Vermont and the
Regional Greenhouse Gas Initiative

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Introduction

The Regional Greenhouse Gas Initiative (RGGI) is the nation's first mandatory, multi-state agreement to limit carbon dioxide (CO_2) emissions from fossil-fuel electricity generating plants. The initiative's goal is a 10 percent CO_2 reduction over 10 years in the 10 member states: Connecticut, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, New York, Rhode Island and Vermont.[1]

History of the Regional Greenhouse Gas Initiative

Discussions for what would become RGGI began in 2003 among governors from nine of the states, including Vermont. In December 2005 a Memorandum of Understanding (MOU) established the RGGI. The states agreed that CO_2 reduction efforts would reduce global warming and dependence on imported fossil fuels. In adopting a carbon reduction system established in Europe earlier that year, they agreed that capping the amount of CO_2 emissions and "developing a CO_2 allowance trading mechanism would create a strong incentive for the creation, development and deployment of more efficient fuel burning technologies and processes, as well as renewable energy supplies, demand-side management practices and actions to increase energy efficiency …."[2]

The 10 member states held the first RGGI auction September 25, 2008. About 225 fossil fuel-fired electric power plants bid for 12.6 million allowances to emit CO_2. Each allowance permitted the owner to emit one ton of CO_2. Every allowance was sold at a price of $3.07, and the auction netted $38.6 million.[3] Vermont alone netted $620,000 - and because the state's utilities generate almost no greenhouse gases, they didn't need to buy allowances and pass the cost along to ratepayers.

The second auction, held December 17, 2008, sold 31,505,898 allowances at $3.38 for a total of $106.5 million.[4] Vermont's share totaled $683,645. The third auction was held March 18, 2009. It sold 31,513,765 shares at $3.51 per share. Vermont netted $756,204. The fourth auction, held June 17, 2009, sold 30,887,620 shares for $3.23 each, with Vermont earnings of $684,544.

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[1] "About RGGI", www.rggi.org .
[2] Regional Greenhouse Gas Initiative, Memorandum of Understanding, www.rggi.org .
[3] "Auctions" www.rggi.org .
[4] Ibid.

Each auction was pure gain for Vermont, with the promise for even more in the quarterly auctions for the next 10 years. As long as Vermont's electrical generation stays relatively CO_2 free, RGGI money will continue to flow to Vermont.

How RGGI "cap and trade" works

At the heart of RGGI is the carbon cap and trade mechanism that gives money (in allowance receipts) to states for energy efficiency programs. This money is acquired (in allowance purchases) from CO_2–producing electrical utilities. As with most other utility expenses, some or all of the cost is paid by the utility's ratepayers.

"Cap" refers to the ceiling for CO_2 emissions permitted for the 10-state region. From 2009 to 2014, the initial 10-state regional cap is 188 million tons a year.[5] Program guidelines call for total emissions to be reduced 2.5 percent each year from 2015 – 2018. By 2018, emissions will be 10 percent lower than in 2009. Each state receives a share of the 188 million tons of CO_2 allowances, which they can then "trade" to the utilities. As the size of the cap decreases, so will the number of allowances. In this way, the amount of CO_2 sent into the atmosphere is reduced, state energy efficiency programs receive funds and electricity producers have incentives to reduce their carbon footprint.

Participation by the electricity producers is mandatory. Electricity producers whose output exceeds their CO_2 allowances must "offset" the extra emissions by implementing, at their own cost, such carbon-reducing measures as landfill methane capture, sequestering carbon through forestation, methane reductions from manure management, hexafluoride reduction at electricity generators and energy efficiency building programs.[6] However, a formula limits how much CO_2 overage can be offset. Also, offsets may not always actually reduce CO_2[7], said U.S. Congress researcher Jonathan Ramseur.

The RGGI member states hope electricity producers will voluntarily plan and implement carbon reduction measures to stay under the cap as it decreases in the final four years of the program. The Memorandum of Understanding (MOU) requires each state to spend at least 25 percent of the RGGI

[5] Vermont Department of Public Service Staff Report and Recommendation re: RGGI.

