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

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ENV5205.A – Air Pollution

Vermont Law School

Presented by David Farnsworth

The Regulatory Assistance Project (RAP)™

Outline

I. Introduction

II. What We Have Learned

III. Why RGGI Chooses to Auction Allowances

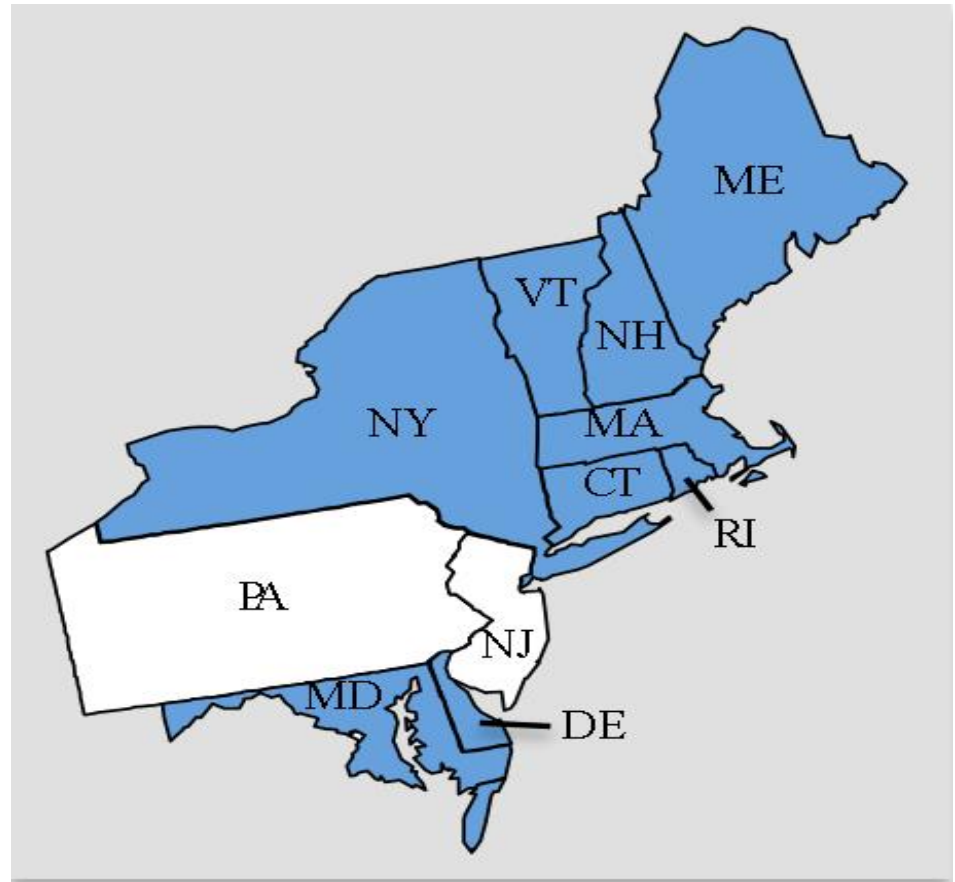
IV. The Role of “Revenue Recycling,” (Cap-and-Invest)

