EPA and NHTSA: The New Auto Greenhouse Gas and CAFE Standards

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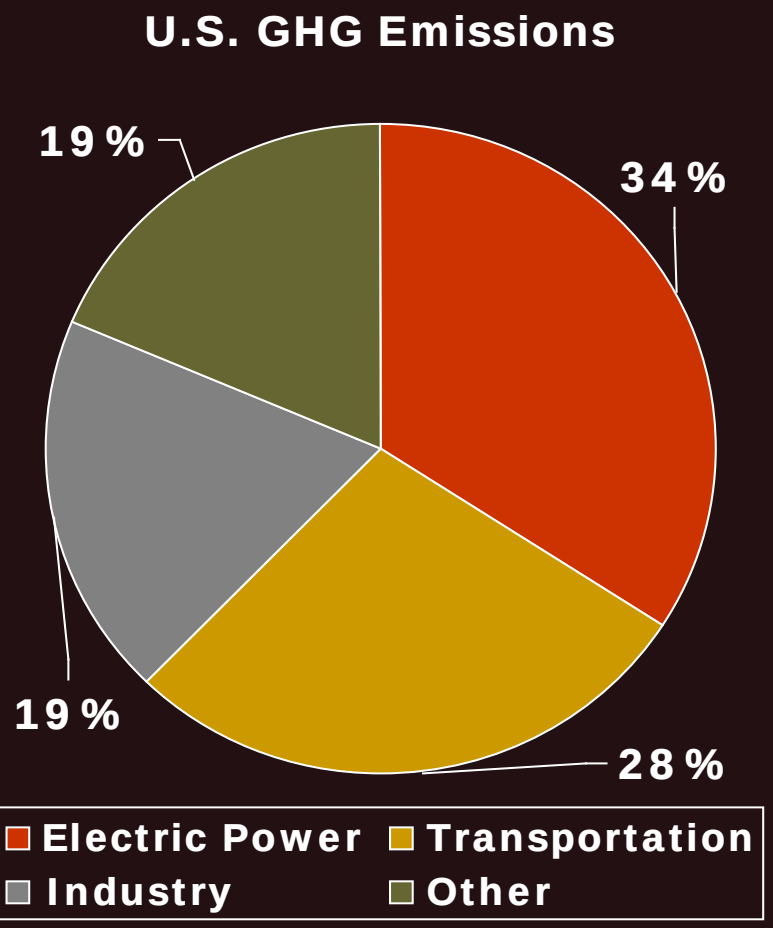
Agenda

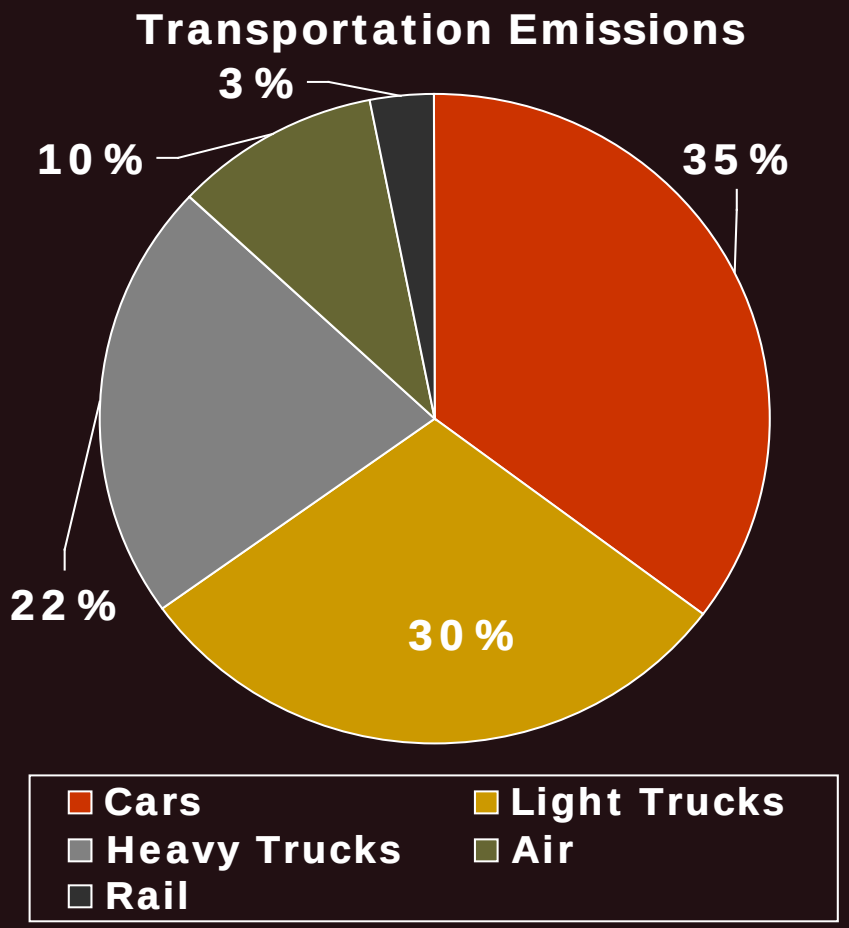
- Short History of Automotive Standards
- Discussion of EPA and NHTSA Final Rule
- Estimated Benefits and Costs
- Technology Application

- Heavy Duty Truck Standards
- Other Mobile Sources
- Future Auto Standards

Automotive Standards

Why Reduce GHGs from Automobiles?





