US Climate Change Policy: Watching Glaciers Shift?

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Overview

- Efforts by US States
- Federal Spending on Climate Change
- US Bilateral and Multilateral Initiatives
- Recent Energy Bill
- Ongoing Political Debate

State Efforts

- ~ 40 states have compiled GHG inventories
- ~ 27 states adopted climate change action plans
- ~ 8 states have established voluntary GHG emissions goals
- ~13 states with “Renewable Portfolio Standards”
- Plus 140 local governments participating in the Cities for Climate Protection Campaign
- Numerous actions by industry to assume voluntary obligations and reduce emissions

Why States Matter

	Mt CO_2	tCO_2/ cap		Mt CO_2	tCO_2 /cap
US Total	5416.8	19.9	Poland[a]	319.0	8.4
EU	3120.8	8.3	Spain	270.5	6.8
Japan	1156.9	9.1	Ohio	255.8	22.7
Germany	833.2	10.1	Pennsylvania	234.9	19.6
Texas	610.7	30.5	Florida	223.0	14.8
UK	514.8	8.6	Indiana	219.5	36.9
Canada	495.0	16.1	Illinois	214.8	17.7
Italy	428.9	7.4	Michigan	193.2	19.6
France	381.5	6.5	New York	191.8	10.5
California	347.7	10.5	Louisiana	187.6	42.9
Australia	325.7	17.0	Netherlands	168.7	10.6

CO2 Emissions (1999) and Emissions per capita (1999)

Paying Attention to States

- Source of innovation and diversity
- Greater emphasis on co-benefits
- Potential for learning from state to state
- Efforts at regional (inc cross-border) coordination
- Opens up US black box -- Reveals differences in:
  - Fuel mix (coal, gas, oil, hydro, nuclear)
  - Urbanization, availability of public transport
  - GHG mix (agriculture vs industry vs transport)
  - GHG growth relative to population
  - Willingness to address climate change

Relevant Areas of State Control

The powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states respectively, or to the people."

The United States Constitution, Amendment X, 1789

- Utility regulation
- Building Codes
- Regional transport and pollution
- State Government spending

Differential Growth

- Good News: 8 “Slow but Cleaner” states comprising 20.0% of emissions in 1990 reduced their emissions by almost 6% below 1990 levels
  - ***Equivalent to CO_2 emissions from Denmark***
- Bad News: 16 “Fast and Dirty” states comprising 20.9% of emissions in 1990 accounted for half of the national growth in emissions
  - ***Equivalent to CO_2 emissions from all of Scandinavia***

Leaders and Laggards?

"Slow but Cleaner"

- California
- Pennsylvania
- New York
- Massachusetts
- Other Northeast States, Hawaii

"Fast and Dirty"

- Florida
- Carolinas
- Deep South
- Mountain West/Southwest
- Iowa
- Missouri
- Oregon, Vermont, Wisconsin, Rhode Island

Equity Matters

- Wide differences in current emission levels, trajectories, preparedness, capacity, attitudes
- Ultimately, the “unwilling” could be drawn in through informal (formal) links or mechanisms
- Motivating serious coordinated action that move beyond no regrets or opportunistic action requires the ability to regulate at federal level to resolve concerns over equity

State Firsts on Climate Change

Oregon

- 1997 – Law that new power plants offset CO_2 emissions

New Hampshire

- 1999 – GHG registry law
- 2002 – "4-P" law (return CO_2 to 1990 levels by 2010)

Massachusetts

- 2001 – "4-P" regulations (10% CO_2 cut below 1997-99)

Maine

- 2003 – Law requiring economy-wide reduction in GHG emissions to 1990 level by 2010

California

"the debate is over. We know the science, we know the time for action is now."

–Governor A. Schwarzenegger, July 2005

- 2001 – First functioning GHG registry
- 2002 – Law requiring "maximum feasible and cost effective" CO2 reductions from passenger cars & trucks (Pavley bill) by 2006 in the form of standards introduced for 2009 model year
- 2004 – Hydrogen highway initiative
- 2005 – Executive order including 80% emissions reduction target by 2050

California Effect

- Led in developing ambient air quality standards and automobile emissions standards from 1950s onwards
- Standards drive actions by auto manufacturers, at federal level and internationally
- Conscious effort to create *de facto* national standards
- Current situation: Primarily driven by local concerns and focused on combination of co-benefits including (1) congestion, (2) fuel price and (3) energy security
- Recognition of need to engage manufacturers, for data and international coordination