V. Discussion

I. Introduction

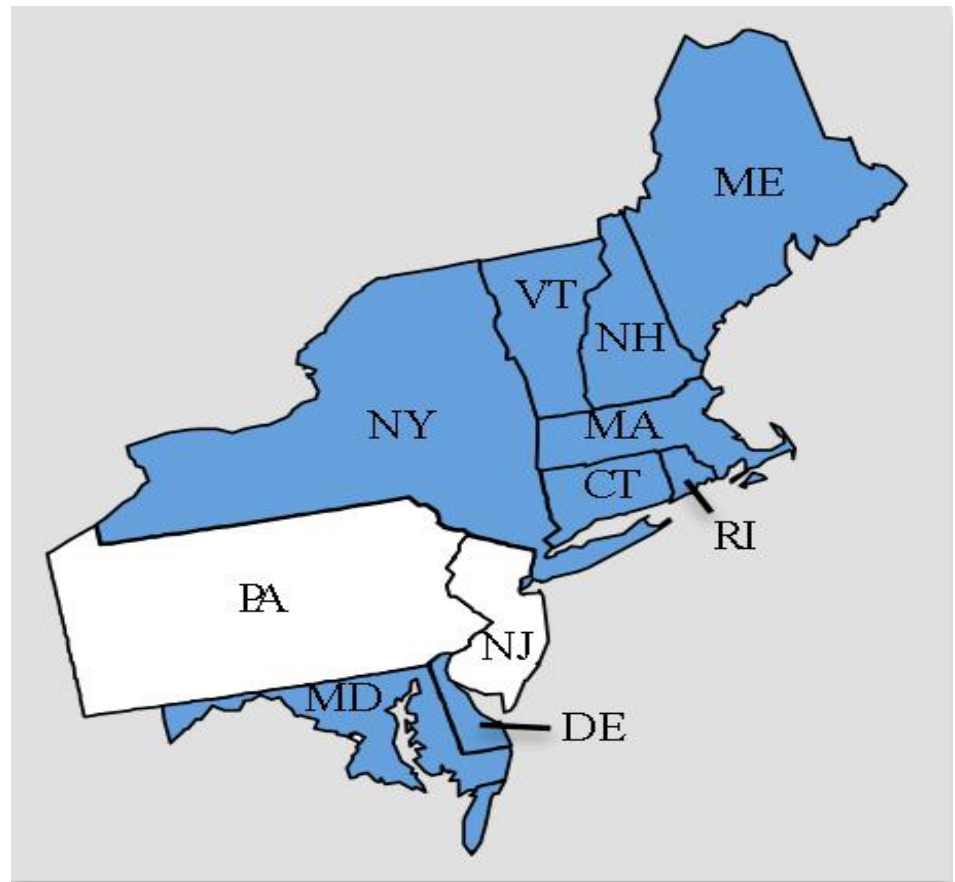
Regional Greenhouse Gas Initiative – RGGI

- The first cap-and-trade system in the nation to cover power plant carbon dioxide emissions.
- Developed by the States of Maine, New Hampshire, Vermont, Massachusetts, New York, Connecticut, Rhode Island, New Jersey,* Delaware, and Maryland.



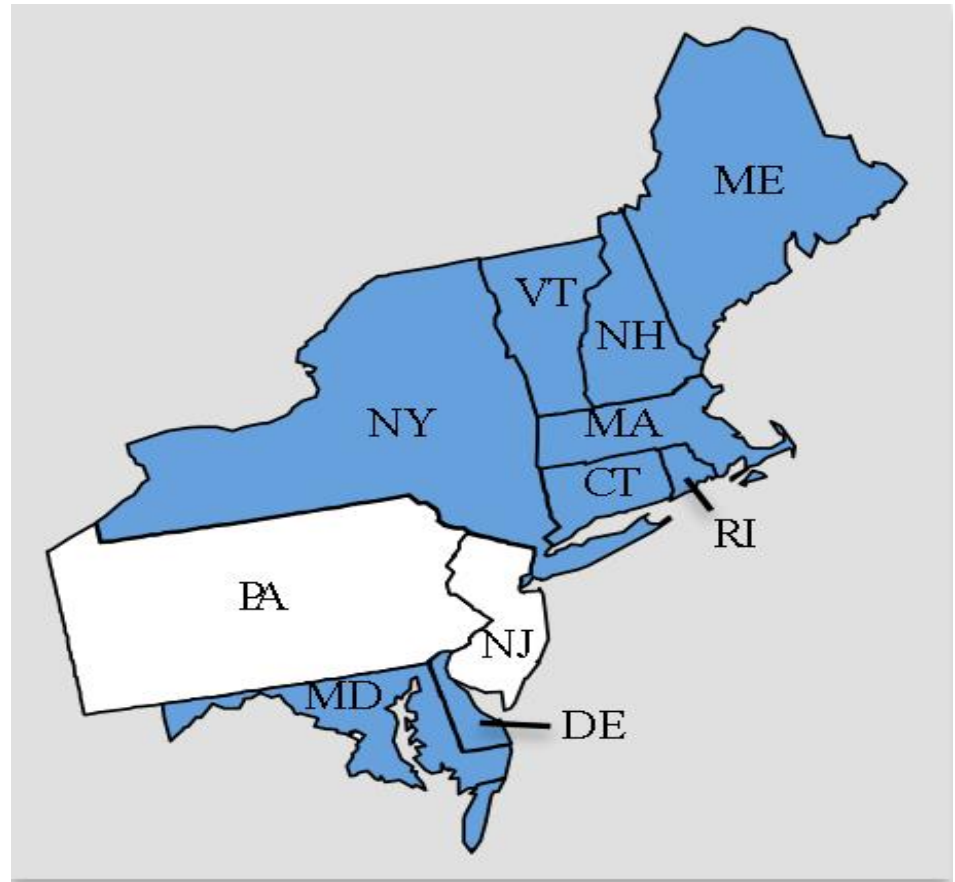
Regional Greenhouse Gas Initiative – RGGI

