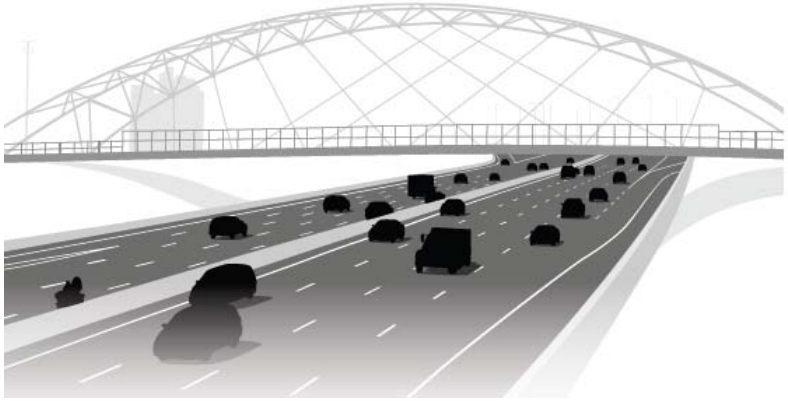


2017-2025 U.S. CO_2 and MPG Standards

Progress towards a U.S. Low Carbon Fleet

Roland J. Hwang

Transportation Program Director

Natural Resources Defense Council

Presented at the

LowCVP Eighth Annual Conference

Clifford Chance Auditorium, Canary Wharf

Thursday 9 June 2011

National Program 2017-2025

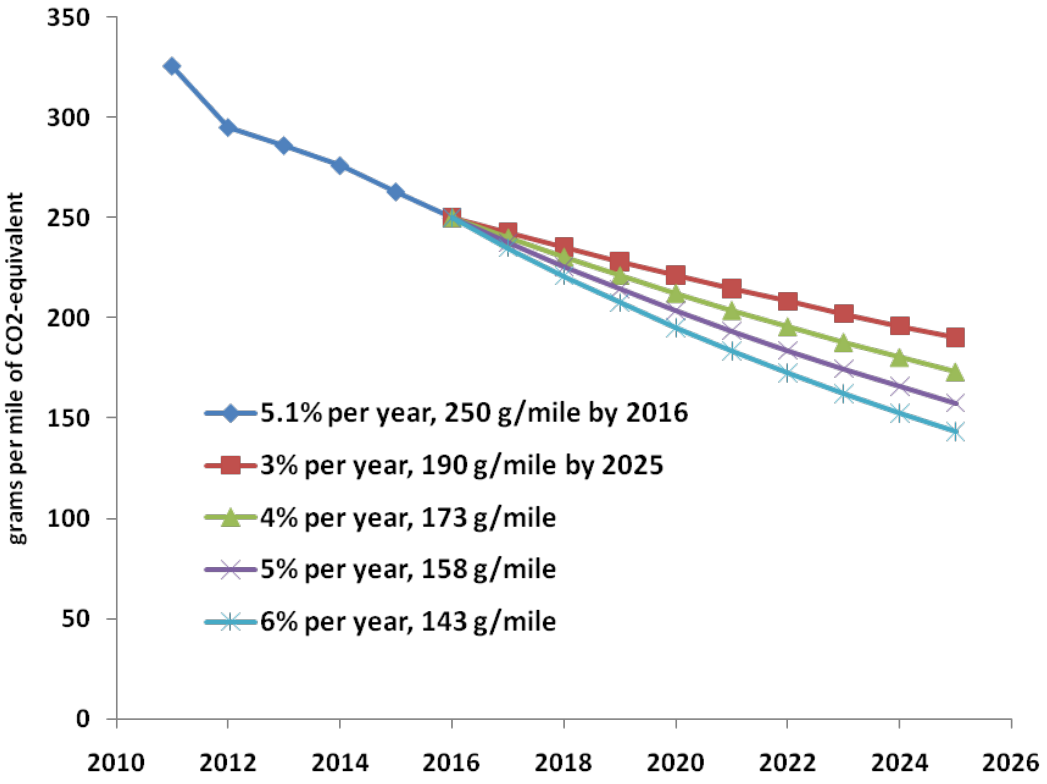
Timeline For Proposals

- 3 Agencies at table

  - California and EPA have authority under Clean Air Act to set CO_2 emission standards
  - NHSTA has sole authority to set fuel economy standards