Renewable Portfolio Targets

- Sample Renewable Power Mandates

Maine	30% by 2000
California	20% by 2017
Nevada	15% by 2013
Connecticut	13% by 2009
New Mexico	10% by 2011
New Jersey	6.5% by 2012
Minnesota	4.8% by 2012
Massachusetts	4% by 2009
Texas	2.2% by 2009
Wisconsin	2.2% by 2011

New England Governors & Eastern Canadian Premiers' Regional Climate Commitment,

- Short-Term:
  - Reduce GHG to 1990 levels by 2010
- Medium-Term:
  - Reduce by at least 10% below 1990 levels by 2020
  - Establish an iterative "five-year process, starting in 2005, to adjust the goals if necessary, and set future emissions reduction goals"
- Long-Term:
  - Reduce "sufficiently to eliminate any dangerous threat to the climate "
  - Expected to be "75-85% below current levels"

Regional Greenhouse Gas Initiative (RGGI)

- Initiated in April 2003 at invitation of New York Governor Pataki
- 10 Northeast and Mid-Atlantic states
- Proposal to adopt a cap-and-trade emissions trading system in the power sector
- Current Status – 8 states moving forward; 2 states and 1 Canadian province as observers
- Model rule – April 2005

West Coast Governors Initiative

- Joint strategy to reduce global warming
- Announced Sept 2003 by CA, OR, & WA
- Initial Components:
  - Combined purchasing for fuel efficient fleets & hybrid vehicles
  - Uniform appliance efficiency standards
  - Update efficiency standards in state building codes
  - Measuring & reporting GHG emissions
  - Increase use of renewables in generation by 1%/yr

Status Of Litigation

- In 1999, NGOs petitioned EPA to regulate GHG from mobile sources
- Ultimately EPA denied having authority to regulate GHG emissions in August 2003
- October 2003 –12 states (including Calif., Mass., Illinois, New York), plus cities & NGOs, appealed EPA's denial
- D.C. Court of Appeals rejects appeal July 2005
- Recent NEPA EIS ruling on considering CO_2

Roles for Federal Government

- Federal government best placed to:
  - Negotiate at multilateral and bilateral levels
  - Support R&D
  - Analyze merits of alternative policies
  - Develop national infrastructure
  - Balance regional concerns: make tradeoffs and facilitate linkages thereby avoiding a ‘race to the bottom’ where few take action without coordination
  - Avoid 50 independently-designed regulatory regimes that would create barriers to trade and a burden on industry

US-Led Multilateral Programs

- CSLF – Sequestration – 19 members + EC (DOE-led)
- IPHE – Hydrogen – 20 countries + EC (DOE-led)
- GIF – Gen IV – Advanced Nuclear – 10 countries + Euratom, IAEA, OECD (Jan 2000)
- M2M – Methane to Markets – 16 countries (EPA-led)
- GEOSS – Group on Earth Observations – 61 countries and 40 international organizations (NOAA-led)

Asia-Pacific Partnership

- US, Australia, Japan, South Korea, India and China agreement on 27 July, 2005
- Partnership to accelerate clean development and improve energy security
- Voluntary practical measures to create new investment opportunities, build local capacity and remove barriers to introduction
- Intended to complement not replace Kyoto

US Action & Inaction

- 1997 Byrd-Hagel Resolution 95-0 calls for participation of developing countries and focus on economic effects
- Knollenberg Amendments 1998-2000 discourage even analysis of measures seen to implement Kyoto
- Precipitous Bush Withdrawal in 2001
- Major Technology Initiatives - FutureCar, FutureGen
- Federal Spending ~$2B on climate science ~$3B on tech
- McCain-Lieberman Proposal
- Recent activity over energy bill

Federal Spending on Climate Change (million US$)

Programs	FY2004 Proposal	FY04 Enacted	FY04 Actual	FY05 Proposal	FY05 Enacted	FY06 Proposal
Technology	1759	2878	2868	2982	2989	2865
Science	1747	1996	1976	1956	1918	1892
International	271	260	252	229	240	198
Subtotal	3770	5128	5090	5161	5140	4949
Tax Credits	552	0	0	680	83	524
Total	4322	5128	5090	5841	5223	5473