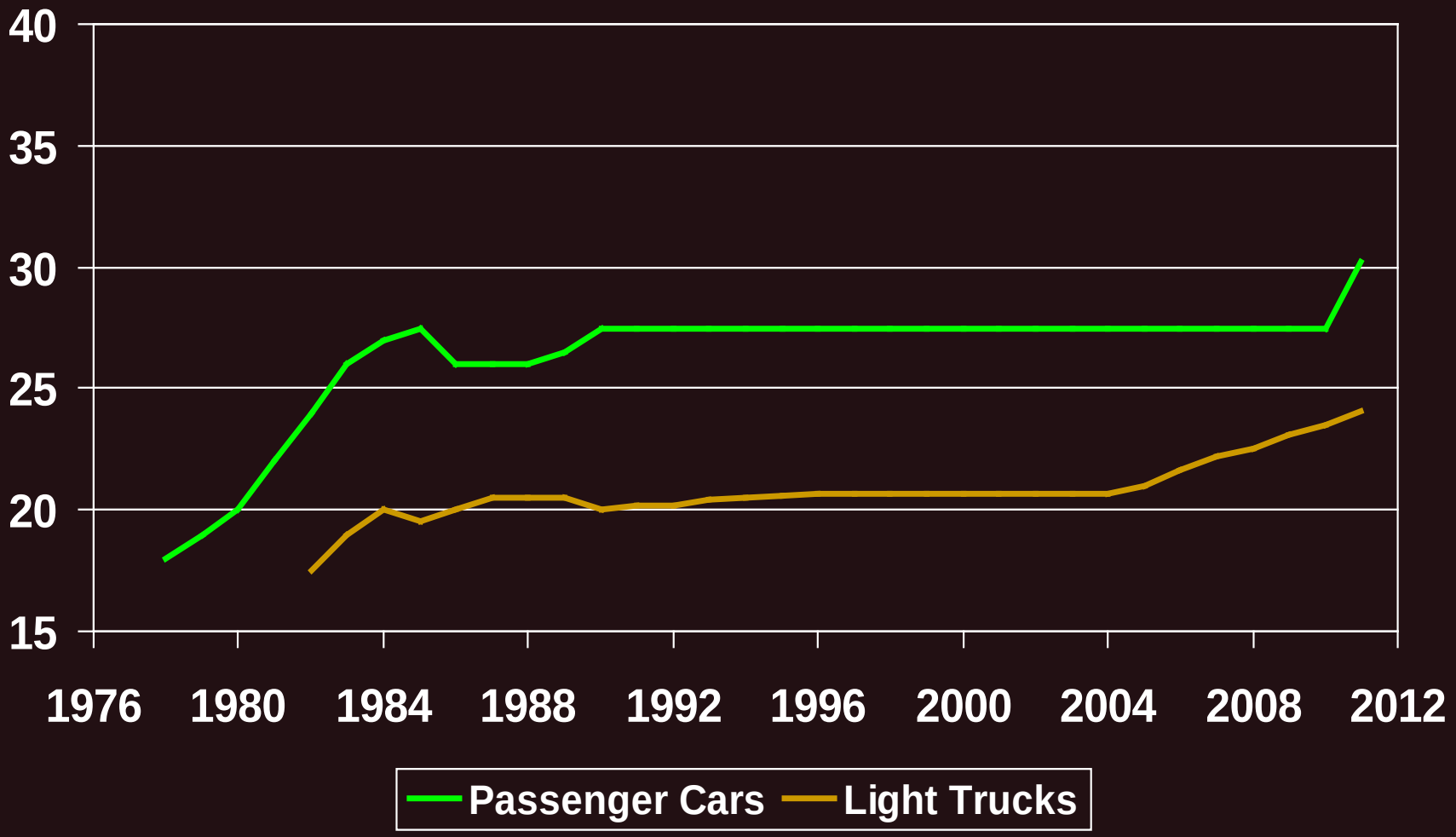
Short History of Fuel Economy and Greenhouse Gas Standards

- 2004 - California issues automotive GHG standards to start in MY2009; 13 other states (plus DC) sign on
- May 2007 – Massachusetts v. EPA
- December 2007 – EISA signed: 35 mpg by 2020
- December 2009 – EPA issues “Endangerment Finding”
- May 2009 – Obama Administration secures commitments from CA, automakers
- September 2009 – EPA and NHTSA propose joint rules for MY2012-MY2016
- April 1, 2010 – Final rule announced

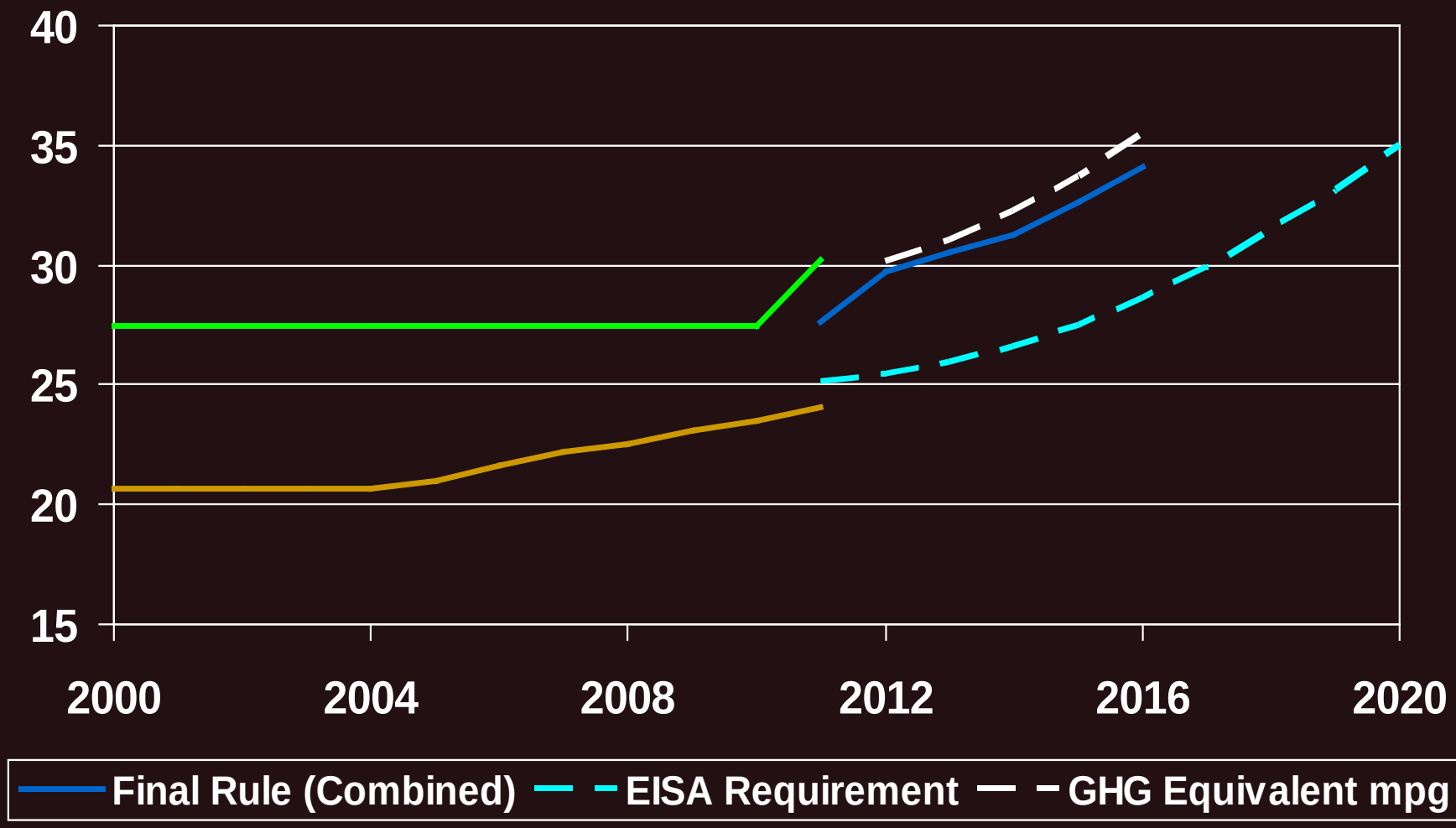
EPA's and NHTSA's Authorities

- EPA
  - Clean Air Act – Authority to regulate greenhouse gas emissions
    - No authority to regulate fuel economy
  - Clean Air Act *requires* vehicle emissions standards if EPA completes "cause or contribute" finding
  - California may petition EPA to establish state standards
- NHTSA
  - Energy Policy and Conservation Act (EPCA) – Authority to set CAFE standards
    - No authority to regulate GHGs
  - States *explicitly* preempted from setting fuel economy standards
  - Energy Independence and Security Act of 2007 – Mandates CAFE increase to 35 mpg by2020

