Allowance Auctions and Revenue Recycling in the Regional Greenhouse Gas Initiative: the Invention of *Cap-and-Invest*

Emission Trading System Design, Operation, and Assessment Training Program

David Farnsworth, Senior Associate
Outline

I. Introduction

II. What We Have Learned

III. Why RGGI Chooses to Auction Allowances

IV. The Role of “Revenue Recycling,” (Cap-and-Invest)

V. Discussion
I. Introduction
Regional Greenhouse Gas Initiative – RGGI

- The first cap-and-trade system in the nation to cover power plant carbon dioxide emissions.

Regional Greenhouse Gas Initiative – RGGI

- Air regulators and energy regulators (staff) planning starting in 2003
- Covers fossil-fired electric generating units 25 megawatts and larger
- Start date of January 1, 2009
- Three-year compliance periods
- Program review 2012
Regional Greenhouse Gas Initiative – RGGI

• RGGI is a **regional** effort and an interesting model for China

• Up close: Think of RGGI as nine separate state programs that look alike and coordinate:
  
  – Emissions cap is made of emissions from all 9 states
  – Model air rule adopted by each state,
  – Shared auction platform, allowance tracking system, and allowance market monitor.
Regional Greenhouse Gas Initiative – RGGI

- 2012 Review, adjust cap to reflect current emissions: existing 9-state budget moved from 165 million tons to 91 million.

- Cap also to be reduced by 2.5 percent per year.

- Each state agrees to seek the necessary changes to laws or regulations for 2014 implementation.
II. What We Have Learned
What We Have Learned

• **To question** the conventional wisdom about cap-and-trade.
  – Is cap-and-trade just an air pollution policy?
  – Is electricity like other commodities?
  – Is CO2 like other pollutants?
  – Will a price alone on carbon be sufficient to achieve our goals?
What We Have Learned

- Cap-and-trade must be part of a larger carbon strategy, so coordinate with other strategies.

  – How should cap-and-trade work with existing air pollution and clean energy policies?
  – Is a ton a ton? In other words, least-cost energy planning tells us to get the cheapest tons first?
What We Have Learned

• Cap-and-trade is a mechanism that has *evolved* and *will continue to evolve*.

• One Example: the use of allowances:
  – Freely-allocate?
  – Auction?
  – Use of the allowance revenues?
  – Specific issues with the use of the revenues in each RGGI state as there will be in your country, regions, and municipalities.
III. Why RGGI Chooses to Auction Allowances
Why Auction Allowances?

• Conventional Wisdom
  – Federal Acid Rain Program
  – **Free** allocation
    • Concern that selling allowances would raise costs
Why Auction Allowances?

• Opportunity cost
  – Freely allocate allowances and market participants will sell them and raise electricity prices
  – Consumers need some protection
    • an economic and political concern

• No Compliance Technology
Available compliance technology

**Acid Rain**

SO$_2$

- Scrubber and low-sulfur coal
  - Available
  - Affordable

**RGGI**

CO$_2$

- CCS and low-carbon coal?
  - Available?
  - Affordable?
State Clean Energy Programs had Recognized CO2 Benefits

• Programs like:
  – Energy Efficiency
  – Renewable Energy
  – Demand Response
Can RGGI Coordinate with These Programs?

• RGGI modeled efficiency with the help of ACEEE, energy efficiency NGO.

• The cheapest way to “scrub” a ton of CO2 today is to avoid emitting it in the first place – energy efficiency
Energy Efficiency as a Resource for RGGI

Bill Prindle
Deputy Director, ACEEE
RGGI Staff Working Group
December 15, 2004
Efficiency programs can save 7x more carbon per consumer $ than carbon taxes or prices

Annual CO₂ Emissions Saved by: Increasing Rates 3%; and Increasing Rates 3% to Fund Energy Efficiency (Ohio Example)

Assumptions: Electricity use increases by 1.7% per year; Retail electric rates increase by 3%; Price elasticity is -0.25 (-0.75 for a 3% increase), distributed over 5 years; Carbon dioxide emissions are 0.915 tons per MWh in Ohio; Cost of EE is 3 cents per kWh; Average EE measure life is 12 years
Energy efficiency investment yields multiple (not just climate) benefits

