Evolution and Current Status of GHG Emissions Mitigation Policies in the United States

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U.S. National Context

- U.S. has been an active party to the UNFCCC since 1992

- Since 2000 emphasis on voluntary programs
  - EPA’s Climate Leaders
  - DOE’s 1605(b) program
  - DOE’s Climate Challenge – “Power Partners”

- More recently interest in role of technology development has increased

- Many national legislative proposals
  - McCain-Lieberman
  - Bingaman / NCEP Proposal
  - Others (e.g., Feinstein, Waxman, Udall-Petri…)

- Rapidly evolving state and regional initiatives
  - California (AB-32)
  - NE Regional GHG Initiative (RGGI)
  - Others
## Overview of U.S. Voluntary GHG Programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>US EPA – Climate Leaders</td>
<td>Companies voluntarily establish a 5-10 year &quot;aggressive&quot; absolute or intensity-based GHG emissions reduction goal; report annual GHG emissions inventory to U.S EPA.</td>
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<tr>
<td>US DOE – 1605(b) Program</td>
<td>Companies can “register” entity-wide reductions in GHG emissions intensity or “report” project-related reductions, based on new, more stringent regulations adopted in 2006.</td>
</tr>
<tr>
<td>US DOE – Climate Vision (&quot;Power Partners&quot;)</td>
<td>Companies can report GHG emissions reduction efforts that support achievement of sector-specific, intensity-based GHG reduction goals. Electric sector goal is to achieve a 3-5% reduction in GHG intensity (CO₂/MWh) between 2002-2012.</td>
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<tr>
<td>Chicago Climate Exchange (CCX)</td>
<td>Members agree to reduce absolute GHG emissions ~6% by 2010 over an agreed-upon baseline. CCX includes private companies, state governments, cities, and others.</td>
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</tbody>
</table>

1. Other private voluntary GHG reduction efforts include Environmental Defense’s Partnership for Climate Action (PCA), the Pew Center - Business Environmental Leadership Council (BELC) and the Carbon Disclosure Project.
### Electric Company GHG Reduction Goals in EPA’s Climate Leaders Program

<table>
<thead>
<tr>
<th>Company</th>
<th>Voluntary Programs</th>
<th>GHG Reduction Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEP</td>
<td>CCX, Climate Leaders</td>
<td>6% below average 1998-2001 baseline by 2010</td>
</tr>
<tr>
<td>Cinergy</td>
<td>BELC, Climate Leaders</td>
<td>5% below 2000 baseline by 2010-2012</td>
</tr>
<tr>
<td>Entergy</td>
<td>BELC, Climate Leaders</td>
<td>Stabilize emissions at 2000 baseline through 2005 (working on new goal)</td>
</tr>
<tr>
<td>Exelon</td>
<td>Climate Leaders</td>
<td>8% below 2001 baseline by 2008</td>
</tr>
<tr>
<td>FPL</td>
<td>Climate Leaders</td>
<td>18% reduction in GHG emissions per MWh from 2001 to 2008</td>
</tr>
<tr>
<td>PSE&amp;G</td>
<td>Climate Leaders</td>
<td>18% reduction in GHG emissions per MWh from 2000 to 2008</td>
</tr>
</tbody>
</table>
McCain-Lieberman

• “Climate Stewardship and Innovation Act of 2005”
  – 2003 version (s.139) received 43 votes in the Senate
  – 2005 version (s.1151) received 38 votes in the Senate

• Key Elements
  – Cap-and-trade program for GHG emissions reductions
  – Covers about 85% of emissions
  – Covers all 6 GHGs
  – Limits to 15% the emissions reductions to be derived from offsets and sequestration activities
Bingaman Amendment / NCEP Proposal

- A mandatory, economy-wide CO₂ emission trading program modeled on the work of the National Commission on Energy Policy (NCEP).

- Key Elements
  - Mandatory, economy-wide tradable-permit system;
  - 2.4% CO₂ emissions intensity reduction annually (based on preceding year) from 2010-2019;
  - 2.8% CO₂ emissions intensity reduction annually, from 2020-2024 and for each subsequent five-year period; and,
  - Inclusion of a CO₂ price “safety valve” of $7 per tonne CO₂e (nominal), increasing at 5% per year.
Projected Emissions Paths under U.S. Proposals

Note: Results are from analysis using July 2005 version of MRN
Regional GHG Initiatives

Source: Pew Center on Global Climate Change website. http://www.pewclimate.org/what_s_being_done/in_the_states/regional_initiatives.cfm
States with GHG Reporting & Registries

Source: Pew Center on Global Climate Change website.
http://www.pewclimate.org/what_s_being_done/in_the_states/regional_initiatives.cfm
### US Regional GHG Targets & Timetables

