

Presentation to the Governor's Climate Change Sub-Cabinet Mitigation Advisory Group

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Outline of Topics Covered

- Fundamentals Regarding Greenhouse Gases (GHGs)
- Reducing GHGs Through Taxes
- Reducing GHGs Through Cap and Trade
- Key Design Elements of a Cap and Trade System
- Existing GHG Cap and Trade Systems
- Congressional Cap and Trade Legislation
- Likely Approach of the Obama Administration

Fundamentals

- What are GHGs?
 - Primary GHGs of concern: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFC), and perfluorocarbons (PFC)
 - CO₂ is the measuring standard and predominant GHG
 - GHGs differ significantly in potency
 - The science: global reductions of 50% to 85% by 2050, in comparison to 2000 emission levels, are needed to avoid the most significant climate changes*

*Intergovernmental Panel on Climate Change, Fourth Assessment Report

Fundamentals

- Three Principal Approaches to Reducing GHGs
 - Command and Control
 - Taxes
 - Cap and Trade

Reducing GHGs Through Taxes

- Rationale:
 - Costs of global warming from GHGs not reflected in the market price of GHG-based goods
 - Provides an incentive to reduce emissions
- Would generate revenue
- Can be implemented quickly
 - Policymakers must decide who pays it
- May have less support than cap and trade because of political opposition to new taxes

Taxes vs. Cap and Trade

- Both send market signals to reduce carbon consumption
- Cap and trade may result in greater emission reductions
- Cap and trade can link to international efforts
- Cap and trade should result in certainty of emission reductions in a given time period; a GHG tax cannot predict the total amount of emissions abatement
- Opposition to new taxes may favor cap and trade
- A GHG tax can be implemented more quickly than a cap and trade program

Reducing GHGs Through Cap and Trade

- Cap is an emissions ceiling for covered entities; emissions set at a certain level (measured in tons)
- Sources within the program receive an allowance to emit up to a certain amount
- Allowances ensure emission reductions
- Each emitter can design its own compliance strategy (reduce emissions, buy allowances, buy offset credits)
- Must have sufficient allowances at end of compliance period to cover all emissions in that period
- Further flexibility provided through offsets, banking, borrowing

Cap and Trade: Numerous Design Elements

- What emissions are covered?
- What is the emission reduction timetable?
- Which sectors of the economy are covered?
- What is the point of regulation (i.e. who must obtain the allowance)?
- How are allowances going to be distributed?
- Cost containment mechanisms
- Trading of allowances takes place

What Emissions are Covered?

- Just CO₂?
- All GHGs?

What Sectors of the Economy are Covered?

- Electricity Generation (34% of U.S. GHG emissions in 2005)
- Transportation (28%)
- Industrial (19%)
- Commercial (6%)
- Residential (5%)
- Agricultural (8%)

What is the Emissions Reduction Timetable?

- Short-term goals
- Long-term goals
- Policy considerations

Point of Regulation (Who must hold the allowance?)

- Upstream: Where, or close to where, carbon first enters the economy (i.e. well)
- Downstream: Where carbon is emitted, such as smoke stacks
- Key: The point of regulation determines who must hold the allowance

Cost Containment Mechanisms

- Offsets
 - Offsets are reductions in CO₂ that are not covered by an emission reduction requirement
 - Must be an emission reduction that otherwise would not have occurred but for the offset project
 - Must be measurable and permanent
 - No leakage
 - Benefits: Can substantially reduce overall cost of lowering emissions; provides environmental benefits
 - Disadvantage: Some argue that offsets lower the cost of compliance too much and result in slower transition to a low-carbon economy

Other Cost Containment Measures

- Borrowing
- Banking
- Safety Valves
- Linkage

How are Allowances Allocated?