Historic CAFE Standards



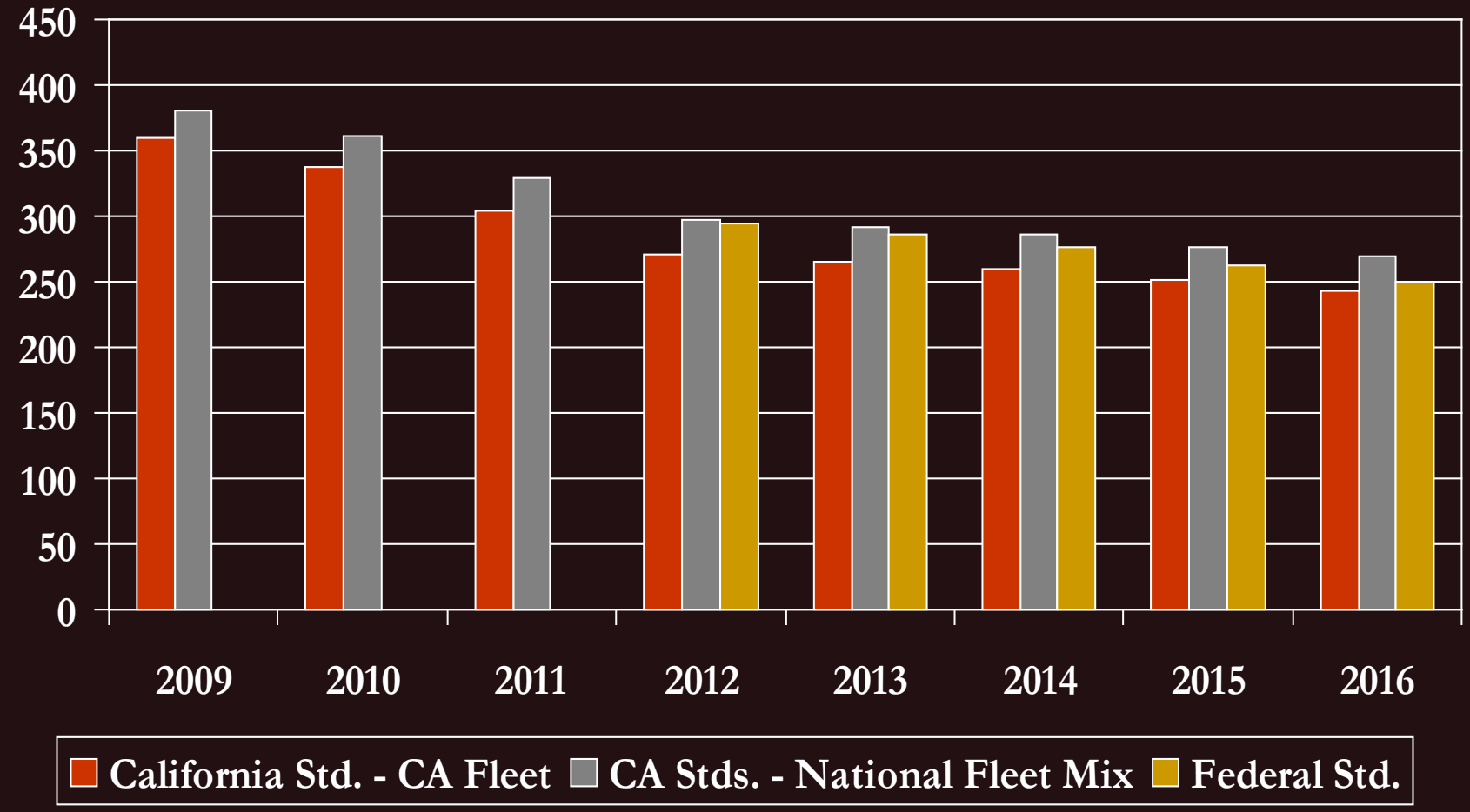
Future CAFE Standards



The Greenhouse Gas Standards: When is 35.5 mpg not 35.5 mpg?

- Widely stated target of 35.5 mpg CAFE by MY2016
  - 35.5 mpg number derived from EPA's target of 250 g CO_2 eq./mile
  - But CO_2 is not the only greenhouse gas – EPA expects savings from HFC reductions
  - Also, some CO_2 emissions not accounted for in CAFE test

CA and Federal Greenhouse Gas Emissions Standards (grams/mile)

