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Key Lessons from the Regional Greenhouse Gas Initiative

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The Regulatory Assistance Project

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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

David Farnsworth, Senior Associate – Prior to joining RAP, David Farnsworth served as a hearing officer and staff attorney with the Vermont Public Service Board from 1995 to 2008. He was co-chair of the National Association of Regulatory Utility Commissioners' (NARUC) staff subcommittee to the Committee on Energy Resources and the Environment from 2004 to 2005; acted as vice-chair of the NARUC staff subcommittee to the Committee on Natural Gas from 2000 to 2002; and served as a staff member of the NARUC Task Force on Climate Policy. From 2003 to 2008, Mr. Farnsworth was a member of the Regional Greenhouse Gas Initiative (RGGI) Staff Working Group. Mr. Farnsworth received his JD and Master of Studies in Environmental Law from Vermont Law School. He received his BA from Colby College.

Outline

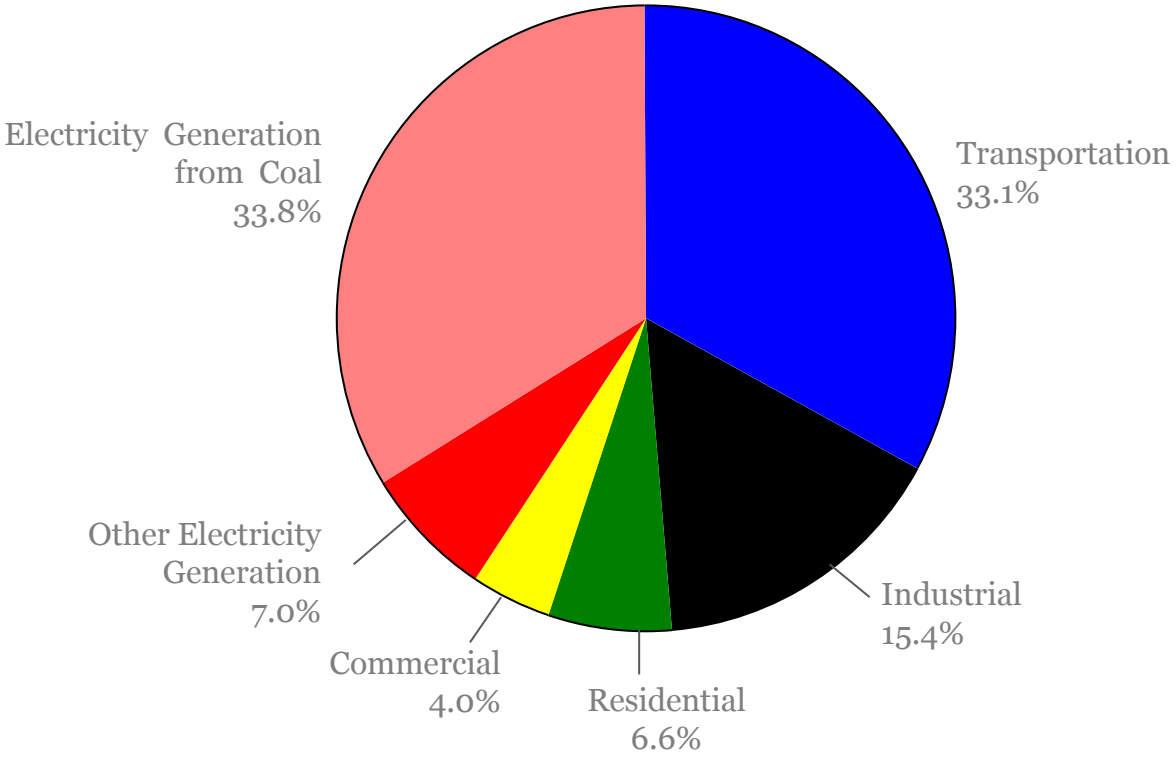
1. Background
   - Power sector
   - Reducing Power Sector CO_2 emissions
   - A role for Energy Efficiency (EE)

