Overview of U.S. Climate Policy

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US Federal Action to Date

1992

- President George H.W. Bush supports UN Framework Convention on Climate Change
- Senate quickly ratifies UNFCCC
  - Objective: “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”
  - UNFCCC greenhouse gas (GHG) reductions voluntary
- Bush (41), Clinton and Bush (43) launched and expanded voluntary programs
1993 - 2000

- Senate passes Byrd-Hagel resolution opposing U.S. participation in a climate treaty that does not require GHG reduction commitments from developing countries, 95 – 0 (1997)
- Clinton supports 1997 Kyoto Protocol, but offers no legislation to meet Kyoto’s requirements
- In Congress, a “No Man’s Land” between Kyoto and do-nothing
2001 – 2006

- G.W. Bush opposes Kyoto, breaks promise to limit power plant CO₂ emissions (2001)
- Democrats and moderate Republicans begin to offer climate proposals (2001)
- Majority of Senators vote for nonbinding resolution supporting mandatory climate action (2005)
Bush Federal Climate Policy

- No Kyoto
- Research
- GHG Intensity target
- Voluntary reporting
- Long-term technology development
U.S. GHG Emissions 1990-2006

Source: US EPA
What is Cap and Trade?

Cap and trade basics:

- Determine what facilities and GHG gases are covered by the policy
- Set the level of allowable GHG emissions – the “cap”
- Distribute tradable allowances (permits to emit) to the covered facilities
- Covered facilities must hold enough allowances at the end of the compliance period to cover their emissions
- Those facilities with excess allowances can sell - or “trade” - allowances to facilities that do not have enough to cover their emissions
- Trading occurs because firms face different costs of reducing emissions
- The “cap” declines over time creating scarcity and a robust market for allowances

Cap and trade puts a price on GHG emissions and creates an incentive to reduce emissions
Advantages of cap and trade:

- GHGs are well-mixed in the atmosphere, therefore...
  - The location of reductions is irrelevant
  - Might as well get the cheapest reductions first
- Making the policy fit the environmental goal
- International linkage
- Providing positive incentives to innovation
- Growing support and experience

But keep in mind...

- Some sectors are difficult to address through cap and trade. Other policy mechanisms (R&D, sectoral programs) will likely be needed as well
So far in 110th Congress (2007-2008) there have been 213 hearings held and 235 bills introduced

2007 Energy Bill has effect on GHG emissions:
  – Vehicle efficiency standards
  – Renewable fuel standard
  – Appliance efficiency standards

Today in Washington, “climate bill” generally = GHG cap-and-trade bill
Tough questions to answer:

- *What targets and timetable?*
- Which industries are covered by program?
- How to allocate or auction GHG allowances? How to contain program costs?
- *How to ensure offset quality?*
- How to promote rapid deployment of low-carbon technologies? (including carbon capture & sequestration of coal power emissions)
- How to protect US manufacturers from price advantage for imports from countries without GHG mitigation programs?
Cap and Trade Bills in the 110th

Senate

- **Lieberman-Warner**: economy-wide, funds for technology, adaptation, and mitigating impacts. Approximately 66% below total U.S. 2005 emissions levels by 2050
- **Bingaman-Specter**: offsets, “safety valve” of $12/ton rising 5%/year above inflation, funds and bonus allowances for tech R&D. Aspires to ≥ 60% below current by 2050. Requires aggressive external policies to avoid safety valve
- **Lieberman-McCain**: economy-wide, technology title. 60% below 1990 in 2050
- **Sanders-Boxer**: economy-wide, cap & trade permitted but not required, other sectoral standards. 80% below 1990 in 2050
- **Feinstein-Carper**: electricity sector only, funds for tech R&D. 25% below 1990 in 2050
- **Kerry-Snowe**: economy-wide, other sectoral standards, funds for tech R&D. 62% below 1990 in 2050

House

- **Markey**: economy-wide (7 GHGs), almost 100% auction with proceeds to tax rebates for energy consumers, 85% below 2005 levels in 2050
- **Olver-Gilchrest**: economy-wide, 60% below 1990 in 2050
- **Waxman**: economy-wide, cap & trade permitted but not required, funds for tech R&D, other sectoral standards. 80% below 1990 in 2050
Lieberman-Warner Highlights