[6] "Offsets", www.rggi.org.

[7] "The main concern with offset projects is whether or not they represent real emission reductions. For offsets to be credible, a ton of CO_2-equivalent emissions from an offset project should equate to a ton reduced from a covered emission source, such as a smokestack or exhaust pipe. This objective presents challenges because many offsets are difficult to measure. If illegitimate offset credits flow into an emissions trading program, the program would fail to reduce GHG emissions. Another concern is whether the inclusion of offsets would send the appropriate price signal to encourage the development of long-term mitigation technologies. Policymakers may consider a balance between price signal and program costs."

Jonathan L. Ramseur, "The Role of Offsets in a Greenhouse Gas Emissions Cap-and-Trade Program: Potential Benefits and Concerns," Updated September 22, 2008 for the Congressional Research Service.

receipts on energy efficiency, but in practice most states plan to spend most or all of their RGGI receipts on programs related to energy efficiency and addressing climate change.[8]

In Vermont, the Public Service Board administers all RGGI money, which goes into the Efficiency Fund. The Board has directed that the funds be used for weatherization during the first year, but after that proposals for other efficiency will be considered.

RGGI administration and organization

RGGI, Inc. is a non-profit organization based in New York City. The executive director is Jonathan Schrag. The board of directors is comprised of environmental and energy officials from each member state. Vermont's board members are Jonathan Wood, Vermont Agency of Natural Resources secretary, and James Volz, Public Service Board chairman.

The Future of cap and trade beyond the 10-year RGGI

To date, national legislation to curb greenhouse gases has had a mixed record: according to congressional energy experts, while "some provisions in energy laws enacted over the past 16 years have led to lower greenhouse gas emissions or addressed climate change directly, other provisions in those same laws have almost certainly resulted in higher emissions. To date, no energy law has had reducing greenhouse gas emissions as the main organizing principle."[9]

Congress, however, seems poised to make greenhouse gas reduction a priority. National anti-global warming and energy efficiency advocates have called for legislation requiring a federal, 50-state carbon cap and trade model. President Barack Obama has taken steps to make good his promise at the Governors' Summit in November, 2008: "My presidency ... will start with a federal cap and trade system. We will establish strong annual targets that set us on a course to reduce emissions to their 1990 levels by 2020 and reduce them an additional 80 percent by 2050."[10] A 50-state federal system would obviously raise energy efficiency funds and provide anti-CO_2 incentives on a scale dwarfing RGGI.

Rep. Peter Welch of Vermont sits on the U.S. House Energy and Commerce Committee. His committee chair, Rep. Henry Waxman (D-CA), introduced federal cap-and-trade legislation in 2007. On May 15, of this year, he and Rep. Edward Markey (D-MA) introduced H-2454, The American Clean Energy and Security Act, also known as ACESA (www.energycommerce.house.gov). Its opponents focus on the multi-billion dollar "carbon tax" aspect of the cap and trade system. The House approved ACESA on June 26 by a 219-212 margin.

Speaking before the Vermont Business Roundtable annual meeting June 18, 2009, National Public Radio commentator Juan Williams said the legislation may not pass this year. The Obama administration no

[8] VT DPS Staff Report and Recommendation re: RGGI.
[9] Brent Yacobucci and Larry Parker, "Climate Change: Federal Laws and Policies Related To Greenhouse Gas Reductions," December 2008, Congressional Research Service.
[10] William F. Jasper, The NewAmerican.com.

longer features its receipts as a revenue source for its proposed national health care system, a possible sign of no-confidence from the administration, he said.

A European carbon cap and trade program began in January, 2005.[11] As of July 28, 2009 a single carbon credit in the well-established European cap and trade system was trading at 13.87 Euros, or about $19.54 USD, according to www.pointcarbon.com.