2. RGGI and other Regional Climate Programs

3. Cap-and-Trade supports other clean energy policies.

Background: Power Sector 40% of CO_2

Sources of U.S. Energy Related CO_2 emissions in 2004



Source: EPA 2006

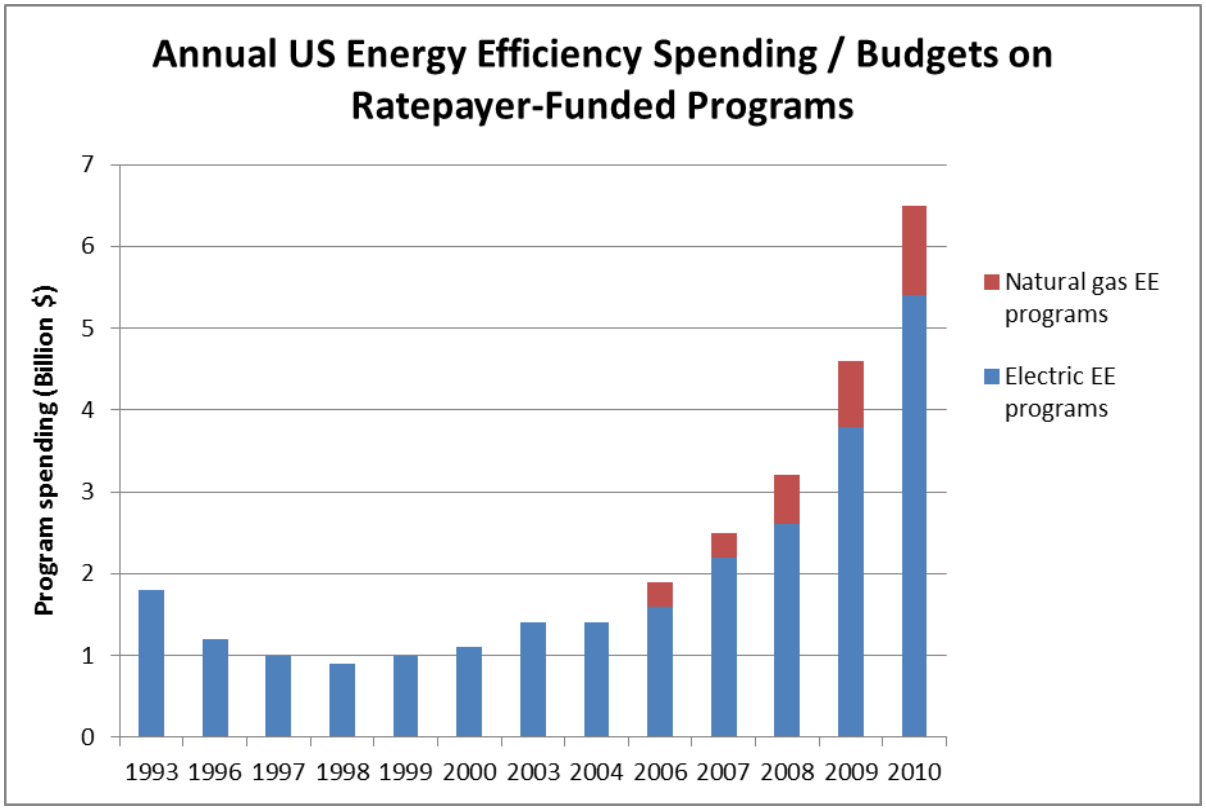
Background: Reducing Electric Sector Emissions

Power-sector CO_2 emissions can be significantly reduced in three ways:

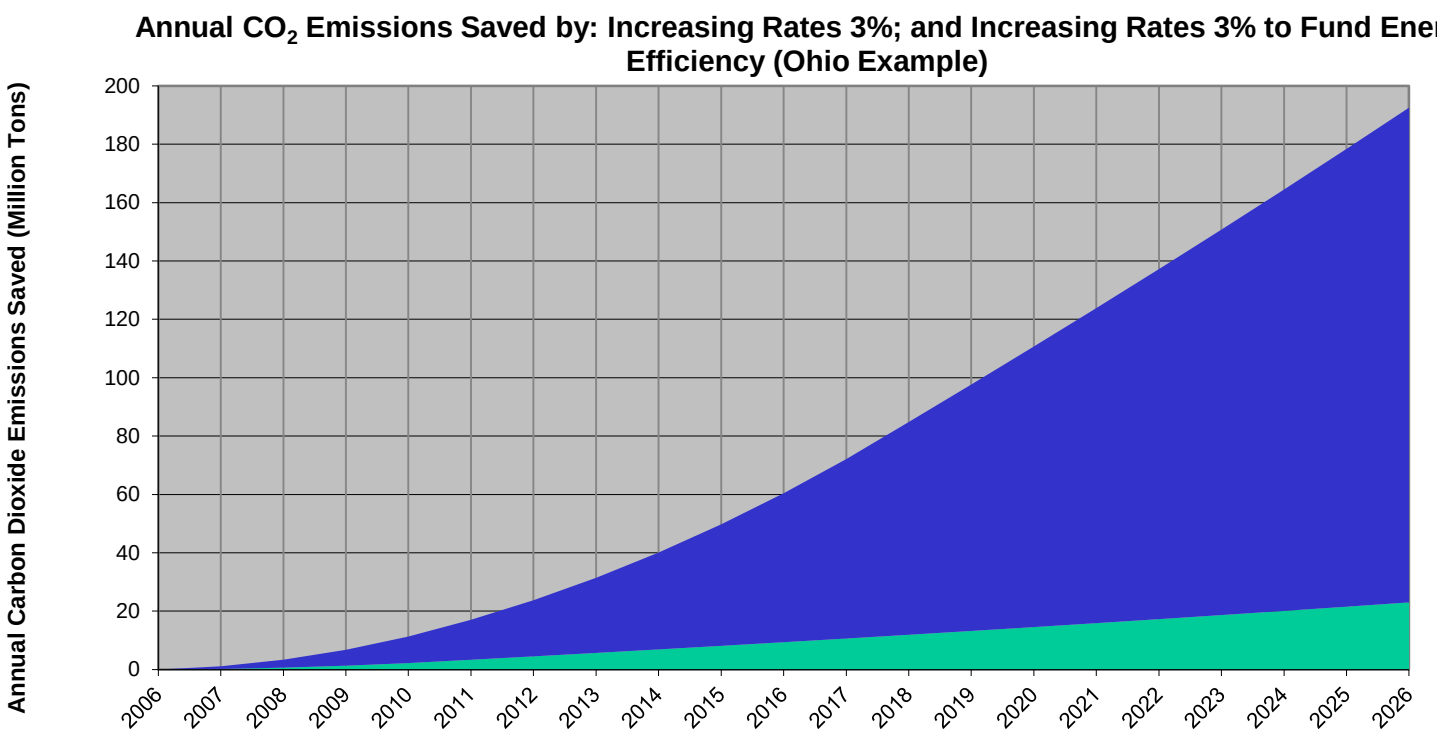
- Reducing consumption (EE);
- Re-dispatching the existing fleet; and
- Lowering the emissions profile of new generation (including repowering existing generation).

