



Climate-Related Research and Policy Studies

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CSIS Global Change Initiative

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Selected Activities

- Inter-Industry Climate Policy Forum
- Climate Adaptation: US National Policy Framework
- Climate Change Science Program (CCSP) Contributions
- Climate Policy Modeling Workshops

RFF Climate Policy Forum

- Initiative of the Climate and Technology Policy Program at RFF
- Supported by the Doris Duke Charitable Foundation, the William and Flora Hewlett Foundation, the Center for Environmental Markets at Goldman, Sachs & Co.
- Participants: Alcoa, American Honda Motor Co., Caterpillar, Cargill, Chevron, Chrysler, CONSOL Energy, Cummins, Dow, Duke Energy, DuPont, Edison International, El Paso Corp., Exelon, ExxonMobil, Ford, General Electric, Goldman Sachs, Lennox, Nucor Steel, Southern Company, Toyota Motor North America, YRC Worldwide

Topics Requested by Participants

- 1. Greenhouse Gas Emissions and the Fossil Fuel Supply Chain in the US**
- 2. US Climate Mitigation in the Context of Global Stabilization**
- 3. Assessing the Costs of Regulatory Proposals for Reducing US Greenhouse Gas Emissions**
- 4. Scope and Point of Regulation for Pricing Policies to Reduce Fossil Fuel CO₂ Emissions**
- 5. Emissions Trading versus CO₂ Taxes versus Standards**

- 6. Allowance Allocation**
- 7. Mandatory Regulation of Nontraditional Greenhouse Gases: Policy Options for Industrial Process Emissions and Non- CO₂ Gases**
- 8. Offsets : Incentivizing Reductions While Managing Uncertainty and Ensuring Integrity**
- 9. Climate Technology Research, Development, and Demonstration: Funding Sources, Institutions, and Instruments**
- 10. Climate Technology Deployment Policies**

11. The Electricity Sector and Climate Policy

12. Transport Policies to Reduce CO₂ Emissions from the Light-Duty Vehicle Fleet

13. Climate Change and US Agriculture

14. Competitiveness Impacts of Carbon Dioxide Pricing Policies on Manufacturing

15. Addressing Competitiveness Concerns in the Context of a Mandatory Policy for Reducing US Greenhouse Gas Emissions

Summary of Market-Based Climate Change Bills Introduced in the 110th Congress

Draft as of October 29, 2007 (See companion figure for target levels.)

	Who's Regulated	Allowance Allocation	Price Stability	Offsets	Technology	Competitiveness
Lieberman-Warner (S. 2191)	Economy-wide cap: large sources downstream at emitter; transport emissions at refinery; F-gas producers and importers. (75% of US GHG emissions covered.)	40% free to industry (including electric generators; with phase out); 10% to electricity consumers; 24% auctioned to fund technology deployment, transition assistance, and adaptation; 12% set aside for CCS and sequestration; 9% to states; 5% for early action.	"Climate Fed" with discretion to increase use of borrowing and offsets and temporarily expend cap. Borrowing: up to 15% of allowances, for no more than 5 years.	Up to 15% of obligation can be met with domestic sequestration, and another 15% through international allowances and credits.	Technology deployment incentives for zero- and low-carbon generation, advanced coal, cellulosic biomass, and advanced vehicles (55% of auction revenues)	Bulk, energy-intensive imports from countries w/o comparable policy require permits after 2020.
Bingaman-Specter (S. 1766)	Economy-wide cap: coal and process emissions at emitters; oil refiners, NG processors, and oil/NG importers; and F-gas producers and importers.	53% free to industry (with phase out); 24% auctioned to support R&D, transition assistance, adaptation; 14% set aside for CCS and sequestration; 9% to states.	\$12/metric ton CO ₂ ; safety valve, rising at 5% per year above inflation.	Unlimited domestic offsets including methane and SF ₆ . Limits on international offsets (10% of cap) and domestic agricultural offsets (5% of cap).	Detailed technology development programs funded from allowance auction revenues (12-25% of auction revenues).	Bulk, energy-intensive imports from countries w/o comparable policy require permits after 8 years.
Udall-Petri (May draft and staff talks)	Economy-wide cap: primarily upstream sources (e.g., producers and importers of fuels).	20% free to industry. 80% auctioned to support RD&D; developing country engagement; adaptation, dislocation aid; sequestration; debt reduction.	\$12/metric ton CO ₂ ; safety valve, rising at 2-8% per year above inflation.	Unlimited geological sequestration offsets. 5% of allowances set aside to fund biological sequestration and 1% for CCS projects.	Establishes ARPA-E to fund technology advancement projects (24% of auction revenues).	Inaction by developing countries can justify delay in safety valve escalation.
Lieberman-McCain (S. 280)	Economy-wide cap: large downstream at emitter; transport emissions regulated at refinery.	Discretion of EPA, with guidance for some free allocation and an auction to fund R&D, transition assistance, adaptation measures.	Borrowing: up to 25% of allowances, for no more than 5 years.	Up to 30% of obligation can be met with domestic sequestration projects and international offsets.	Revenues from some auctioned allowances used for RD&D.	No provisions.
Kerry-Snowe (S. 485)	Economy-wide cap: point of regulation at discretion of EPA.	Discretion of the President with guidance from the EPA.	No provisions.	USDA sets rules for domestic biological sequestration.	Vehicle emission rules; efficiency & renewable standards for electric generation; additional bill-specific mandates.	
Waxman (H.R. 1590)			No provisions.	No provisions.		
Sanders-Boxer (S. 309)	Economy-wide cap: EPA has discretion to implement a market-based allowance program to achieve cap.					
Fainstein-Carper (S. 317)	Electricity-sector cap: power plants. (S. 1168 also covers utility SO ₂ , NO _x , and mercury emissions.)	85% free to industry, based on generation (updated annually), and phased out by 2036.	Borrowing up to 10%, for no more than 5 years.	International offsets up to 25% of cap; extensive domestic biological offsets.	Distributes auction revenues to multitude of technology programs.	Tax applied to fossil fuel imports; fossil fuel exports are exempt.
Alexander-Lieberman (S. 1168)		75% free to industry, based on heat input.	No provisions.	Domestic offsets in five categories, including methane, SF ₆ , efficiency, and forest sequestration.	NSPS for CO ₂ emissions from new electric generation units.	
Stark (H.R. 2089)	Economy-wide tax: fossil fuels taxed by CO ₂ content at the point of production and import.	100% revenues to US Treasury.	\$3/metric ton CO ₂ , rising \$3 annually.	Tax refunds for fuel CO ₂ sequestered downstream: CCS, plastics.	No provisions.	
Larson (H.R. 3416)		1/6 of revenues to R&D, 1/12 to industry transition assistance (with phase out), remainder to payroll tax rebates.	\$16.5/metric ton CO ₂ , rising 10% plus inflation annually.	Tax refunds for domestic sequestration and HFC destruction projects.	1/6 of tax revenues up to \$10 billion annually goes to clean energy technology R&D.	
Dingell (Summary of draft)	Economy-wide tax: fossil fuels taxed by CO ₂ content at point of production and import. Also, tax on gasoline (but diesel exempt).	Revenues used to expand EITC and help fund entitlement programs. Gas tax revenues go to highway trust fund (40% mass transit, 60% roads).	\$15/metric ton CO ₂ , rising at inflation. \$0.5/gallon gasoline tax (in addition).	No provisions.	No provisions.	