There are no plans for RGGI to address the problem of CO_2 emissions from auto exhaust, Mr. Schrag said. But since the groundbreaking MOU, many of the member states have cooperated in other greenhouse gas reduction efforts, including adopting auto emissions standards more stringent than the EPA's, and through educational "competitions" such as Carbonrally.com. While not officially connected with RGGI, these efforts are a logical continuation of the multi-state process initiated by RGGI, Mr. Schrag said.[12]

Loss of Yankee, Hydro-Québec contracts would challenge CO_2 reduction

Nuclear power generation, which has virtually no carbon emissions, is critical to meeting the RGGI goals. A January, 2008 Polestar Applied Technology study shows that if Vermont Yankee and a nuclear plant of similar size, Pilgrim in Massachusetts, are not relicensed to operate for an additional 20 year period, New England will need massive new construction of other clean energy sources to meet the RGGI goal to reduce CO_2 emissions by 10 percent:

> "In that case, the region would need: 10 large wind farms and 15 new gas-fired plants. This would cause natural gas to account for about two-thirds of the region's installed generating capacity, which is highly undesirable from a grid reliability perspective. On top of this new construction, 90 percent of existing oil and coal-fired capacity within the region would have to be shut down."[13]

The study's conclusions assume an annual 1.6 percent rate of growth in New England electricity demand and the mandated 10 percent decrease in CO_2 emissions.

In Vermont, hydropower is also critical to meeting the goals of the RGGI. If Hydro-Québec's contract with Vermont, which expires in 2015, is not renewed, the state will face an additional problem: how to replace 30 percent of its energy portfolio with an equally clean form of electricity generation.

Loss of Yankee, Hydro-Québec contracts would impact RGGI revenue

As mentioned above, Vermont receives an estimated $3 million per year in RGGI payments but pays little in added ratepayer costs because our electrical producers emit a low amount of CO_2 gases. This

[11] James Kanter, Jan. 29, 2009, greeninc.blogs.nytimes.com .
[12] VTEP interview with Jonathan Schrag, January 2009.
[13] Reducing CO2 Emissions in New England -*The Imperative of Nuclear Power.* Prepared by Polestar Applied Technology Inc, For the Nuclear Energy Institute, January 2008.

would change if Vermont loses the 270 megawatts (MW) provided by Vermont Yankee or the slightly lower number of megawatts received from Hydro-Québec. Neither source produces significant CO_2 as a byproduct of electrical generation.

Renewable power generation, combined with efficiency measures, would be palatable from a RGGI perspective. However, ratepayers would find it expensive: electricity rates would climb 39 percent, according to energy management consultant Dr. Howard Axelrod.[14] Purchasing power from existing fossil-fuel generators would raise rates about 19 percent but would also greatly increase CO_2 emissions. These plants would be paying millions of dollars for allowances and passing the cost along to consumers.

Dr. Axelrod said only one form of low-CO_2 electrical generation could, in the near term, feasibly generate 270 MW of electricity: a combined cycle gas turbine (CCGT). Such a plant produces 0.41 tons of CO_2 per megawatt hour. Therefore, producing 270 MW, 24 hours a day, 365 days a year, would create 969,732 tons of CO_2 annually.

Assuming 90% of peak production, a 270 MW CCGT plant would produce 872,759 tons of CO_2 annually. At $3.50 per ton, this would cost the gas plant operators $3,054,657 for CO_2 allowances. Because total RGGI proceeds for the state are less than $4 million, and the RGGI money also must support the staffing and administrative costs, it appears that the RGGI proceeds and the cost (to utilities and ratepayers) of paying for allowances would be at best a "wash" under this scenario. And it is worth noting that more aggressive allowances, such as the $18.20 USD charged in Europe, would cost ratepayers many times the $3,054,657 cited above.

Conclusion

The Regional Greenhouse Gas Initiative is a bold step in interstate cooperation to reduce greenhouse gas emissions. It provides a framework for a national initiative. For Vermont to meet its RGGI goals and continue to receive a net gain in RGGI receipts over RGGI payments, the state must continue to improve in energy efficiency and maintain a significant amount of carbon-free electrical generation.

[14] Axelrod, page 5, "An Independent Assessment of the Environmental and Economic Impacts Associated with the Closing of the Vermont Yankee Nuclear Plant," www.vtep.org.