- Free Allocation
 - Typically based on entities' historical emissions
- Auction
 - Generates revenue
 - Must decide where the revenue goes

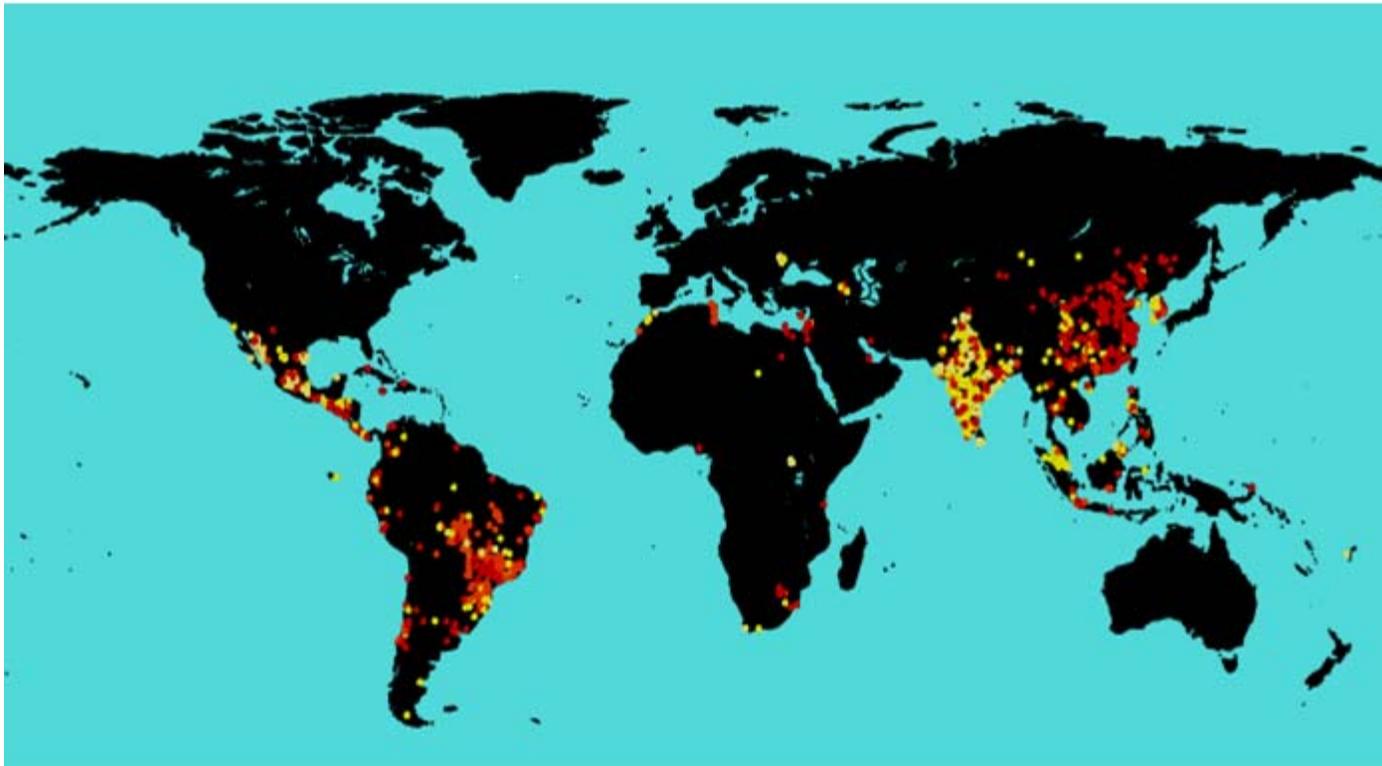
GHG Cap and Trade Systems

- European Union
- Regional Greenhouse Gas Initiative (RGGI)
- Western Climate Initiative (WCI)
- Midwestern Accord

European Union's Emission Trading System

- Program used to comply with the Kyoto Protocol
- Agreed to in 2001, and trading began in 2005
- 1st period: 2005-2007 considered a trial
- 2nd period: 2008-2012
- Covers just CO₂ and only certain economic sectors
- Allowances are free
- Goals met through trading and other mechanisms, such as the Clean Development Mechanism (CDM)