Adapting to a Changing Climate: A Blueprint for

US Federal, State, and Local Policy

- Adaptation as actions taken to minimize the expected cost (or maximize expected benefits) of adjusting to a changing climate -- enhancing “resiliency” of society
- Adaptation v Mitigation
- Built infrastructure; economic sectors (industry); nonmarketed natural resources and environmental goods (e.g., ecosystems)
- Emphasis on US

Focus: What is the role of government?

- To what extent will markets (price signals) fail to work? They may work well if adaptation requires gradual change rather than abrupt response.
- To what extent will insurance provide the capacity to cushion risk for private goods?
- To what extent will equity issues pressure government to redistribute income?
- To what extent will nonmarketed public goods, particularly natural resources and environmental goods, require public intervention?
- To what extent will the most important role involve provision of information, particularly that which anticipates changes in mean and variability as well as monitors effectiveness of mitigation actions?

Phase 2: Policy Implications

- What principles inform the choice of options undertaken by individuals and governments?
- How can we rank the impacts and set priorities for options?
- Which activities are best undertaken by the private sector and which by government?
- Which jurisdiction -- federal, state, local -- is most appropriate?
- Do we have all the institutions needed?
- How will actions be financed?
- What should be done to address distributional consequences?

Basis for Phase 2: Phase 1 Natural Science Study

- Freshwater resources
- Coastal and marine ecosystems
- Public health
- Agriculture
- Infrastructure (industry, settlement and society)
- Terrestrial ecosystems and biodiversity

Audience -- Policymakers and Climate Science/Information Communities-- We Seek to Enhance Policy Discussion

- Lieberman-McCain (S. 280) calls for “an adaptation plan”
- Sanders-Boxers (S. 309), Feinstein-Carper (S.317) call for research on abrupt impacts
- Kerry-Snowe (S. 485) would set up a “National Climate Change Vulnerability and Resilience Program”
- Rahall (H.R. 2337) calls for 2-yr, temporary cabinet-level pane to “review science on how to adapt... and specific science assessments needed to address this reality”
- Cantwell (S. 2355) proposes the “Climate Change Adaptation Act” which amends the National Climate Program Act to require a 5-yr national strategic plan for adaptation programs and policies

US Climate Change Science Program Synthesis and Assessment Product 5.1

- “Uses and Limitations of Observations, Data, Forecasts, and Other Projections in Decision Support for Selected Sectors and Regions”
 - PECAD/CADRE (USDA)
 - RiverWare (UC Boulder/ TVA, Army Corps of Engineers)
 - HOMER (NREL, US DoE)
 - DSSPLD (US CDC, Yale University)
 - CMAQ (US EPA)
 - *Catalog* -- approx. 20 other ongoing applications