

OBAMA'S CLIMATE POLICY: A WORK IN PROGRESS

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By Roger A. Pielke, Jr.



Leaders around the world have come to agree that the continuing accumulation of carbon dioxide in the atmosphere poses risks requiring action. But as the Obama Administration is learning, accepting the need for action and actually implementing effective carbon policies are two different things.

The Obama Administration favors an approach called cap and trade, which establishes a cap on total emissions and sets up a market to buy and sell emissions allowances under the cap.

The theory is that, as the binding cap declines over time to some target value, the market will determine the most efficient manner of reducing emissions.

In such a market, someone has to receive the initial revenue associated with creating a market where none existed before. Rather than handing this over to emitters, the Obama Administration sees the new revenue as a timely and welcome contribution toward its goal of reducing the size of the federal deficit. Predictably, this has already started a debate in the US Congress over cap and trade as a new and regressive tax.

But what has gone largely unmentioned thus far in the emerging debate over cap and trade is the fact that the Obama Administration's goal of reducing US emissions by 14 percent from their 2005 values by 2020 (to about 5.1 gigatons of carbon dioxide per year) is almost certainly unachievable without compromising economic growth. Policy makers, to be sure, won't trade emissions reductions for economic growth. Thus, with cap and trade, the Obama Administration runs the risk of establishing an enormously complex new program that does many things - but appreciably reducing emissions will not be among them.

Here is the reason, and emissions math is not complicated: According to the US Energy Information Agency (EIA), in 2007 the US generated nearly 6 gigatons of US carbon dioxide emissions from three fossil fuels: coal, natural gas, and petroleum. Each of these fuels, plus renewables and nuclear power, contributed to the total national energy consumption, which in 2007 was 101.4 "quads" (a quadrillion British Thermal Units). The EIA projects that the US will need 108.6 quads of energy in 2020.

To supply this much energy in 2020, while meeting a target of 14 percent reduction in emissions, is highly unlikely. Consider that the target could be reached if coal consumption were reduced by about 42 percent, being replaced by renewables plus nuclear energy. But this would imply more than a doubling of the supply of renewable plus nuclear energy. Due to the challenges faced in establishing new nuclear plants, this alone seems impossible to achieve in the next

10 years. However, scaling up renewables may be even more daunting. If we assume that the nuclear power supply doubles between now and 2020, wind and solar would have to increase their role in supply 80-fold over current values to make up the difference. The Obama Administration's goal of doubling wind, solar, and biofuels production in three years may indeed be a worthwhile policy - but it is not compatible with a goal of displacing sufficient coal to reach the 2020 target.

What about reducing energy use? To meet the 2020 target through efficiency gains, energy consumption would have to be about 85.5 quads in 2020, or about equal to 1992 values when the US economy was 35 percent smaller. This represents a reduction of about 2 quads per year in US energy use over the next decade. Assuming that policy makers and citizens want economic growth to resume, this is a Herculean task.

Smart people with spreadsheets conduct more sophisticated exercises than the ones I have presented above, introducing a large range of assumptions about energy prices, production, and use, and seeking some combination of outcomes that will result in a 14 percent reduction. But none of these exercises makes the task easier than is outlined in the hypothetical scenarios above - just more complicated. Complexity can obscure the fact that a cap and trade approach to emissions reductions depends a great deal on hopes that emissions can, in fact, be reduced at the rate needed to meet the desired target. If they cannot, policy makers will turn to "safety valves," carbon offset schemes and anything that will loosen the cap so it does not adversely affect economic growth.

An alternative approach to carbon policy would focus explicitly on how to make economic growth compatible with decarbonization. Specifically, rather than advocating the very indirect approach of cap and trade, a direct approach would focus explicitly on the rapid advance of efficiency gains coupled with a long-term goal of transitioning to carbon-free energy.

A policy focused on sustained improvements in energy efficiency might learn from the Japanese, who have become the most energy-efficient major economy by identifying the most efficient companies within industrial sectors, setting a benchmark at the level of the best performers, and creating incentives/regulations to compel efficiency gains across the sector. At the same time, they are continuously advancing the frontier of benchmarked efficiency through a large commitment to ongoing technological innovations. In a similar way, US policies could be directly focused on increasing carbon-free energy supply as a matter of long-term national industrial policy.

If progress toward efficiency gain coupled with an increasing supply of carbon-free energy occurs at a rate faster than economic growth, then emissions will necessarily be reduced. A carbon policy that focuses directly on the factors that lead to emissions reductions - and not the outcome, with hopes that some complex policy design can somehow make the impossible possible - offers the greatest hope for real emissions reductions over the coming decades.

An effective carbon policy will also require humility. No developed country has decarbonized its economy at a rate of more than about 1-2 percent per year for any length of time, including those who have signed on to Kyoto and those who have implemented even more aggressive climate policies. Thus, no one really knows how fast a major economy can decarbonize, or what measures will actually work. Given that policy makers are moving into the policy unknown, every policy put into

place will be an experiment. Some will work while others will not. Setting grandiose long-term goals with fantasies about specific targets and timetables is a distraction and will likely set back the task of reducing emissions.

The Obama Administration is currently learning many of these lessons as its climate policy aspirations are engaged in the emerging Congressional debate. Whether these lessons will result in a healthy evolution of policy proposals remains unclear. What is clear is that Obama's climate policies are a work in progress.

Roger Pielke, Jr. is the former director of the Center for Science and Technology Policy Research (2001-2007). He has been on the faculty of the University of Colorado since 2001 and is a professor in the Environmental Studies Program and a fellow of the Cooperative Institute for Research in the Environmental Sciences (CIRES).