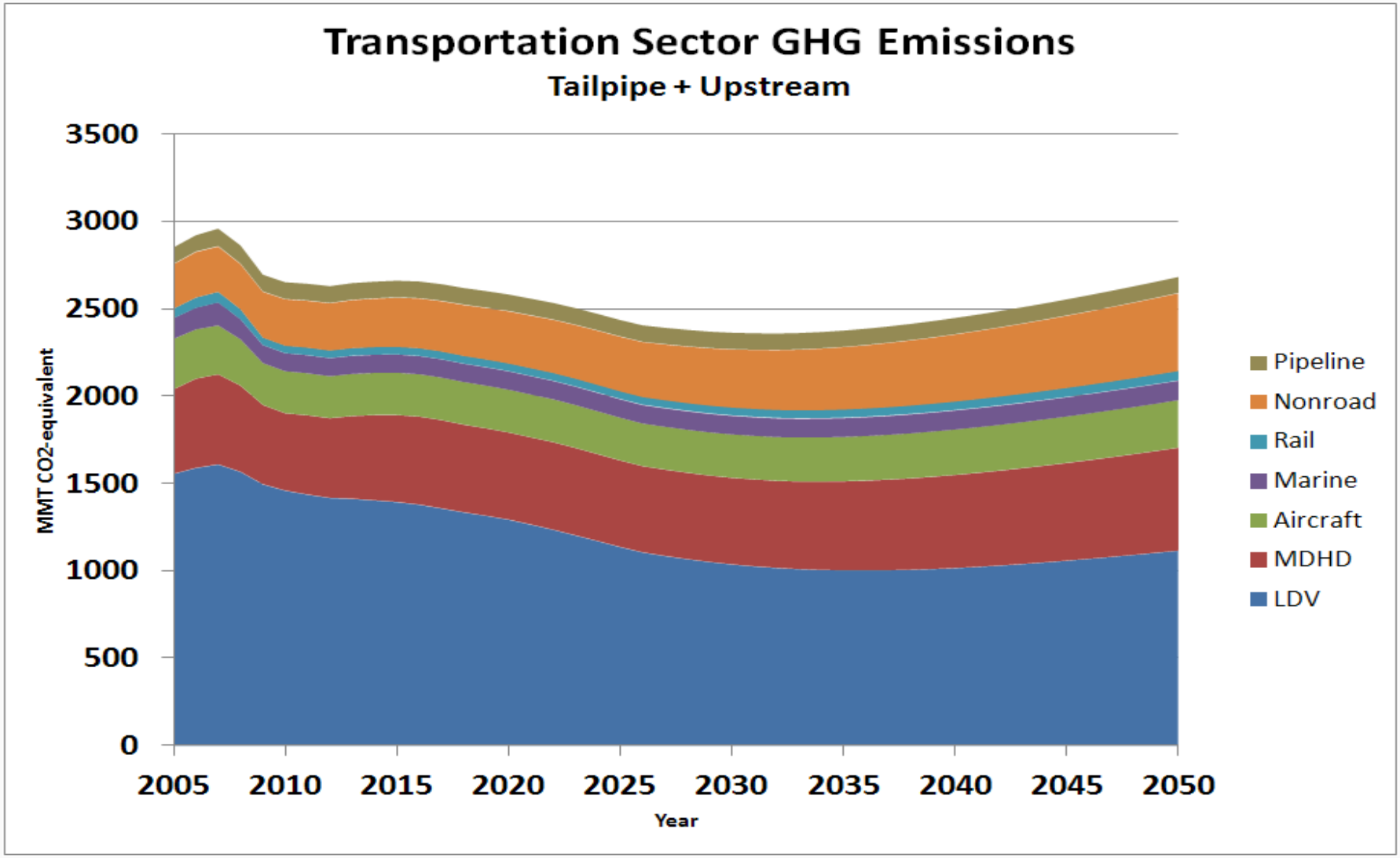
- **3,000 Partners**
- **28 Million Metric Tons CO2 reduced**
- **Accelerated development and investment** in energy-efficient, climate friendly technologies and practices



