



GOINGS ON

Healthy trading

Letting electric utilities bank and trade sulfur dioxide emissions hasn't threatened human health and the environment the way critics thought it would, especially in the Northeast. On the contrary, RFF researchers found it to be a boon to health—not only in the East as a whole—but even in New York State, where public acrimony has been high enough for one politician to liken the effects of acid rain caused by sulfur dioxide emissions to “airborne terrorism.”


Instead of the fallout critics feared (both literally and figuratively), trading has reduced SO₂ emissions in most states outside the Ohio Valley. Lowered emis-

sions in the more populous East translates into less chronic disease and premature death from breathing bad air; in the Northeast it means less deposition of sulfur (acid rain). Banking surplus allowances also appears beneficial, though the resulting geographic pattern of emissions changes is not simple to follow.

These findings are detailed in a study that Senior Fellow **Dallas Burtraw** and UC–Berkeley graduate student **Erin Mansur** recently completed in which they assessed effects of SO₂ trading at the state level. Using a computer model of the utility industry called the Tracking and Analysis Framework, they looked at changes in the loca-

tion of emissions, the atmospheric concentrations and deposition of pollutants, and public health benefits from reduced exposure to sulfur dioxide and particulate matter.

Based on their model, in the year 2005 trading is expected to lead to health benefits nationwide of about \$125 million; it is expected to lead to regulatory compliance cost savings of \$531 million.

 [Download a copy of “The Effects of Trading and Banking in the SO₂ Allowance Market” \(RFF Discussion Paper 99-25\) at \[http://www.rff.org/disc_papers/PDF_files/9925.pdf\]\(http://www.rff.org/disc_papers/PDF_files/9925.pdf\). To order by mail, see page 22.](http://www.rff.org/disc_papers/PDF_files/9925.pdf)

of compliance costs, rather than so-called “best” estimates of what is likely. And on its way to becoming final, a rule itself can change, invalidating the assumptions that were the basis for the original estimate.

These are the underlying reasons for the overestimation tendency that **Winston Harrington**, **Richard D. Morgenstern**, and **Peter Nelson** found after comparing forecasted costs with observed outcomes for more than two dozen regulations.

Unlike the few earlier efforts on the subject, the RFF examination was limited exclusively to cost estimates by government agencies, which included EPA, OSHA, and international and state regulatory bodies.

Keeping cost estimates in the ballpark

Bureaucrats tend to overestimate the cost of proposed environmental and occupational health regulations—and for good reason, a recent RFF study shows. For example, unforeseen technological innovation often follows after a regulation's implementation, making it cheaper to reduce pollution. But although costs are frequently overestimated, so are benefits.

For example, overstating baseline conditions—say, the amount of emissions that would occur without a new rule—can skew estimates of both costs and benefits upward, a surprisingly common outcome.

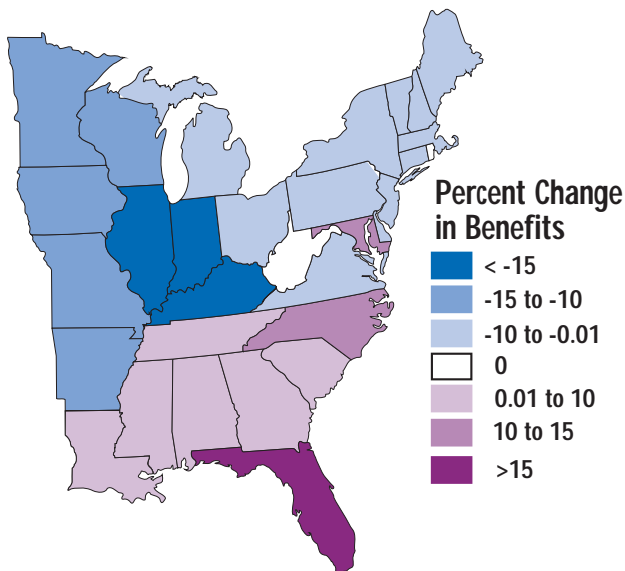
In addition, agencies often make an upper bound estimate

of inaccurate cost estimation misrepresents the true social burden of regulation, and may lead to bad policymaking and reduced public confidence in the regulatory process.

