

Global Climate Change: What is to be Done? An Economic Perspective

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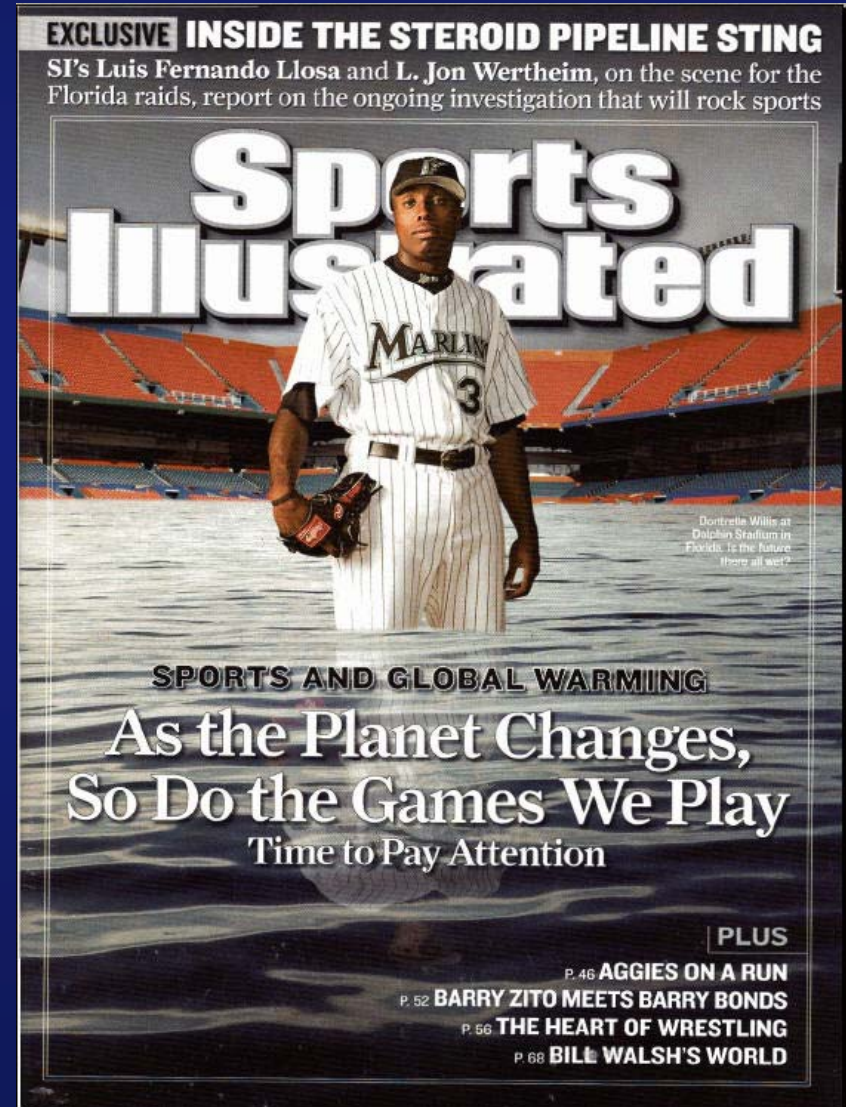
**Harvard Electricity Policy Group
47th Plenary Session
John F. Kennedy School of Government
Harvard University
June 1, 2007**

Climate Concerns Have Gone Mainstream ...

