

Update of U.S. EPA GHG Rulemaking

Christopher Grundler, Deputy Director
Office of Transportation and Air Quality
US Environmental Protection Agency

January 16, 2008

Overview

- Context for EPA GHG rulemaking
- Key elements of vehicle GHG work
- Status of rulemaking

January: State of the Union

- In his 2007 State of the Union Address, the President called for a reduction in petroleum-based gasoline consumption by 20% in 10 years (Twenty-in-Ten plan)
 - 15% through renewable plus alternative fuels; equivalent of ~35B gallons
 - 5% through vehicle efficiency improvements; equivalent of ~4% per year

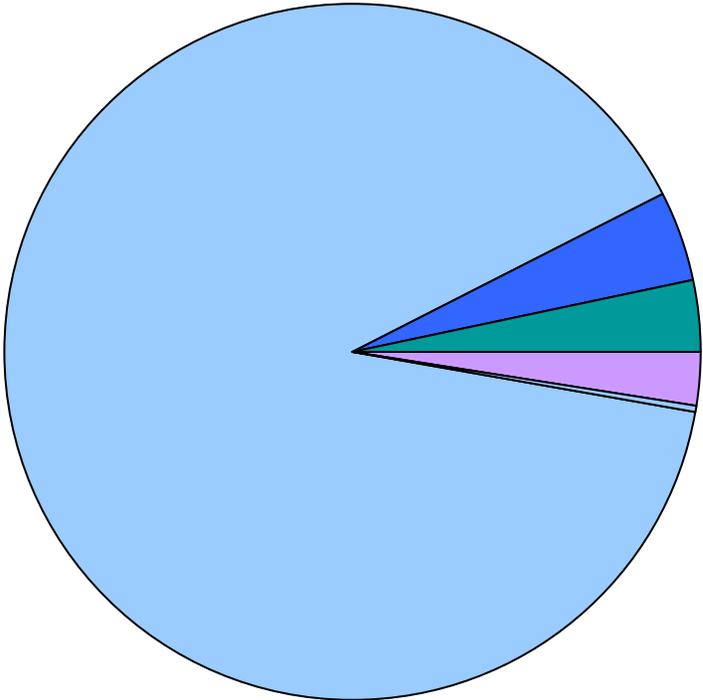
Impetus for Action

- April 2, 2007 U.S. Supreme Court Decided EPA Authority Under Clean Air Act
- May 14, 2007 Executive Order: EPA to work together with DOT , USDA and DOE using existing authority
- “ . . to protect the environment with respect to greenhouse gas emissions from motor vehicles, nonroad vehicles, and nonroad engines, in a manner consistent with sound science “
- Use “20-in10” Plan as starting point

Process & Authority

- EPA developed GHG rules, coordinating with DOT, DOE, and USDA, in compliance with the Executive Order
- Under CAA authority
 - Vehicles:
 - Primary authority to regulate motor vehicle emissions falls under Section 202(a)(1)
 - “The Administrator shall by regulation prescribe ...standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or motor vehicle engines which in his judgment cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare.”
 - Fuels:
 - 211(c) allows EPA to set controls on fuels as a means for reducing emissions of an air pollutant that endangers public health or welfare
 - 211(o) allows EPA to require greater volumes of renewable fuels

Light Vehicle GHG Emissions



- 89.7% Tailpipe CO2 (Captured on FE tests)
- 4.3% A/C Refrigerant
- 3.1% A/C CO2 (Currently not captured)
- 2.7% Tailpipe N2O
- 0.2% Tailpipe/CH4

Key Vehicle Issues/Analyses

- Program Structure
 - Vehicle classes (cars, light trucks, MDPVs)
 - Test procedures
 - Covered pollutants and metric
 - Form of the standard
 - Compliance program
- Program Stringency
 - Technology analysis
 - 20-in-10 target, CAA req'ts, Volpe modeling analysis
- Economic and Environmental Impacts
 - GHG and criteria emissions reductions
 - Fuel savings
 - Societal costs and benefits

Form of the Standard

- Universal standard
 - All manufacturers meet same numerical fleet-wide standard, regardless of utility attributes
 - e.g. EPA Tier 2 criteria emissions standards
- Attribute-based standard
 - All manufacturers have fleet-wide standards calculated on the same relationship between CO2 emissions and size, weight, and/or engine displacement
 - Higher CO2 targets for higher utility vehicles
 - Lower CO2 targets for lower utility vehicles
 - e.g. EPA heavy-duty and nonroad emissions standards and NHTSA 2008-2011 reformed CAFE standards
 - Issue: need “backstop” to ensure minimum CO2 performance?

Technological Feasibility Assessment

- Analyzed 40+ individual technologies for reducing GHGs from vehicles
 - Considered all vehicle GHGs: CO₂, HFC, N₂O, CH₄
- Vehicle CO₂ technologies
 - Cost and effectiveness estimates for five representative vehicle classes
 - Includes the application of cost-reducing manufacturer learning
 - Traditional and advanced technologies
 - Engine, transmission, vehicle design, hybrids, plug-in electric hybrids, high efficiency air conditioners
 - New technology effectiveness study from independent engineering firm Ricardo
- Wide-range of stringency evaluated

New Economic Analysis

- Consideration of vehicle residual value in payback analysis
- Economy-wide impacts analysis using two nationally recognized modeling platforms
- New analysis of VMT Rebound Impact
- Updated analysis of petroleum Energy Security valuation
- Assessment of the Social Cost of Carbon

Status

- Substantive regulatory work completed in December
- EISA signed on December 19, 2007
 - Law changed NHTSA Authority
 - Adds to EPA CAA Renewable Fuels Program
- Reviewing Effect of EISA on overall effort