



Climate Change Issues and Initiatives

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Topics of Discussion

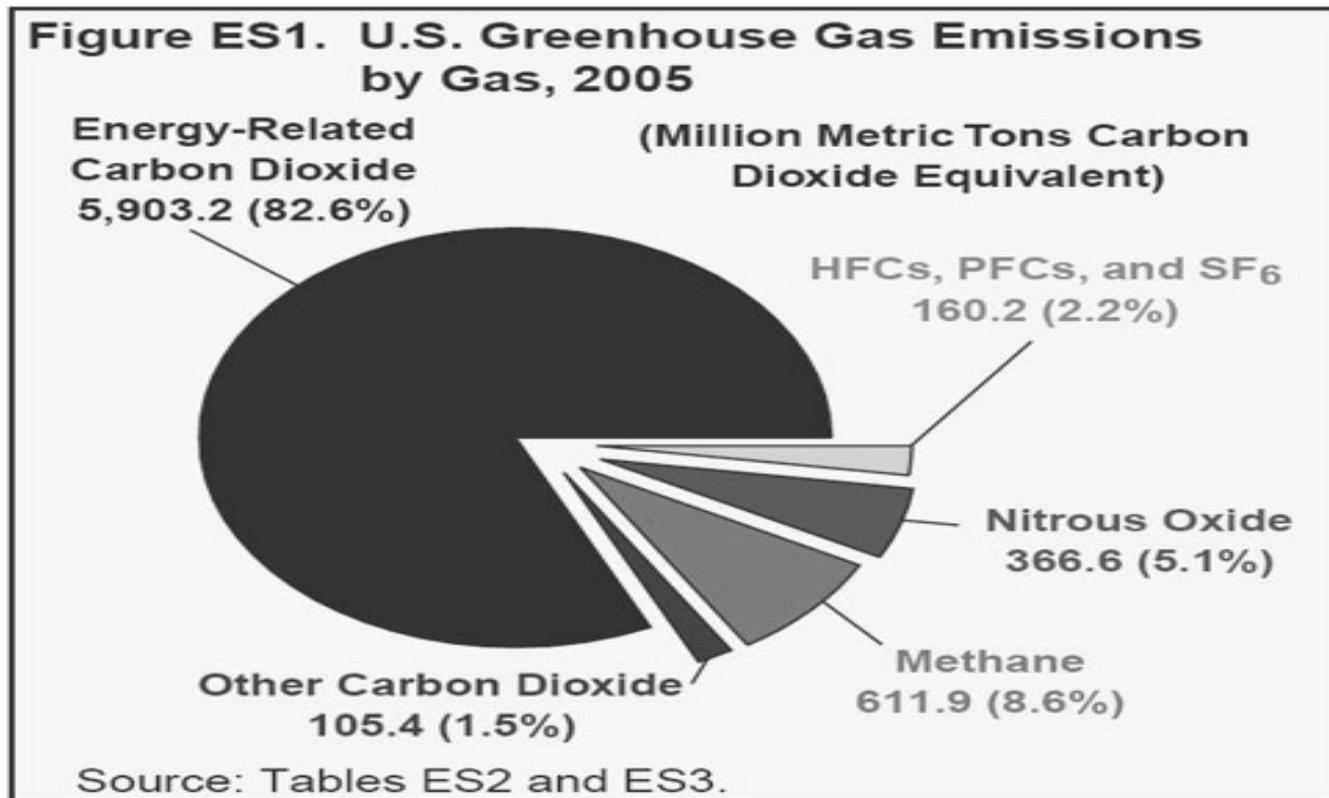
- ✍ Climate Basics**
- ✍ Cap-and-Trade Mechanics**
- ✍ Federal Legislative Status**
- ✍ Mechanics of Leading Proposal**
 - ✍ "America's Climate Security Act of 2007"
- ✍ Carbon Market Summary**
- ✍ Clean Air Act Impacts**
 - ✍ "Air pollutant" status
 - ✍ NSR implications

