

State policies are effective in reducing power plant emissions, study finds

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A new study led by the University of Colorado Boulder found that different strategies used by states to reduce power plant emissions—direct ones such as emission caps and indirect ones like encouraging renewable energy—are both effective. The study is the first analysis of its kind.

The findings are important because the success of the Environmental Protection Agency's proposed Clean Power Plan depends on the effectiveness of states' policies in reducing power plants' [carbon dioxide emissions](#). The plan would require each state to cut CO₂ pollution from power plants by 30 percent from their 2005 levels by 2030.

"In addition to suggesting that the EPA's Clean Power Plan can work, our results have important implications for the U.N. Climate Summit," said Professor Don Grant, chair of the CU-Boulder sociology department and lead author of the study. "They indicate that while the world's nations have struggled to agree on how to reduce emissions, sub-national governments have been developing several effective mitigation measures. Leaders at the United Nations, therefore, would be wise to shift from a top-down strategy that focuses on forging international treaties to a more bottom-up approach that builds upon established policy successes."

The study was published online this week in *Nature Climate Change*. The study was co-authored by Kelly Bergstrand of the University of Arizona and Katrina Running of Idaho State University, and was funded by the

National Science Foundation.

Researchers had previously found it difficult to determine which state policies, if any, reduced power plants' CO₂ emissions because plant-specific data were largely unavailable, Grant said. That changed when the EPA began requiring plants to submit CO₂ pollution information as part of its Greenhouse Gas Reporting Program.

Some states have policies that directly limit power plants' [carbon emissions](#) and others have addressed carbon emissions indirectly by encouraging energy efficiency and renewable energy.

The study used 2005 and 2010 data to examine the impacts of strategies that are explicitly climate-focused such as carbon emission caps, greenhouse gas reduction goals, climate action plans (comprehensive strategies for reducing a state's carbon emissions) and greenhouse gas registry/reporting system that require plants to register and record their emissions and emissions reductions.

Likewise, the researchers examined indirect policies with climate implications such as efficiency targets, renewable portfolio standards that require utilities to deliver a certain amount of electricity from renewable or alternative energy sources, public benefit funds that provide financial assistance for energy efficiency and renewable energy, and "electric decoupling" that eases the pressure on utilities to sell as much energy as possible by eliminating the relationship between revenues and sales volume.

The study found that emission caps, [greenhouse gas](#) targets, efficiency targets, public benefit funds and electric decoupling were the most effective policies for reducing power plants' carbon emissions.

The authors noted limitations of the study, including changes that may

have occurred since 2010, that variations within individual policies were not examined and that the most effective policy combinations are not known.

"These limitations notwithstanding, our findings are encouraging news about the efficacy of states' policies," the authors wrote. "The fact that some have decreased individual [power plants' emissions](#) after controlling for several other possible determinants highlights their potential as regulatory tools and suggests that states are capable of achieving the emission goals set by the federal government."

Provided by University of Colorado at Boulder

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