Location of CDM Projects

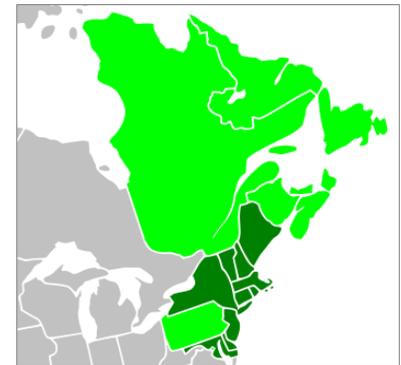


<http://cdm.unfccc.int/Projects/MapApp/index.html>

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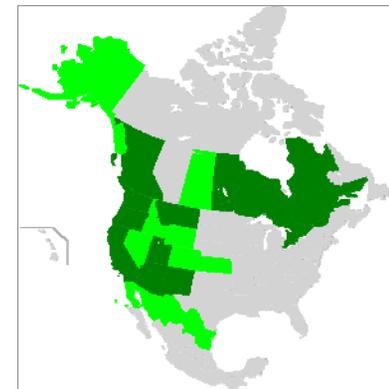
Regional Greenhouse Gas Initiative (RGGI)

- Mandatory, market-based program to cap CO₂ emissions from power generators
- Goal: reduce CO₂ emissions 10% below 2005 levels by 2018
- Ten Northeast and Mid-Atlantic states
- Applies just to CO₂ and just to power plants
- Auction revenue supports energy efficiency and renewable energy efforts
- Numerical limit on offsets; also allows banking
- www.rggi.org/home



Western Climate Initiative

- Regional organization formed in February 2007, consisting of seven western states and four Canadian provinces
- Purpose: reduce GHGs 15% below 2005 levels by 2020 through a regional GHG cap and trade program
- Final design proposal released September 23, 2008
- All six GHGs
- Covers multiple industries
- Includes flexibility through offsets, banking
- Will begin in 2012
- www.westernclimateinitiative.org



California (AB 32)

- September 2006 California law requiring reduction in all six GHGs to 1990 levels by 2020
- Calif. is the ninth largest emitter of GHGs in the world
- Authority delegated to the Calif. Air Resources Board (CARB) to develop a roadmap, benchmarks and regulations; www.arb.ca.gov
- Scoping plan adopted in December 2008
- Reporting requirement now in place
- Regs to be developed by January 1, 2011
- Cap and trade to be a central component

Midwestern Accord

- November 2007: six Midwestern states and one Canadian province have agreed to establish regional GHG reduction targets
- Long-term target of 60 to 80% below current emissions levels
- Agreed to put in place a multi-sector cap and trade program
- Draft recommendations to be released soon
- www.midwesternaccord.org



Existing SO₂ Cap and Trade System

- 1990 Acid Rain Program; established under Title IV of the Clean Air Act
- Established a cap on SO₂ emissions; phased program
- Pollution reduction goals achieved at half the cost of traditional command and control regulation
- Since the 1990's, SO₂ emissions have dropped 42%
- Could be used as a model

Congressional Cap and Trade Legislation – 110th Congress

- 235 bills in the 110th Legislative Session on global climate change and GHG emissions
- Bipartisan
- Key Committees:
 - House Energy and Commerce
 - Senate Environment and Public Works
 - Senate Energy and Natural Resources

