Toward New Frameworks for Transportation Climate Policy

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ENVIRONMENTAL DEFENSE

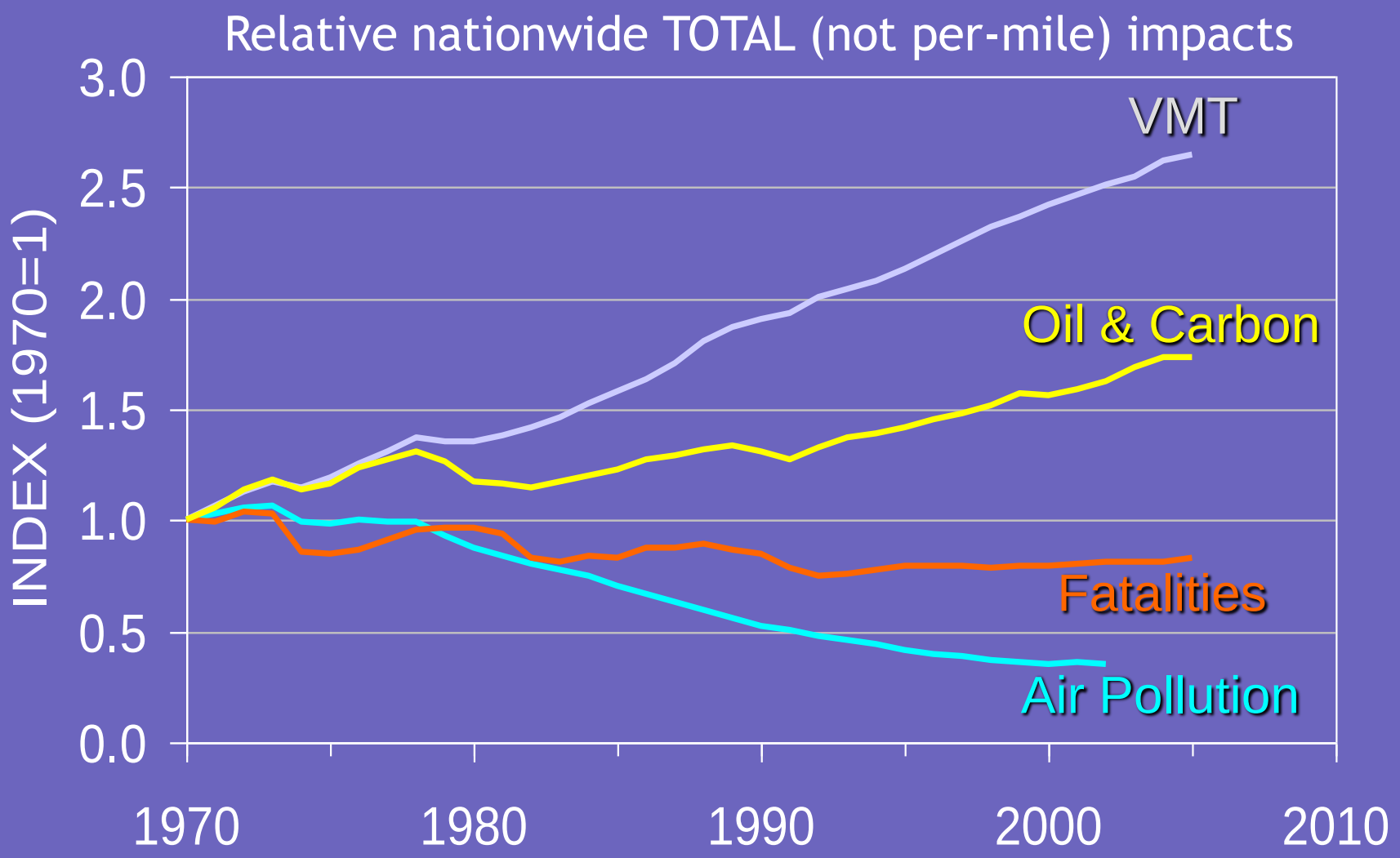
finding the ways that work

State of the Debate

- Conventional wisdom: technology and fuels focus, but poor consensus and worse results
- Econ 101 says it all: just get the prices right ("without a stiff gas tax, you can't …")
- Cap & trade theorists: still trying to turn the screw with a hammer?
- California: based on conventional approach, but realizing a need for new tools

At the broadest level of policy design, what do we know about what works?