US – Energy Efficiency

- Significant growth in ratepayer-funded programs

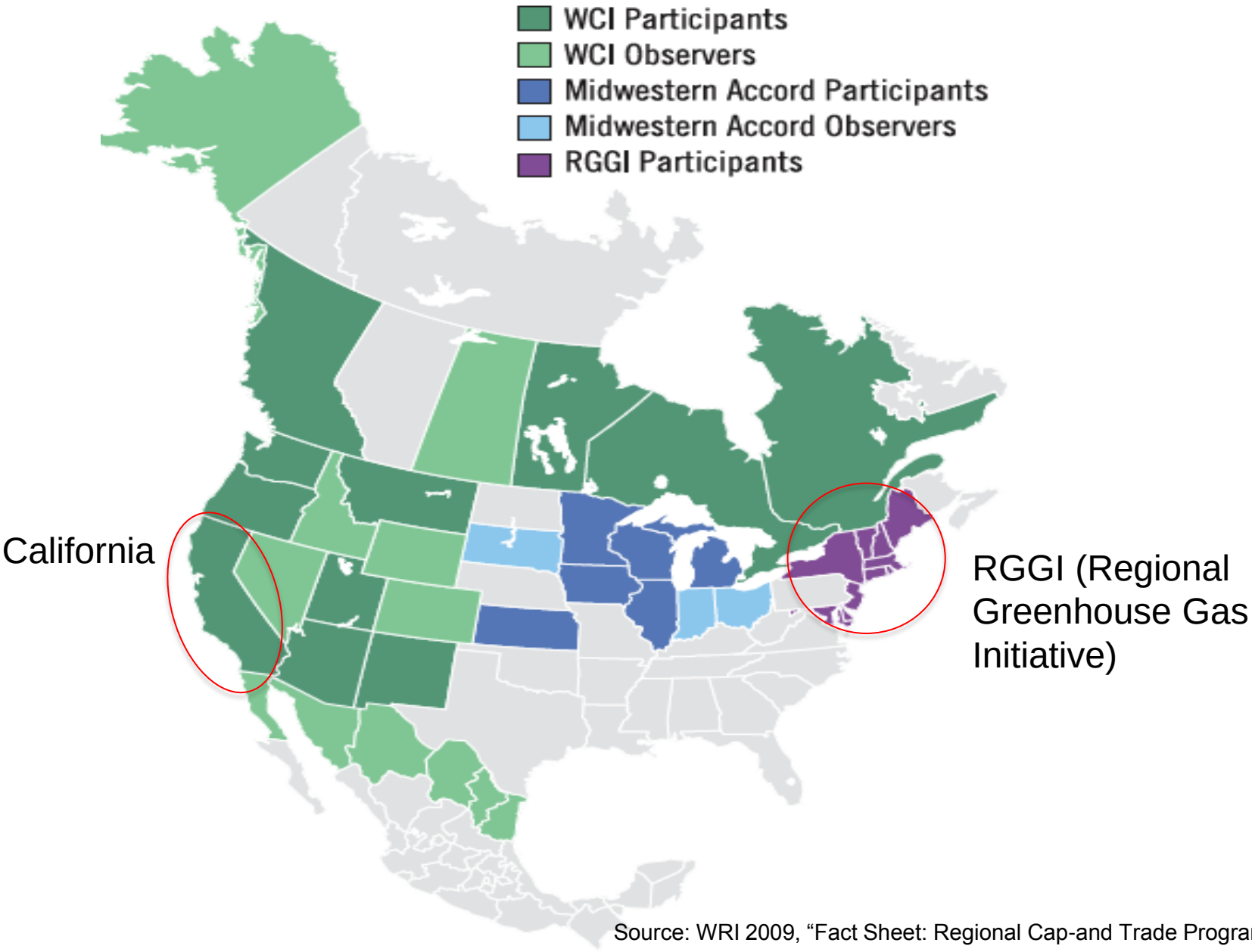


Efficiency programs can save 7x more carbon per consumer $ than carbon taxes or prices



Assumptions: Electricity use increases by 1.7% per year; Retail electric sales 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

RGGI and other North American GHG Cap-and-Trade Schemes



Source: WRI 2009, “Fact Sheet: Regional Cap-and Trade Programs”.

RGGI: a General Description

- 10 states (**population** approx. 49 Million, i.e., ½ Guangdong or 2X Shanghai
- **Coverage**: Fossil fuel-fired electric power plants 25 megawatts or greater in size (approximately 225 facilities region-wide).
- **Cap/Budget**: 188 million tons.
- RGGI **Effective Date**: January 1, 2009. Near the end of its first 3-year compliance period.
- The RGGI **Memorandum of Understanding** (MOU) sets out the essential elements of a proposed model rule, adopted by each participating state.
- Quarterly **allowance auctions** with a $1.86 reserve price.
- Agreement that **states have discretion to spend funds** raised by allowance sales with the **exception** of setting aside **25% for consumer benefit**.
- In less than three years the RGGI states have raised over **$.87 billion**.

