The Cap, CAFE and Balance:
Vehicle Standards in a Climate Policy Framework

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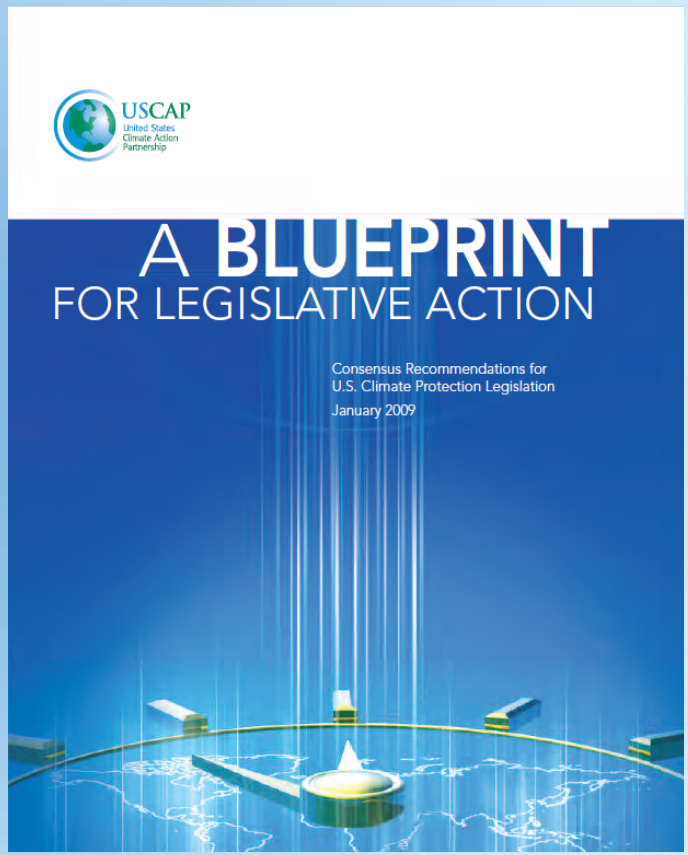
USCAP *Blueprint for Legislative Action*

- **Detailed framework for climate legislation**
- **An approach to achieve aggressive environmental goals in a responsible and economically sustainable manner**
- **Consensus of a diverse organization, but not the only path forward**



Cap and Trade

- Federal cap-and-trade program coupled with cost containment measures and complementary policies ensures environmental integrity, economic stability
- Declining, economy-wide emission reduction targets
- Provides incentives to transition to new technologies while ensuring GHG emissions reductions

