

Colorado Public Utilities Commission
Commissioners' Information Meeting
Climate Change and Carbon Regulation

Technological Responses – Procedures for Monitoring,
Verifying and Enforcing Carbon Regulation, and the Role of
Renewable Energy and Energy Efficiency

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The Regulatory Assistance Project

RAP is a non-profit organization providing technical and educational assistance to government officials on energy and environmental issues. RAP is funded by US DOE & EPA, several foundations, and international agencies. We have worked in 40+ states and 16 nations.

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Outline

- Ø Part One: How Can a Cap-and-Trade program promote energy efficiency and renewable resources?
- Ø Part Two: A Quick Look at Procedures for Monitoring, Verifying and Enforcing Carbon Regulation



What is cap-and-trade?

- Ø Establish a tonnage **limit** on an areas' emissions (not on each single source)
- Ø Create a tradable **allowance** for each ton under the cap
- Ø **Allowances are** a new kind of **currency** that emitters subject to the program must acquire
- Ø Emitters must surrender **allowances** that **correspond to** their **emissions** in each compliance period
- Ø Allocation: the regulator (e.g., EPA or NJ BPU) can **sell and/or give** out allowances
- Ø **Existing** cap-and-trade **programs** include: US Acid Rain and NOx programs
- Ø **NOTE:** RGGI has taught us that a cap-and-trade program for carbon dioxide – due to certain factors --needs to be designed differently in certain respects than the Acid Rain and NOx programs.



Initial Considerations

- A Cap-and-Trade for CO₂ should work like other cap-and-trade programs (e.g., Acid Rain, NOx Budget).
- Circumstances:
 - Fuel Switching** (i.e., the option to use low-sulfur Powder River Basin coal instead of Dakota lignite, and Illinois basin and Appalachian coal)
 - Abatement Technology** (e.g., scrubbers) commercialized
 - Compliance Costs** considered manageable (e.g., NOx Budget < \$1/MWh)
 - Traditional Regulation**, (i.e., companies owning generation subject to utility commission oversight and able to put compliance costs into rate base)
- So under the Acid Rain and NOx Budget Programs allowance allocation mattered less:
 - Simply an asset distribution exercise; useful for political buy in
 - NOTE many federal cap-and-trade proposals follow this logic to various degrees



How could a CO₂ C&T program get reductions today?

It would favor:

- ✓ More efficient existing generation
- ✓ More efficient and/or cleaner
incremental generation (i.e., renewables)
- ✓ Reduced-demand for electricity

It would also incent R&D for abatement
and sequestration technologies



Upon Further Reflection

Circumstances surrounding a Cap-and-Trade for CO₂, in certain fundamental respects, are not like the circumstances in which the Acid Rain and NO_x programs were implemented:

Fuel Switching -- **generators do not have the switching options** that were available under the Acid Rain and NO_x Budget Programs. While there may be some alternatives, e.g., coal to natural gas or co-firing coal with biomass, there is no “low-carbon” coal.

Abatement/Sequestration Technology is not at market (R&D Phase)

Traditional Regulation, merchant power does not have the benefit of putting compliance costs into rate base and paying for technological changes over a long period of time

Compliance Costs Dollar per megawatt-hour compliance costs expected to be significant (e.g., \$2-3/MWh equivalent and up, dependent on cap stringency and program design)

So, under a CO₂ cap-and-trade program

- Given greater compliance costs, pass-through to ratepayers though energy costs, allowance allocation does matter



RGGI Consumer Benefit Allocation

- Auction of allowances and use of revenue to support policies that will enable CO₂ reductions, e.g., end-use energy efficiency and renewables
- Allows an emissions source-based cap-and-trade program to take an integrated approach that also addresses ratepayer impacts
- End-use energy efficiency avoids CO₂ emissions, lowering demand for allowances (allowance prices) and thus mitigating ratepayer impacts
- End-use energy efficiency investments also provide additional ratepayer benefits
 - In RTO setting, cap-and-trade program can be expected to affect wholesale clearing price
 - Energy efficiency projects provide energy bill savings at the retail price over the life of the investment
 - Consumer benefit allocation approach has potential to provide net economic benefits associated with more efficient energy use