Trends in Design-Related Impacts of U.S. Automobiles

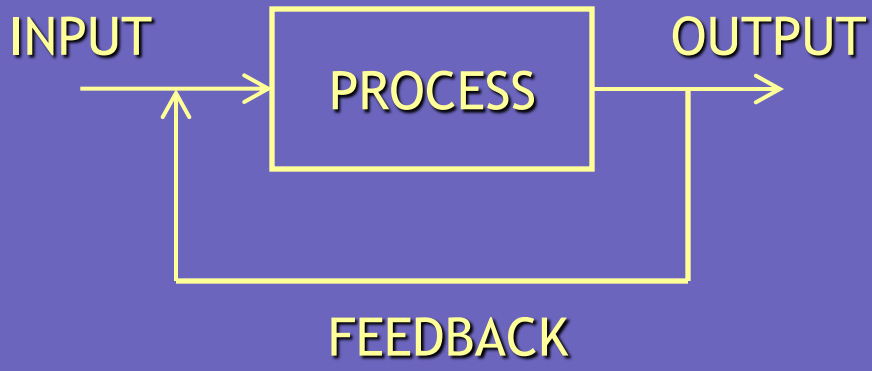


Source: Derived from DOT, DOE, and EPA statistics. Each index is based on national totals, i.e., total tons of carbon or pollution and total fatalities, not per-mile rates. The air pollution index represents a health damage-weighted composite of light duty vehicle criteria-related emissions.