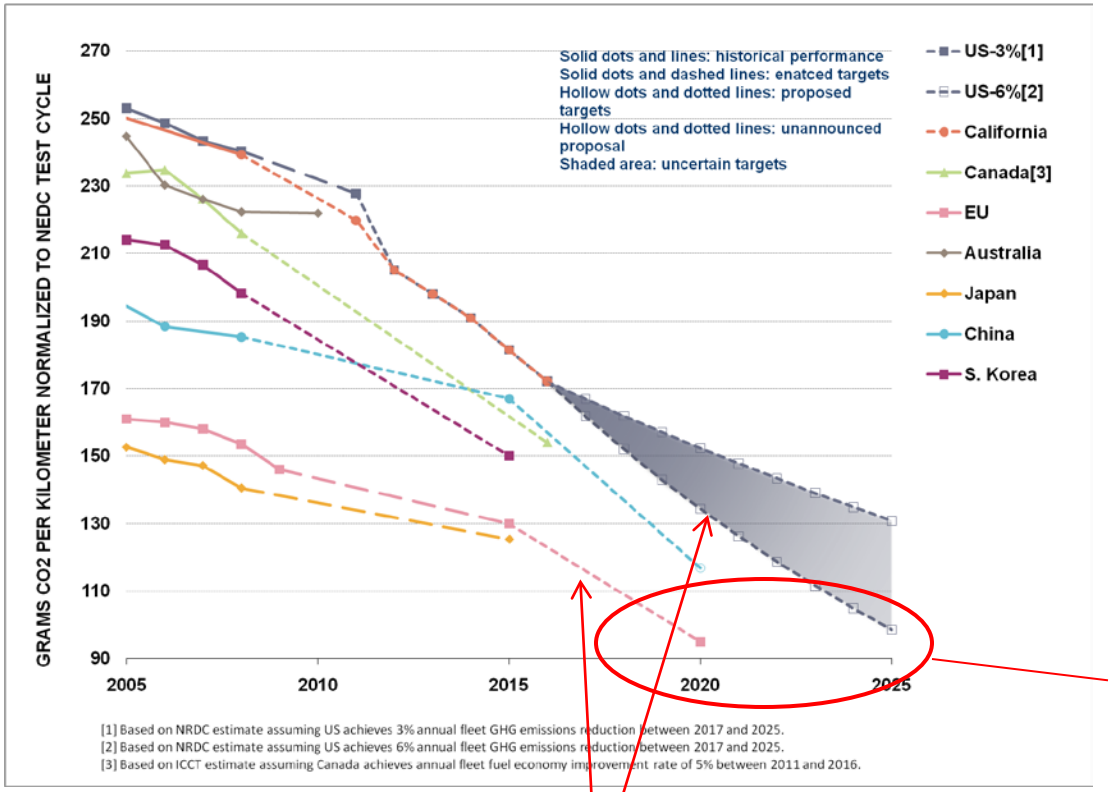
- Proposal Target September 28, 2011
  - All three agencies have agreed to coordinate technical assessment and timing of proposals
  - California will adopt final rule November 2011
  - EPA and NHTSA will finalize rule July 2012

Stringency of Standard



- The 3 agencies have found up to 6% per year reduction in fuel consumption possible.
- Phase 1 of National Program (2012-2016) requires 5.1% per year rate of improvement.
- From 1975 to 1980, auto industry averaged 7.4% per year and from 1975 to 1985, averaged 4.8% per year rate of improvement.