Congressional Cap and Trade Legislation – 110th Congress

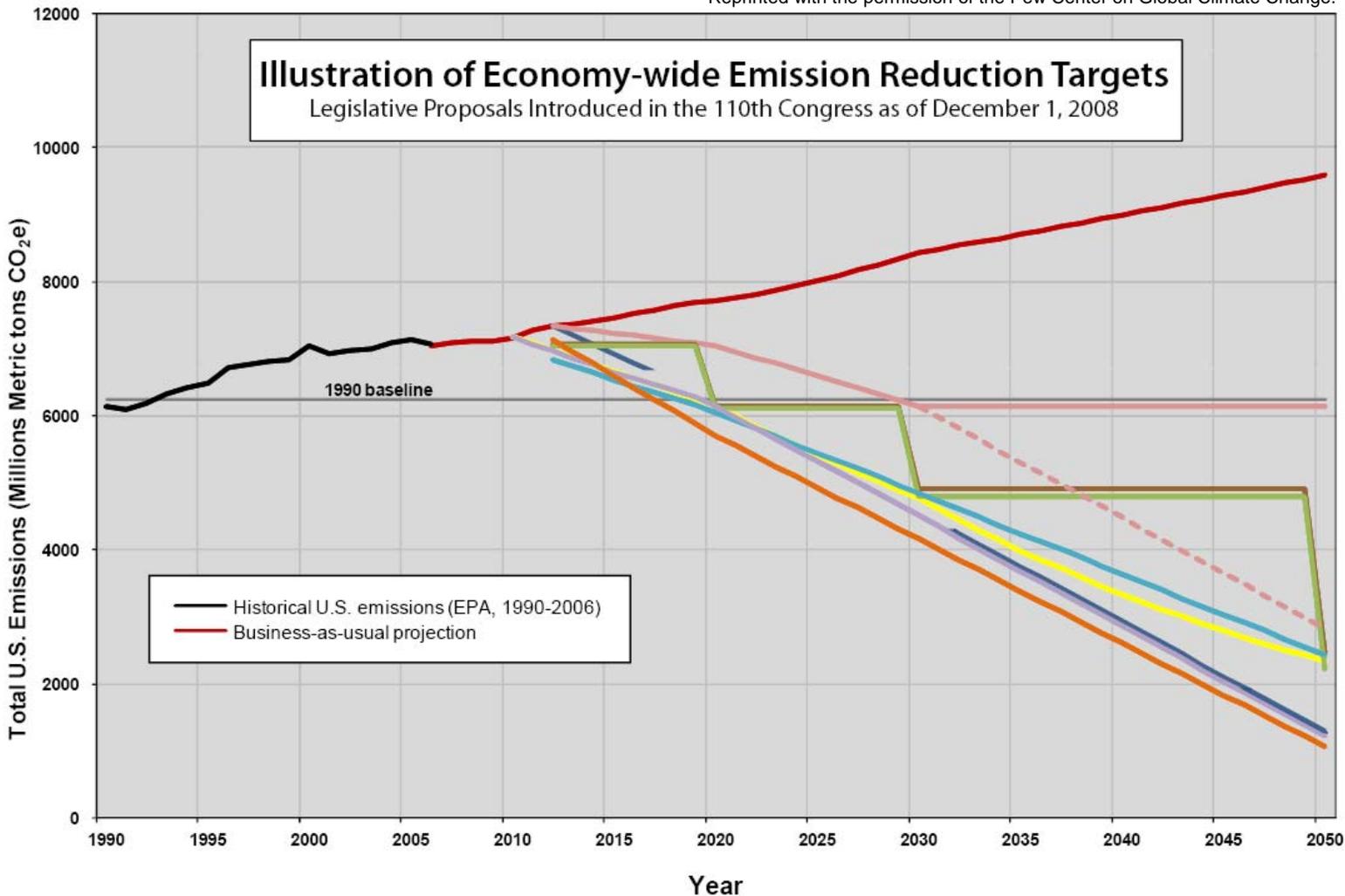
- Emissions Covered: Most cover all GHGs, not just CO₂
- Cap and Timetables: Differ in target, baseline year, and near and long-term goals
 - Lieberman-Warner
 - Retains state authority to enact GHG caps and standards that are more stringent than federal standards
 - 2% per yr. reduction from 2011-2020
 - 5% per yr. reduction from 2020-2050
 - To reach 80% below 1990 levels in 2050

Congressional Cap and Trade Legislation – 110th Congress

- McCain-Lieberman (S. 280)
 - 2004 level in 2012
 - 1990 level in 2020
 - Goal of 60% below 1990 levels in 2050
- Markey (H.R. 6186)
 - 2005 level in 2012
 - 85% below 2005 levels in 2020
 - 85% below 2005 levels in 2050
- Boucher-Dingell Discussion Draft (Oct. 7, 2008)
 - Covered emissions reduced 6% below 2005 levels by 2020
 - 44% below 2005 levels by 2030
 - 80% below 2005 levels by 2050
 - Hydrofluorocarbons to be covered separately by amending the Clean Air Act