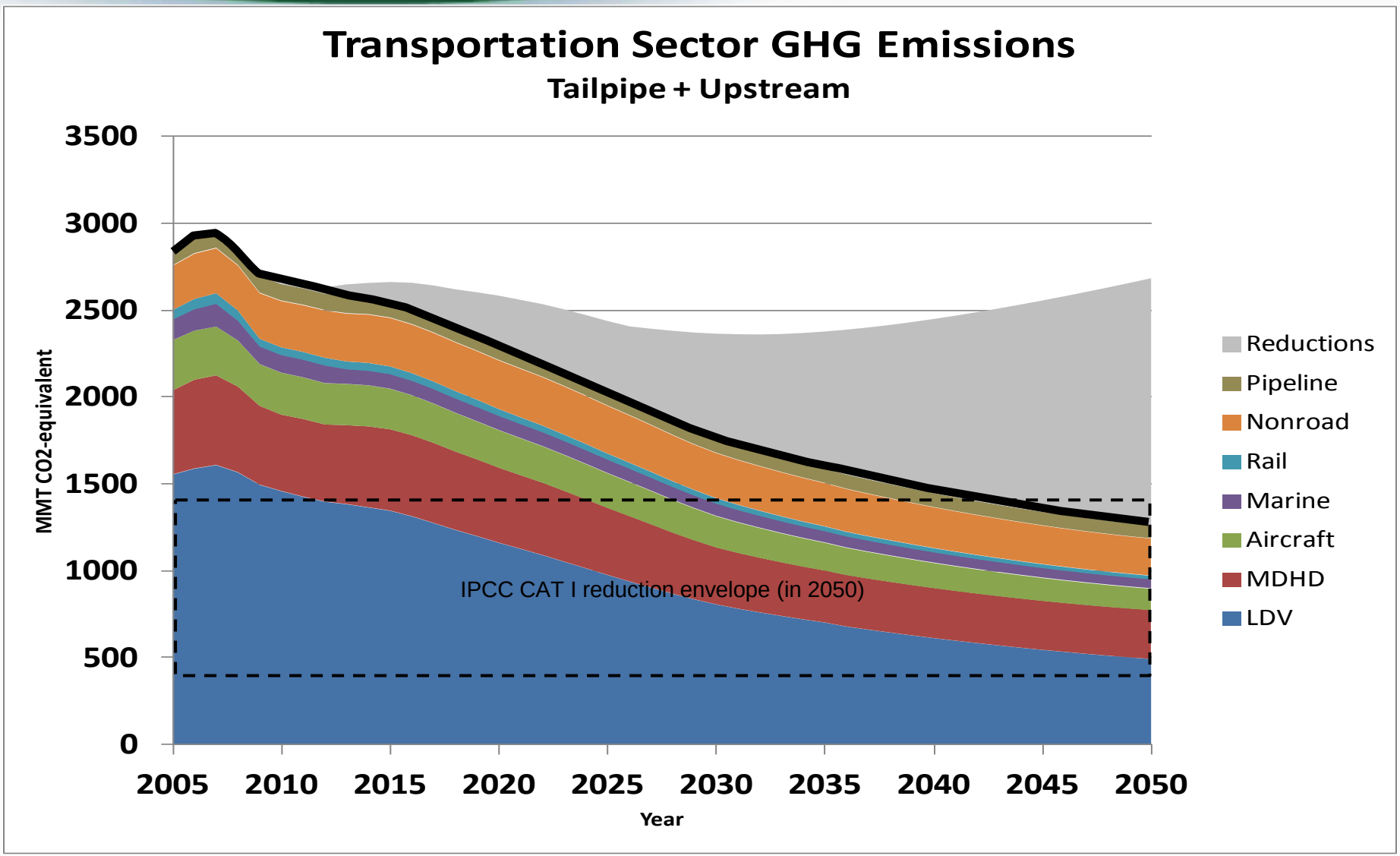
SmartWay Serving as Global Role Model

- In 2012, US and Canada announced SmartWay's expansion into Canada
- Mexico implemented a green freight program, *Transporte Limpio* ("Clean Transportation") modeled after SmartWay
- China implementing a multimillion dollar China Green Freight Initiative based on SmartWay
- UNEP Clean Air and Climate Coalition selected "Green Freight" as 1 of 3 transportation projects to reduce climate emissions in emerging regions
  - Green Freight initiative to be modeled after SmartWay
  - Other approaches are low sulfur fuel and cleaner vehicles