Source: Thomas L. Brewer, Climate Change in the US Government Budget Funding for Technology and Other Programmes, CEPS Policy Brief No. 77, July 2005

Funding for Technology Programs

Programs	FY2004 Proposl	FY04 Enacted	FY04 Actual	FY05 Proposl	FY05 Enacted	FY06 Proposl
Conservation	876	878	868	876	868	847
Renewables	444	375	352	375	380	354
Subtotal	**1320**	**1253**	**1220**	**1251**	**1248**	**1201**
Fossil Fuels	184	464	455	541	388	405
Fusion, H_2, Seq	47	337	333	362	371	399
Nuclear	[12]*	292	309	313	394	416
Subtotal	**243**	**1093**	**1097**	**1216**	**1153**	**1220**
Other DOE	70	62	73	90	104	85
DOE Subtotal	1633	2408	2390	2557	2505	2506
Other Dep'ts	126	470	478	425	484	359
Total	**1759**	**2878**	**2868**	**2982**	**2989**	**2865**

Bush Administration Tax Credit Proposals

Programs	FY04	FY05	FY06
Residential Solar	7	12	11
Hybrid & Fuel Cell Vehicles	154	79	260
Wind, Biomass, Landfill Gas	292	435	144
Cogeneration, Heat & Power	99	154	109
Total	552	680	524

Carbon Sequestration Budgets

DOE Office	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006*
Science	$6.8	$19.5	$19.2	$22.0	$22.0	$25		$37
Fossil Energy	$5.9	$9.2	$18.8	$32.2	$37	$44	$45	$67.2

McCain-Lieberman Bill

- *Economy-wide* cap on greenhouse gas emissions that limits emissions to 2000 levels by 2010-2016 and is then reduced to 1990 levels post-2016
- Includes provision for credits from CCS, agriculture, forestry & nuclear
- Cost estimates of ~$20/household (MIT, 2003)
- 2003 – S. 139 is defeated 43-55 (first major post-Byrd-Hagel vote in the Senate)
- 2005 – S. 1151 is defeated 38-60 (concern over nuclear subsidies with no gains among conservatives because of alternative options)

Energy Bill

- Conservation and energy efficiency
- Expands use of alternate and renewables
- Fully funds Hydrogen Fuel Initiative
- $3400 tax credit for hybrid vehicle purchase
- $1.3 billion for alternative motor vehicles and fuels (ethanol,methane, LNG, propane)
- Investment in modernization and reliability of energy infrastructure

Aftermath of Energy Bill

- Hagel provisions on climate change technology and cooperation with developing countries
- Strong resistance to action remains in House
- Sense of Senate resolution on climate science and mandatory action approved 54-43 with implicit approval of senate leadership
- Bingaman-Domenici efforts to enshrine NCEP recommendations in law
- Prospective battle between Senate committees (EPW and Energy) over jurisdiction

Specter-Bingaman Sense of Senate: Findings

- Congress finds that—
  - (1) greenhouse gases accumulating in the atmosphere are causing average temperatures to rise at a rate outside the range of natural variability and are posing a substantial risk of rising sea- levels, altered patterns of atmospheric and oceanic circulation, and increased frequency and severity of floods and droughts;
  - (2) there is a growing scientific consensus that human activity is a substantial cause of greenhouse gas accumulation in the atmosphere; and
  - (3) mandatory steps will be required to slow or stop the growth of greenhouse gas emissions into the atmosphere.

Sense of the Senate

- (b) It is the sense of the Senate that Congress should enact a comprehensive and effective national program of mandatory, market-based limits and incentives on emissions of greenhouse gases that slow, stop, and reverse the growth of such emissions at a rate and in a manner that —
  - (1) will not significantly harm the United States economy; and
  - (2) will encourage comparable action by other nations that are major trading partners and key contributors to global emissions.

Prospects for Federal Action: Bringing in Key Constituencies

- Kyoto Still Dead – 67 votes needed to ratify Protocol in the Senate vs 51 for new legislation (60 to close debate)
- Binding actions unlikely in near term (4 years), inevitable over longer term (8-15 years)
  - Agricultural states: pressure to bring in forestry, tillage practices and ethanol
  - Coal oil & gas states: pressure for carbon capture and storage, coal gasification, clean fossil, compensation
  - California and Northeast: pressure on transport sector - concerns over autos and hydrogen infrastructure
  - Manufacturing states (Midwest, scare stories)