Core Blueprint Components

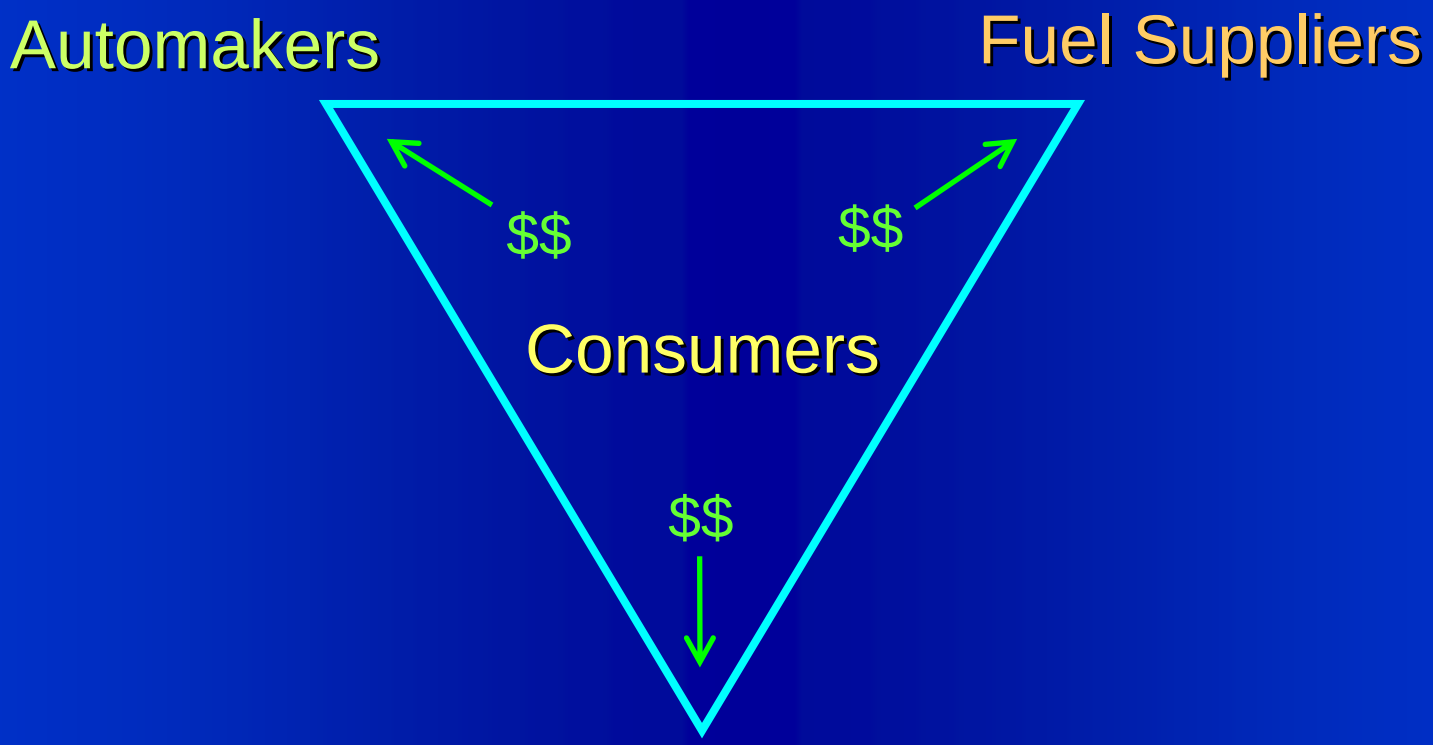
COMPLEMENTARY MEASURES

Transportation

- Economy-wide emission reduction targets require systematic approach involving:
  - Fuel providers
  - Vehicle and equipment manufacturers
  - Consumers and other end users
  - Public transportation, infrastructure and land-use officials
- Recommendations include improving fuel and vehicle standards, efficiency of transportation system

