

# Wind power won't cool down the planet

*Often enough it leads to higher carbon emissions.*

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The wind industry has achieved remarkable growth largely due to the claim that it will provide major reductions in carbon dioxide emissions. There's just one problem: It's not true. A slew of recent studies show that wind-generated electricity likely won't result in any reduction in carbon emissions—or that they'll be so small as to be almost meaningless.

This issue is especially important now that states are mandating that utilities produce arbitrary amounts of their electricity from renewable sources. By 2020, for example, California will require utilities to obtain 33% of their electricity from renewables. About 30 states, including Connecticut, Minnesota and Hawaii, are requiring major increases in the production of renewable electricity over the coming years.

Wind—not solar or geothermal sources—must provide most of this electricity. It's the only renewable source that can rapidly scale up to meet the requirements of the mandates. This means billions more in taxpayer subsidies for the wind industry and higher electricity costs for consumers.

None of it will lead to major cuts in carbon emissions, for two reasons. First, wind blows only intermittently and variably. Second, wind-generated electricity largely displaces power produced by natural gas-fired generators, rather than that from plants burning more carbon-intensive coal.

Because wind blows intermittently, electric utilities must either keep their conventional power plants running all the time to make sure the lights don't go dark, or continually ramp up and down the output from conventional coal- or gas-fired generators (called "cycling"). But coal-fired and gas-fired generators are designed to run continuously, and if they don't, fuel consumption and emissions generally increase. A car analogy helps explain: An automobile that operates at a constant speed—say, 55 miles per hour—will have better fuel efficiency, and emit less pollution per mile traveled, than one that is stuck in stop-and-go traffic.

Recent research strongly suggests how this problem defeats the alleged carbon-reducing virtues of wind power. In April, Bentek Energy, a Colorado-based energy analytics firm, looked at power plant records in Colorado and Texas. (It was commissioned by the Independent Petroleum Association of the Mountain States.) Bentek concluded that despite huge investments, wind-generated electricity "has had minimal, if any, impact on carbon dioxide" emissions.

Bentek found that thanks to the cycling of Colorado's coal-fired plants in 2009, at least 94,000 more pounds of carbon dioxide were generated because of the repeated cycling. In Texas, Bentek estimated that the cycling of power plants due to increased use of wind energy resulted in a slight savings of carbon dioxide (about 600 tons) in 2008 and a slight increase (of about 1,000 tons) in 2009.

The U.S. Energy Information Administration (EIA) has estimated the potential savings from a nationwide 25% renewable electricity standard, a goal included in the Waxman-Markey energy bill that narrowly passed the House last year. Best-case scenario: about 306 million tons less CO<sub>2</sub> by 2030. Given that the agency expects annual U.S. carbon emissions to be about 6.2 billion tons in 2030, that expected reduction will only equal about 4.9% of emissions nationwide. That's not much when you consider that the Obama administration wants to cut CO<sub>2</sub> emissions 80% by 2050.

Earlier this year, another arm of the Department of Energy, the National Renewable Energy Laboratory, released a report whose conclusions were remarkably similar to those of the EIA. This report focused on integrating wind energy into the electric grid in the Eastern U.S., which has about two-thirds of the country's electric load. If wind energy were to meet 20% of electric needs in this region by 2024, according to the report, the likely reduction in carbon emissions would be less than 200 million tons per year. All the scenarios it considered will cost at least \$140 billion to implement. And the issue of cycling conventional power plants is only mentioned in passing.

Coal emits about twice as much CO<sub>2</sub> during combustion as natural gas. But wind generation mostly displaces natural gas, because natural gas-fired generators are often the most costly form of conventional electricity production. Yet if regulators are truly concerned about reducing carbon emissions and air pollution, they should be encouraging gas-fired generation at the expense of coal. And they should be doing so because U.S. natural gas resources are now likely large enough to meet all of America's natural gas needs for a century.

Meanwhile, the wind industry is pocketing subsidies that dwarf those garnered by the oil and gas sector. The federal government provides a production tax credit of \$0.022 for each kilowatt-hour of electricity produced by wind. That amounts to \$6.44 per million BTU of energy produced. In 2008, however, the EIA reported subsidies to oil and gas totaled \$1.9 billion per year, or about \$0.03 per million BTU of energy produced. Wind subsidies are more than 200 times as great as those given to oil and gas on the basis of per-unit-of-energy produced.

Perhaps it comes down to what Kevin Forbes, the director of the Center for the Study of Energy and Environmental Stewardship at Catholic University, told me: "Wind energy gives people a nice warm fuzzy feeling that we're taking action on climate change." Yet when it comes to CO<sub>2</sub> emissions, "the reality is that it's not doing much of anything."