

# Carnegie Mellon

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### **Carnegie Mellon Experts Say Cap and Trade Policies Are Not Enough To Reduce Emissions by 2050**

PITTSBURGH—A team of researchers at Carnegie Mellon University report in a new policy brief that cap and trade climate policies alone will not be sufficient to put the nation on track to achieve a 50 to 80 percent reduction in greenhouse gas emissions of carbon dioxide by mid-century.

“While a cap and trade or carbon tax policy is an important step in reducing emissions, the range of prices for carbon dioxide permits being discussed will be too low to induce the large-scale investments we need,” says Constantine Samaras, a research fellow in the Engineering and Public Policy Department and a co-author of the policy brief along with five other Carnegie Mellon researchers.

Under a cap and trade policy, the number of annual permits to emit carbon dioxide are limited or “capped.” The permits are allocated to companies producing fossil fuels or releasing carbon to the atmosphere. These companies can then trade any extra permits they have with companies that need more.

But while cap and trade policies use prices and market mechanisms to induce investment, climate bills in Congress typically have measures to prevent allowance prices from rising quickly. Sen. John Thune (R-S.D.) recently introduced an amendment in the U.S. Senate stating that a cap and trade policy should not increase energy prices, and it passed by a wide margin.

“The future price of carbon dioxide permits must rise to at least \$50 per ton or more before electric power companies will find it cost-effective to build coal-fired power plants that will capture and sequester their emissions and other types of low-carbon power plants. Potentially higher prices might be required to foster the big changes we need in the way we make and use appliances and automobiles,” Samaras said. “We should be augmenting cap and trade proposals with strong standards to induce low-carbon investments in the near-term.”

The Carnegie Mellon policy brief argues for aggressive standards in the electric power, building and transportation sectors as an addition to a cap and trade program. “We believe standards that require power companies to continuously reduce the average carbon dioxide emissions of the electricity

they sell over time can serve as a market signal and driver of innovation toward a low-carbon economy,” said co-author M. Granger Morgan, head of Carnegie Mellon’s Engineering and Public Policy Department.

The authors also argue for the promotion of strategies that separate utility profit from the amount of electricity it sells, tighter standards on buildings and appliances, and fuel efficiency standards that at least double the miles per gallon over current vehicles. Some of the provisions recommended in the policy brief are included in the draft climate bill recently offered by U.S. Rep. Henry Waxman (D-Calif.), chairman of the Energy and Commerce Committee, and U.S. Rep. Edward J. Markey (D-Mass.).

“Without decoupling electricity revenues from sales, utilities can not be expected to widely promote energy efficiency, since they are losing money by doing so,” said co-author Ines Azevedo, a Ph.D. candidate in the Department of Engineering and Public Policy at Carnegie Mellon. “While efficiency could save consumers up to 20 percent of their electricity while saving money, market barriers often prevent this from happening. Appliance and other standards are needed to allow consumers to take advantage of such savings,” Azevedo said.

The Obama administration hopes to reduce greenhouse gas emissions by 80 percent by 2050, and make the U.S. a leader on climate change.

“To achieve the large emissions reductions required to ensure that atmospheric concentrations of carbon dioxide do not reach levels considered by many scientists to be disastrous, additional measures beyond cap and trade will be necessary. We need to build low-carbon power plants, give incentive to utilities to invest in efficiency, and significantly reduce the energy use of our appliances, buildings and vehicles,” according to Carnegie Mellon researchers.

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