- 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



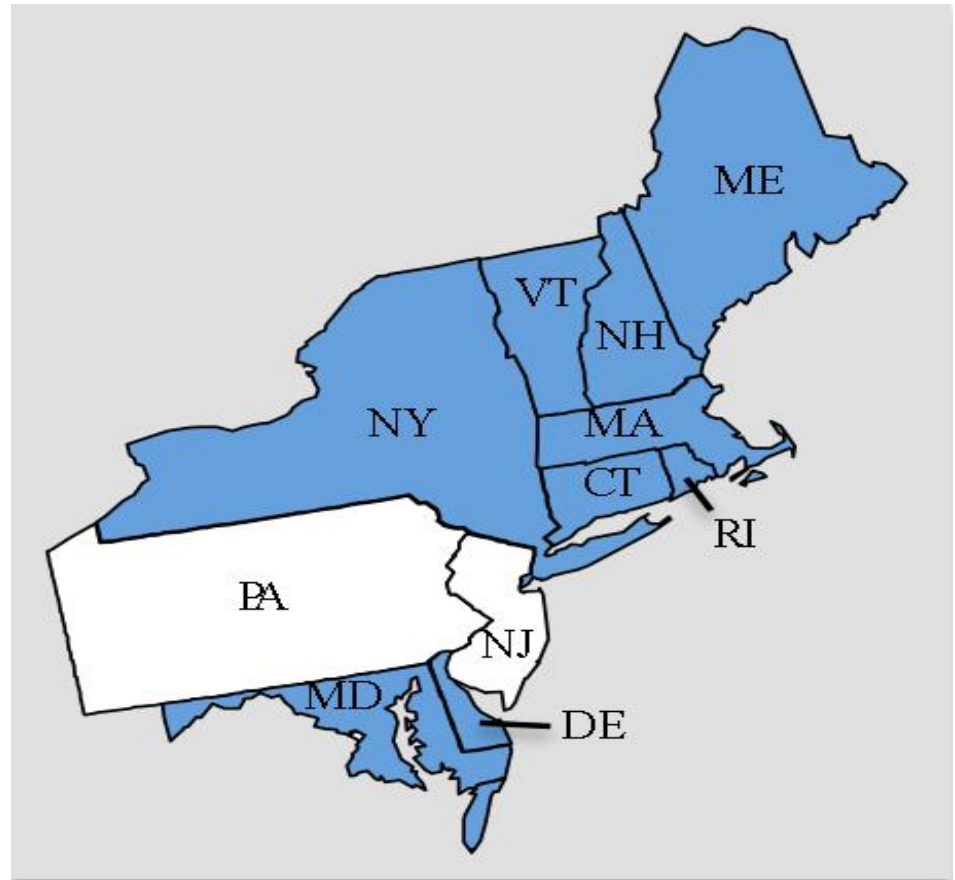
Regional Greenhouse Gas Initiative – RGGI

- 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 tell 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
 - So give them away?

What Does Jed Clampett Have to do with Allowance Allocation?

Then one day he was shootin for some food, and up from the ground came a bubblin crude...oil that is, black gold, Texas tea

Well the next thing you know ole Jed's a millionaire.....