U.S. and EU Standards Converging



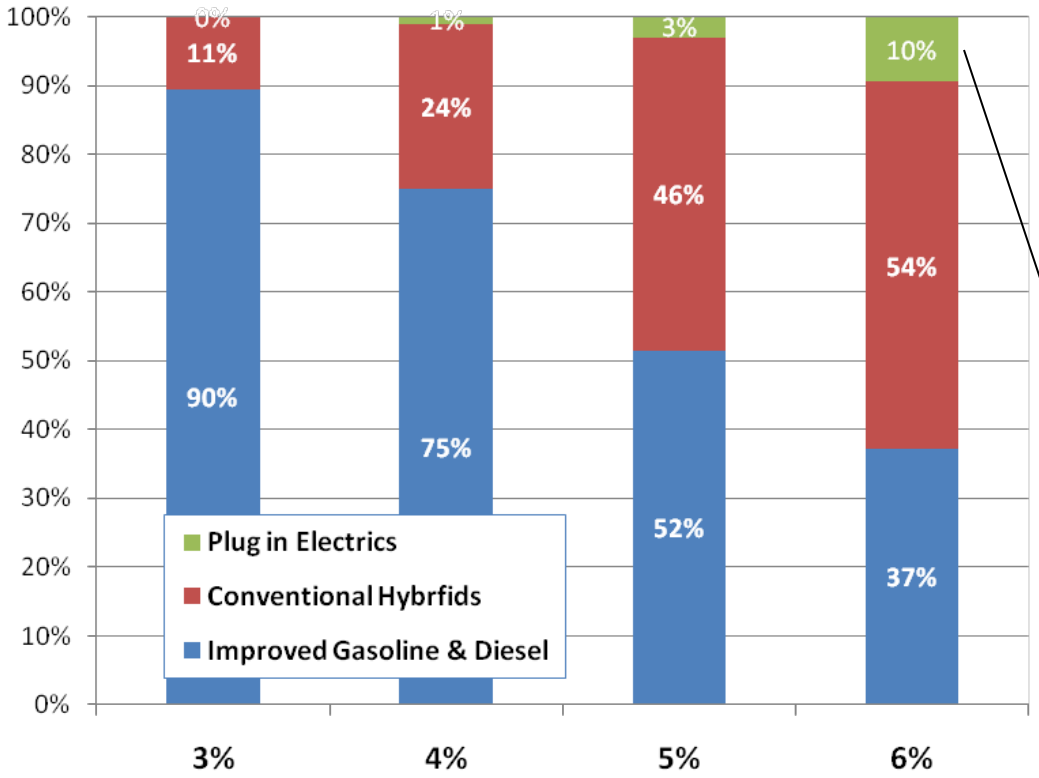
Source: ICCT

Convergence of standards will help automakers in planning and lower costs for developing new technologies by spreading over larger volumes

When converted to EU drive cycle, the U.S. upper end target in 2025 of 6% improvement (143 g/mile, nominal 62 MPG) is virtually identical to EU target in 2020 of 95 g/km.

Annual rates of improvement for EU target is 6% per year, identical to high end of US range.

Technology Mix



All targets can be met through existing and emerging technologies

6% target necessary to drive significant penetration of **Plug in Electrics** (~9-14%)

3% and 4% targets can be met primarily with **improved ICE**

Hybrids are critical strategy for meeting 5% and 6% targets (~50%)

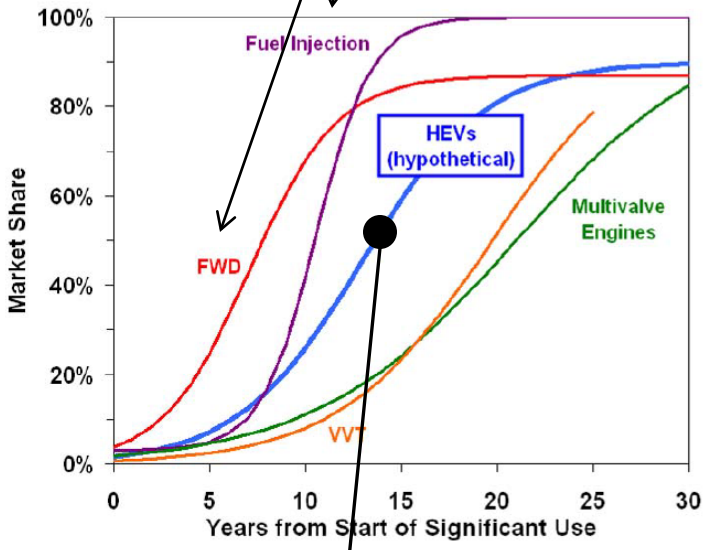
Source: Average of 4 pathways in *Interim Joint Technical Assessment*, September 2010, EPA, NHSTA and CARB