Actors Who Influence Automotive GHG Emissions

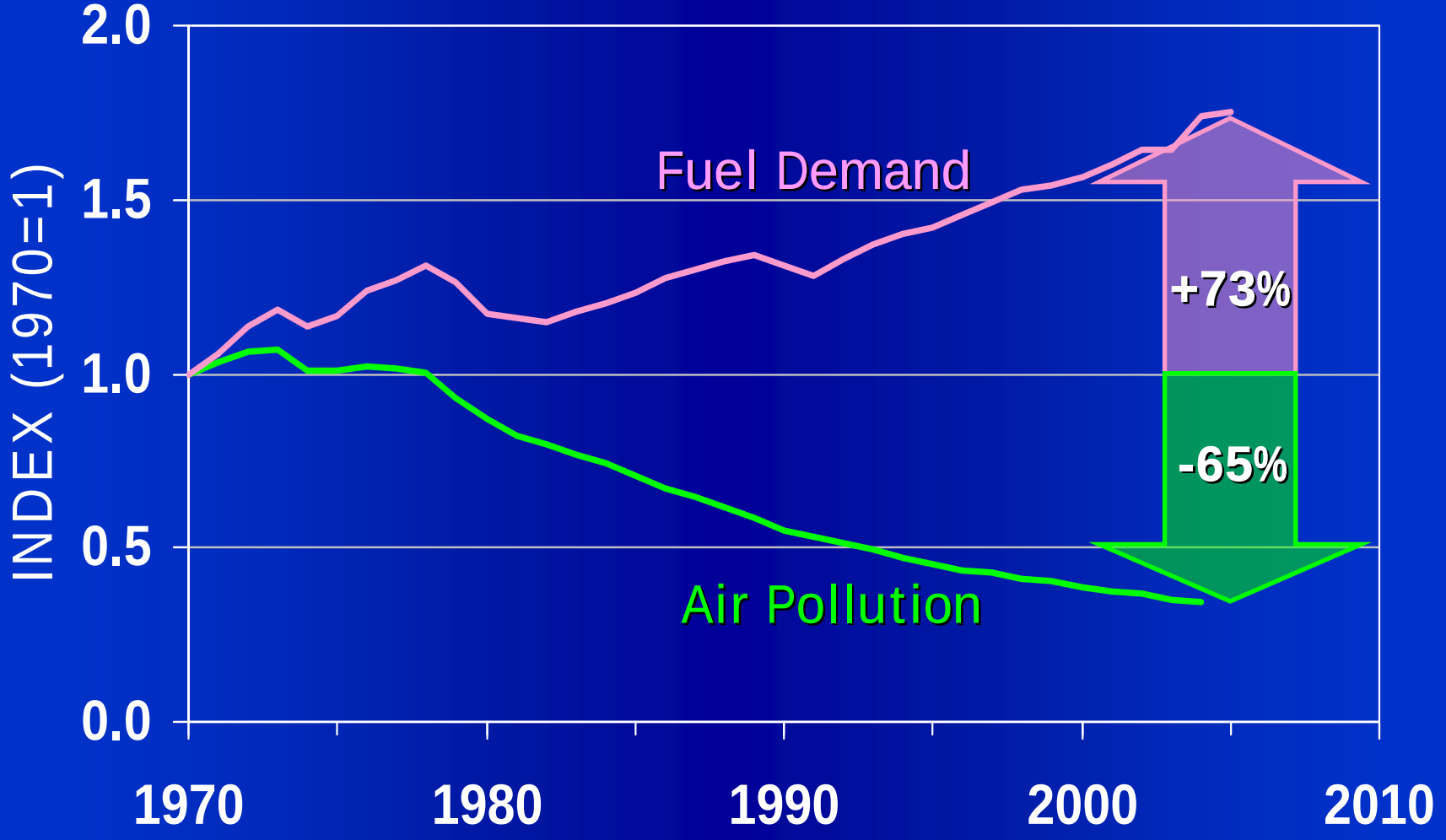
Market Relationships



The Cap as the Foundation

- A cap -- that is, a legally binding limit on GHG emissions from major economic sectors -- is essential for environmental integrity
- "Cap-and-Trade" is not a three-syllable word
- Market realities dictate complementary policies such as efficiency standards
  - Standards pre-date climate policy
  - CAFE standards have historical rationales of energy security and consumer protection
- What then is the relationship between standards ("legacy policy") and the cap?

Total Air Pollution and Fuel Consumption Trends for U.S. Cars and Light Trucks



The Clean Air Act paradigm has proven to be an effective framework for success.

Standards under a Cap

- Efficiency standards reduce GHG emissions in the absence of a cap
- But under a cap, standards-based reductions are in general not additional *per se*
  - Ellerman et al. (2006): *"... CAFE becomes a distributional policy and redundant from the standpoint of carbon emissions."*
  - Vehicle standards reduce the price of allowances to parties directly covered by cap while raising costs in auto market.
  - Nevertheless, standards can enhance the cost-effectiveness of the program overall if one accepts that they are justified by market failures and other societal considerations.
- Properly structured, a cap will limit net GHG emissions associated with delivered fuels, which is ultimately the greater long-term need *("as goes coal, so must go oil")*

Do climate policy parameters matter when setting vehicle standards?

- Issues that may impact standards:
  - Overall level of the economy-wide cap
  - Resulting price of carbon (allowance trading)
  - Relative progress in other sectors & subsectors
- All of the issues that matter in conventional standard setting, of course, still do matter:
  - Technical feasibility, economic practicability, impacts of other standards, …, and now also the range of factors considered by EPA and CARB
- **"… and the need of the United States to conserve energy."** (49 USC §32902)

Vehicle Standards: CAFE or GHG?

- Well, neither …
  - Ideal would be vehicle energy intensity (Btu/mile)
  - CAFE is based on oil displacement, rather than energy intensity *per se*, but is close to the ideal*
- Consider the basic factorization:

  $$GHG = (CO_2/Btu) \times (Btu/mile) \times VMT$$

  - As inverse, fuel economy is good stand-in for Btu/mile
  - Energy intensity is technologically neutral; it also fosters appropriate accountability and division of labor
  - CO_2/mile relies on poorly verified assumptions and invites winner picking
- EPA can still lead in a coordinated approach

**USCAP Blueprint:* "vehicle fuel economy programs have a scope and structure … consistent with the need … and can serve as the basis … going forward."

Overall Transportation Sector GHG Management Policy

- **USCAP** *Blueprint* (§7D, p. 23):
  - Periodic, in-depth assessment of current and projected progress in transportation sector GHG emissions reduction
  - by EPA in collaboration with other agencies
  - as part of overall climate program science and progress review
  - should examine all elements of sector (vehicles, fuels, consumer demand, system efficiency)
  - Promulgate "updated programs and rules … to ensure that sector is making a reasonably commensurate contribution to … national GHG emissions targets."
- A rational framework for administering motor vehicle standards in coordination with other sector complementary measures under a carbon cap
  - But missing from legislative proposals to date