Growth Will Overcome Standards

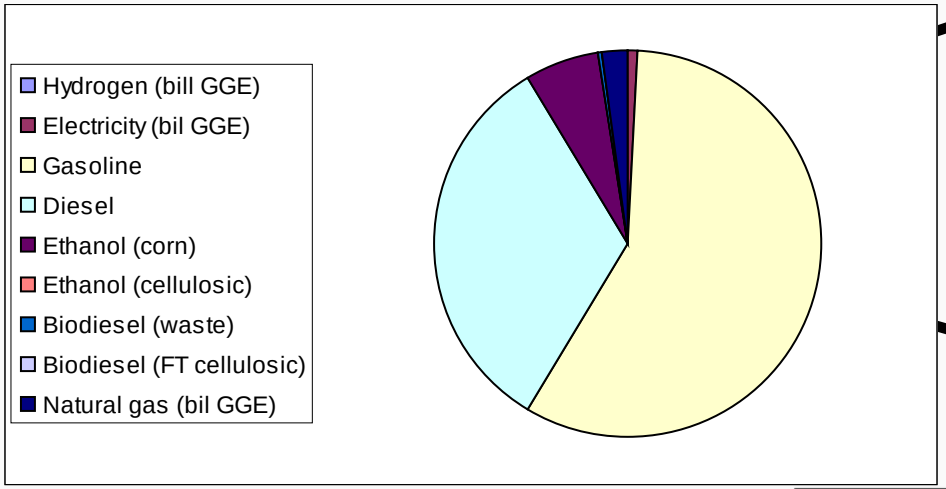


Aggressive But Plausible Reductions



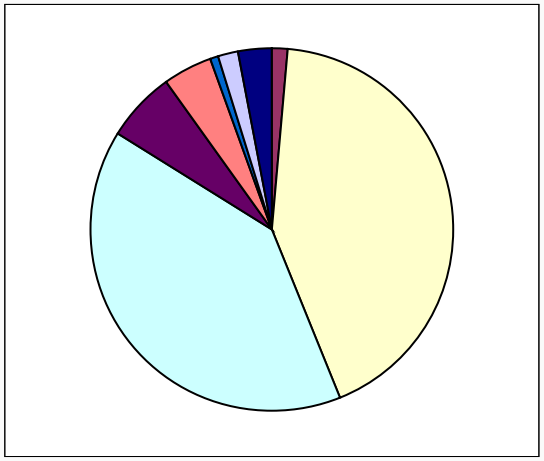
A More Diversified Fuel Supply

2010 actual



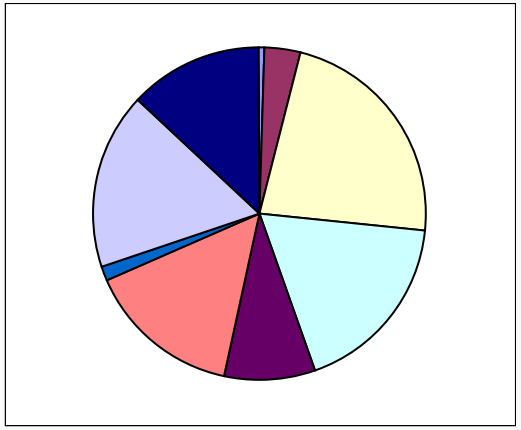
234 bil GGE total

2050 BAU



250 bil GGE total

2050 Aggressive Plausible Scenario



160 bil GGE total

How Low Can We Go?

- The US transportation sector **still has large opportunities for GHG reductions**
- Transportation sector should be able to reach **50% reduction from 2005 levels** through aggressive yet plausible approaches
  - Includes assumptions about reduced VMT
  - More available with additional technology push
- To reach this goal, we need to make changes **across the sector and across all legs of the stool**
- The largest opportunities are in **light-duty and heavy-duty vehicles PLUS fuels diversification**
- **EPA** will remain a strong partner in reducing GHG from transportation

Future Considerations

- Now is not the time to rest on our successes, rather to learn from them
- Multi-faceted approach necessary but also realistic in achieving long term GHG reductions
  - Fuels, vehicles and operation improvements combine to reduce GHG
  - We know how to do regulations but market demand will be key to our successes
    - Performance-based standards
- Demonstrating benefits to consumers as well as society will drive demand
  - Actions with co-benefits should be relentlessly pursued
- Analysis supported by data and hard information (not wishful thinking) are necessary
  - GHG vehicle standards good example
- Need to support broad thinking

"The country needs and, unless I mistake its temper, the country demands **bold, persistent experimentation**. It is common sense to take a method and try it: If it fails, admit it frankly and try another. **But above all, try something**. The millions who are in want will not stand by silently forever while the things to satisfy their needs are within easy reach."

FDR, Address at Oglethorpe University, May 22, 1932