Technology Adoption Rates

Front Wheel Drive & **Fuel Injection** adopted in 10 yrs

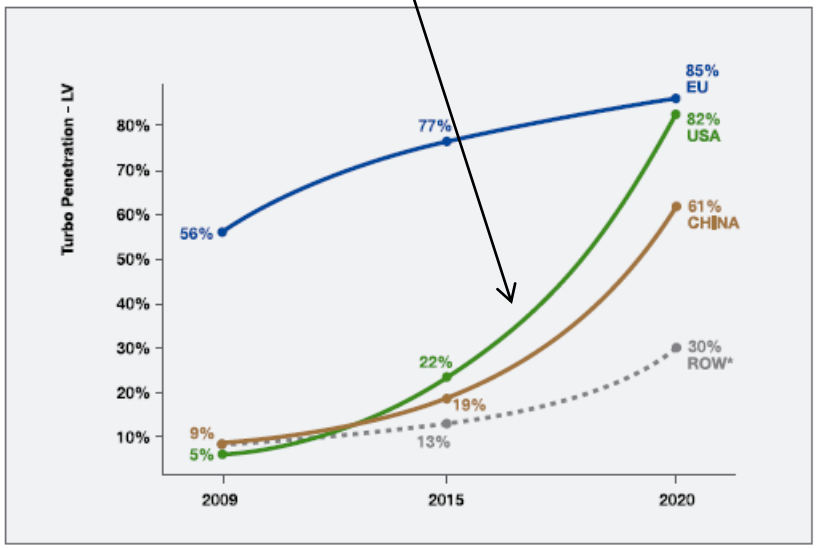
Turbos being adopted over 10 years

Figure 10. Hypothetical market adoption curve for hybrid drive compared to logistic curves based on historical automotive technology adoption rates



Regional Turbo Penetration – Light Vehicles

(Source: Global Insight & Honeywell)



Hybrids can reach 50% penetration in 15 years

Consumer, Pollution and Energy Benefits of Strong Standard

Consumer Savings

At $4 per gallon, an average driver could save over $9,000 over the life of the vehicle if standards raised to 62 mpg by 2025 (6% per year improvement rate).