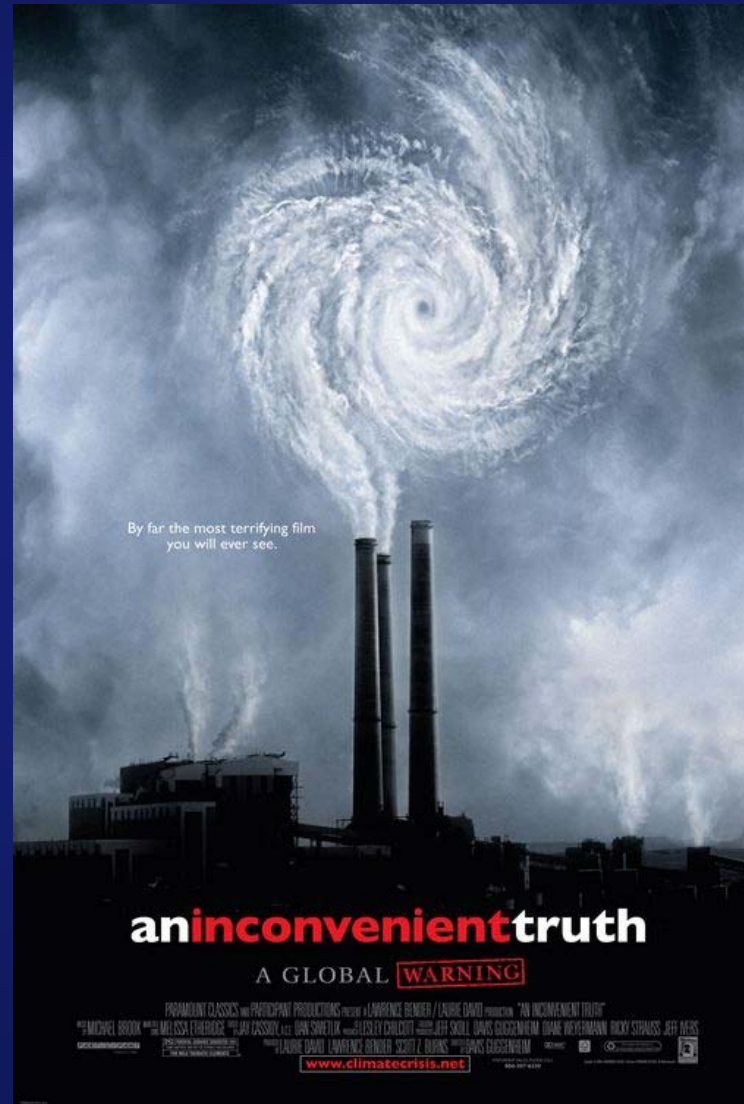
Last Year



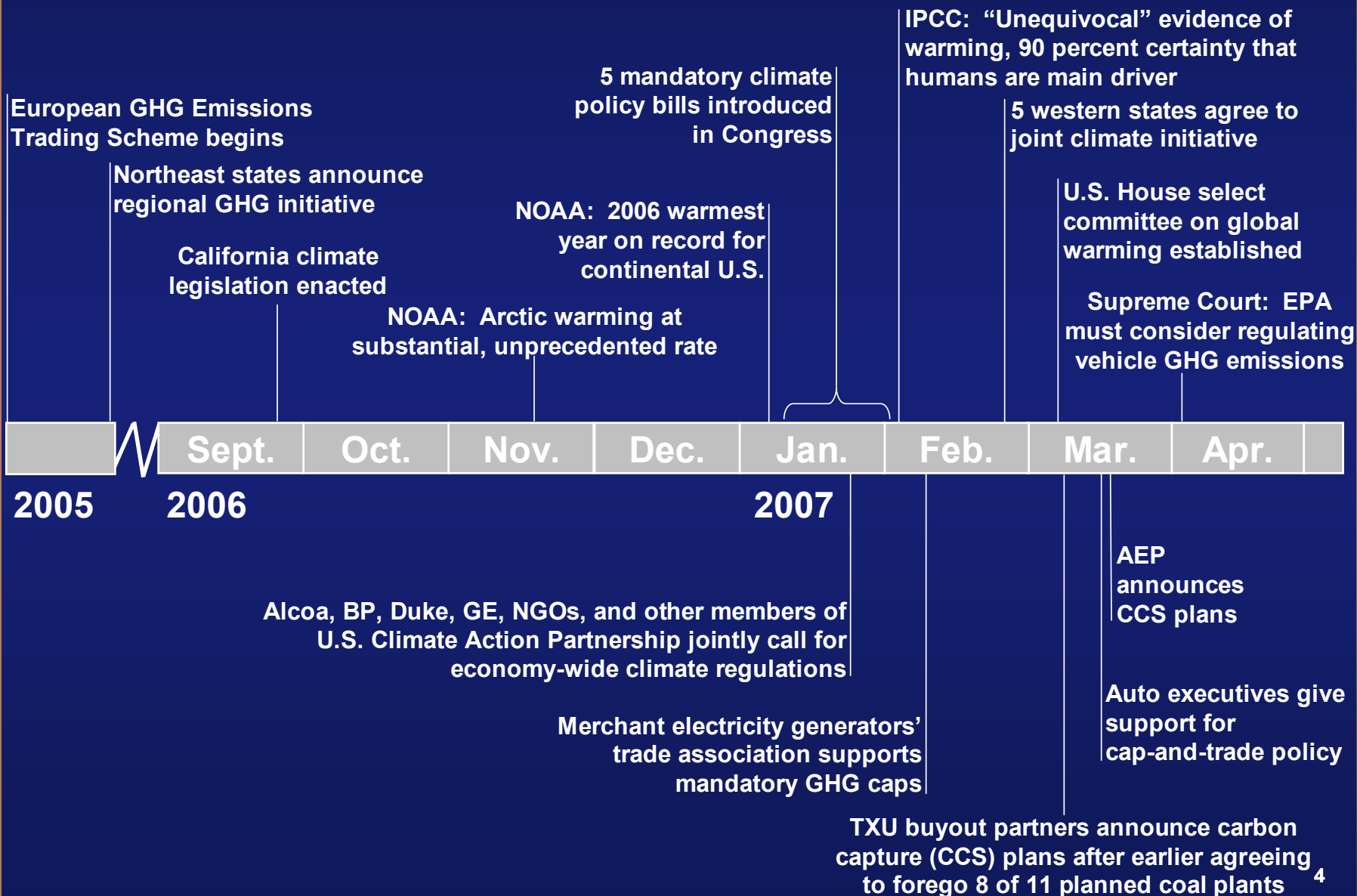
This Year



... Very Mainstream



Recent Developments in Information About Climate Change, Climate Policy, and Business Response



The Global Climate Policy Challenge

- **Kyoto Protocol came into force in February 2005, and the first commitment period begins in 2008**
- **Even if the United States had participated, the Protocol's direct effects on climate change would be very small to non-existent**
- **Science and economics point to the need for a credible international approach**
- **Climate change is a classic global commons problem — so it calls for a global solution**

Can the Kyoto Protocol Provide the Way Forward?

- The Kyoto Protocol has been criticized because:
 - The costs are much greater than need be, due to exclusion of developing countries (conservative estimate: costs are four times cost-effective level)
 - The Protocol will generate *trivial* climate benefits, and *fails* to provide any long-term solution
 - Short-term targets are excessively ambitious for the United States
- So, the Kyoto Protocol is “*too little, too fast*”
- Is there a better way forward?

A New International Policy Architecture

- An international framework must be based on sound science, rational economics, and realistic politics.
 - Kyoto Protocol is none of these
- Instead, a viable strategy must include:
 1. Means to ensure that *all key nations* – both industrialized and developing – are involved (cost-effective & equitable)
 2. A *long-term time-path* for getting to where science and economics say we ought to be in an appropriate amount of time (not the time-path of action implied by the KP, which is “too little, too fast”)
 3. An emphasis on *market-based policy instruments*, such as cap-and-trade systems (to keep costs down in the short term, and bring them down lower in the long term through induced technological change)

How Will the United States Respond?