The "control system" matters

OPEN LOOP

CLOSED LOOP

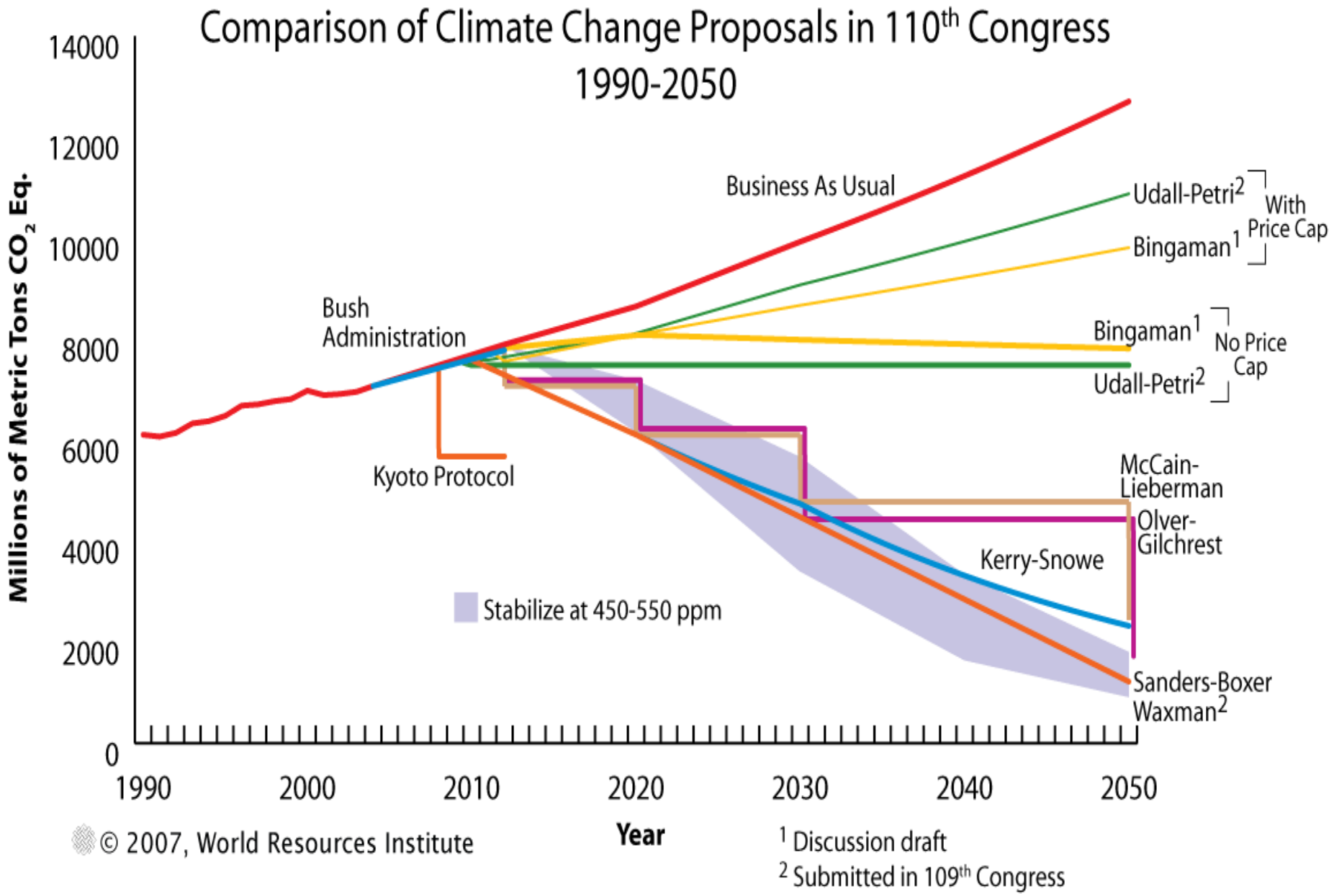


Control models for existing policies

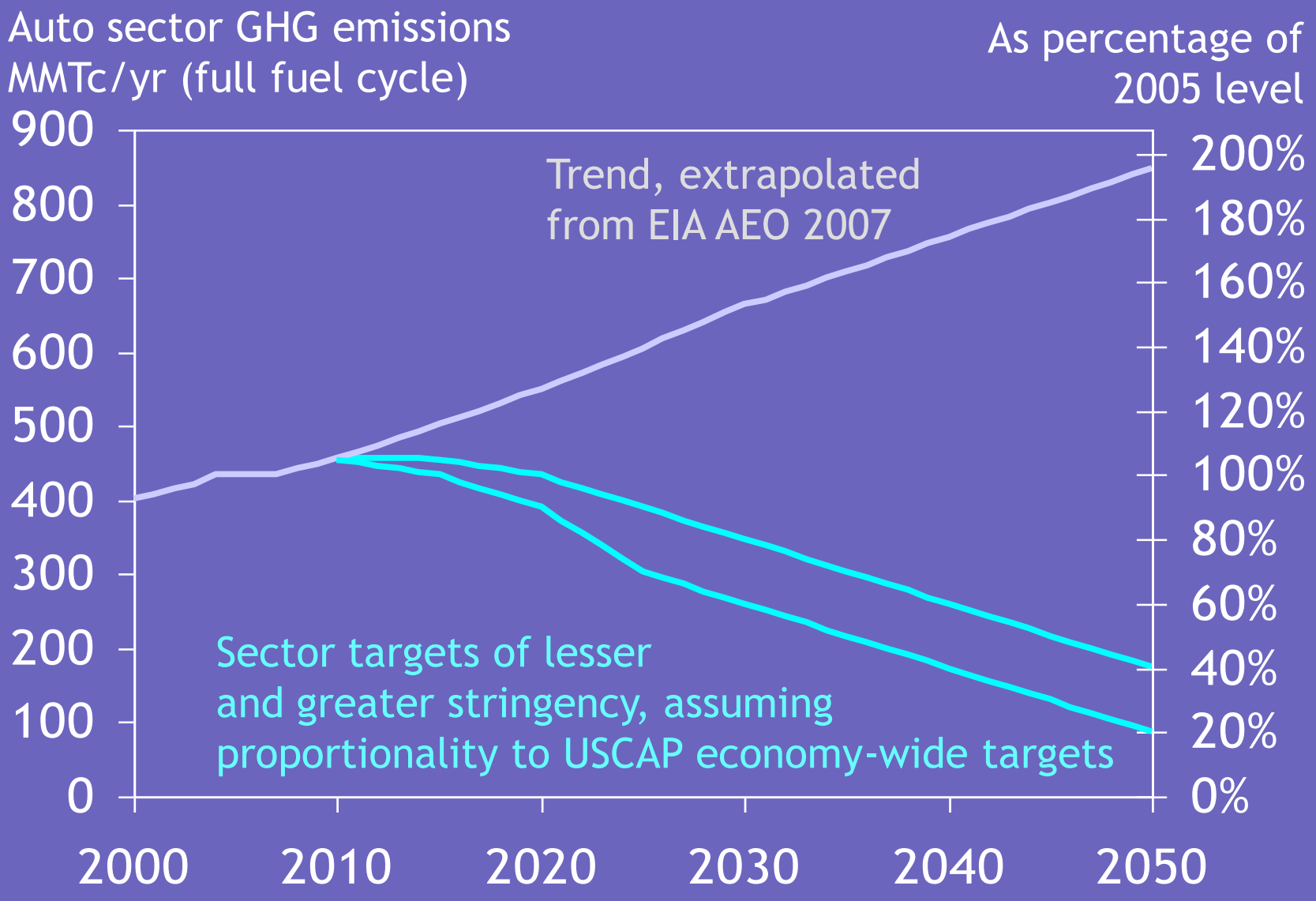
- Road safety: open loop; performance goals are only weakly stated and not enforceable.*
- Air quality: closed loop; Clean Air Act requires legally enforceable attainment of health-based standards.
- Energy: open loop at best; well-defined performance objectives are not specified in law.

