

Why Cap & Trade is the Wrong Policy to Curb U.S. GHGs

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What is Cap & Trade (C&T)?

- Mandated annual limit on U.S. GHGs (expressed in CO₂ terms)
- Allowances to emit are distributed by the government
- Holders must submit an allowance for each ton of CO₂ they emit
- Holders can trade allowances with one another

How a C&T System Might be Structured

- Administrator
- Organized exchanges
- Monitoring
- Offsets (domestic & international)
- Banking, borrowing
- Safety valve, floor price

Major GHGs Made Equivalent

Source: EPA

Gas	Global Warming Potential
CO ₂	1
CH ₄	21
N ₂ O	310
HFC-23	11,700
HFC-32	650
HFC-125	2,800
HFC-134a	1,300
HFC-143A	1,300
HFC-152A	140
HFC-227ea	2,900
HFC-236fa	6,300
HFC-4310mee	1,300
CF ₄	6,500
C ₂ F ₆	9,200
C ₄ F ₁₀	7,000
C ₆ F ₁₄	7,400
SF ₆	23,900

Some key proposals

Feinstein/Carper	Electric Utility Cap & Trade Act
Kerry/Snowe	Global Warming Reduction Act of 2007
McCain/Lieberman	Climate Stewardship & Innovation Act of 2007
Boxer/Sanders - Waxman	Safe Climate Act of 2007
Bingaman/Specter	GHG Intensity Reduction Legislation

Principal Costs of a C&T System

- Constraint on energy use
- Volatile energy prices
- Rent seeking
- Monitoring and administration

Costs of Constraining Energy Use

- Fossil fuels provide 85% of U.S. energy use
- Growing economy requires more energy use
 - Energy efficiency helps but doesn't fully offset effects of economic growth on demand
- Technological advance will lower costs of low-carbon energy
 - But likely to be higher cost than fossil fuel energy for some years to come
- Costs of CO₂ constraints likely to grow with time
 - EIA estimates of Bingaman/Specter indicate these are likely to reach \$10s of billions annually

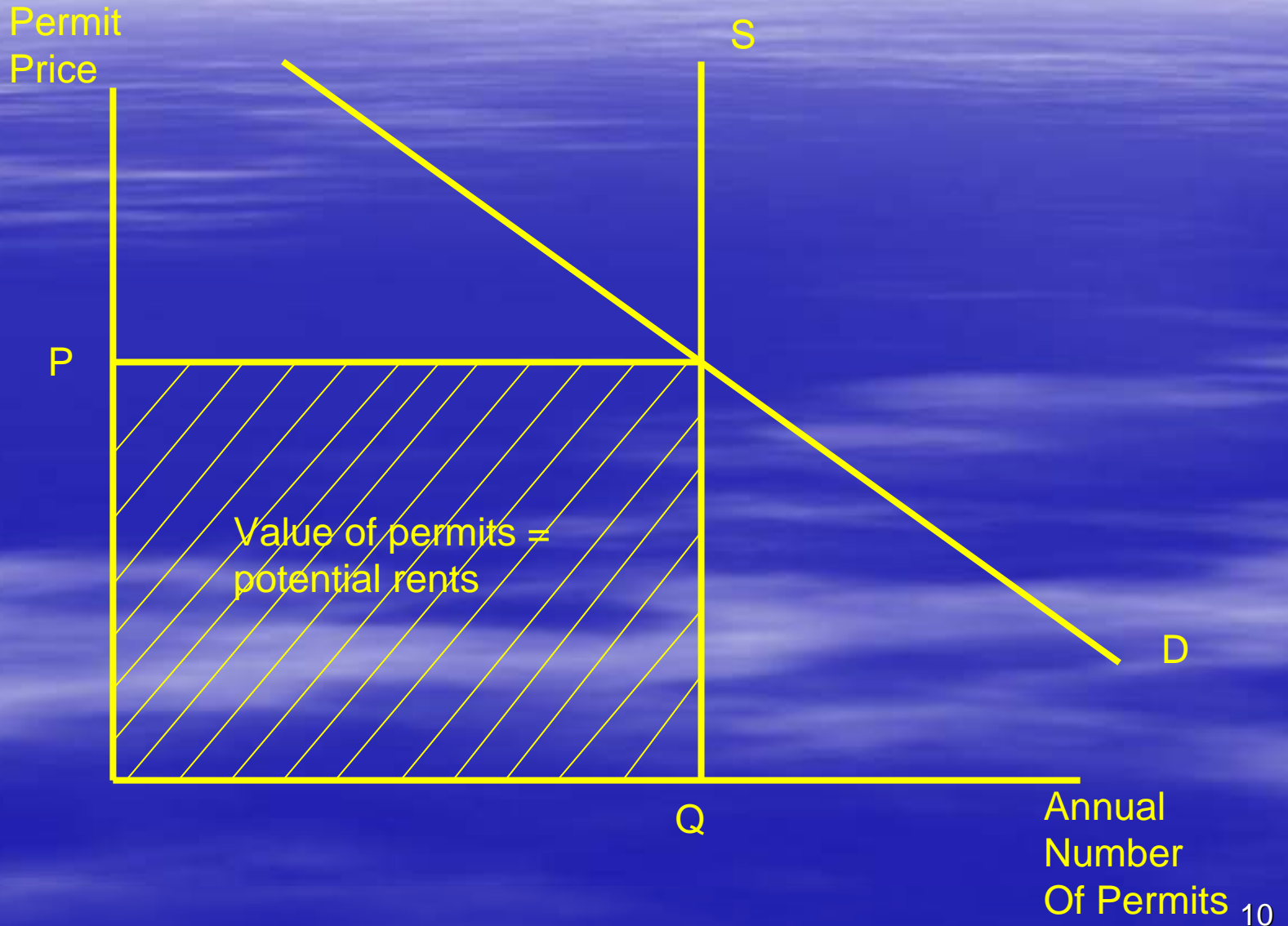
Volatility in Allowance Prices will Add Volatility to Energy Prices