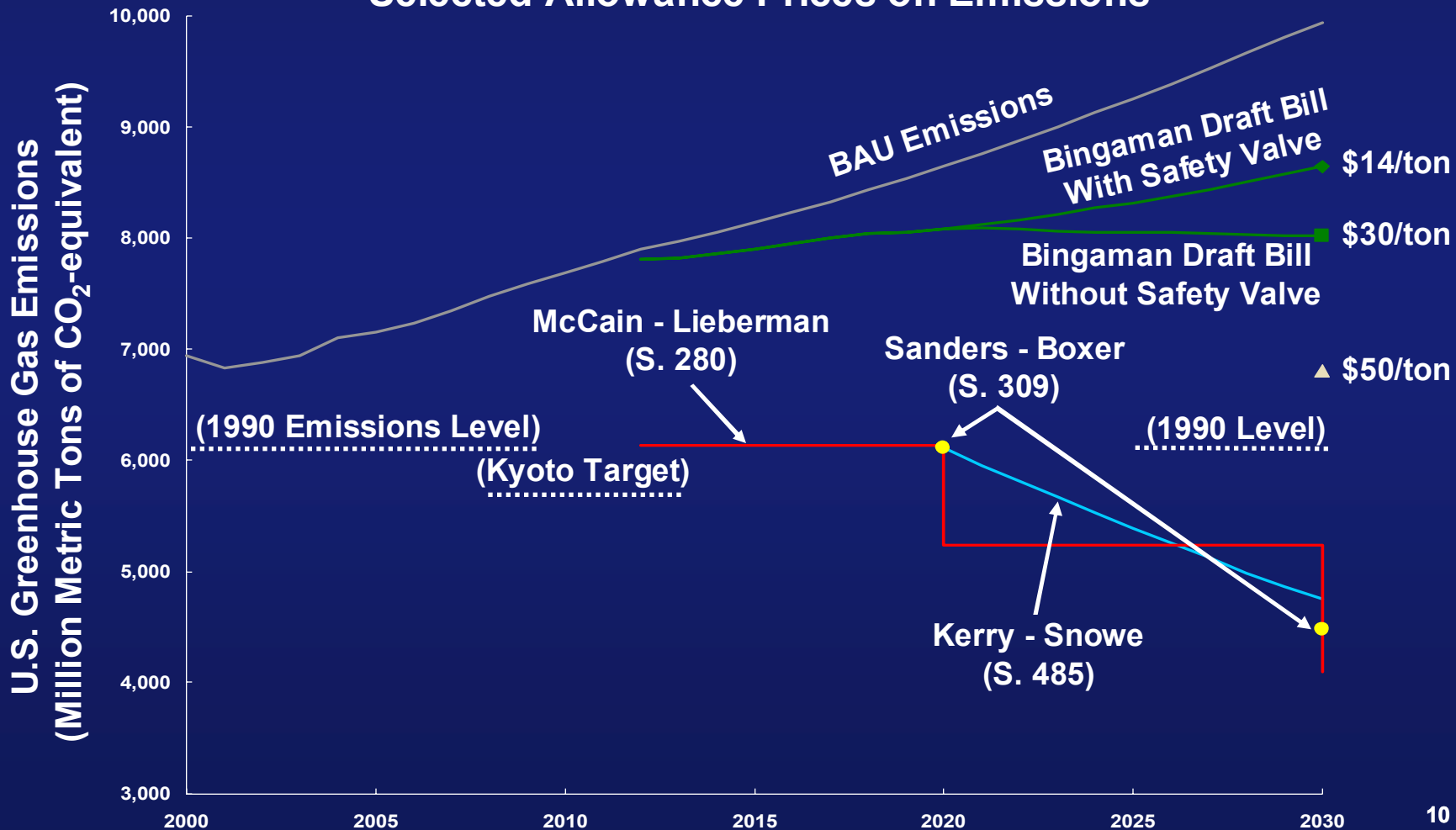
- While international discussions continue, a topic of increasing importance is how *will* the United States respond
- What means will the U.S. government use to bring about GHG reductions?
- Because of their great advantages in this realm, most attention has been focused on market-based instruments
- Most proposals have featured tradable permit systems – “cap and trade”
 - Partly because of theory
 - Largely because of experience ...

Domestic Market-Based Policy Instruments

- **Cap-and-Trade: carbon rights trading**
 - **Leaded Gasoline Phaseout in 1980s**
 - **SO₂ Allowance Trading Program since 1995**
 - **European Union Emissions Trading System**
 - **Northeast states' Regional Greenhouse Gas Initiative**
 - **California's emerging proposal to implement AB 32**
- **Carbon Taxes**
- **Hybrids of Price and Quantity Mechanisms – “Safety Valve” System**