Traditional energy policy approaches -- based on rhetorical goals plus considerations of technological feasibility, cost-effectiveness, etc. -- will not suffice for climate policy.

*Here, *enforceable* pertains to the social goal, not the technical regulations.

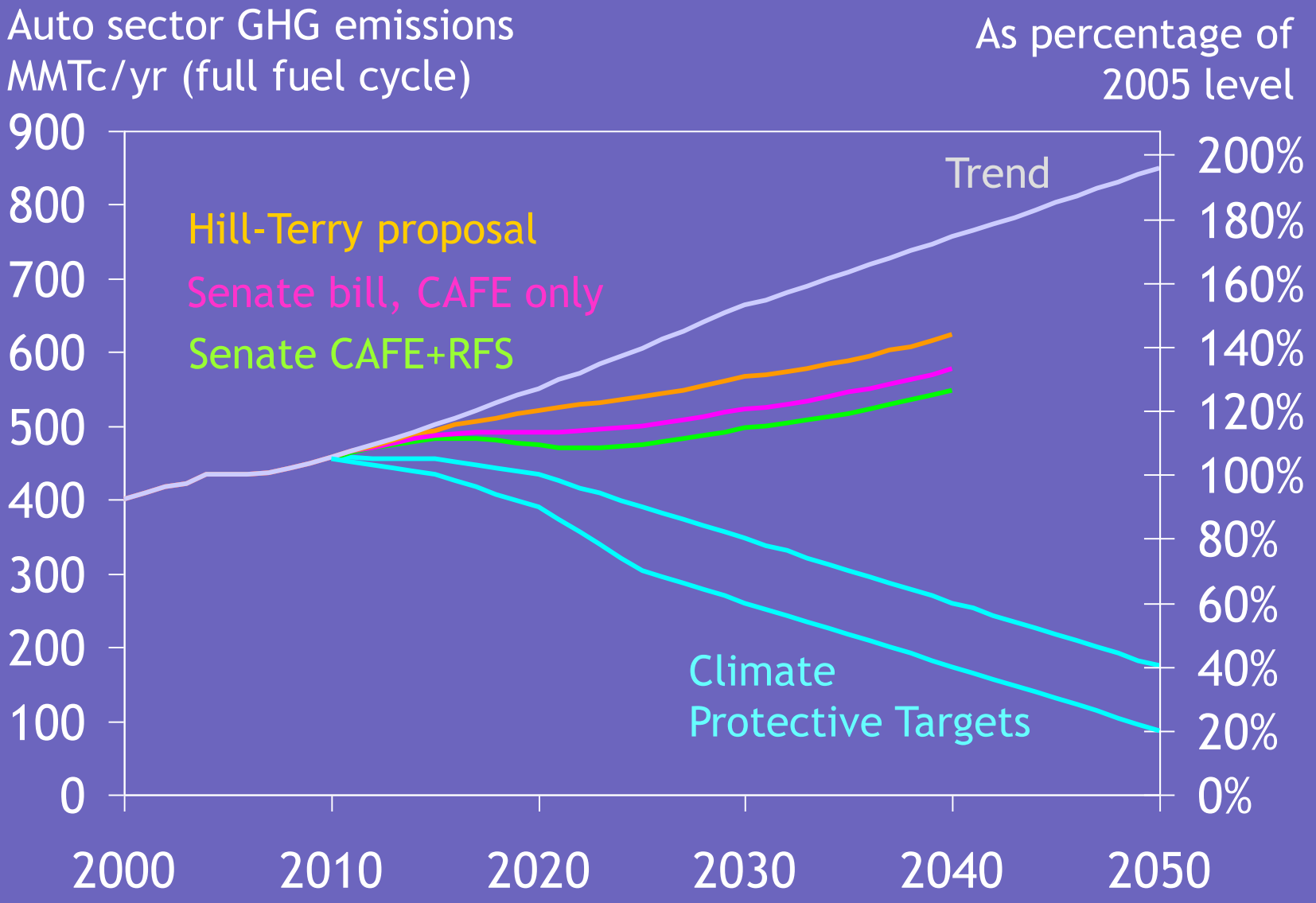

Comparison of Climate Change Proposals in 110th Congress
1990-2050
Millions of Metric Tons CO_2 Eq.
14000
12000
10000
8000
6000
4000
2000
0
1990
2000
2010
2020
2030
2040
2050
Year
Business As Usual
Bush Administration
Kyoto Protocol
Udall-Petri2
Bingaman1
With Price Cap
Bingaman1
Udall-Petri2
No Price Cap
McCain-Lieberman
Olver-Gilchrest
Kerry-Snowe
Sanders-Boxer
Waxman2
Stabilize at 450-550 ppm
© 2007, World Resources Institute
1 Discussion draft
2 Submitted in 109th Congress