Emission Reduction Targets and Timetables – 110th Congress

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Congressional Cap and Trade Legislation – 110th Congress

- Offsets:
 - Bingaman-Specter (S. 1766, 110th Congress)
 - No limit on domestic offset use
 - Categories to be determined by regulation, but includes landfill methane use projects, municipal wastewater methane use projects, and more
 - Lieberman-Warner (S. 2191, 110th Congress)
 - Use limited to 15% of compliance obligation per year
 - Categories of offsets to be determined by regulation
 - Dingell-Boucher Discussion Draft
 - Increasing use of offsets, including domestic and international
 - Kerry-Snowe (S. 485)
 - Includes offsets generated from biological sequestration

Congressional Cap and Trade Legislation – 110th Congress

- Allowance Allocation
 - Waxman (H.R. 1590, 110th Congress)
 - President to submit to Congress an allocation plan that includes auctions and free allocation of allowances
 - Boxer-Lieberman-Warner (S. 3036, 110th Congress)
 - Free allocation to various facilities, transitioning to first auctions in 2012
 - Dingell-Boucher Discussion Draft
 - 100% auction by 2026
 - Obama-Biden campaign
 - 100% to be auctioned

Congressional Cap and Trade Legislation – 110th Congress

- Applicability and Point of Regulation:
 - Bingaman-Specter (S. 1766, 110th Congress)
 - Upstream for natural gas and petroleum; downstream for coal
 - Boxer-Lieberman-Warner (S. 3036, 110th Congress)
 - Upstream for transport fuels and natural gas; downstream for large coal users and GHG manufacturers; separate HFC cap
 - Dingell-Boucher Discussion Draft
 - Upstream for natural gas and transport fuels; downstream for electric utilities and largest sources

Some Potential Approaches of the Obama Administration

- EPA Regulations? CAA amendments? Preempt state and regional efforts?
- Campaign:
 - Implement an economy-wide cap-and-trade program to reduce greenhouse gas emissions 80% by 2050
 - Make the U.S. a leader on climate change
 - www.barackobama.com/pdf/issues/EnvironmentFactSheet.pdf
- Governors' Global Climate Summit on November 18:
 - Federal cap and trade system to reduce emissions to their 1990 levels by 2020 and reduce them another 80% by 2050
 - <http://forcechange.com/2008/11/18/obamas-message-to-schwarzeneggers-governors-global-climate-summit/>

Key Appointments and Congressional Leadership

- Secretary of Energy (Steven Chu)
- EPA Administrator (Lisa Jackson)
- White House Coordinator of Energy and Climate Policy (Carol Browner)
- White House Counsel on Environmental Quality (Nancy Sutley)
- Dept. of Agriculture Secretary (Thomas Vilsack)
- Chair, House Energy and Commerce Committee (Henry Waxman)
- Subcommittee Chair, Subcommittee on Energy and Environment (Edward Markey)
- Senate Environment and Public Works (Barbara Boxer)
- Senate Energy and Natural Resources (Jeff Bingaman)

Congressional Cap and Trade Legislation

111th Congress



- House Energy and Commerce Committee
- Senate Environment and Public Works
 - Senator Barbara Boxer’s Feb. 3, 2009 press conference on global warming principles for legislation

U.S. Climate Action Partnership Blueprint for Legislative Action

- Calls for a mandatory U.S. climate policy:
 - Adoption of an emission reduction target of 80% below 2005 levels by 2050
 - Market-driven approach that includes cap and trade, including offsets, banking, safety values, eventual auctioning of all allowances, credit for early action
 - Integration of U.S. trading program with comparable international programs
 - <http://www.us-cap.org/>

Predictions

- There will be a new regulatory framework instituted for reducing GHGs
- Likely to be phased:
 - Energy efficiency measures/clean energy technologies
 - Legislation will be introduced and considered for a cap and trade program supported by the White House
 - Close coordination with RGGI and Western Climate Initiative
 - Passage: much more likely 2010 than 2009
- Wild cards:
 - U.N. Climate Conference to take place in Copenhagen in December 2009 to establish a global climate agreement
 - EPA action