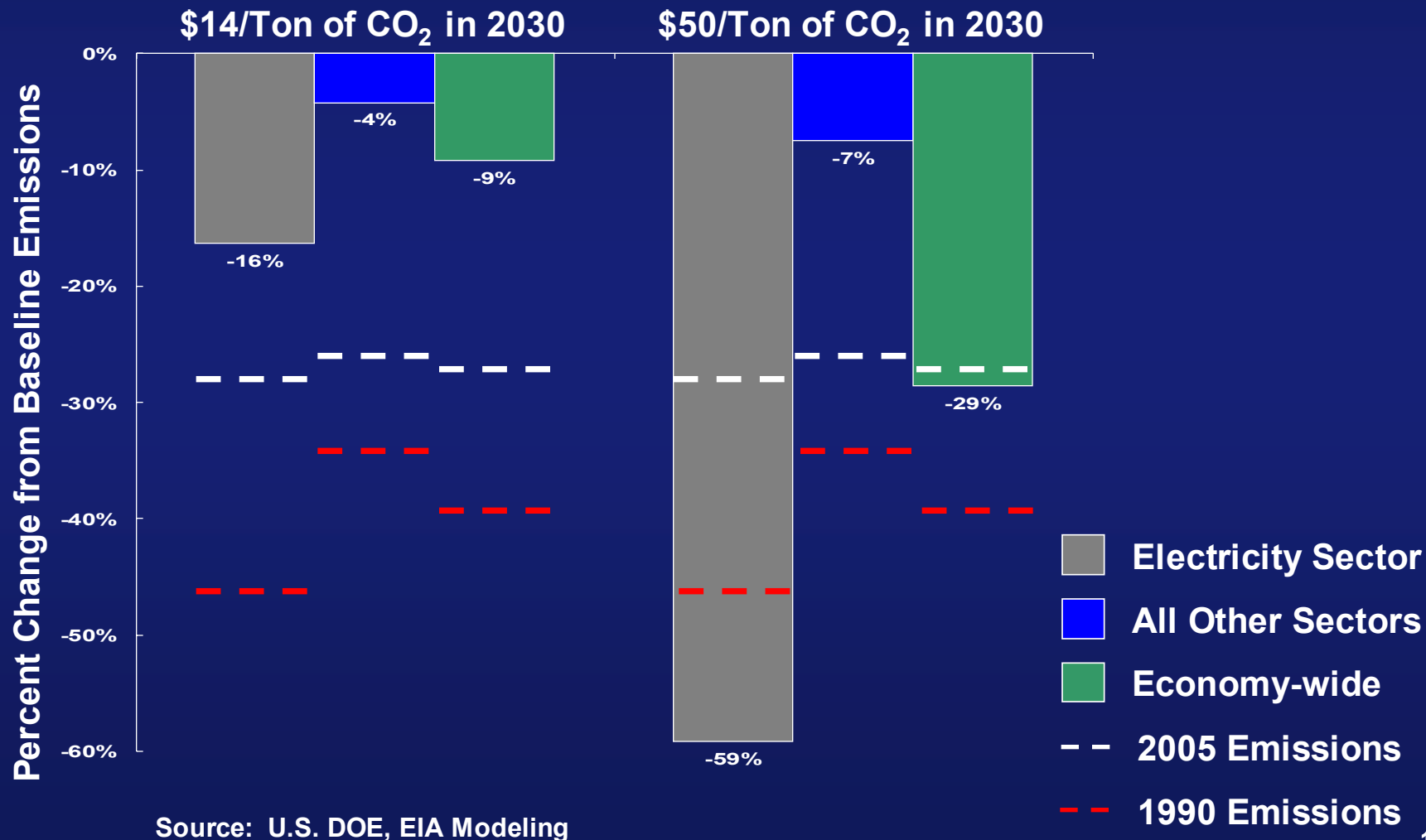
Leading Legislative Proposals

Comparison of Emissions Targets of Four Recently Proposed Mandatory Emissions Caps with Estimates of the Effect of Selected Allowance Prices on Emissions