- Covered sectors represent approximately 87% of total U.S. emissions
  - Downstream on coal (power plants and industries using over 5,000 tons of coal per year)
  - Upstream (producers and importers) on natural gas, petroleum, or coal-based liquid or gas fuels (assuming no sequestration or destruction)
  - Manufacturers or importers of >10K t/CO$_2$e of GHGs (e.g., SF$_6$, PFCs) assuming no sequestration/destruction
  - Facilities that emit HFCs (>10K tons) as byproduct of HCFC production (note: separate cap for HFC consumption)

But...
- Many industrial process emissions are not covered (e.g., cement, lime, and aluminum production) totaling roughly 104 MtCO$_2$e (1.4% US emissions)
- Emissions from agriculture, landfills, etc. not covered – 826 MtCO$_2$e (11% US emissions)
• Emissions caps require reductions across covered sectors below 2005 levels as follows:
  – 2012: 4%
  – 2020: 19%
  – 2050: 71%
• Reductions in total U.S. emissions would depend on the growth in uncovered sectors, use of offsets, etc.
Distribution of Allowances
S. 3036 Boxer-Lieberman-Warner Substitute Amendment
June 3, 2008

Available Allowances (GtCO2e)

Note: Does not include cost-containment provisions
Senate held a “debate” on Boxer-Lieberman-Warner GHG cap-and-trade bill, June 2 – 6, 2008:

- Debate was very disappointing
- No votes were held on amendments
- No final vote was held on the bill itself
- The vote on whether to amend and have a final vote on bill failed
- Too much discussion of gasoline prices and the economy
- Too little understanding of the negligible effect of B-L-W bill would have on gasoline prices and economy
## Lieberman-Warner Highlights

**Cloture votes on Boxer-Lieberman-Warner (S.3036)**

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<th>Yes: 48</th>
<th>No: 36</th>
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Ten signed letter indicating would not have voted for the Boxer substitute in its current form but expressing support for climate policy: Stabenow, Rockefeller, Levin, Lincoln, Pryor, Webb, Bayh, McCaskill, Brown, and Nelson

Six sent letters indicating would have voted yes if had been present: Biden, Clinton, **Coleman**, Kennedy, McCain, and Obama
Still, something can be learned from event

- Underlying B-L-W bill did not have enough support – perhaps no more than 35 – 40 Senators

- Nevertheless, a majority of U.S. Senators support mandatory climate action, probably in the form of GHG cap-and-trade

- However, the design of the cap-and-trade program is still very controversial

- Without strong presidential leadership, the debate could last for years
Boxer-Lieberman-Warner substitute calls for a detailed analysis every 3 years from the National Academy of Sciences of:

- The latest scientific information and data relevant to GCC, which should:
  - Address existing reports including most recent IPCC assessment
  - Describe trends in and projections for total US GHG emissions, total worldwide GHG emissions, atmospheric concentrations of GHGs, global average temperature, adverse impacts of GCC on humans, wildlife, and natural resources, and health of the oceans
- The performance of the Act in reducing GHG emissions and mitigating the adverse impacts of GCC, including:
  - The extent to which the Act and other policies...
    - will prevent dangerous atmospheric concentrations of GHGs and increases in global average temperature
    - are accelerating development and commercial deployment of low-emissions technologies
  - Projected deployment of capture, efficiency, zero-emissions energy, and biological sequestration technologies
  - The extent to which the allocations and distributions of allowances and auction proceeds are advancing the purposes of the Act, and whether they should be modified
  - Whether the Act or responses to the Act have increased release of criteria, hazardous, and toxic pollutants
  - The feasibility of reducing the cap or establishing additional policies
In the Bingaman-Specter bill, the NAS is called to “develop periodic and timely reports on the status of the best available science and the status of technologies to reduce, sequester, or avoid GHG emissions”

Additional look-back provisions focus more on whether comparable action has been taken by foreign countries and whether the safety-valve provisions are working; appropriately, these questions are not directed at the science community.
House Energy and Commerce Committee