See http://www.rggi.org/about/documents

Some Comparisons with Other Programs

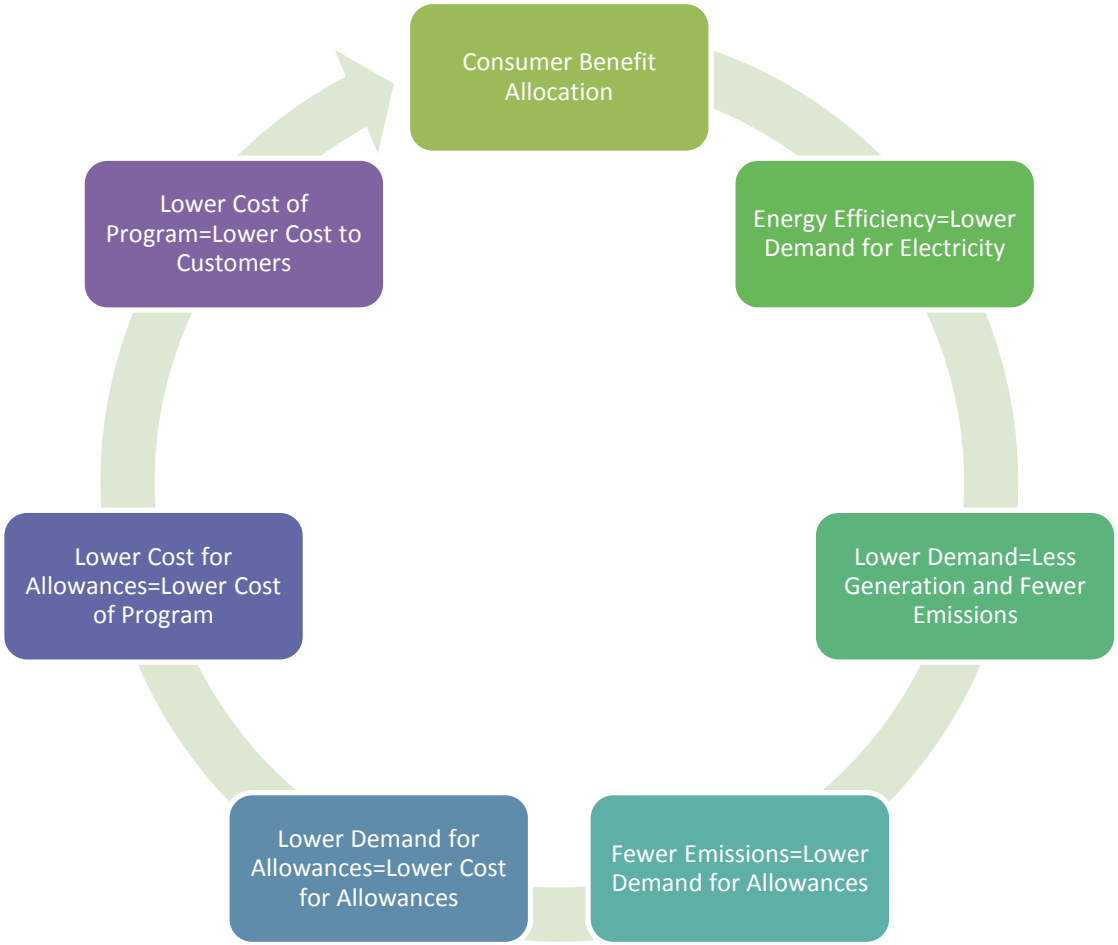
Cap & Trade Programs	Sector	Coverage	Compliance Period	Allocations	Other features
SO_2 (Acid Rain)	Electricity & other Industry	≥25 MW	1 year	Freely allocated	• Allowance tracking system– COATS • CEMs
EU ETS	Electricity & other Industry	20 MW	1 year	Phases I, II Freely allocated, Phase III partial auction (utility sector)	
RGGI	Electricity	≥25 MW	3 year	86% Auctioned	• Allowance tracking system--COATS • Mkt. Monitor • Model Rule (NOx SIP Call) • CEMs

Two Keys To Understanding RGGI: (1) Price Effect and (2) Flexibility

1. The **price effect** of a cap on CO_2 emissions is **not paramount** to the success of the program.
   - RGGI's allowance prices have never exceeded $3.51 per ton and currently trade at $1.89 per ton.
   - So, instead, it is the **reinvestment** of the **proceeds** from **allowance sales** that have reaped the greatest program benefits.

2. **Each state has** its own energy **challenges**, and sectoral **policies**; there is no one solution.
   - RGGI members have agreed, subject to the 25% *consumer benefit allocation*, that each state should have the discretion to spend its share of allowance revenues as it sees fit.

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



Examples of how States Auction and use Revenues

- Maine:
  - Auctions 88%, freely allocates10% CHP, 2% set-aside for voluntary clean energy
  - Revenues: approx. 85% electric energy efficiency (EE), 5% all-fuels EE (e.g., propane, heating oil)
- New Hampshire:
  - Auctions minimum 69%
  - Revenues: 90% EE, 10% low-income EE
- Vermont:
  - Auctions 99%, allocates 1% set-aside for voluntary clean energy
  - Revenues: approx. 95% all-fuels EE

Put Cap-and-Trade in Context

- Along with other tools in the tool box, cap-and-trade can promote cleaner energy development and contribute to successful carbon management:
  - Efficiency programs,
  - Renewable Portfolio Standards, Feed-in Tariffs,
  - Integrated resource management (utility planning that includes externalities like a price for carbon),
  - Maybe new clean or cleaner capacity like Carbon Capture and Storage, and
  - Customer-owned distributed generation.

For More Information

- ***Carbon Caps and Efficiency Resources: How Climate Legislation Can Mobilize Efficiency and Lower the Cost of Greenhouse Gas Emission Reduction****, 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 Allowance Allocations & Auction Proceeds Distribution Plans**, December 3, 2010, Environment Northeast, http://www.env-ne.org/public/resources/pdf/ENE_Auction_Tracker_110203.pdf

- **Electricity Energy Efficiency Benefits of RGGI Proceeds: An Initial Analysis**, October 5, 2010, Chang, White, Johnston, and Bruce Biewald http://www.synapse-energy.com/Downloads/SynapseReport.2010-10.RAP.EE-Benefits-of-RGGI-Proceeds.10-027.pdf