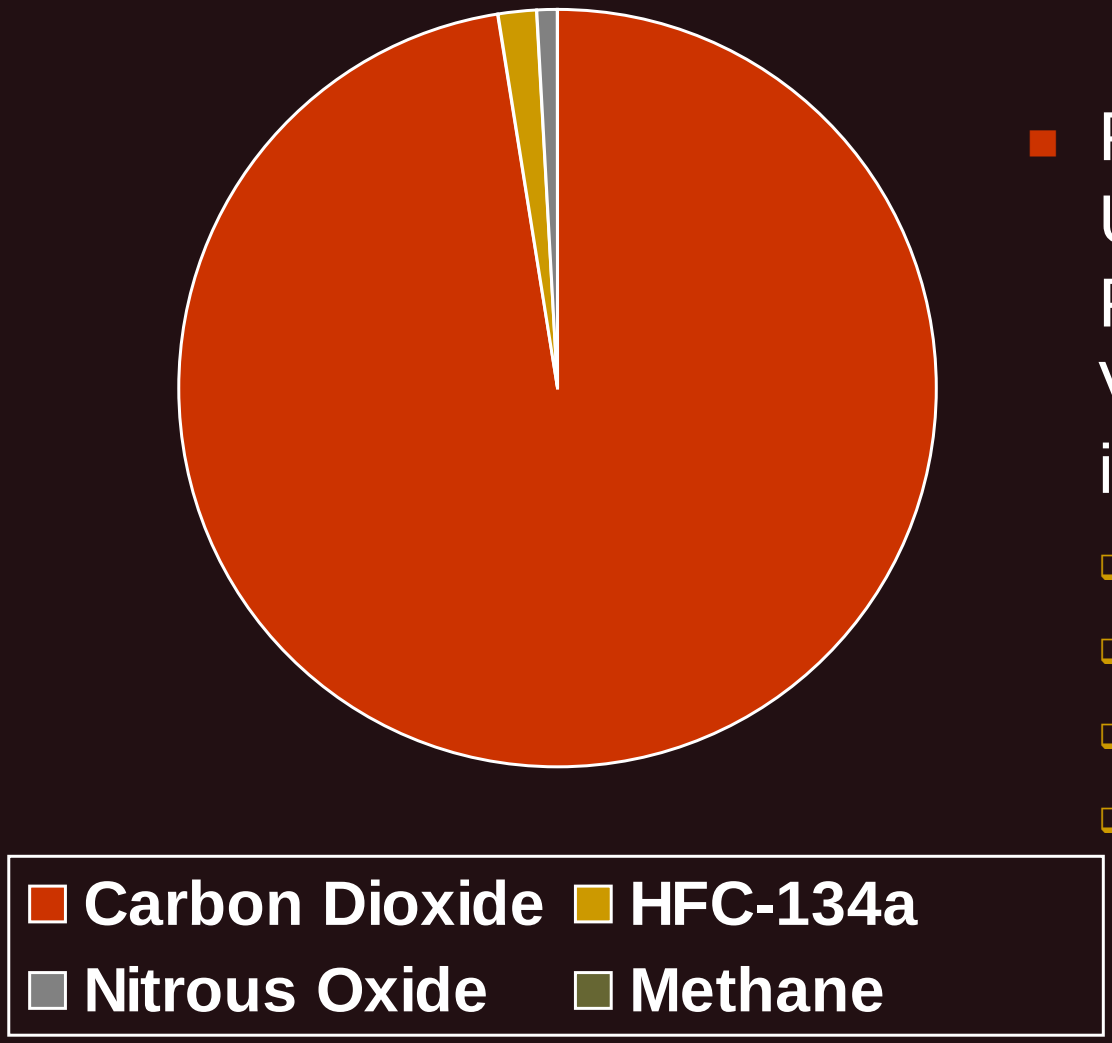


Source: California Air Resources Board, EPA and NHTSA Final Rule

Reduction Strategies Under CA Program

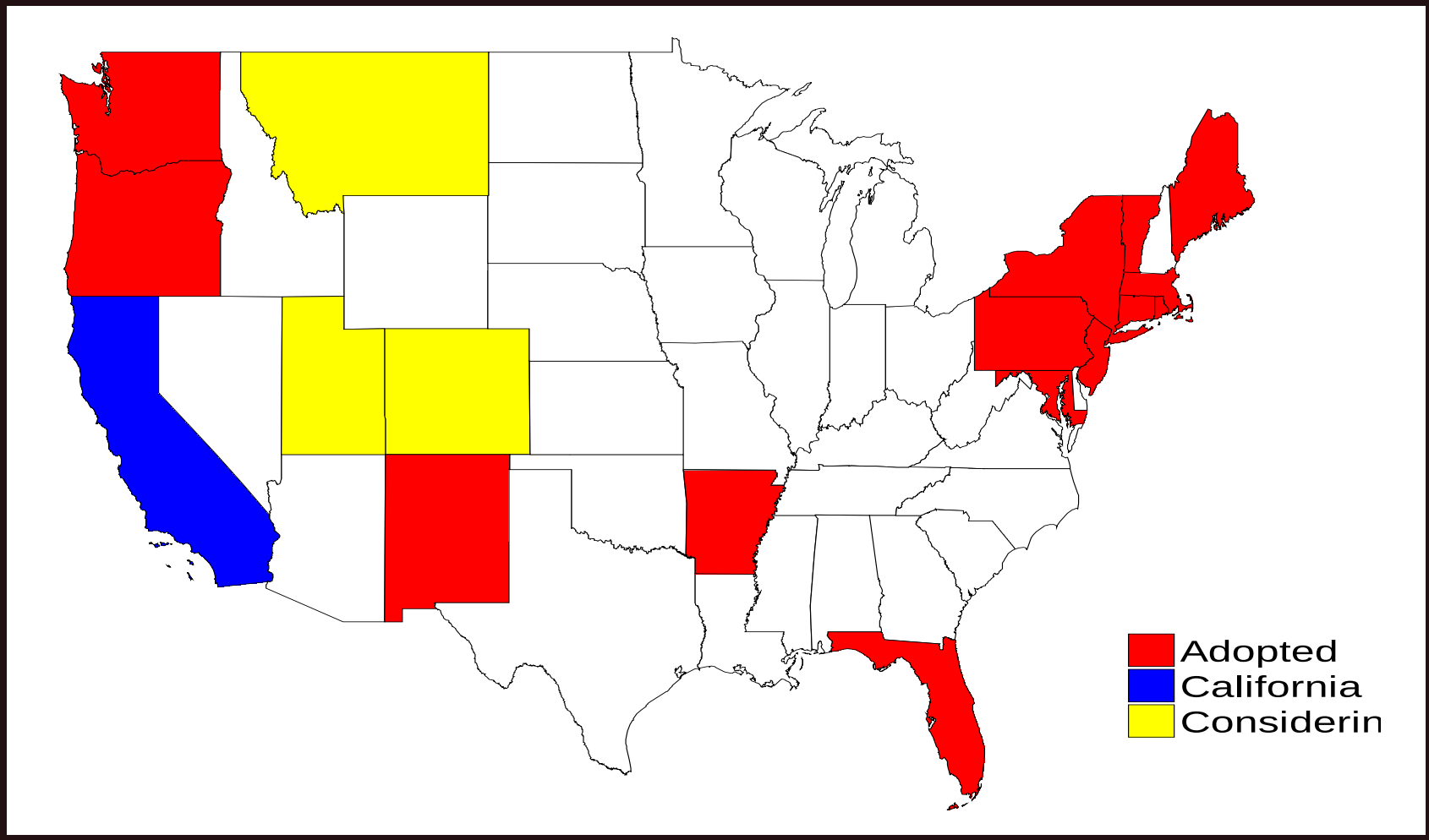
- Higher fuel efficiency (for CO_2 reduction)
  - More efficient engines and transmissions
  - Lower rolling and wind resistance
  - Lighter weight
  - Hybrids, Plug-in hybrids
- Lower-carbon alternative fuels (CO_2)
- Improved air conditioner systems (HFC-134a)
- Improved emissions control systems (CH_4, N_2O)

But CO_2 is the Key Greenhouse Gas



- Percentage of Uncontrolled CA Passenger Vehicle Emissions in 2020
  - CO_2: 97.4%
  - HFC-134a: 1.8%
  - N_2O: 0.7%
  - CH_4: 0.1%

