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To: John McClaughrey, President, Ethan Allan Institute  
From: Heather Brome, Policy Analyst  
Date: March 3, 2006  
Re: Economic impact of RGGI

At the New England Public Policy Center State Summit in Vermont on February 23<sup>rd</sup> you requested that we look into the estimated economic impact of the Regional Greenhouse Gas Initiative (RGGI). This memo summarizes our findings.

## Summary

- In December seven northeastern governors signed a pact committing to stabilize emissions of carbon dioxide (CO<sub>2</sub>) from electricity generation between 2009 and 2015 and then lower emissions by 10% by 2020.
- The RGGI State Working Group has analyzed the proposal's potential effects on the economy and found that, when coupled with an energy efficiency program, RGGI would have a modest positive impact on gross regional product, personal income, and employment. Without an energy efficiency program, RGGI is predicted to have a modest negative impact on the economy.
- All models rely on assumptions and cannot take into account changes in technology, unexpected changes in prices for natural gas, or other external factors.

## RGGI

In December, seven northeastern governors, including the governor of Vermont, signed a pact committing to stabilize emissions of carbon dioxide (CO<sub>2</sub>) from electricity generation from 2009 until 2015 and then to decrease emissions by 10 percent by 2019 through a “cap-and-trade” program. Under this program, allowances—equal to one short ton of CO<sub>2</sub>—would be distributed among the states and could then either be sold on a secondary market within the region or “banked” to sell at a later date. Most participating states plan to distribute about 75 percent of the CO<sub>2</sub> allowances to industry; the other 25 percent would be given to the public sector to sell in order to fund consumer benefit and/or strategic energy programs. Since Vermont has no CO<sub>2</sub>-producing electricity industry, it will receive more allowances than its current emissions, and its allowances would be 100 percent public sector. Some portion of the money states make from selling allowances would be set aside for public benefit purposes, such as expanding energy efficiency programs, direct payments to ratepayers,

or promoting technologies that would reduce CO<sub>2</sub> emissions from power generation. The RGGI program differs from existing cap-and-trade programs for sulfur dioxide and nitrogen oxides in distributing a share of allowances to the public sector, rather than solely to the private sector.

## **Potential economic impacts**

The primary means by which RGGI might affect the regional economy is through increased retail prices for residential, commercial, and industrial electricity. The RGGI State Working Group (SWG) contracted with ICF Consulting and the Economic Development Research Group (EDRG) to analyze RGGI's potential impact on retail electricity prices and economic activity in the region. ICF Consulting used an Integrated Planning Model (IPM), a bottom-up model of generation and dispatch in the electricity sector, to model wholesale electricity pricing in the region under different proposed emissions caps. The outputs from this model were then run through a REMI model (Regional Economic Models, Inc) of the regional economy by EDRG to determine the retail prices for electricity and the overall economic impact in the region. This two-stage modeling process resulted in the predicted economic impacts developed by the SWG.

RGGI's projected effect on retail electricity prices varies from state to state. In Vermont, both residential and commercial rates are estimated to increase by 0.3 percent under RGGI; industrial prices are estimated to increase by 0.5 percent. Overall the REMI model estimates RGGI would have a small negative economic impact—that is, two- or three-hundredths of a percent decrease in gross regional product, personal income, and employment. Moreover, if an energy efficiency component is added to the program, RGGI would have a small positive economic effect—that is, two- or three-hundredths of a percent increase in gross regional product, personal income, and employment. The analysis conducted for the SWG is not yet available as a report but should be released within the next few months.

Other researchers have also conducted economic impact analyses. Charles River Associates, an economic consulting firm, released a report in July 2004 on the economic consequences of limiting greenhouse gas emissions from electricity generation. However, the programs modeled in their report are much more stringent than the caps finally agreed upon; for example, the strictest program they modeled assumed that emissions would return to 1990 levels by 2010 and would be reduced to 10 percent below 1990 levels by 2020. Yet even with their likely overestimation of RGGI's impact, they predict no net effect on the gross state product of Vermont by 2010 or 2020. Their model for the most stringent CO<sub>2</sub> limits showed an average reduction in gross state product in the northeast of 0.5 percent by 2020 and an overall reduction in employment of 83,131 jobs by 2020 for the eleven northeastern states that were considering RGGI.

Another study looking just at the impact of RGGI on the costs of doing business in Rhode Island predicts modest cost increases, since the price of electricity is a small fraction of overall operating costs for businesses, even manufacturers. Their prediction is that costs for the average company would rise only 0.004 percent. Under the worst-case scenario, in which electricity costs would rise by 2.2 to 2.4 percent, the costs of doing business would rise by 0.026 percent. These figures are based off of back-of-the-envelope calculations that do not take into consideration potential gains in energy efficiency.

## **Caveats to all of the models**

The predicted economic impacts of RGGI on New England may be more negative than its actual impact, for two reasons. First, technological innovation may absorb some of the costs of reducing emissions. When SO<sub>2</sub> limits were set under the EPA's Acid Rain Program in 1990, every economic model predicted large and costly effects on industry. However, the new cap-and-trade program created an incentive for businesses to develop new SO<sub>2</sub> scrubbers for smokestacks, which then reduced the costs of compliance. While there currently is not strong technology for reducing CO<sub>2</sub> emissions, the existence of a program like RGGI might change the market incentives for developing such a technology.

Second, the region's strength in innovation and technology means that it may stand to benefit from these new incentives for product development. For example, a Cambridge-based company working on using algae as a CO<sub>2</sub> scrubber technology recently received nearly \$25 million in venture capital, due in part to the fact that RGGI is likely to increase the demand for carbon-dioxide-reducing technology.

## **Sources**

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Conversation with Michelle Manion, Climate and Energy Team Leader, Northeast States for Coordinated Air Use Management (NESCAUM). March 1, 2006.