

Study: Emissions trading doesn't cause pollution 'hot spots'

EurekaAlert

BLOOMINGTON, Ind. -- Programs that allow facilities to buy and sell emission allowances have been popular and effective since they were introduced in the U.S. two decades ago. But critics worry the approach can create heavily polluted "hot spots" in low-income and minority communities.

A new study by Evan Ringquist, professor in the Indiana University School of Public and Environmental Affairs, finds the problem hasn't materialized -- that the efficiency gains of allowance trading have not come at the expense of equitable treatment of minorities and the poor.

"There is very little evidence that allowance trading causes 'hot spots,'" Ringquist said. "This study finds there is no inherent trade-off between efficiency and equity when using market-based instruments for pollution control."

The study, "Trading Equity for Efficiency in Environmental Protection? Environmental Justice Effects from the SO₂ Allowance Trading Program," is scheduled for publication this spring in the journal *Social Science Quarterly*.

It focuses on the sulfur dioxide allowance trading program (ATP) established by 1990 amendments to the Clean Air Act. The program created a market for trading pollution credits to reduce emissions of sulfur dioxide, which causes human health problems and acid rain that results in environmental damage.

While the sulfur dioxide program is the largest and most established U.S. market, there are regional markets for other regulated pollutants, including nitrogen oxides, volatile organic compounds and carbon dioxide. Domestic markets have been proposed to curb mercury pollution. And an international carbon market would be an element of a "cap and trade" initiative to slow climate change.

The idea behind emissions allowance trading is simple. Some firms and facilities can reduce their emissions by required amounts without facing excessive costs, but some can't. With a trading system, firms with low control costs will reduce pollution more than necessary and "sell" their excess credits. Firms with high costs will purchase permits rather than over-spend to reduce pollution.

The net result is the same as with a "command and control" program that requires across-the-board cuts for everyone. And the costs to society are smaller. Economists are happy.

But a trading program is likely to reduce pollution more in some locations than in others. Facilities that purchase allowances effectively "import" pollution to their

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region. Facilities that sell allowances, meanwhile, "export" pollution.

Environmental justice advocates have argued that pollution will be imported to urban centers and aging industrial areas, where polluting facilities have operated for years and the cost of reducing emissions is likely to be high. And it's in such areas, they say, that minority and low-income communities are more likely to live -- especially as white and middle-income residents have left the cities for the suburbs.

Previous studies, including a meta-analysis by Ringquist published in 2005, have found that poor people and minorities were more likely than others to live in polluted areas. So an allowance trading program, while reducing overall pollution, could make a bad situation worse for certain populations.

To examine the claim, Ringquist obtained trading records for all facilities participating in the sulfur dioxide allowance program between January 1995 and March 2009. He then used several statistical models to determine whether allowance trading tended to concentrate pollution in poor communities or communities of color.

He found that it did not. To the contrary, the data show that communities with high percentages of African-American and Hispanic residents experienced fewer imports of SO₂ than did other areas.

The analysis does reveal one cause for concern, however: Allowance trading appears to concentrate SO₂ emissions in areas with large percentages of people without a high-school education.

Ringquist said that finding suggests government regulators may want to design future emissions trading programs to make it easier for the effects to be monitored by nearby residents, including residents without a high level of education.

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