Climate Protective Targets for the U.S. Auto Sector

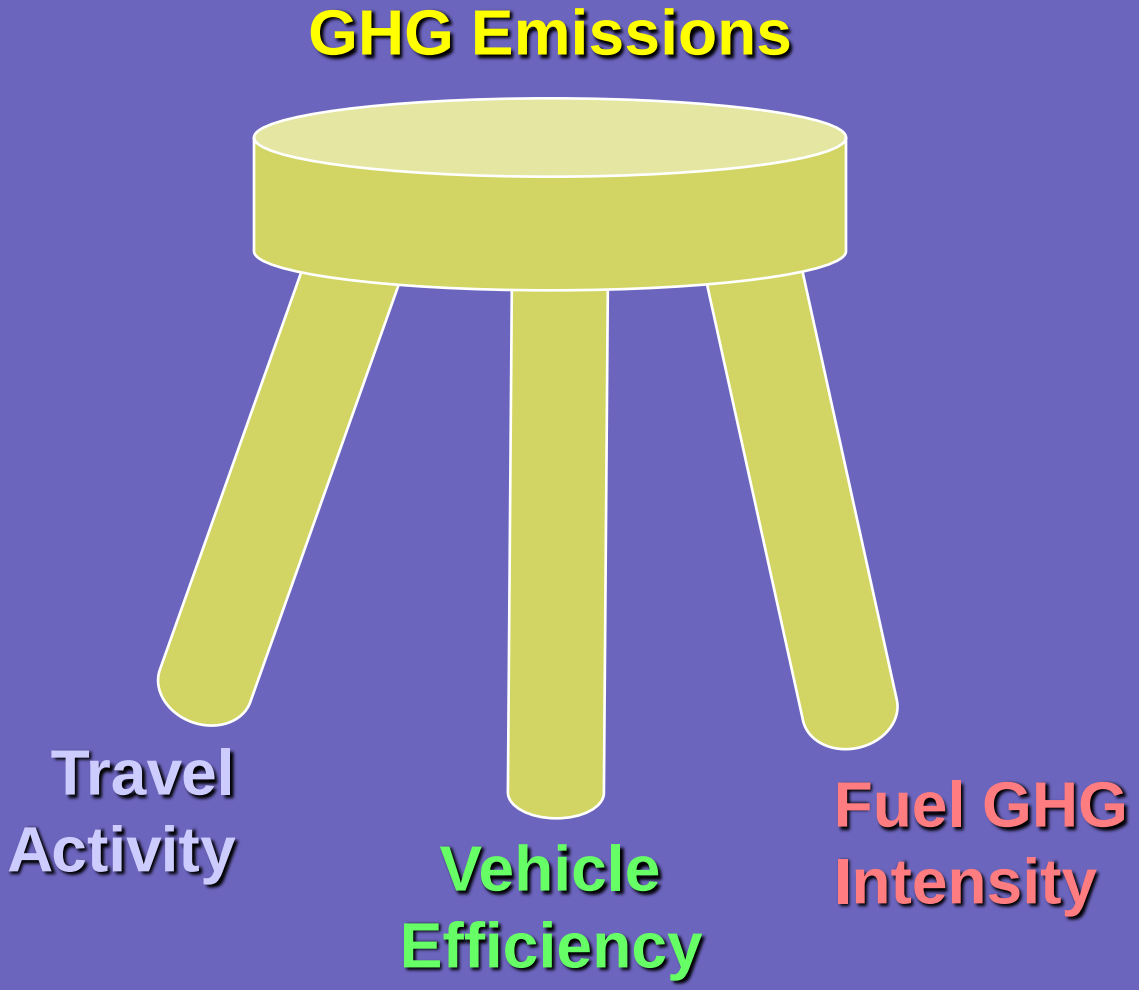


And, remember that carbon budgets are cumulative.