Climate Basics - Select Definitions

- ✍ **Greenhouse Gases (GHG)** - Carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).
- ✍ **CO₂ Equivalent** - Amount of CO₂ by weight emitted that would produce the same estimated radiative forcing as a given weight of another GHG.
 - ✍ Calculated by multiplying, e.g., methane's weight by its "global warming potential" of 21
- ✍ **Carbon offset** - An emission reduction credit from another organization's project that results in less CO₂ or other GHG in the atmosphere than would otherwise occur

Climate Basics - U.S. Emissions

 2005 GHG Emissions: 7,147.2 MMTCO₂e



Source: Energy Information Administration

Climate Basics - Methane Emissions

✍ 2005 methane emissions: 611.9 MMTCO₂e

U.S. Anthropogenic Methane Emissions, 1990-2005		
	Methane	Carbon Dioxide Equivalent
Estimated 2005 Emissions (Million Metric Tons)	26.6	611.9
Change Compared to 2004 (Million Metric Tons)	0.2	5.3
Change from 2004 (Percent)	0.9%	0.9%
Change Compared to 1990 (Million Metric Tons)	-3.9	-89.8
Change from 1990 (Percent)	-12.8%	-12.8%

U.S. Methane Emissions from Natural Gas Systems, 1990-2005		
	Methane	Carbon Dioxide Equivalent
Estimated 2005 Emissions (Million Metric Tons)	6.7	154.0
Change Compared to 2004 (Million Metric Tons)	*	-0.7
Change from 2004 (Percent)	-0.5%	-0.5%
Change Compared to 1990 (Million Metric Tons)	1.1	25.1
Change from 1990 (Percent)	19.5%	19.5%

*Less than 0.05 million metric tons.

Source: Energy Information Administration

Climate Basics - International Status

- ✍ **Terms of Kyoto Protocol expire in 2012**

- ✍ **Bali Conference, December 2007**

- ✍ Promises of further negotiations on post-2012 plan

- ✍ Several nations reject specific targets (25-40% < 1990 levels by 2020)

- ✍ U.S. and China reject mandatory reduction concept

- ✍ **U.S. - Led Meetings of Major Economies**

- ✍ First meeting in September 2007

- ✍ Additional meetings early 2008

- ✍ "Long-term global goal"

Cap-and-Trade Mechanics

✍ Covered Sectors

- ✍ "Downstream" carbon cap proposals:
 - ✍ Point of regulation: direct emitters
 - ✍ "Output" proposals allocate by production, e.g. megawatts
- ✍ "Upstream" carbon cap proposals:
 - ✍ Point of regulation: fossil fuel producers/importers
 - ✍ Refiners, natural gas processors, fuel importers receive and retire carbon allowances

✍ Baselines

- ✍ Historic emissions
- ✍ Recent emissions
- ✍ Credit for early action

Cap-and-Trade Mechanics

✍ Allowance Distribution

- ✍ Allocate or auction?
- ✍ Early reduction credits
- ✍ Allocate to non-regulated entities?
 - ✍ Transition costs
 - ✍ Promote technology and energy efficiency

✍ "Safety valve" concept

- ✍ Like "contingent" carbon tax

✍ Offsets

- ✍ Tradable on par with allowances
- ✍ Acceptable offsets

Federal Legislative Status

✍ Senate - 2 Committees

- ✍ Environment & Public Works - Passed "America's Climate Security Act of 2007" by 11 - 8 vote on December 5***
 - ✍ Expected Senate floor debate in Spring 2008, but opponents may attempt to block debate***
- ✍ Energy & Nat. Resources - Sens. Bingaman and Specter may abandon their bill, but likely to press for "safety valve"***

✍ House - 1 Committee

- ✍ Energy & Commerce - House is behind on climate due to energy bill work, but Reps. Dingell and Boucher likely to introduce a bill Spring 2008***
- ✍ Time horizon for climate legislation: 2 - 3 years***

Leading Climate Proposals & Programs

- ✍ "America's Climate Security Act of 2007"
- ✍ **Midwestern GHG Reduction Program**
- ✍ **Western Climate Initiative**
- ✍ **Regional Greenhouse Gas Initiative
(power plants only)**
- ✍ **Several states have GHG
emissions targets,
but no mandatory
programs***



Source: Pew Center

* California's A.B. 32 is not yet in effect, although mandatory reporting begins July 1, 2009. Wisconsin requires entities that emit 100,000 or more tons of CO₂ to report their emissions to the Department of Natural Resources. New Jersey requires entities reporting other air emissions to report CO₂ and CH₄ emissions.