<table>
<thead>
<tr>
<th>Region</th>
<th>Baseline</th>
<th>GHG Goal</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. 2000</td>
<td>2. Reduce 50% absolute</td>
<td>2. 2040</td>
</tr>
<tr>
<td>California²</td>
<td>1. 1990</td>
<td>1. Maintain 1990 level</td>
<td>1. 2020</td>
</tr>
<tr>
<td></td>
<td>2. 2005</td>
<td>2. Reduce 10% absolute</td>
<td>2. 2016-2019</td>
</tr>
</tbody>
</table>

**Notes:**
2. Passed by the CA legislature August 31, 2006; expected to be signed by Governor.
Northeast Regional GHG Initiative (RGGI)

- Involves 7 Northeast and Mid-Atlantic states
  - Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York and Vermont
  - Observers: Pennsylvania
  - Dropped out: Massachusetts and Rhode Island

- Creates a multi-state electric power sector CO\(_2\) cap-and-trade program
  - Coverage: electric power plants >25 MW
  - CO\(_2\) targets in 3 phases:
    1. Caps CO\(_2\) emissions at 2005 levels in 2009
    2. Maintains 2009 CO\(_2\) level through 2015
    3. 10% reduction over 2005 levels required by 2019
  - Limited use of GHG offsets tied to “trigger prices”
  - Requires at least 25% of allowances to be auctioned

- Current Status
  - 7 states signed memorandum of understanding (MOU) in December 2005
  - In 2006, Maryland passed a new law requiring the state to join RGGI
  - Final “model rule” adopted August 15, 2006
  - Program to become operational starting January 1, 2009
California (1 of 2)

- The Global Warming Solutions Act of 2006
  - CA legislature passed AB-32 on August 31, 2006
  - Establishes the first comprehensive mandatory statewide GHG emissions cap to be implemented in the U.S.

- GHG emissions cap
  - Achieve 1990 GHG emissions level by 2020
  - ~25% cut in GHG emissions compared to projected BAU
  - Covers all 6 GHGs

- Elements
  - Covers all industrial GHG emissions (electricity, oil and gas, cement…)
  - Includes GHG emissions associated with consumption of electricity generated in state and imported
  - Encourages but does not require GHG cap and trade program
  - Allows “Alternative Compliance Mechanisms” (i.e., GHG offsets)
  - Encourages “…development of integrated and cost-effective regional, national and international GHG reduction programs….” (i.e., linking)
  - Regulatory development period 2007–2011
Executive actions by Governor Schwarzenegger

- 2005 Executive Order calls for dramatic GHG reductions
- Accelerated RPS to 20% by 2010 and is committed to 33% by 2020.
- Created Climate Action Team to develop policy recommendations

CA Public Utilities Commission

- Established “loading order” for new energy resources
- Adopted $8/tCO$_2$ “carbon adder” for power procurement
- Adopted “load-based” CO$_2$ emissions cap for “load-serving entities” (12/05)
- GHG performance standard being developed for new generation, based on CO$_2$ emissions from CCGT. Passed by CA legislature in August 2006.

CA Climate Action Registry created and is now operational

Motor vehicle rules adopted to reduce GHG emissions 30% by 2015
Some Key U.S. Climate Policy Developments

- 1992 – U.S. ratified UNFCCC
- 1997 – U.S. helps lead Kyoto Protocol negotiations
- 2000 – George Bush elected President
- 2001 – U.S. and Australia repudiated Kyoto Protocol
- 2002 – Bush adopts national GHG intensity target (-18%; 2002-2012)
- 2003
  - McCain-Lieberman (s. 139) received 43 Senate votes
  - Northeast Regional GHG Initiative (RGGI) launched
- 2005
  - Senator Bingaman’s “Sense of Senate” Resolution passed 53-44
  - RGGI MOU adopted
  - U.S. helps launch Asia-Pacific Partnership (AP6)
- 2006
  - Bingaman–Domenici “white” paper and climate policy hearings
  - RGGI “model” rule adopted
  - California passes AB-32 the “Global Warming Solutions Act of 2006"
GHG Policy Trends in the U.S.

- Rapid evolution of regional and state-wide GHG policies
  - RGGI
  - California
  - Others

- Interest in covering more GHG emissions and more sectors
  - Six GHGs versus CO₂ only?
  - Electric sector only, multiple sectors or economy-wide policies?
  - Ongoing debate regarding “absolute” v. “intensity-based” GHG reductions
  - Substantial disagreement exists regarding how best to accomplish goals

- Growing interest in controlling potential GHG mitigation costs
  - Bingaman/NCEP includes CO₂ price “safety valve” (~$7/tCO₂)
  - RGGI includes supply-based “price triggers”
  - CA AB-32 provides Governor with “emergency” powers to postpone implementation

- Growing desire to provide technology incentives / goals
  - Incentives – Administration, Congress, States (e.g., Energy Policy Act of 2005)
  - Goals – NRDC technology-based portfolio proposal
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