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

SO₂

- Scrubber and low-sulfur coal
 - Available
 - Affordable

RGGI

CO₂

- 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

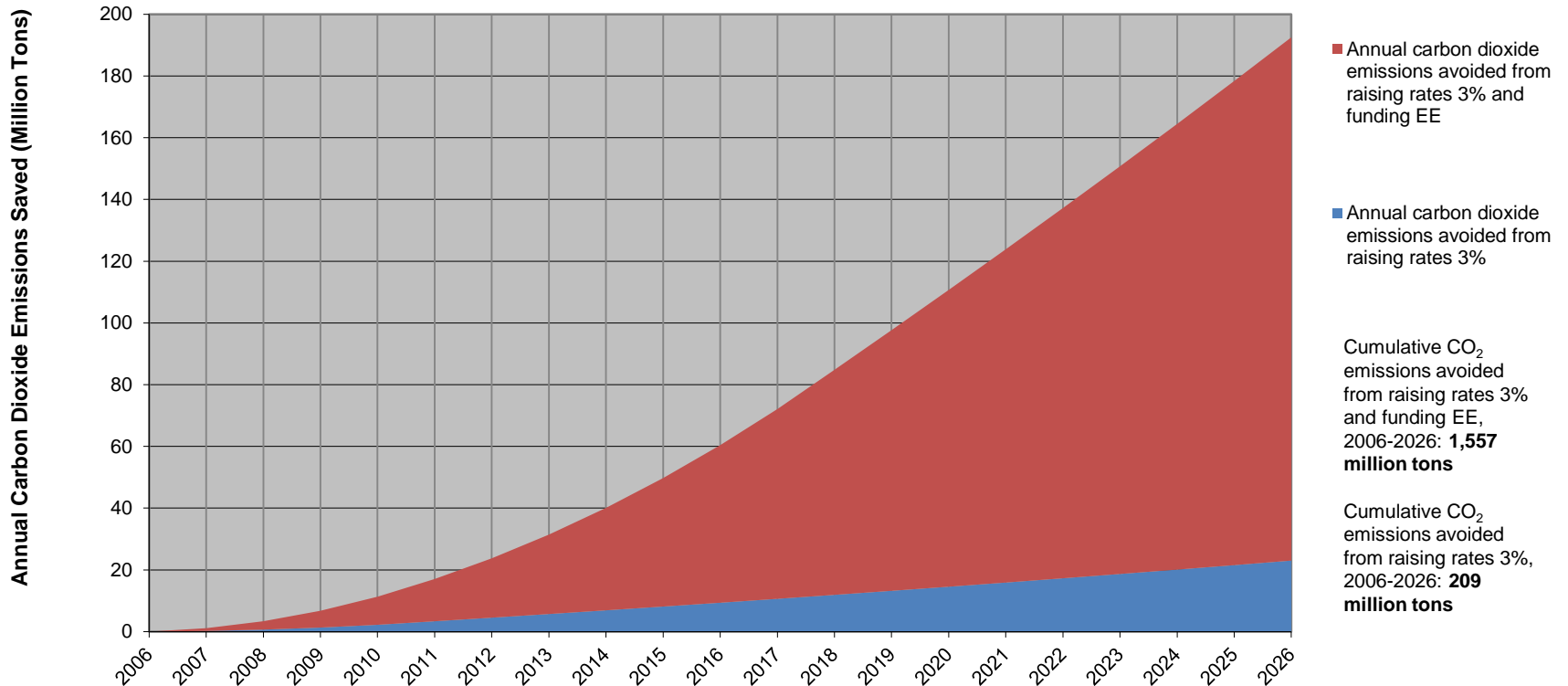
RGGI Staff Working Group

December 15, 2004



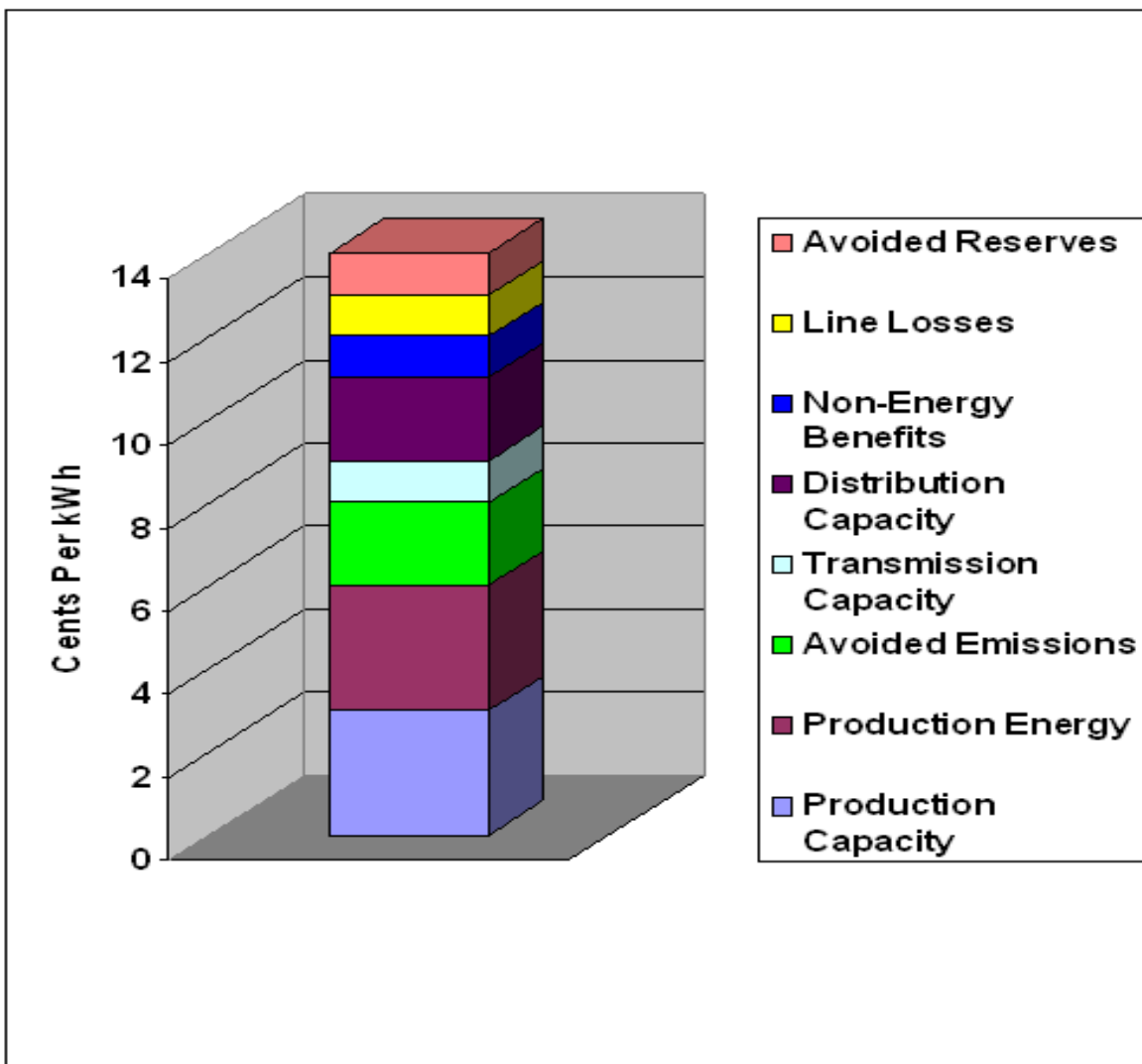
Efficiency programs can save 7x more carbon per consumer \$ than carbon taxes or prices

Annual CO₂ Emissions Saved by: Increasing Rates 3%; and Increasing Rates 3% to Fund Energy Efficiency (2008 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



Recognizing the Full Value of Energy Efficiency, Lazar and Colburn, RAP, <http://www.raponline.org/event/recognizing-the-full-value-of-efficiency-theres-more-layers-in-the-layer-cake-than-many-account>

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.