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America's Climate Security Act of 2007

Caps

-  2012 - 5.775 billion metric tons CO₂e
-  2050 - 1.732 billion metric tons CO₂e
-  70% reduction from 2005 levels for covered entities

Hybrid sectoral coverage:

-  Direct Regulation of Emission Points (Downstream)
 -  **Power plants**
 -  **Large industrial facilities**
-  Upstream Regulation
 -  **Transportation fuels**
 -  **Natural gas processing plants and importers**

"Carbon Market Efficiency Board" created to oversee cap-and-trade program

America's Climate Security Act of 2007

✍ Initial Year (2012) Allowance Distribution Detail:

✍ Allocation -- 68% -- Includes:

- ✍ Energy Intensive industry - 10% (phased out in 2030)
- ✍ Electric power sector - 19% (phased out in 2030)
- ✍ Electric and natural gas distribution entitles - 9% and 2%
- ✍ Early action - 5% (phased out in 2016)
- ✍ Domestic agriculture and forestry - 5%
- ✍ States - 5%
- ✍ Carbon capture and sequestration - 4%
- ✍ International forest protection - 2.5%
- ✍ Rural electric cooperatives - 1% (phased out in 2030)

✍ Auction - 22.5%

- ✍ Increased to 70.5% by 2031, at which time emitters will no longer receive allowances

America's Climate Security Act of 2007

Offsets Detail

Domestic Offsets

-  Up to 15% of total allowances
-  Types of operations eligible to generate offset allowances (see § 2403(b)), include forestry, agricultural projects and others. EPA to develop standards.
-  Statutorily approved: Projects registered in the Climate Registry, the California Action Registry, the GHG Registry, the Chicago Climate Exchange, and the GHG CleanProjects Registry.