- Motivated leadership
  - Chairman John Dingell (D-MI)
  - Subcommittee on Energy and Air Quality Chairman Rick Boucher (D-VA)
- Reps Waxman (D-CA) and Markey (D-MA)
- Some moderate Republicans
- Very smart productive committee
- Discussion draft released October 7th
Proposal highlights:

- Economy-wide: covers 88% of U.S. GHG emissions
- Covered sources: power plants, fuels, large industrial facilities, bulk gas producers, natural gas LDCs, and geologic sequestration sites
- Covered emission targets: 6% below 2005 by 2020, 44% below 2005 by 2030, 80% below 2005 by 2050
- Cost-containment: banking, borrowing, and strategic allowance reserve
- EPA-approved international and domestic offsets (5% of compliance obligation in first 5 years, 35% by 2024)
- Four allowance allocation options
Highlights (cont.):

- FERC responsible for carbon market oversight
- Energy efficiency standards and incentives for clean technologies
- Performance standards for new coal-fired power plants

But...

- Concerns with near-term reduction targets and preemption of Clean Air Act and state regulations
• Look back studies for overall policy effectiveness for mitigation and risk reduction

Dingell-Boucher calls on a detailed analysis every 8 years from the NAS of:

– a review of the latest scientific information that
  • address existing reports (e.g., IPCC, CCSP)
  • describes trends and projections for emissions, CC indicators (e.g., temp, precip, SLR), and impacts on humans and ecosystems
  • assesses the potential occurrence of key milestones (e.g., 450 ppm CO2e, 2 C warming, slowing of the THC)

– an analysis of the performance of the Act and other public policies in mitigating GHG emissions

– an analysis of the performance of the Act in reducing the risks from CC impacts
• Assessing state and local efficiency programs

Not later than three years after enactment NAS will conduct a study of and develop recommendations for:

- improving the accuracy of data on vehicle miles traveled and transportation system efficiency for the purposes of tracking greenhouse gas emissions and
- assessing the effectiveness of policies to reduce vehicle miles traveled and increase transportation system efficiency
• Science advisory board for adaptation

The Act establishes the NATURAL RESOURCES CLIMATE CHANGE ADAPTATION SCIENCE AND INFORMATION PROGRAM under the National Global Warming and Wildlife Science Center within the United States Geological Survey to:
- provide assistance to stakeholders in assessing impacts of CC
- conduct and sponsor research to aid in adaptation
- assist federal agencies in developing mandatory adaptation plans

The program is overseen by the SCIENCE ADVISORY BOARD to advise the program on the latest science and to recommend scientific priorities:
- 10-20 members, at least half recommended by the President of the NAS
- expertise related to impacts, vulnerability, adaptation
- balanced membership from federal, state, local gov't, academe, and NGOs

"The advice and recommendations of the Science Advisory Board shall be made available to the public."
Candidates Support Cap and Trade

McCain is a long-time advocate for climate action. McCain-Lieberman cap and trade bill proposed in 2003

Obama supports 80% emission reductions by 2050.
The next President:

- Is expected to propose a framework for GHG cap-and-trade bill in first half of 2009;

- Can focus public attention on climate change;

- Can put pressure on Congress; and

- Is expected to be the single biggest force in Congressional debate.
However:

- Gasoline prices and economic recession are still likely to be issues;

- Coal, oil and gas states have the same interests, whether represented by Democrats or Republicans; and

- It will take the President months to put his team in place.
States Poised to Follow California’s GHG Emissions Standards for Vehicles
19 States with GHG Emission Targets

- OR: 10% below 1990 levels by 2020
- CA: 1990 levels by 2020
- WA: 1990 levels by 2020
- NY: 10% below 1990 levels by 2020
- ME: 10% below 1990 levels by 2020
- VT: 25% below 1990 levels by 2012
- NH: 10% below 1990 levels by 2020
- MA: 10% below 1990 levels by 2020
- RI: 10% below 1990 levels by 2020
- CT: 10% below 1990 levels by 2020
- NJ: 1990 levels by 2020
- VA: 30% below BAU by 2025
- AZ: 2000 levels by 2020
- NM: 10% below 2000 levels by 2020
- FL: 2000 levels by 2017, 1990 levels by 2025, and 80% below 1990 levels by 2050
- HI: 1990 levels by 2020
- IL: 1990 levels by 2020
- MN: 15% below 2005 levels by 2015
- UT: 2005 levels by 2020
- WA: 1990 levels by 2020
- HI: 1990 levels by 2020
- UT: 2005 levels by 2020
- WA: 1990 levels by 2020
- HI: 1990 levels by 2020
The Role of State and Federal Governments