Global Warming Pollution

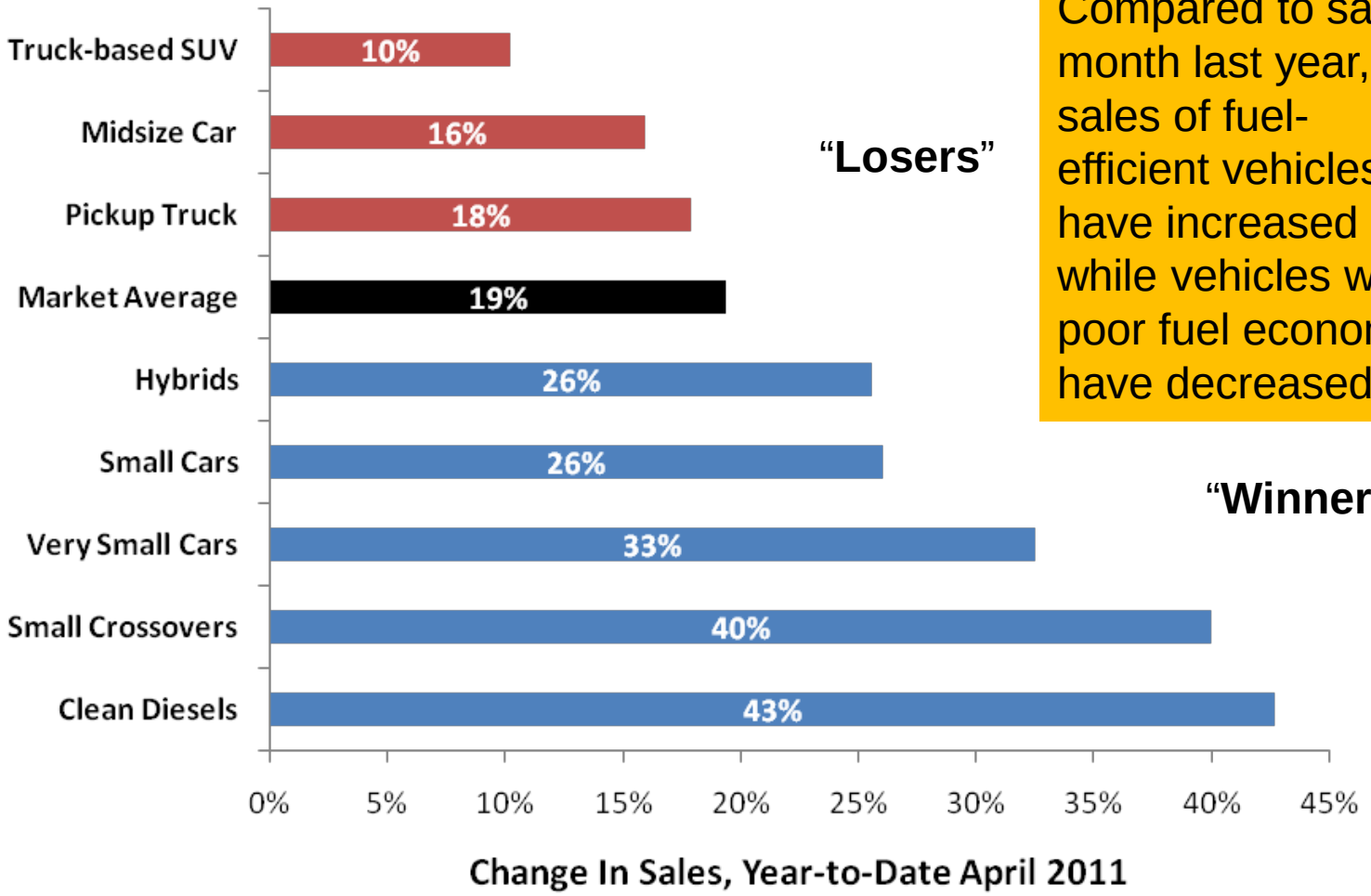
By 2030, a 6% per year improvement rate would reduce CO_2 emissions by 400 to 465 million metric tons, equivalent to shutting down over 100 coal power plants.

Oil Dependency

By 2030, 6% per year improvement rate would reduce oil consumption by 2.5 to 2.8 million barrels per day, equivalent to 2010 imports from Saudi Arabia, Nigeria, Iraq and Libya combined.