14 States Adopted California's Standards



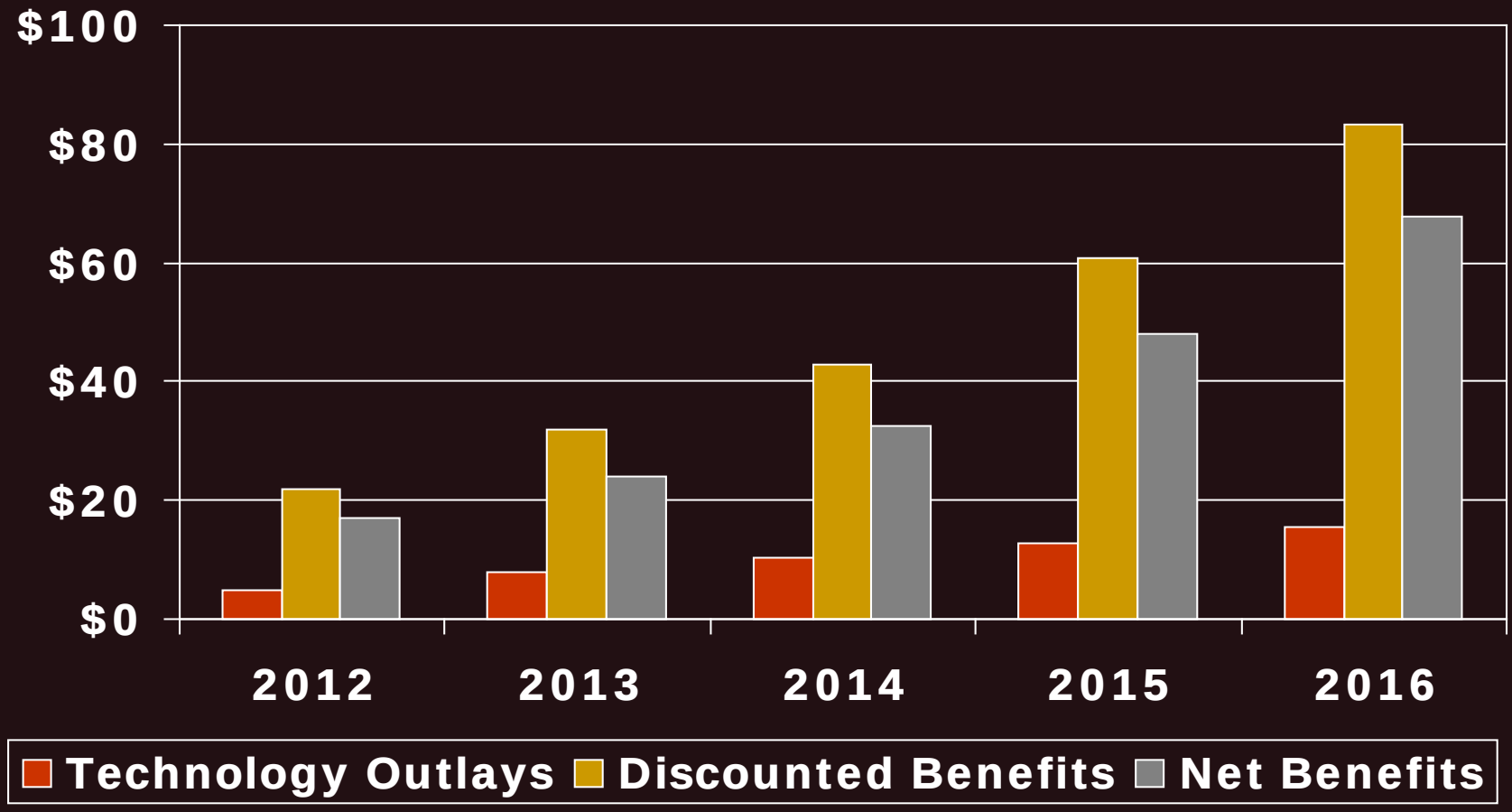
The Agreement

- "One national standard"
- But actually separate standards for CAFE, GHGs
  - NHTSA and EPA to coordinate, and to the extent they can, harmonize standards
- Commitments from automakers, California
  - California will abandon class-based system for EPA's size-based system; will accept vehicles that meet federal standards

Flexibility

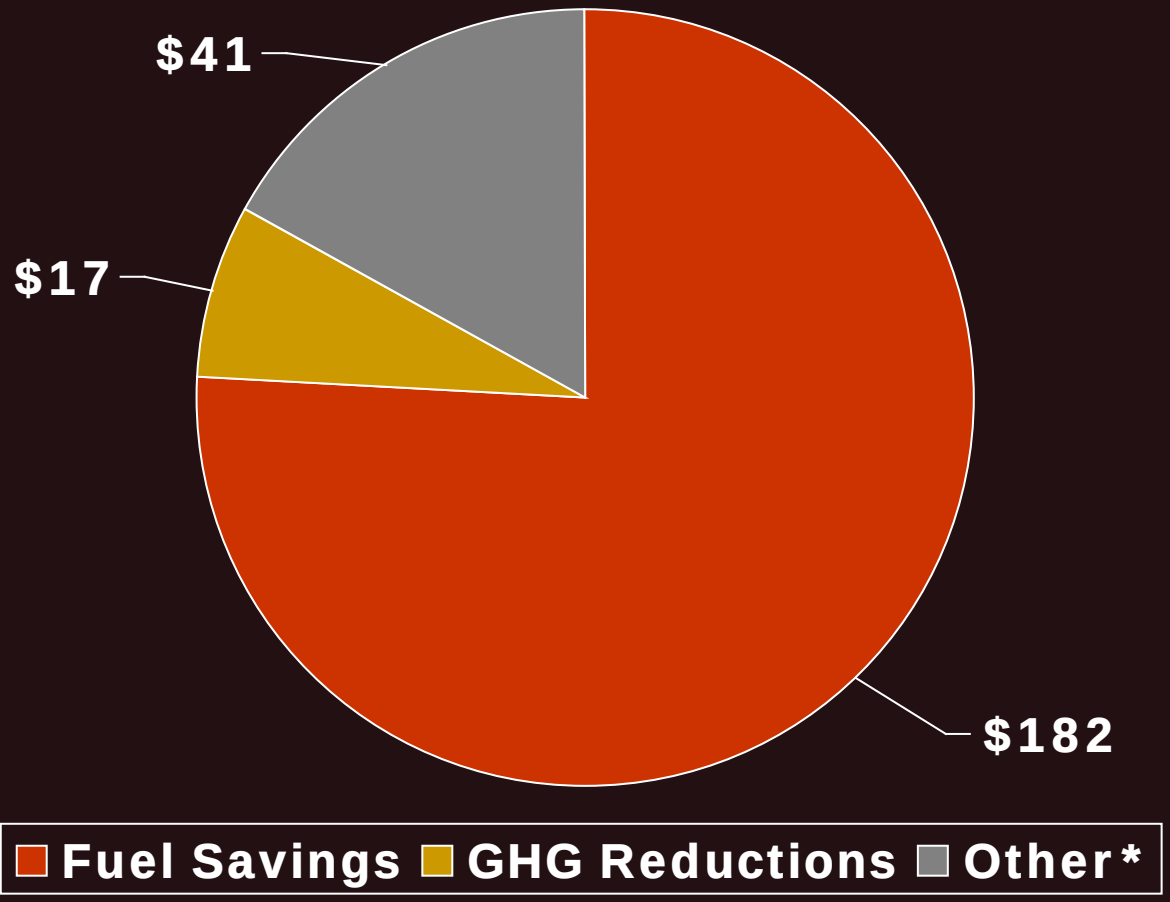
- Banking, averaging, and trading for both programs
  - Within and among classes, fleets
  - Some limits to trading (e.g., domestic cars under CAFE)
- Flexible/Alternative Fuel Vehicle (FFV/AFV) credits
- For GHG rule:
  - Non-CO_2 reductions, advanced technology vehicle credits, early action credits, idle reduction
  - Additional flexibility for small automakers

EPA's Estimate of Costs and Benefits (billion 2007$)