Impact of Auto Proposals Now Under Consideration



Traditional Factors for Analyzing Transportation GHG Emissions



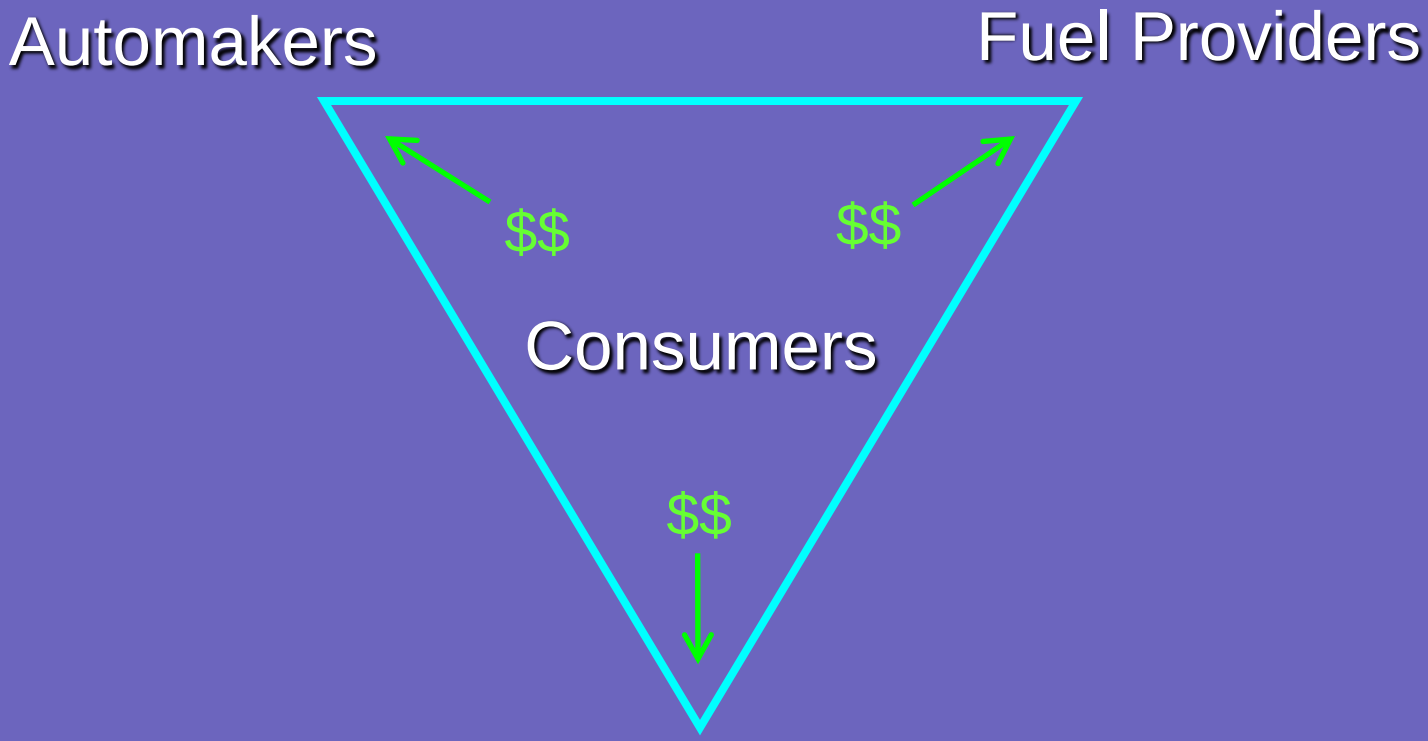
Factor-Based Approach to Policy

- Factor analysis offers many insights, but:
  - Makes it difficult to assign responsibilities
  - It obscures the nature of decision making
  - It invites technological determinism (and in the worst case, "winner picking")
- A more sophisticated approach is needed, to:
  - Reflect integrated, systems-based thinking
  - Harness true market-based decision making
  - Create an empirical framework for progress ("what gets measured gets managed")

Shifting the Focus

- from *Factors*
  - which no single actor can fully influence
- to *Actors*
  - all of whom make decisions that influence GHG emissions in some way

Actors Whose Decisions Influence Auto Sector GHG Emissions



Need for a Consistent Context

- Why should consumers care a lot about, say, low-carbon cars but not about low-carbon fuels, low-carbon land use, low-carbon mode choice, and so on?
- It is essential to give all actors appropriate and complementary roles to play in limiting carbon.
- An actor-based framework calls for sector-wide decision making "as if carbon matters."

Actor-Based Approach to Policy

- What is each actor's scope of influence? (What can actors do to reduce those aspects of emissions under their control?)
- How can policy best motivate each actor to exercise their ability to reduce emissions?

New tools will be needed to enable all actors to see and track -- and ideally derive value from -- their own unique opportunities for GHG reduction.

Economic Considerations

- Cost effectiveness, efficiency, *and* …
  other important considerations, including:
- Characteristics of real (actual) markets
- Relative contribution to emissions
- Social equity
- Job preservation and creation
- Competitiveness
- Economic wherewithal
- Co-benefits

Key Policy Design Question

- To what extent can sector strategy be
  - Incentives mediated (rely on "P" signals), vs.
  - Constraints mediated (rely on "Q" signals)?
- Analogous to "carbon cap" vs. "carbon tax" debate for the economy as a whole
- Response to trading around a constraint may not be same as response to price signal alone

"constraints breed creativity"

-- Jean-Rene Talopp, director of Strate College, as quoted in "Design school chief hails gentler cars," *Automotive News Europe*, October 4, 2004.

Policy Set

To be managed within a closed-loop framework linked (through appropriate targets) to economy-wide cap:

- GHG measurement and accounting tools
- Regulations based on GHG performance metrics (automakers, fuel suppliers; other entities?)
- Consumer information and education (GHG-based, technology neutral)
- Carbon control programs for managed transport operations (e.g., fleet carbon management)
- Carbon-constrained T/LU planning
- Carbon-sensible pricing (many opportunities for rationalization and reform)

Conclusions

An effective transportation climate policy will:

- Use closed-loop management, both within sector and coupled to the economy-wide cap.
- Focus on actors, not factors.
  - Appropriate tools will vary by actor; don't look for a "one size fits all" policy.
- Establish a consistent context of carbon-sensitive decision making.
  - Pricing is an important part of establishing context, but that does not imply a "uniform price signal" and "just get the prices right" is too simplistic.
  - Constraints and other "Q"-based (normative) policies are likely to play a critical role.

Thank You!

ENVIRONMENTAL DEFENSE

finding the ways that work

NATIONAL CLIMATE CAMPAIGN