International Offsets

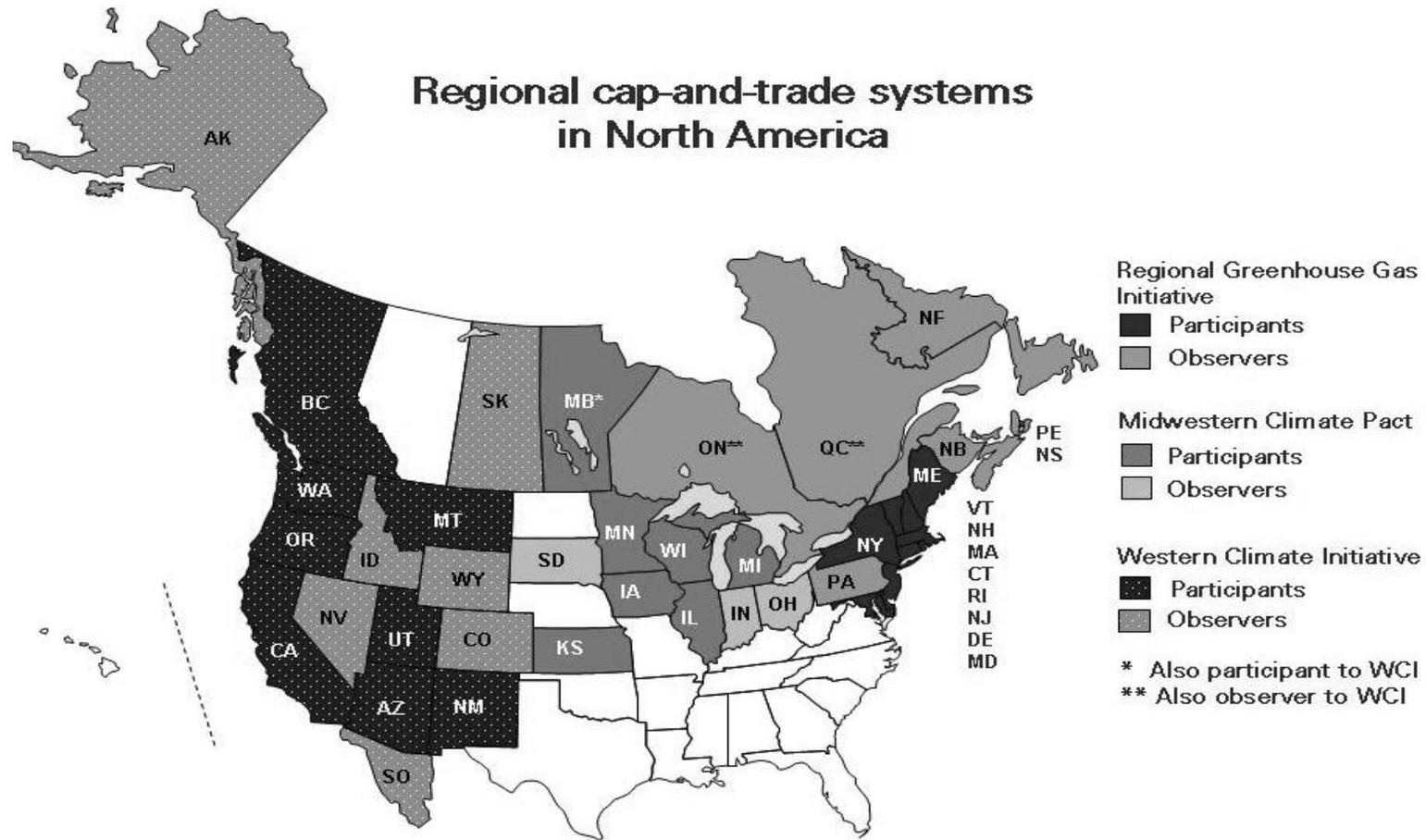
-  Up to 15% of total allowances

America's Climate Security Act of 2007

✍ Natural Gas Provisions

- ✍ Allocates 2% of allowances for natural gas local distribution companies through at least 2033
 - ✍ Allocation based on a proportion of the amount of natural gas sold
 - ✍ Natural gas local distribution companies must use the value of the allowances to either:
 - ✍ mitigate economic impacts on low- and middle-income energy consumers; and
 - ✍ promote energy efficiency on the part of energy consumers.
- ✍ Directs EPA to regulate gas sold for combustion within 2 years and to adjust the number of emissions allowances accordingly

Leading Regional Initiatives



Source: PointCarbon

Carbon Market Summary

✍ U.S. Voluntary Market - \$100 million in 2006

- ✍ Offsets and Private Sales
- ✍ Standards Issues, although VCS recently issued
- ✍ Current price per ton/CO₂: \$7 - \$12 and rapid growth

✍ U.S. Regulatory Market

- ✍ Federal; RGGI; Western Climate Initiative; California AB 32
- ✍ Expected price per ton/CO₂: \$15 - \$25

✍ International Market - \$30 billion in 2006 - 45% growth in first half 2007 and projected \$100 billion by 2009

- ✍ EU Emissions Trading Scheme (~\$5.5 billion in 2006)
- ✍ CDM & JI project transactions (~\$24 billion in 2006)
- ✍ Current allowance/CER price: U.S.\$20 - \$30

Clean Air Act Impacts

✍ "Air Pollutant" Status

- ✍ Massachusetts v. EPA (S.Ct. 2007): GHGs and "air pollutants"*
- ✍ EPA mobile source rulemaking*

✍ NSR Implications

- ✍ GHGs as "regulated pollutants": triggers*
- ✍ Consequences for stationary sources*

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