Consumer allocation – statutory example

*“In order to provide the **maximum long-term benefit** to Vermont electric consumers, particularly benefits that will result from **accelerated and sustained investments in energy efficiency** and other low-cost, low-carbon [resources],*

*the public service board ...shall allocate **100 percent** of [Vermont’s] tradable power sector carbon credits **and the proceeds from the sale of those credits***

*through **allocation to one or more trustees** acting on behalf of consumers”*

--H.860 Vermont (enacted 2006), codified at 30 V.S.A. section 255



RGGI Consumer Benefit Policies

- Ø **Maryland SB 268** signed into law in April 2008, requires the following allocation of RGGI revenues:
- 17% transferred to Maryland Department of Human Resources to be used for electricity assistance programs;
 - 23% to provide rate relief to residential customers;
 - 46% for energy and conservation programs;
 - 10.5% for renewable and clean energy programs and initiatives, energy related public education and outreach, and climate change programs; and
 - Up to 3.5% but not more than \$4,000,000 for costs related to administration of the Fund (separate from RGGI implementation costs).



Consumer Benefit Policies (cont.)

RI Title 23 Chapter 82, section 23-82-6 provides that proceeds may be used only for the following purposes, in a proportion to be determined annually by the Office of Energy Resources in consultation with the Energy Efficiency and Resource Management Council and the Department of Environmental Management:

- Promotion of cost-effective energy efficiency and conservation;
- Promotion of cost-effective renewable non-carbon emitting energy technologies as defined in Rhode Island general law section 39-26-5;
- Cost-effective direct rate relief for consumers;
- Direct rate relief for low-income consumers;
- Reasonable compensation to an entity selected to administer the auction or sale; and
- Reasonable costs of the department and office in administering this program, which shall not in any year exceed three hundred thousand dollars (\$300,000) or five percent (5%) of the proceeds from sale or auction of the allowances, whichever is less.



Conclusions

- ∅ Cap-and-trade helps in focusing on issues, but do not let it become a distraction
- ∅ Good energy policies remain good policies regardless
 - ✓ Pursue an “integrated approach,” i.e., an allocation approach that recognizes the differences between cap-and-trade for SO₂ and the same C&T for CO₂
 - ✓ Carbon price signal alone unlikely to be sufficient; market transformation approaches (i.e., policies) in tandem with price signals are the key to fully realizing lower-cost emissions reductions and moderate allowance prices

Monitoring, Verification and Enforcement in Trading Programs



Compliance and enforcement provisions

Ø Maintain environmental integrity of cap

Ø Provide more certainty to the market

Ø Establish fungibility of allowances

Ø Create level playing field and incentives
for reductions



Key Elements of Compliance/Enforcement Regime

- Ø Emissions measurement, reporting, verification
- Ø Data systems (emission and allowance registries)
- Ø Automatic excess emissions penalties and other penalties and enforcement provisions



RGGI Emissions Reporting

- Ø Source electronically submits emissions data every quarter
- Ø EPA checks data quality and provides automated feedback to source
- Ø Reporting Cumulative Annual EPA



Allowance Tracking System

Allowance Tracking System is official record of allowance transfers

Ø Each allowance has a serial number

Ø Parties reach agreement, then authorize Allowance Tracking System to transfer allowances or transfer online

Compliance & Enforcement

SO₂ and NO_x

- ∅ SO₂ Program provides for automatic financial penalty (\$2,900/ton of SO₂)
- ∅ Automatic offset (deduct allowance from next year's allocation)
- ∅ Possible civil and criminal penalties

∅ NO_x Program

- ∅ 3 allowances surrendered for each excess ton
- ∅ Possible civil and criminal penalties



Excess Emissions Penalties

- Ø RGGI penalty should be significantly higher than expected allowance price
- Ø Preserved other existing state enforcement remedies



Conclusion: Enforcement

- Ø Accurate, complete, and consistent emissions measurement
- Ø Predictable and credible consequences for noncompliance
- Ø Transparency of emissions and trading information
- Ø Use of information technologies to handle huge amounts of data



Additional Reading

Compliance and Enforcement: Key Features and Past Approaches, Joe Kruger, Resources for the Future, September 13, 2004

http://www.google.com/search?sourceid=navclient&ie=UTF8&rlz=1T4DMUS_enUS275US275&q=Compliance+and+Enforcement%3a+Key+Features+and+Past+Approaches



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