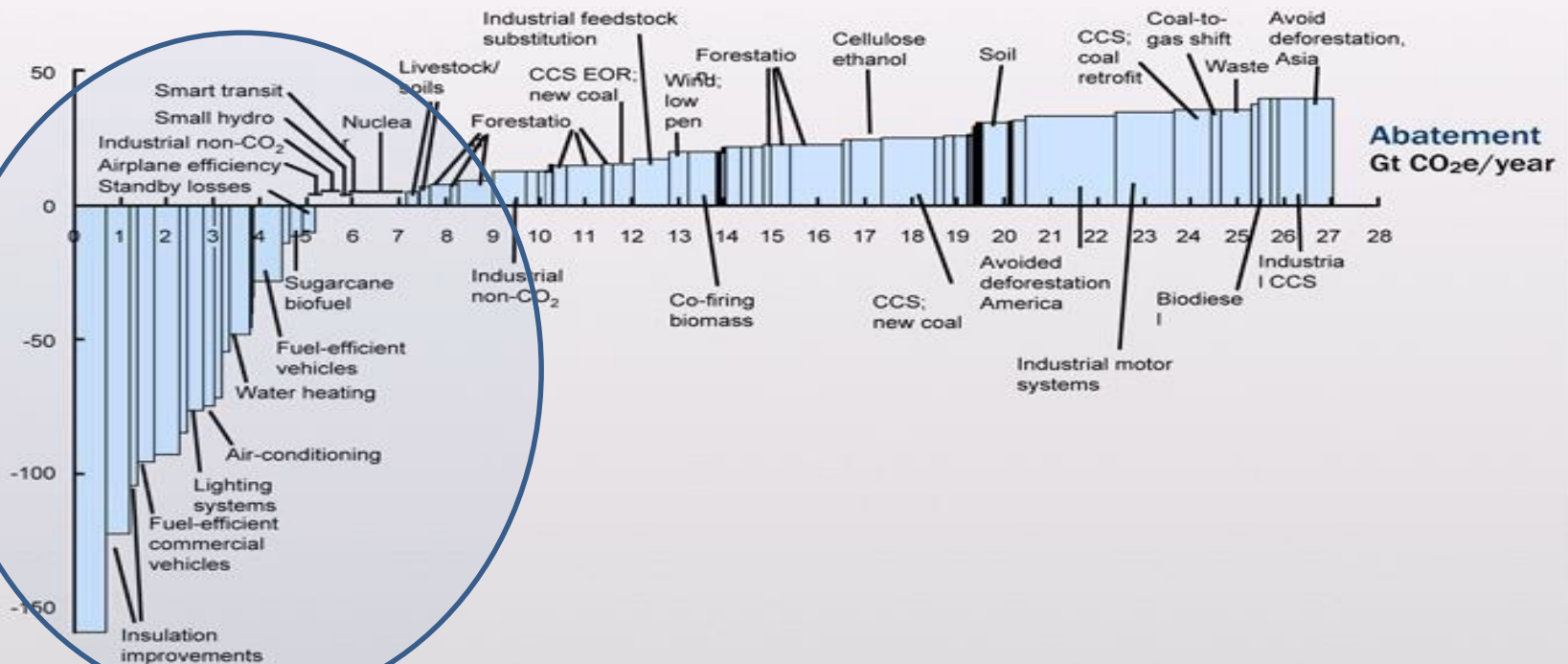
The Role of Revenue Recycling

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”

THE COST CURVE PROVIDES A “MAP” OF ABATEMENT OPPORTUNITIES

Cost of abatement, 2030, €/tCO₂e*



* Cubic feet of carbon equivalents.
Source: McKinsey and Vattenfall analysis

Price Effects of Efficiency Investment in a Carbon Cap-and-Trade Program



Allowance Allocation Two Examples

- Delaware
- Vermont

Allowance Allocation in Delaware

Annual Allowance Allocations	Allowances	Allocation %
Auction*	5,844,063	77%
Allocation to Emitters	508,180	7%
Industrial Exemption (Del. City Refinery)	1,207,544	16%
Total	7,559,787	100%

*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

Annual Allowance Allocations	Allowances	Allocation %
Auction	1,213,572	99%
Voluntary Clean Energy (set-aside for retirement)	12,258	1%
Total	1,225,830	100%

Vermont Auction Proceeds

Auction Proceeds Recipient	Allowances Sold
Heating and Process Energy Efficiency Programs	98%
Administration	2%
Total	100%

Concluding Thoughts

- RGGI is an example of government being innovative and responding in a positive way to the regulatory challenges the member states were facing.
- Keep an eye out for solutions that
 - EPA suggests that states adopt to comply with the Clean Power Plan, and that
 - States adopt to comply with EPA's Clean Power Plan.

For More Information

Carbon Caps and Efficiency Resources: How Climate Legislation Can Mobilize Efficiency and Lower the Cost of Greenhouse Gas Emission Reduction, *R. Cowart (Vermont Law Review 2008)*

<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,

http://www.naruc.org/Publications/ClimateIssueBrief4_Jul2009.pdf

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-Biegunska

http://www.raponline.org/docs/RAP_Farnsworth_ClimatePolicyinNortheast_2009_09_18.pdf

RGGI Auction Tracker: State Allocations and Spending Plans, June 7, 2013 http://www.environment.org/public/resources/ENE_RGGI AuctionTracker_130607R.pdf

The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States Review of the Use of RGGI Auction Proceeds from the First Three-Year Compliance Period, November 5, 2011, Hibbard et al.

http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Economic_Impact_RGGI_Report.pdf

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.raonline.org

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