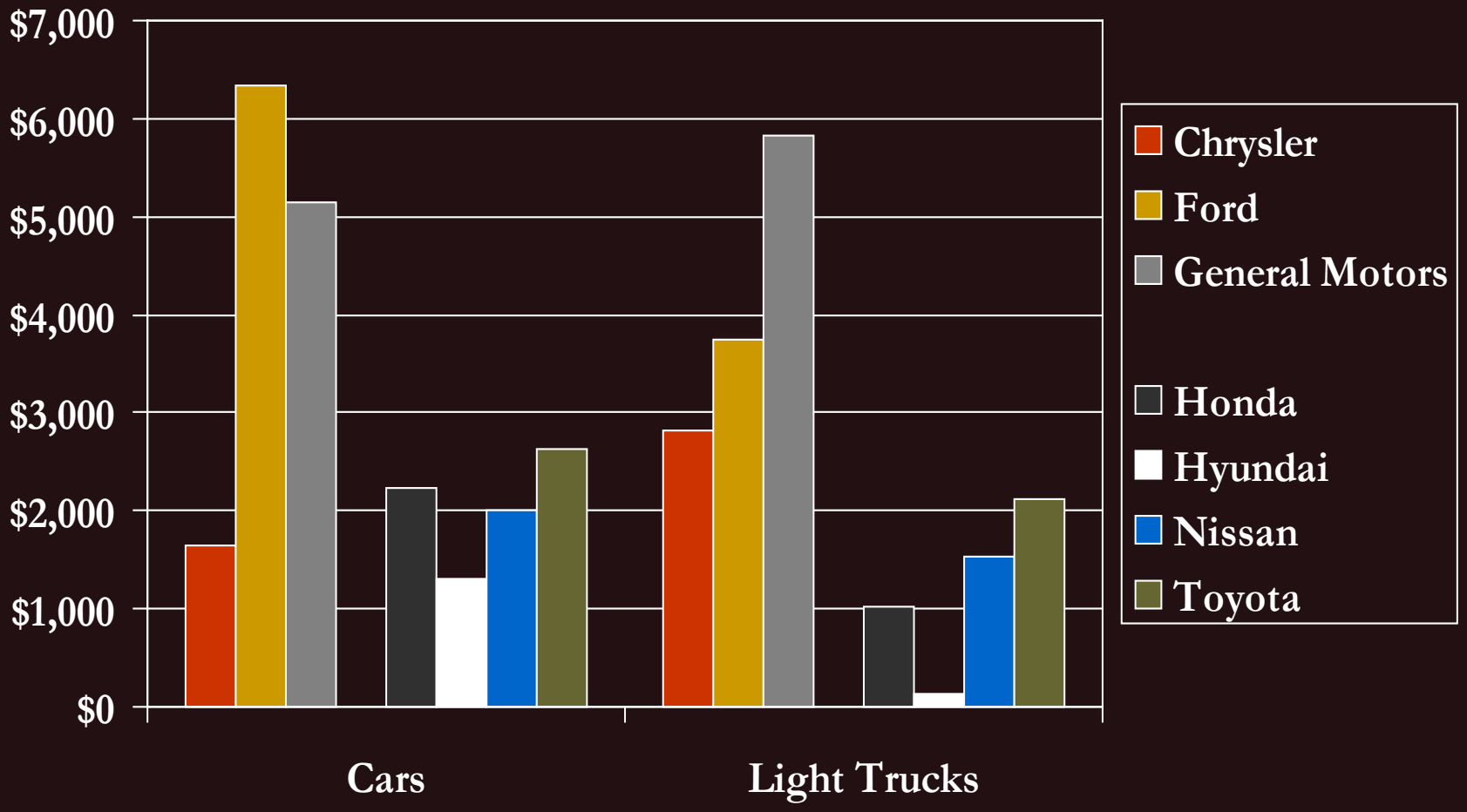
Source: EPA and NHTSA, Final Rule, April 1, 2010

Majority of Benefits Come From Reduced Gasoline Consumption (billion 2007$)



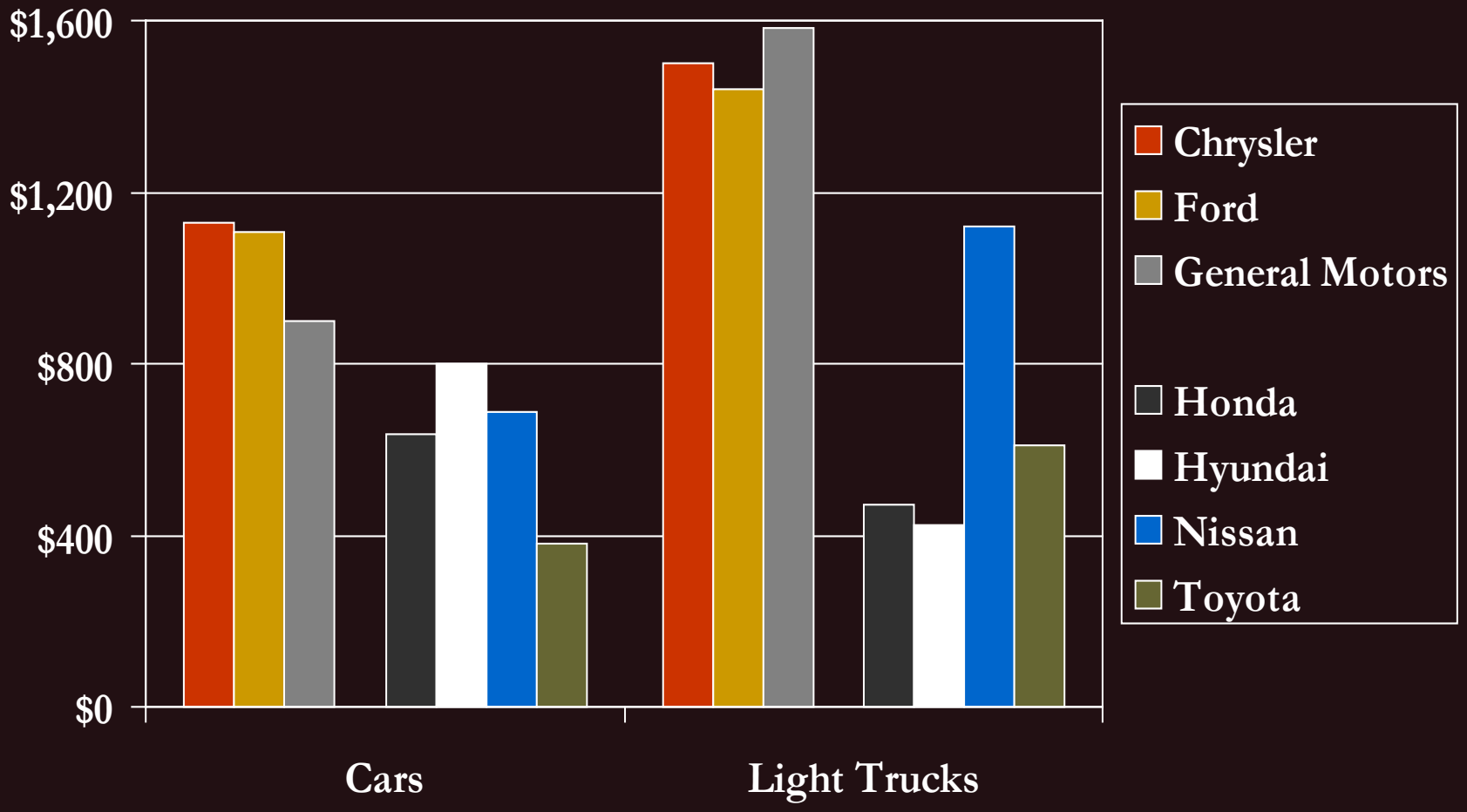
* Other includes: Reduced risk of fuel price shocks, reduced refueling time, reduced particulate matter emissions