- Question is not whether responsibility for climate change action should rest exclusively with the federal government or the states, but rather how they should share responsibility.
  - Given the relative historical competencies of state and federal governments, there will be a substantial role for each in future climate policy; history of environmental policy shows that a shared approach is more effective.
  - Some aspects of policy (e.g., cap-and-trade if stringent enough) can be more effectively implemented at federal level.
  - Others (transportation, land-use planning, renewable energy) can be more effectively achieved by states.
Business Developments

- Growing belief in US industry that climate action is now inevitable and possibly desirable
- Increasing number of businesses:
  - Want regulatory certainty
  - Concerned that Supreme Court will require US Environmental Protection Agency to regulate GHGs
  - Concerned about court vacating CAIR rule (4 P more attractive now?)
  - Concerned with state action
  - Concerned with US public pressure
  - Already experience GHG regulation in European Union
  - Want US to influence post-2012 treaty negotiations
"We are committed to a pathway that will slow, stop and reverse the growth of U.S. emissions while expanding the U.S. economy."
• At COP 15, the US is likely to:
  – signal willingness to accept a declining cap on US emissions, and
  – insist on binding commitments of some sort for developing countries.

• Under either Obama or McCain, U.S. is likely to be more constructive in negotiating a climate treaty than under Bush.
What’s Needed?

- Overall needs from the scientific community
  - Scientific tools (e.g., regional climate models)
  - Improved information delivery to stakeholders
    - Accessible to the public
    - Easily understood and navigated (e.g., using internet resources)
  - Framework for policymakers to understand information provided and make decisions
  - What constitutes "dangerous interference with the climate system" (DAI)?
    - Scientists and policymakers have declined to answer--discussion of mitigation targets led by economists with a focus on DIE (dangerous interference with the economy)
    - Need well-vetted science-based arguments to inform the DAI question to get balanced approach to setting targets
What’s Needed? (cont.)

- From UCAR
  - Increased integration of social sciences into University decision-maker partnerships to develop integrated analytical and decision-making tools
  - Continued focus on scientific/environmental information for federal and international mitigation debate
  - Understanding geoengineering options and risks
  - Assistance with adaptation (regional scale modeling, etc.)
  - Be proactive—what is missing?
A two-tiered approach needed

“Avoiding the unmanageable and managing the unavoidable”*

- Avoiding the unmanageable → mitigation
  - Emissions reduction policies at state, regional, federal, and international levels

- Managing the unavoidable → adaptation
  - Preparedness, resilience, ecosystem management, protecting vulnerable populations

*Title of the UN Foundation Scientific Expert Group Report on Climate Change and Sustainable Development
The first refugees of global warming
Bangladesh watches in horror as much of the nation gives way to sea

By Laurie Goering
Tribune foreign correspondent
Published May 2, 2007

ANTARPARA, Bangladesh -- Muhammad Ali, a wiry 65-year-old, has never driven a car, run an air conditioner or done much of anything that produces greenhouse gases. But on a warming planet, he is on the verge of becoming a climate refugee.

In the past 10 years the farmer has had to tear down and move his tin-and-bamboo house five times to escape the encroaching waters of the huge Jamuna River, swollen by severe monsoons that scientists believe are caused by global warming and greater glacier melt in the Himalayas.

Now the last of his land is gone, and Ali squats on a precarious piece of government-owned riverbank -- the only ground available -- knowing the river probably will take that as well once the monsoons start this month.

"Where we are standing, in five days it will be gone," he predicts. "Our future thinking is that if this problem is not taken care of, we will be swept away."…
Adaptation?
For More Information

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