

State Greenhouse Gas Programs: An Economic and Scientific Analysis

Impact on Virginia

Twenty-five states considered legislation to reduce greenhouse gas emissions in 2002.

Although the science is far from certain, some environmentalists say anthropogenic (man-made) greenhouse gas emissions (typically carbon dioxide) are causing “global warming,” a possibly destabilizing warming of the Earth’s atmosphere. Most of these gases come from fossil fuel combustion. Federal efforts to reduce emissions are limited largely to promoting research and voluntary efforts, leading some activists to lobby for state action. State efforts, however, are likely to be far more expensive than a national program since they are unlikely to exploit the lowest cost opportunities to reduce emissions, and since businesses and economic activity will migrate to states (and countries) with lower energy costs and less cumbersome regulations.

Virginia would need to reduce its greenhouse gas emissions by 9.19 million metric tons carbon equivalent (mmtce) to meet the goal set under the Kyoto Protocol.

The Kyoto Protocol, negotiated by the Clinton-Gore administration but not submitted to the U.S. Senate for approval and rejected by President George W. Bush, would have required the U.S. to reduce greenhouse gas emissions to 7 percent below 1990 levels by 2008-2012. Virginia’s greenhouse gas emissions totaled 29.2 mmtce in 1990. If no state actions are taken, Virginia’s greenhouse gas emissions are expected to reach 36.34 mmtce by 2010. Reducing emissions to 7 percent *below* 1990 levels would therefore require a reduction from baseline levels in 2010 by 9.19 mmtce.

Virginia state government would have to spend at least \$505 million per year to attain this goal.

New Jersey has spent \$55 per ton to reach its greenhouse gas reduction goal of 3.5 percent below 1990 levels. Since the goal is modest and the state has been able to increase reliance on nuclear power to meet this goal, \$55/ton is likely to be the *minimum direct cost to a state government* of operating a comprehensive greenhouse gas reduction program. Multiplying the number of tons Virginia needs to cut by \$55 reveals its state government would have to spend \$505 million *each year* to meet the goal.

Virginia state government would also lose \$2.9 billion each year in tax revenue as a result of slower economic growth.

Reducing emissions means higher energy prices and slower economic growth. This means less revenue to state treasuries. In 1998, WEFA Inc., a respected consulting firm, produced state-by-state estimates of the impact on state budgets in the year 2010 of a *national* program to reduce emissions to 7 percent below 1990 levels. This is the minimum credible estimate since it assumes Virginia’s program would not have a more negative effect on the state’s business climate than would a national program. Converting WEFA’s estimates into 2001 dollars reveals the annual loss to the state of Virginia treasury would be \$2.9 billion.



Virginia Facts

29.2 mmtce	GHG emissions in 1990
36.34 mmtce	Projected GHG emissions in 2010
9.19 mmtce	Reduction in GHG emissions required in 2010
\$505 million	State budget cost to achieve reductions
\$2.9 billion	Annual revenue loss for state treasury
\$3.4 billion	Total cost to state government
\$11.8 billion	State government 2001 revenues
28.8%	Cost of GHG program as percent of state 2001 revenues
\$2.1 billion	Annual cost of a national program to consumers and businesses
\$20.8 billion	Annual cost of a state program to consumers and businesses
2.7million	Number of households in Virginia in 2000
\$769	Annual cost of a national program per household
\$7,692	Annual cost of a state program per household

The greenhouse gas program would consume 28.8 percent of the entire Virginia state budget.

General fund revenues for the Virginia state government in 2001 totaled \$11.8 billion. Combining the direct cost of the greenhouse gas program with lost revenues to the state due to slower economic growth reveals the total annual cost to the government would be \$3.4 billion. This is 28.8 percent of total state government revenues in 2001.



A national greenhouse gas program would cost Virginia consumers and businesses \$2.1 billion a year due to higher energy costs and lost wages.

The number of tons of greenhouse gas emissions that need to be cut can be multiplied by \$226, the average of 12 estimates by respected researchers and the Energy Information Administration (expressed in 2001 dollars) of the cost to reduce emissions to 7 percent below 1990 levels by 2010. This is the *minimum cost to state consumers and businesses* of a greenhouse gas program, since it assumes a Virginia program would be just as efficient (in cost per mmtce avoided) as would be a national program.

A state greenhouse gas program would probably cost consumers and businesses in Virginia *ten times* as much: \$20.8 billion.

A Virginia program, like other state-only efforts, is likely to be much less efficient than a national program. States are unable to take advantage of low-cost opportunities to reduce emissions outside their borders or market-based policies that require national implementation. Moreover, for every ton of greenhouse gases Virginia avoids, other states and countries would *increase* their emissions by .5 tons, a 50 percent “leakage.” Together, these estimates suggest Virginia’s program would cost *ten times as much* as a national program. The most likely cost to consumers and businesses in Virginia, then, would be \$20.8 billion.

A state greenhouse gas program could cost the average household in Virginia \$7,692 a year.

The likely cost of the Virginia greenhouse gas program to consumers and businesses – \$20.8 billion – can be divided by the number of households in the state to reveal the cost per household of a typical greenhouse gas program. (The actual costs would vary depending on choices made by policymakers.) There were 2.7 million households in Virginia in 2000, so the cost per household could be \$7,692.

The Cost:

Reducing greenhouse gases to 7 percent below 1990 levels could cost the state government of Virginia \$3.4 billion a year in direct expenses and lost revenues. The average household in Virginia could lose \$7,692 a year in income.

Is it worth it?

The benefits of reducing greenhouse gas emissions are small or nonexistent. By 2060, global warming is likely to have a small (0.2 percent of GDP) *positive* effect on the U.S. economy and a small (1 to 2 percent of GDP) *negative* effect on the global economy. The global benefits of reducing emissions today are an order of magnitude less than the cost.

Advice to policymakers:

State legislators should oppose new efforts to cap or reduce greenhouse gas emissions because such efforts are expensive, slow economic growth, hurt the poor and elderly, and produce few if any economic or environmental benefits.

State legislators should repeal regulations and subsidies that discourage energy efficiency; encourage sequestration projects that offer additional environmental benefits; and support projects that enhance society’s ability to adapt to gradual changes in climate.

Based on Joseph L. Bast, James M. Taylor, J.D., and Jay Lehr, Ph.D., “State Greenhouse Gas Programs: An Economic and Scientific Analysis,” *Heartland Policy Study #101* (Chicago, IL: The Heartland Institute, February 2003). Copies of the 80–page study are available for \$20 each. Permission is granted to reprint or quote from this *Impact Statement* provided appropriate credit is given.

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