EPA's Estimate of Total Costs for Selected Automakers – MY2012-MY2016 ($ millions)



Source: EPA and NHTSA, Final Rule, April 1, 2010

EPA's Estimate of Per-Vehicle MY2016 Incremental Cost for Selected Automakers



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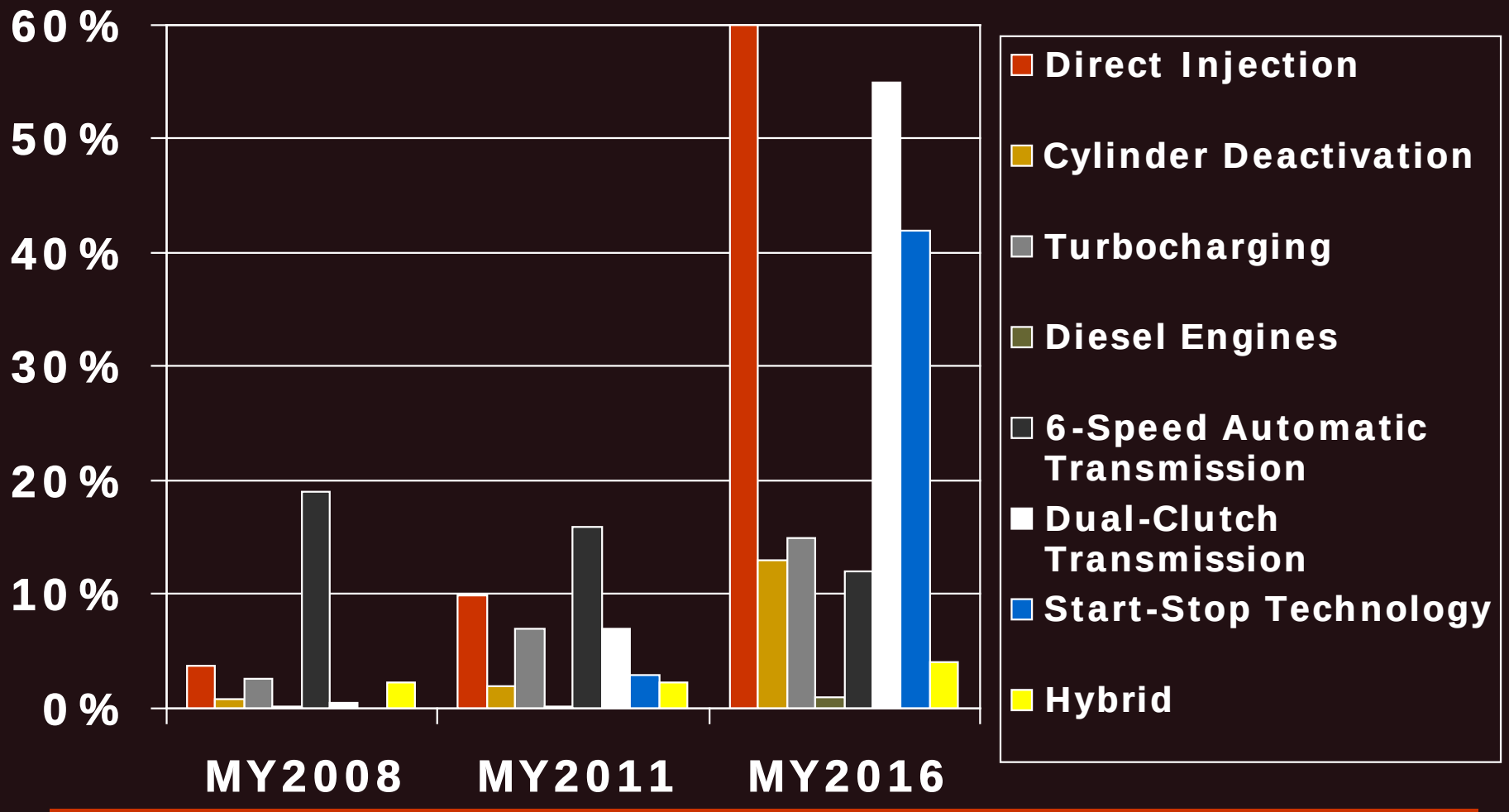
Some of the Technology to Be Used

- Direct-Injection Gasoline Engines
- Cylinder Deactiviation
- Turbocharging
- Diesel Engines
- 6-Speed Automatic Transmissions
- Dual-Clutch Manual Transmissions
- Start-Stop Technologies
- Hybrids

Technology to be Used (% Market Penetration)