The Role of Revenue Recycling

• One of RGGI’s most important design decisions was to auction allowances rather than give them away for free, and to invest auction proceeds in energy efficiency and other consumer programs.
The Role of Revenue Recycling

• The first auction of RGGI emissions allowances was held in September 2008, and ongoing quarterly auctions have raised over a billion dollars for states to invest in clean energy and other programs.
The Role of Revenue Recycling

• Today, over half of auction revenue is dedicated to energy efficiency programs that save consumers money, reduce emissions, and deliver economic benefits across the region.
Efficiency is the low-cost “carbon scrubber”
Price Effects of Efficiency Investment in a Carbon Cap-and-Trade Program

RGGI States’ Efficiency Investments

Lower Demand for Electricity

Lower Demand=Less Generation and Fewer Emissions

Fewer Emissions=Lower Cost for Allowances

Lower Demand for Allowances=Lower Cost of Program

Lower Cost of Program=Lower Cost to Customers

Energy Efficiency=Lower Demand for Electricity

Lower Cost for Allowances=Lower Cost of Program

Energy solutions
for a changing world
## Allowance Allocation in Delaware

<table>
<thead>
<tr>
<th>Annual Allowance Allocations</th>
<th>Allowances</th>
<th>Allocation %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auction*</td>
<td>5,844,063</td>
<td>77%</td>
</tr>
<tr>
<td>Allocation to Emitters</td>
<td>508,180</td>
<td>7%</td>
</tr>
<tr>
<td>Industrial Exemption (Del. City Refinery)</td>
<td>1,207,544</td>
<td>16%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7,559,787</strong></td>
<td><strong>100%</strong></td>
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</tbody>
</table>

*92% of the allowances not allocated to industry will be auctioned in 2013, rising to 100% from 2014 onward*
Delaware Auction Proceeds

Auction Proceeds Recipients

- Energy Efficiency & Renewables: 65%
- Weatherization Assistance Program: 10%
- LIHEAP: 5%
- GHG Reduction Projects: 10%
- State Administration: 10%
- Total: 100%
# Allowance Allocation in Vermont

<table>
<thead>
<tr>
<th>Annual Allowance Allocations</th>
<th>Allowances</th>
<th>Allocation %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auction</td>
<td>1,213,572</td>
<td>99%</td>
</tr>
<tr>
<td>Voluntary Clean Energy (set-aside for retirement)</td>
<td>12,258</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>1,225,830</td>
<td>100%</td>
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</tbody>
</table>
## Vermont Auction Proceeds

<table>
<thead>
<tr>
<th>Auction Proceeds Recipient</th>
<th>Allowances Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating and Process Energy Efficiency Programs</td>
<td>98%</td>
</tr>
<tr>
<td>Administration</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

Energy solutions for a changing world
Concluding Thoughts

• Are there opportunities for you to coordinate your work other energy and environmental policy efforts?

– **Coal Caps** — national and provincial (State Council Air Pollution Prevention and Control Action Plan)
– Targets for **Conventional Emissions** — provincial
– Large scale **energy efficiency (EE) policies** (requirement for grid companies to invest in EE, target is small; agreements between government and large firms set up targets improve EE and reduce energy use).
For More Information

http://lawreview.vermontlaw.edu/articles/12%20Cowart%20Book%202,%20Vol%2033.pdf

Climate Issue Brief #4, State Clean Energy Policies: The Foundation for an Electric Sector Cap-and-Trade Program, National Association of Regulatory Utility Commissioners,

Images and How We Remember History, Farnsworth
http://www.huffingtonpost.com/david-farnsworth/images-and-how-we-remembe_b_604784.html

Climate Policy and Affordability: Advocacy Opportunities in the Northeast, Farnsworth, D’Antonio, and Pike-Biegunksa


About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power and natural gas sectors. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at [www.raponline.org](http://www.raponline.org).

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