Economic incentive policies seem to be especially prone to cost overestimation, the researchers report, although their sample was small. This finding could be of particular relevance to the debate on climate change policy, since most proposals have an important economic-incentive component.

 [Download a copy of “On the Accuracy of Regulatory Cost Estimates” \(RFF Discussion Paper 99-18\) at \[http://www.rff.org/disc_papers/PDF_files/9918.pdf\]\(http://www.rff.org/disc_papers/PDF_files/9918.pdf\). To order by mail, see page 22.](http://www.rff.org/disc_papers/PDF_files/9918.pdf)

Percent Change in Title IV Baseline Benefits Attributable to Trading for 2005



Based on RFF Research, the map shows the health benefits expected to result from sulfur dioxide emissions trading, as a portion of the overall health benefits to result from Title IV of the Clean Air Act.



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The joy of flex

Touting the “joy” of flexibility in the climate change debate, RFF President **Paul R. Portney** filled his listeners in on the meaning of some climate policy terms of art at the Energy Information Administration late in March. As the keynote speaker at EIAs “National Energy Modeling System/Annual Outlook Conference,” Portney also took the opportunity to call attention to a proposal for “early action” to reduce U.S. greenhouse gas emissions beginning in 2002.

STRONG SIGNALS IN EARLY ACTION

RFF researchers have put forward a proposal for mandatory greenhouse gas emissions reductions in the United States during the period 2002–2008, using an auctioned emissions permit trading system. Unlike other proposals that emphasize voluntary participation, this one would require permits for supplies of domestic and imported fossil fuels.

However, the reductions in emissions that the researchers propose are modest. Total U.S. emissions of carbon dioxide would be capped at 1996 emissions levels (or about 1,460 million tons of carbon). Compared with the deeper cuts proposed under the Kyoto Protocol, the amount is about 10 percent greater than 1990 levels and about 10 percent less than carbon emissions are forecast to be in 2002 (20 percent below the forecast for 2008).

To limit the cost of meeting the proposed goal, the researchers have built a “safety valve” into their system. If the price of a permit rose above \$25/ton in 2002, the government would offer extra permits—as many as desired—at that price. The safety valve price would go up 7 percent per year above inflation during 2002–2008. This rise would be equivalent, Portney said, to a \$0.06/gallon hike in gasoline prices and a \$0.005/kwh increase in electricity prices in 2002.

The proposal is designed to be equitable. Since it would increase household costs for energy and other goods, three-quarters of the revenues raised in the first year would be returned directly to consumers in the form of a rebate. The remaining 25 percent would be given to states as block grants to address such concerns as the vulnerability of low-income households and certain industries.

At the conference, Portney pointed out what he thought were several attractive features of the proposal. Its modesty alone, he remarked, might give it a chance of being adopted since the safety valve ensures against skyrocketing costs.

If, Portney explained, energy conservation is as inexpensive as some say it is, the trigger price would never be set off. If the opposite turns out to be true, a number of extra tons of emissions would have to be sold. Either way, he continued, a lot would be learned about



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carbon mitigation costs, just as a lot was learned about sulfur abatement costs through the 1990 amendments to the Clean Air Act. The education is important, Portney emphasized, given the wildly divergent estimates of carbon abatement costs heard today.

Implementation of the proposal would signal in a measured way the need to pay closer attention to energy conservation opportunities and would send a message to those who allocate research and development dollars, he said. It would also show developing countries that the United States is willing to act first to curb emissions.

Finally, Portney concluded, the proposal would give us

valuable experience in how a greenhouse gas trading system would work. Such experience would stand the United States in good stead if Kyoto goes into effect, whether in its current or a renegotiated form.

RFF researchers **Raymond Kopp**, **William Pizer**, and **Michael Toman** devised the proposal, together with **Richard Morgenstern**, a former visiting scholar at RFF.



Download a copy of “The Joy of Flexibility: U.S. Climate Policy in the Next Decade” at http://www.weathervane.rff.org/refdocs/portney_flex.pdf.

Download “A Proposal for Credible Early Action in U.S. Climate Policy,” at <http://www.weathervane.rff.org/features/feature060.html>