Next Up: Trucks; Auto Standards Part 2

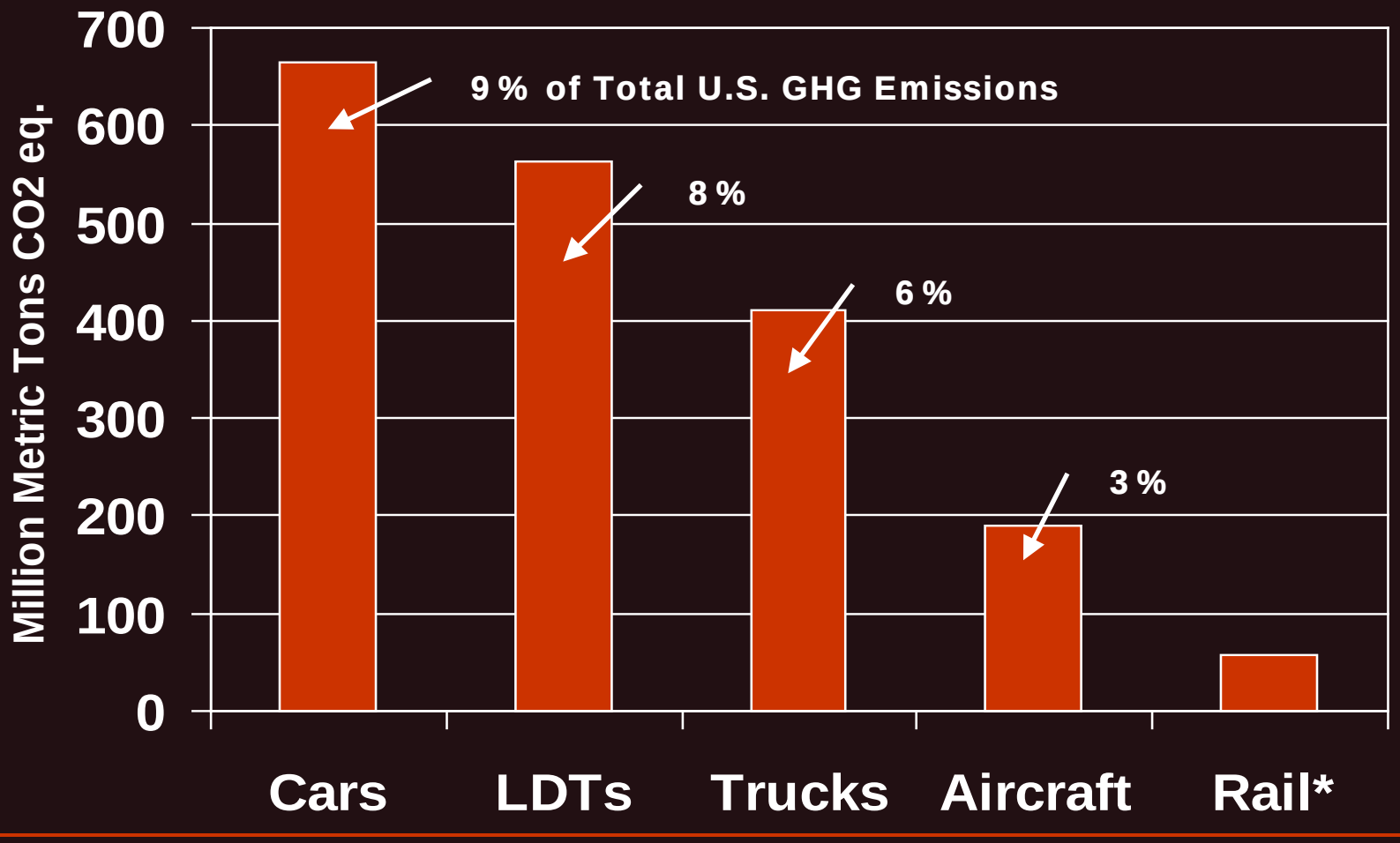
EPA Clean Air Act Authority

- Section 202(a) – same section authorized GHG standards for light duty vehicles – requires standards for any class of motor vehicles whose pollution endangers public health or welfare
- December 15, 2009 endangerment finding explicitly covers medium- and heavy-duty trucks
- EPA plans to propose GHG standards in June or July

EISA Requirements (P.L. 110-140)

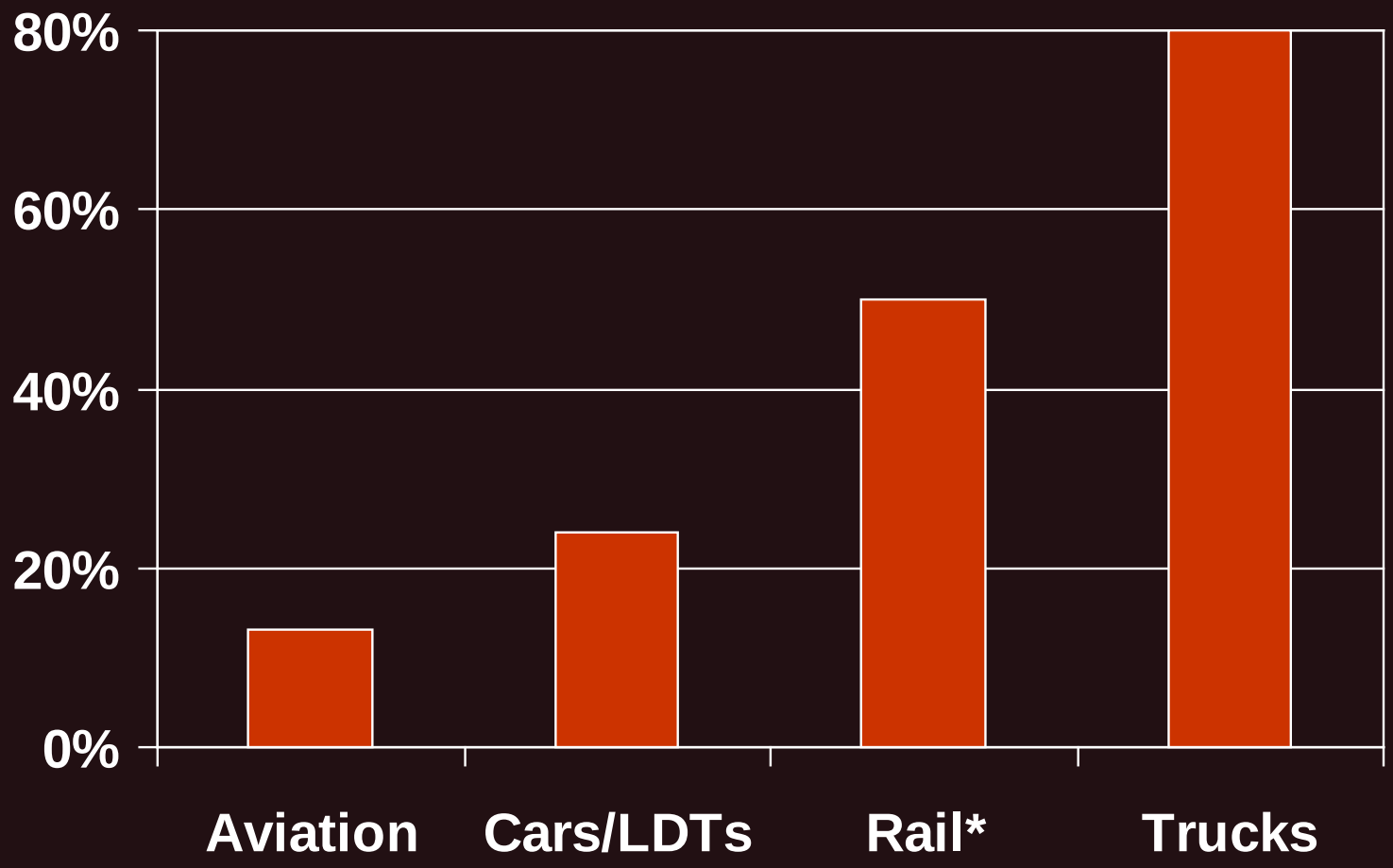
- Section 102 requires program for medium- and heavy-duty trucks to achieve “maximum feasible improvement” in fuel efficiency
- But the timeline for any rule could be several years

GHG Emissions from Mobile Source Categories, 2007



No other mobile source category is greater than 1 % of U.S. emissions

Growth of GHG Emissions from Mobile Sources, 1990-2007



Emission Reduction Strategies

- Engine technology
- Aerodynamic drag
- Tire rolling resistance
- Operational factors (e.g., idling)
- EPA stated in 2008, “We see a potential for up to a 40% reduction in GHG emissions from a typical heavy-duty truck in the 2015 timeframe.”

Other Mobile Sources

- Other mobile sources include numerous categories that EPA was slow to regulate for conventional pollutants
- Aircraft is biggest category: regulation is complicated by international competitive issues
- Other categories are <1% of total emissions each, so attention is likely to turn to stationary sources

Auto Standards Part 2 – MY2017 and Beyond

- California is working on phase 2 of its vehicle GHG standards (MY2017-MY2025)
  - Could have rules this summer or fall
- EPA Administrator Jackson informed House Energy & Commerce Committee
  - Next round of rulemaking is coming
  - Negotiations likely to follow model in 2012-2016 rule, and likely to happen soon
  - But negotiations have not yet begun

Thank You

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