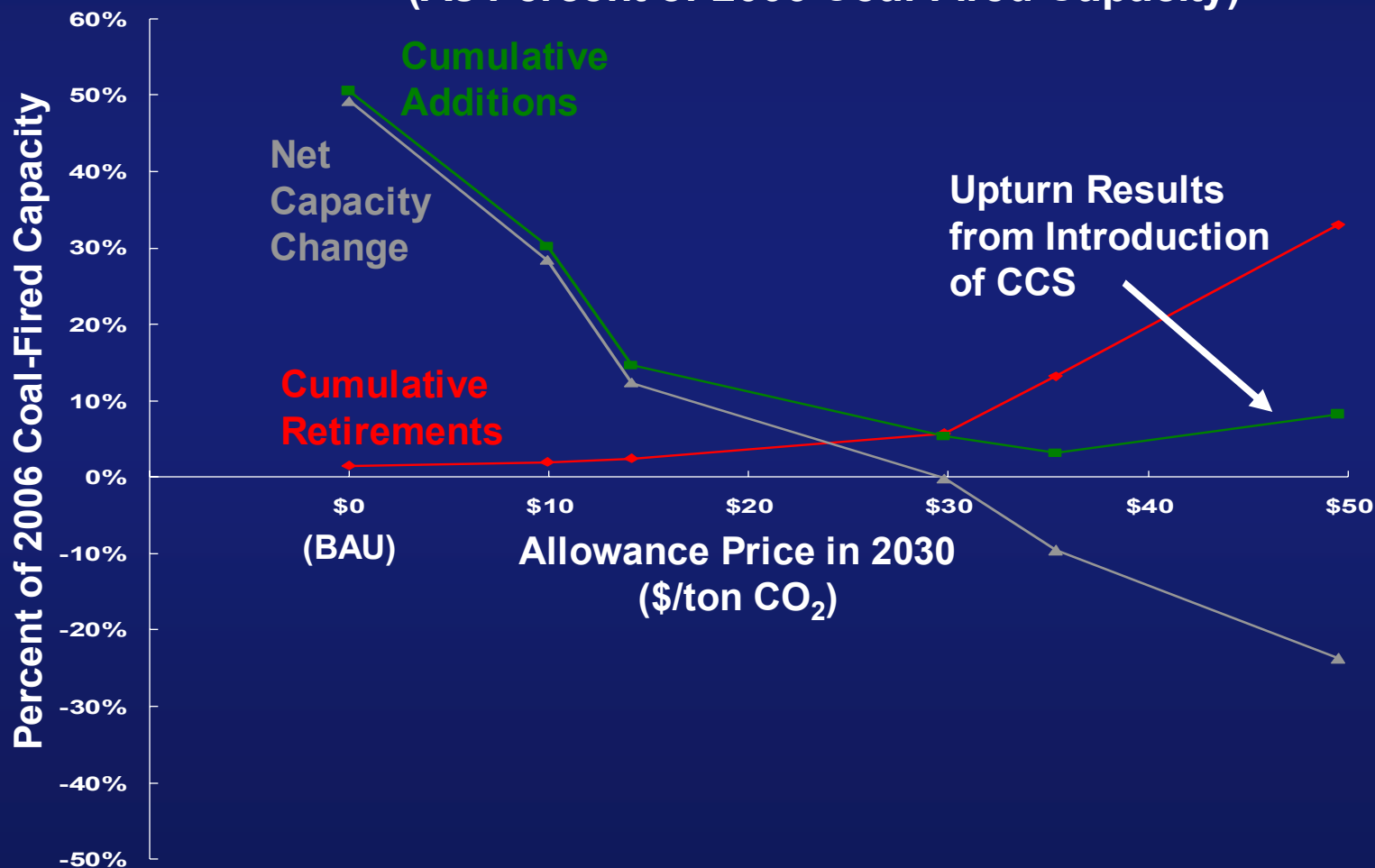
What Are the Implications for the Electricity Sector?

Reductions in CO₂ Emissions from Baseline Levels in 2030
Under Alternative CO₂ Allowance Prices



Changes in Conventional Coal-Fired Generation Are Key to Electricity Sector CO₂ Emission Reductions

