

Economic Impact in New Hampshire of the Regional Greenhouse Gas Initiative

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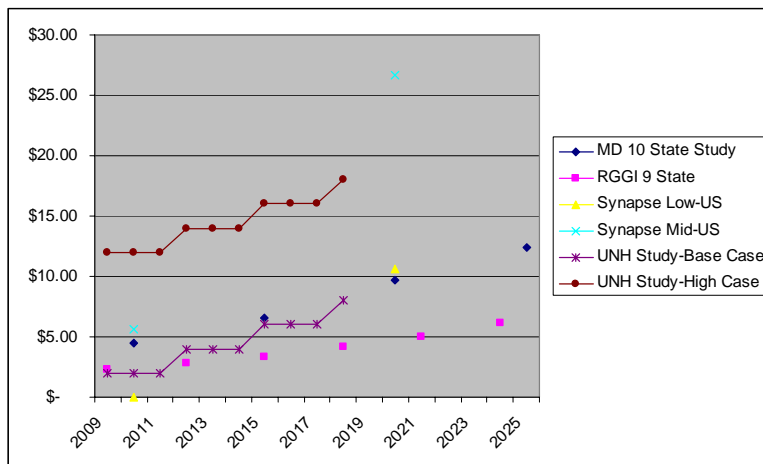
Overview

RGGI is a regional cap and trade program in the Northeast region of the United States to limit power plant emissions of carbon dioxide. New Hampshire and the Northeast region provide a useful and interesting case study in considering the economic impact of policies within the U.S. to address global climate change. Ten states in the Northeast have taken a leadership position by implementing the first mandatory cap and trade program in the United States. New Hampshire has a unique utility structure in that it has been partially restructured, however, the largest utility still owns fossil-fuel generation including coal. The purpose of this analysis was to determine the economic costs and benefits of New Hampshire participation in RGGI given its unique utility structure. In addition, several different policies for carbon dioxide allowance allocation were considered including: customer rebates, direct allocation to generation, energy efficiency, and corporate tax reduction.

Methods

The analysis used statistical modeling to calculate electricity costs and drew significantly on previous economic analysis performed, specifically research that provided projections of carbon dioxide allowance prices. The cost of the allowances is a significant factor in the overall cost impacts of RGGI. Based on extensive review of the analysis and modeling undertaken of RGGI to date (both prior to MOU and subsequently) allowances are expected to have a market value range from \$2 to \$8 through 2018.

Projected Cost of Carbon Allowances



Costs of carbon compliance were calculated for direct emissions from fossil-fueled units still owned by the New Hampshire utility and by regional marginal emissions for wholesale power purchases. The average emissions rate for the marginal producer plant in 2005 was 1,107 pounds of carbon dioxide per MWH for the New England power pool. Utility cost and cost and investments calculated for proposed policies were then mapped into a multi-state econometric (REMI™) model to estimate the economic impacts of different policies and potential uses of allowance revenue. Sensitivity of the modelling was tested for the different inputs including allowance cost, energy consumption and energy efficiency cost.

Results

It was determined that if allowance revenue were to go strictly to energy efficiency, the overall economic affect would be to increase New Hampshire's employment by 815 (or .12% of total employment) and overall economy by \$63 million (or 0.06% of total annual Gross State Product) by 2018.

If 100% of the auction revenue were used to reduce business taxes, the overall economic affect would be to increase the state's employment by 673(.11% of total employment) and the overall economy by \$100 million (or 0.1% of total annual Gross State Product). The impact is small but positive even when taking into account the increased cost of electricity due to RGGI. The State would expect to receive allowances valued at \$17 million in 2009 rising to \$62 million by 2018.

If New Hampshire were not to join RGGI, the overall economic impact would be slightly negative, as the state's employment would be reduced by 72 and overall economic activity would be reduced by \$6.5 million (or 0.006% of total annual Gross State Product) by 2018.

Sensitivity analysis also provided insight into some broader issues to be aware of when considering these types of policies. A key finding was that in the 100% energy efficiency policy, cumulative costs were very sensitive to the average cost of energy efficiency and the life expectancy of the energy efficiency investment. In all of the policies, one of the most significant factors of the overall cost of RGGI on New Hampshire was NH retail sales. This indicates that one of the most effective ways to reduce the cost of RGGI is to reduce the amount of electricity consumed, further adding support for energy efficiency as an economically efficient way to address the costs of RGGI

Conclusions

It was determined to be in the economic interest of the state of New Hampshire to participate in the Regional Greenhouse Gas Initiative (RGGI). Electricity costs will increase in New Hampshire even if the State were not to participate in RGGI. This is because all of the utilities in the State purchase competitively generated power from the New England marketplace. If New Hampshire were not to join RGGI, it would not receive the economic value from the allowances allocated to it under RGGI, but would still experience the increased cost of RGGI in regional wholesale power prices.

The best overall economically efficient use of the auction revenue would be to fund energy efficiency and/or reduce marginal business taxes in the State. The costs of RGGI will primarily be borne by ratepayers no matter how carbon dioxide allowances are allocated. Therefore, for utility customers (both customers of the restructured utilities and the utility still owning fossil-fueled generation) increased costs are minimized if all allowance revenue were to be dedicated to ratepayer benefit. Cumulative costs to customers would be minimized if 100% of allowance revenue went to energy efficiency.

References

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