Jobs and Competiveness Benefits for Auto Industry

Market Demand for Fuel Efficiency



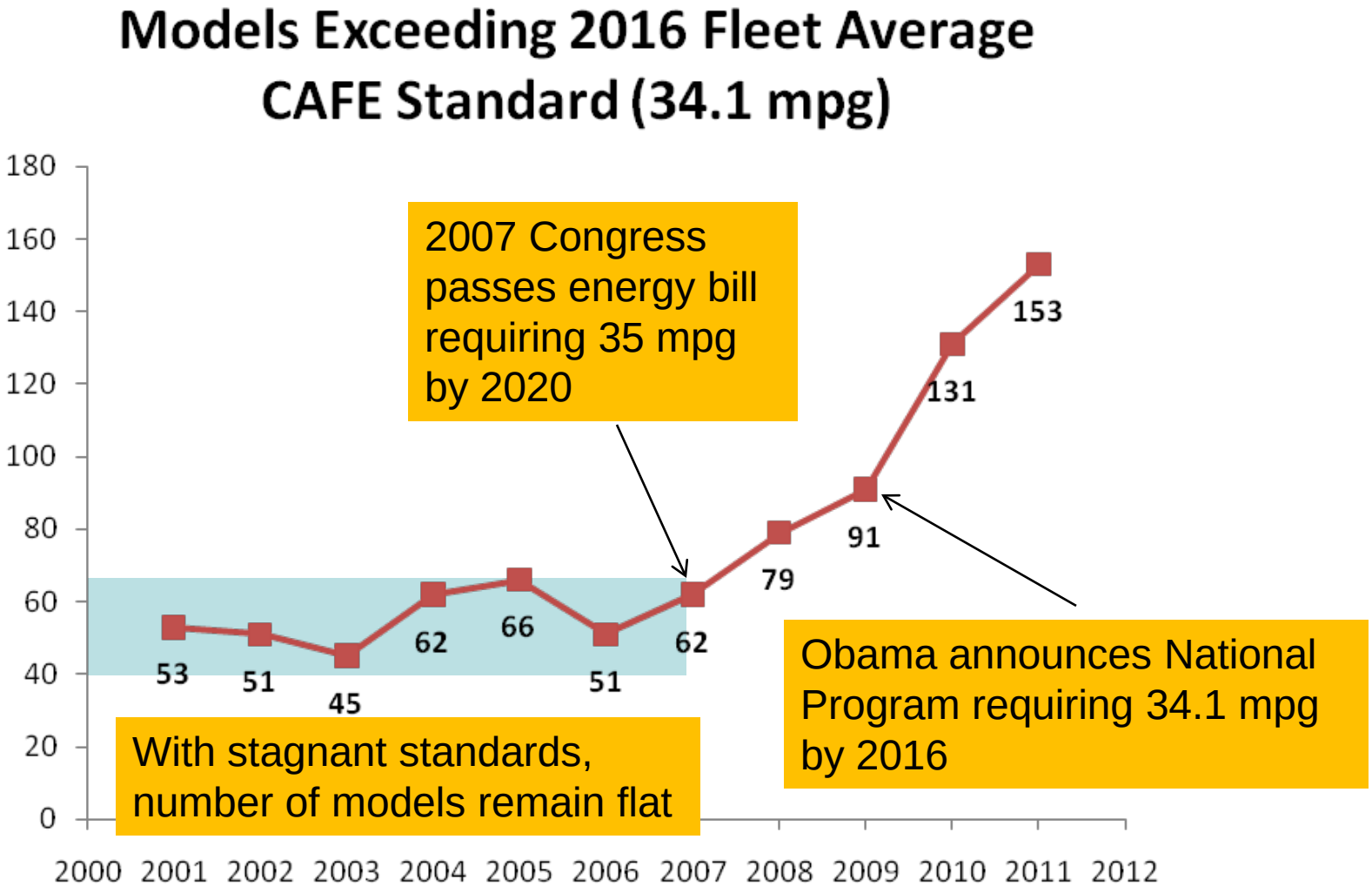
"Losers"

"Winners"

Compared to same month last year, sales of fuel-efficient vehicles have increased while vehicles with poor fuel economy have decreased.