- Costs of allowances will be embedded in costs of fossil fuels
- Experience with allowances suggests high rates of volatility
 - SO₂ permit trading: annual volatility of 43%
 - Price range from \$66/ton in 1997 to \$860/ton in 2006
 - ETS: monthly volatility of 17.5%
 - Fall in value by over 2/3 in 2006

Costs of Energy Price Volatility

- Oil price shocks have imposed GDP costs
 - Hamilton: Oil price increase of 10% caused by Suez crisis impacted U.S. GDP growth rate by .3% over 7 quarters
 - Today: .1% impact on GDP = \$13B/yr

Rent Seeking



Costs of Rent Seeking

- Aggregate value of permits
 - U.S. emits 6B tons of CO₂/yr (6.5B tons of CO₂ equivalent)
 - Price of allowances depends on C&T system specifics
 - Easily could be \$10/ton or more
 - \$60B/yr or more at stake
- Firms will compete to secure allowances
 - Competitive rent seeking theoretically could generate costs equal to aggregate value
- Rent seeking incurs socially wasteful expenditures

Monitoring Costs

- **U.S. monitoring costs depend on design of the C&T system**
 - Generally, the further “upstream” the fewer firms involved
 - Estimates indicate could be as few as 2000 firms in U.S.
 - ETS includes 12,000 firms; only covers 45% of EU CO₂ emissions (is being extended to more)
- **U.S. costs alone could be large**
 - Suppose 10,000 firms must monitor GHG emissions:
 - 1 person/firm/yr @ \$75K = \$750M/yr
 - Government monitoring apparatus another \$100-\$200M/yr
 - Audit compliance by each affected firm
 - Establish legitimacy of offsets
 - Monitor trading activity
 - Total annual costs nearing \$1B/yr
- **But C&T is an international system – involving others as well.....**

Monitoring Costs (cont'd)

- Serious problems with international monitoring of offsets
 - Incentives on part of some governments, private entities to cheat (i.e., to create fictitious or dubious offsets)
 - Seller incentive to game system to acquire wealth
 - Offset buyers have little incentive to check
 - *Financial Times* indicates problems already exist
 - Cooper, Nordhaus, Shapiro & others have warned this will be a serious defect of C&T

Overall Costs of C&T

Constrained fossil fuel use	In time, \$10's of billions/year
Allowance price volatility	Periodic GDP growth impacts of a few .1%'s
Rent seeking	Up to value of allowances
Monitoring	As much as \$1B/yr in U.S.; more still for int'l

Political Incentives for C&T

- Firms – secure government-created wealth
- Traders – opportunities for exchange fees
- Politicians – distribute wealth among constituents
 - Could affect system design
- Environmentalists – certainty of GHG reductions
 - But the stock of GHGs is what matters, not the rate

Other Means to Curb GHGs

- Command & control
 - E.g., like RACT, BACT
 - High costs because impose uniform requirements on everyone, superior technological alternatives may be ignored
 - CAFÉ, appliance efficiency standards already imposed
 - Political momentum to increase CAFE
- Voluntary goals & incentives
 - 18% GHG intensity reduction goal between 2002-2012
 - Public/private partnerships
 - Asia-Pacific Partnership
 - Group of world's 15 leading energy users
- Tax on carbon emissions
 - Internalize costs imposed by GHGs
 - Proceeds used to reduce other taxes
 - Tax administration already in place

Voluntary Goal/Incentive Approach has Reduced GHG Intensity Rapidly but can be Strengthened

- Focus on GHG intensity is desirable
 - Maximizes ability to pursue other social objectives
- ~11% reduction in U.S. GHG intensity between 2002 & 2006
- Climate provisions of EPAct 2005 as yet unfunded
 - GHG-reducing technology demonstration projects
 - Deployment of energy efficient technology in developing countries
- Could supplement with tax incentives to replace capital stock with more energy efficient versions
 - Accelerated depreciation for energy efficient equipment purchase
 - Tax credits for purchase of fuel efficient vehicles

Tax on Carbon Emissions

- Economists favor, politicians do not
 - Efficient internalization of external costs
 - Memory of BTU tax
 - Dingell proposal
- How alternatives are structured matters
 - Carbon tax v. no tax
 - Carbon tax + tax reductions elsewhere = revenue neutrality or net tax reduction
- Avoids price volatility problem
- Tax administration already in place

Estimated Impacts of a Tax on U.S. Carbon Emissions

(Source: AEI)

Tax rate (\$/ton)	Emission reductions (%)	Revenue as % of personal income tax	Revenue as % of payroll taxes
10	7.4	6.0	7.0
15	11.0	8.6	10.1
20	14.7	11.1	12.9
25	18.4	13.2	15.4

Conclusion: Why is Cap & Trade the Wrong Policy to Curb U.S. GHGs?

- Because a Cap & Trade system would be very costly and subject to corruption
- Because voluntary programs to achieve GHG intensity goals are achieving results, though the approach can be strengthened
- Because, if stronger measures are desired, a tax on carbon emissions coupled with at least equivalent tax reductions elsewhere would be a much superior alternative