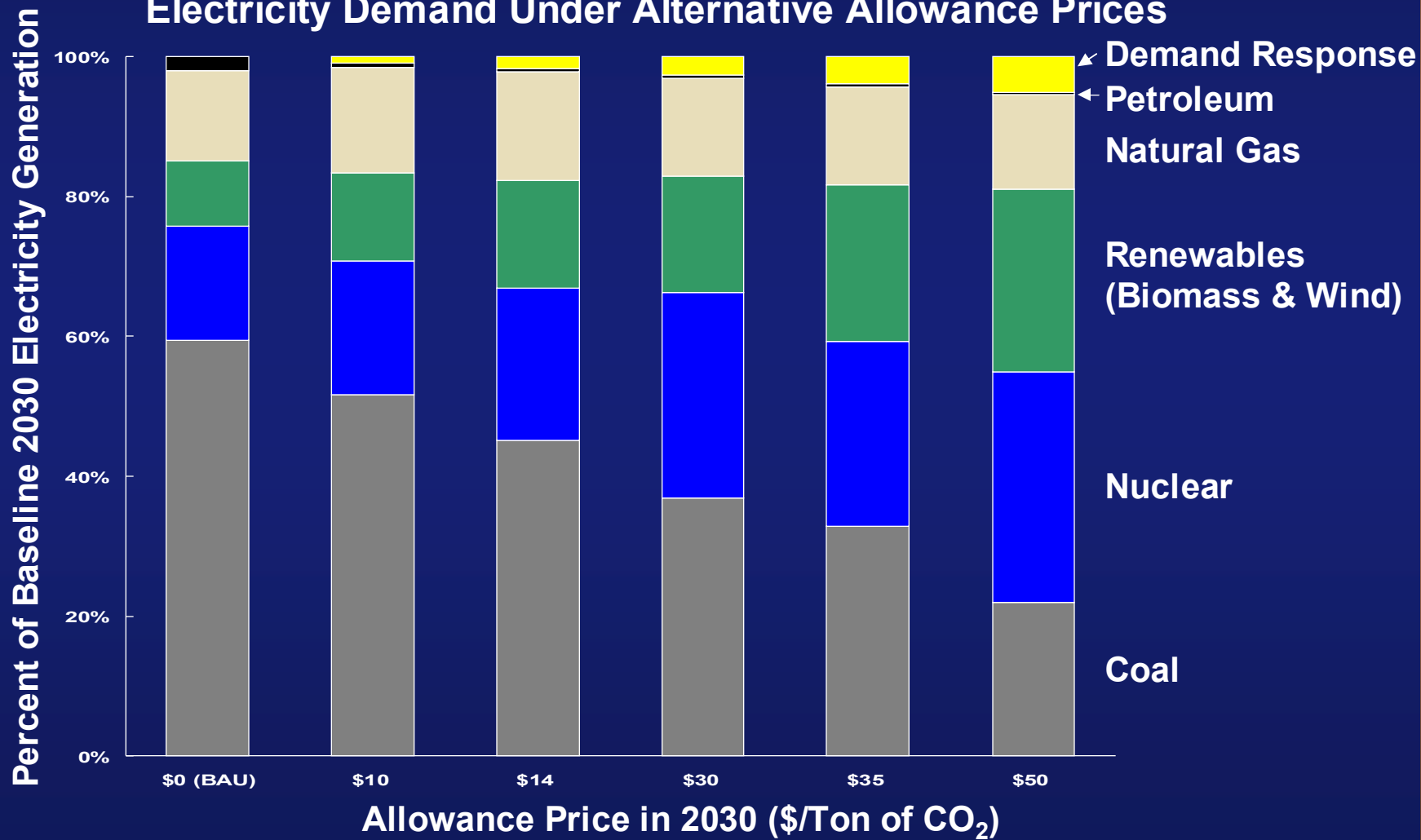
Additions, Retirements, and Net Capacity Changes for Coal-Fired Power Plants from 2006 to 2030 Under Alternative CO₂ Allowance Prices (As Percent of 2006 Coal-Fired Capacity)



Source: U.S. DOE, EIA Modeling

But What Will Replace Conventional Coal-Fired Generation in a Carbon-Constrained World?

Contribution of Generation Technologies to Meeting 2030 Electricity Demand Under Alternative Allowance Prices



Source: U.S. DOE, EIA Modeling

What Will the Future Hold for U.S. Participation in an International Agreement?

- **Bush Administration**
 - Plan of “slow, stop, & reverse” emissions makes sense, *but* need dates & targets *now* for “stop & reverse”
 - Plan’s embrace (in principle) of MBIs is good, but need real cap-and-trade, not just voluntary programs
 - What’s really missing: Bush (appropriately) criticized KP as a highly flawed international approach, but what’s the Administration’s proposed alternative?
- **A Future Democratic Administration?**
 - Keep in Mind: Senate vote on Byrd-Hagel Res. against KP approach was 95-0
 - President Clinton did not submit KP to Senate, nor would Vice President Gore had he been elected President, nor would Senator Kerry had he been elected
- **Prediction: No matter who occupies the White House, a KP-type treaty will *not* be submitted to the U.S. Senate for ratification**
 - State-level and regional initiatives *will* advance in the U.S., possibly even a unilateral national program at some point, but
 - *The Key Question* is whether the U.S. will begin to *work with* Europeans and others (G8+5) on a *better international agreement*

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