Source: Baum & Associates

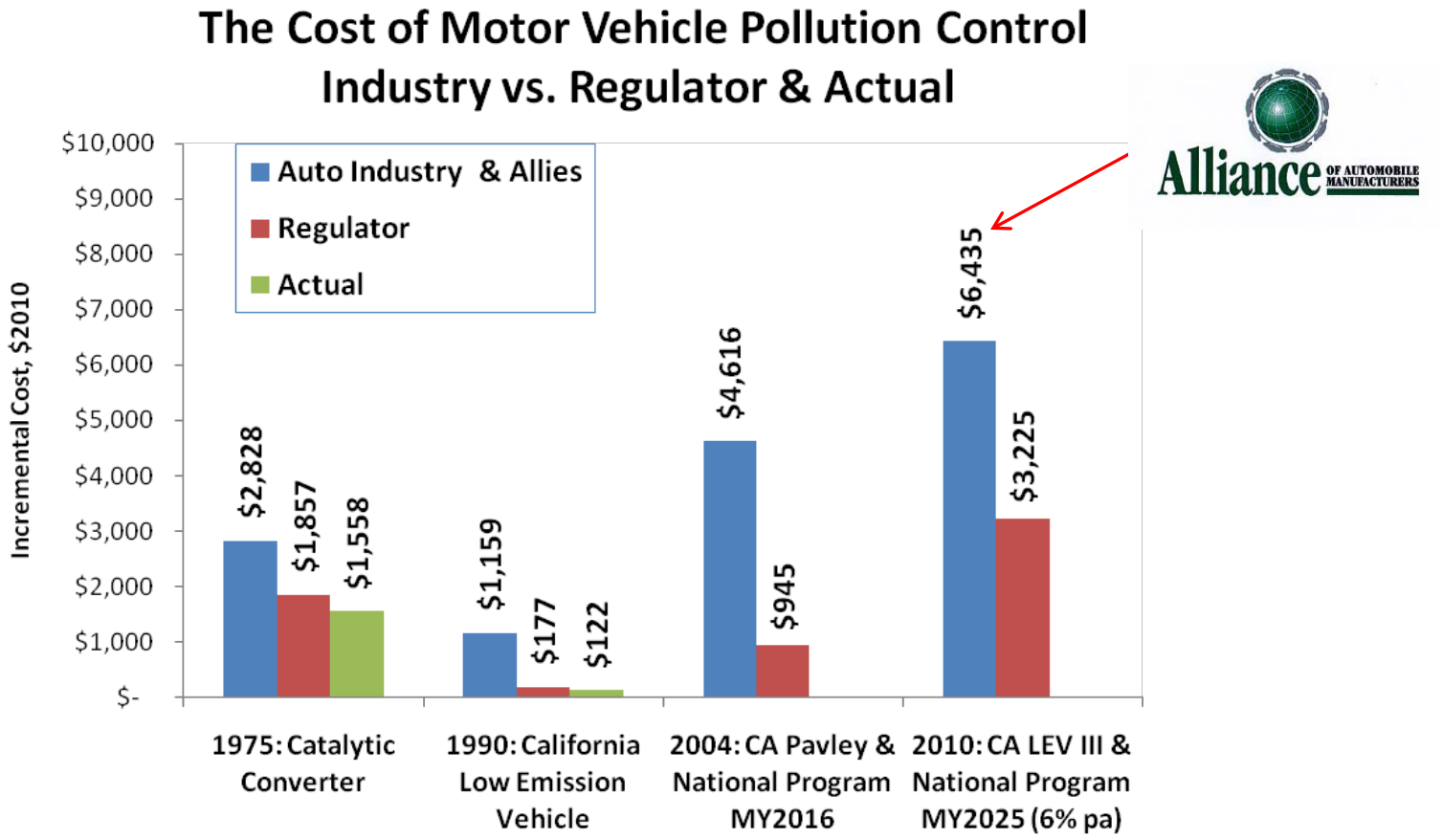
More High MPG Models



Auto Industry Arguments Against Strong Standard

Auto Industry's Cost Claims

- Automakers' claim the cost of 6% standard is twice as high as regulators.
- Historically, the autos' claims have been 2 to 10 times higher than regulators.



Auto Industry's Job Claims

Claim

Alliance of Automobile Manufacturers

U.S. DOE forecast implies ***"almost a quarter million auto jobs"*** lost from today's 1.7 million level.

Fact Check: FALSE

eia — Independent Statistics & Analysis — U.S. Energy Information Administration

U.S. DOE AEO 2011 forecast actually predicts the exact opposite, a ***280,000 job increase*** from today's levels with a 6% standard.*

* Job growth essentially same in Reference case (22% vs 21%)

Political and Public Support for Strong Standards

Strong Bipartisan Support

Mellman Group for Ceres

Released May 25th

Ceres

80% of likely Ohio voters and **76%** of likely Michigan voters believe a national 60 mpg standard will encourage American car makers to innovate, boosting sales and protecting American auto jobs.

Consumer Federation of America

Released May 16th

- ***85%*** *Concerned About Gas Prices*
- ***65%*** *Support 60 mpg Standard by 2025*
- *Republicans and Democrats Favor 60 mpg and State Involvement*

Thank You

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