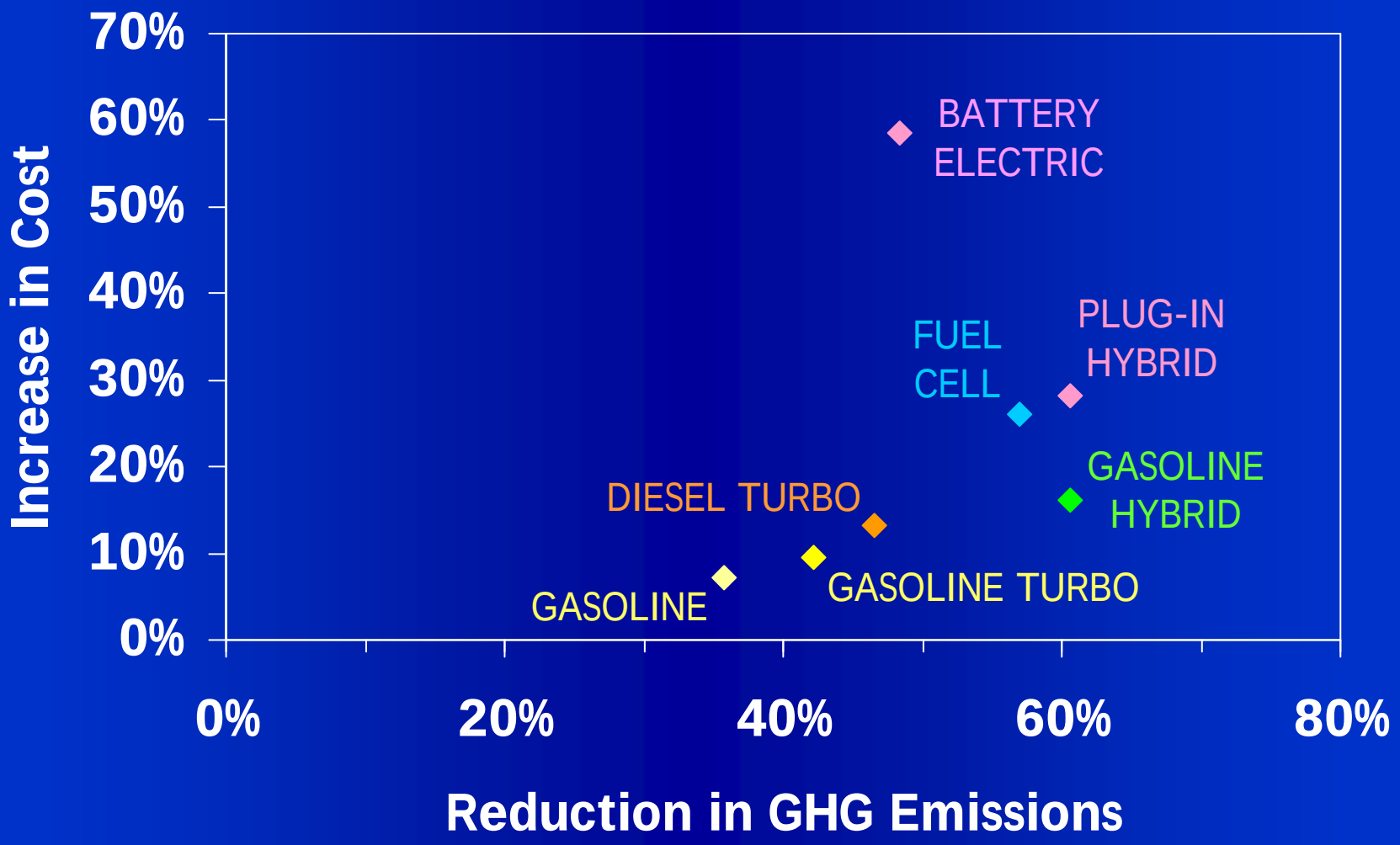
Conclusions

- Transportation's real-world market complexities dictate a need for complementary measures, including vehicle efficiency standards.
- While vehicle standards can be justified in isolation, that does not assure a balanced policy overall.
- It is crucial for policy to drive change in fuels directly (not indirectly through vehicle standards) and also to motivate consumers.
- Carbon cap is necessary for environmental integrity, and the cap along with mechanisms tied to it offer the best way to achieve a balanced policy.
- Vehicle standards should be set within the framework of an overall transportation sector GHG management plan administered under the cap.

(possible extra slides follow)

Findings from MIT "On the Road in 2035" study

Costs and Benefits of Technology Options Relative to a 2006 Midsize Car



Source: http://web.mit.edu/sloan-auto-lab/research/beforeh2/otr2035/ (July 2008)

Auto Efficiency is a Matter of Design Priority

- Technology progress has been steady
  - Most technologies have multiple benefits
  - Whether fuel efficiency is gained depends on:
    - Design objectives of a given vehicle
    - Overall mix of vehicles sold (size; car vs. truck)
  - Until very recently, past two decade's auto technology improvements have gone mainly to improving power, capacity and other amenities
- Vehicle market outcomes will depend on jointly expressed priorities of consumers, automakers, and policymakers
- Standard setting process should consider design priority, not just purely technological assessment

Should vehicle standards accommodate alternative fuels?

- Question the premise
  - “Alternative fuel does not necessarily mean alternative chemistry.” (Mike Tamor of Ford)
- Let the cap work
  - Fuels under the cap likely to provide a powerful long-term driver for change
  - The belief that a carbon price signal is too small to effect change in fuels is based on very incomplete information
- Let the winner pickers pay their own way
  - If a new vision (EV, PHEV, FCV, etc.) truly is so compelling, then private capital will figure it out.
  - We have several decades of experience to show that the "logic" of technological determinism fails in the real-world