

Fracking Boom Makes U.S. Laggard No More on Greenhouse-Gas Cuts

2012-03-27

By Mark Drajem

March 27 (Bloomberg) -- The boom in American natural-gas production is doing what international negotiations and legislation couldn't: reducing U.S. carbon-dioxide pollution.

With decade-low prices, natural gas is easing out coal in power generation, a change that cuts greenhouse gases by half at the smokestack. That shift, combined with state programs to encourage renewable energy and new rules from the Environmental Protection Agency that could come as early as today, has put the country on course to cut domestic greenhouse-gas emissions 12 percent by 2020, on par with what the failed cap-and-trade legislation aimed to achieve, said Dallas Burtraw, a fellow at Resources for the Future in Washington.

"Given the politics of climate policy, it's easy to get discouraged," Kevin Kennedy, the head of the U.S. climate initiative at the World Resources Institute in Washington, said in an interview. "But a lot of good progress has been made."

Carbon emissions from energy in the U.S., the largest source after China, probably will stay below the record level of 6 billion metric tons set in 2007 for the next 23 years, the U.S. Energy Information Administration predicted Jan. 23, the first time it forecast a long-term reduction.

The story in the U.S. is in contrast to China, India, Mexico and Russia, where demand for carbon-dependent cars and electricity is surging, leaving the planet on a course for unsustainable warming, according to a report by the Massachusetts Institute of Technology's Global Change Program.

'Urgently Needed Change'

"There are few signs that the urgently needed change in direction in global energy trends is under way," the International Energy Association said in its World Energy Outlook in November.

Unlike the past, however, the U.S. isn't lagging behind while progress is made in Europe, Japan or even China.

The U.S. is the only industrialized nation that failed to ratify the 1997 Kyoto Protocol, and it tussled with China as negotiations on a climate accord foundered at recent summits.

The Senate never took up a 2009 cap-and-trade measure that passed the House of Representatives, and there is no similar legislative effort in the works.

Progress came from an unexpected source: a fossil fuel.

With the increased use of natural gas in the U.S. the Energy Information Administration predicts that in 2035, carbon-dioxide emissions will total 5.8 billion metric tons, a cut of 8 percent from a forecast just last year. That's also down 40 percent from the prediction made in 2005, before the recession, according to Dan Lashof, director of the climate center at the New York-based Natural Resources Defense Council.

Greater Reductions Possible

In fact, with automobile standards set to be phased in through 2025 and state-level solar and wind mandates, the reductions likely will be even greater than the agency forecast in its model. Auto standards alone will cut emissions by a further 6 percent or more in 2035, Lashof said in an interview.

"We are getting similar results in the domestic economy to what we would have expected under" the cap-and-trade bill, Burtraw, with Resources for the Future, said in an interview.

The environmental research group is funded by foundations, government grants and companies such as Exxon Mobil Corp.

Carbon-dioxide emissions since the Industrial Revolution have led to a warming of the earth's temperature, which threatens to cause extreme weather, drought and coastal flooding, according to the U.S. Global Change Research Program.

Environmentalists such as author Bill McKibben argue that the U.S. needs quicker, deeper cuts in its fossil-fuel use to forestall a global catastrophe.

Price Pressure

Instead of a radical overhaul, low natural-gas prices are moving the country to trim emissions.

"The most important reality for greenhouse gases is low natural-gas prices," Robert Stavins, director of the Harvard Environmental Economics Program, said in an interview.

Hydraulic fracturing, in which chemically treated water is forced underground to shatter rock and let gas flow, has opened up vast new shale-gas deposits to companies such as Chesapeake Energy and Cabot Oil & Gas Corp.

As a result of the surge in the drilling technique, known as fracking, natural-gas prices are at their lowest levels in a decade, putting the cost of generating electricity from gas close to or cheaper than coal. That can mean huge benefits for the climate: Each of the top 10 facilities releasing the most carbon dioxide in the U.S. is a coal-fired power plant.

Coal Versus Gas

Coal's share of electricity production had already dropped below 40 percent by the end of 2011, the first time it had been that low since 1978, the Energy Information Administration said March 9. The share of natural gas used in power production is likely to grow to 27 percent by 2035 from 19 percent in 2005, while coal is likely to slip to 39 percent from 42 percent last year and 50 percent in 2005, according to agency data.

The fracking boom is a benefit for gas-heavy power producers such as Calpine Corp. and a drag on coal-dependent producers such as GenOn Energy Inc. and Edison Mission Energy, according to a report by Moody's Investors Service. GenOn, the third-largest U.S. independent power producer by market value, said Feb. 29 that it will shut about 13 percent of its generating capacity by May 2015. All but one of the eight sites slated to close are coal-powered.

"Low natural-gas prices will keep margins and cash flow under pressure for most unregulated power producers," A.J. Sabatelle, senior vice president of Moody's, wrote in the report on Feb. 29.

Long-Term Impact

To be sure, the long-term environmental impact of cheap gas is still being debated, as communities complain that their water is being polluted by the chemicals leaking into wells from fracking. Local opposition has prevented fracking in New York and Maryland as state rules are developed, and the EPA and other federal agencies are considering a series of regulations to force disclosure of the chemicals used during drilling, mandate wastewater cleanup and limit toxic air emissions.

Meanwhile, two academic studies question whether natural gas is even better for the climate than coal.

Robert Howarth, a Cornell University professor of ecology and evolutionary biology, published a paper last year that said fracking allowed so much methane to be released during drilling that natural gas ends up doing more climate damage than coal.

Competing studies say the methane leakage is not as great as Howarth estimates, and many environmental groups say that the appropriate government

regulations could keep local water sources safe and prevent gas escaping when wells are tapped.

Methane Leakage

“The issue is methane leakage,” Lashof said in an interview. “The solution is to stop wasting so much gas.”

In addition, Ken Caldeira, a climate scientist at the Carnegie Institution at Stanford University, co-authored a paper published last month that said replacing every coal plant with natural gas wouldn’t arrest global warming, partly because of the pollution generated by construction equipment in building those new facilities.

And it’s not just natural gas. Booming U.S. oil production is also being seen by both industry and environmental groups as a way to cut down on carbon-dioxide emissions.

Carbon dioxide is pumped into old, depleted oil fields to help squeeze the last bits of oil out of the underground reserves. With prices for crude topping \$100, those older deposits are increasingly attractive and the price of carbon dioxide is rising along with demand.

Carbon-Dioxide Credits

A coalition of environmental groups such as the Clean Air Task Force and Southern Co. joined together on Feb. 28 to petition the government to provide tax credits so that carbon dioxide generated during ethanol production or by power plants can be used in these depleted fields and not released into the atmosphere.

“We could simultaneously increase our domestic oil production and decrease our carbon-dioxide emissions,” Eileen Claussen, director of the Center for Climate and Energy Solutions in Washington, said at an event on Capitol Hill. Claussen’s group is funded by companies such as Duke Energy Corp. and General Electric Co.

The tax cuts could quadruple the use of this technology from the current 281,000 barrels a day, which would result in a 4 percent cut in annual carbon-dioxide emissions, Claussen’s group estimates.

Even the trim in projected U.S. emissions is far from certain, as Washington policies or economics can change.

The EPA rules that would mandate reductions in greenhouse-gas emissions from power plants face criticism in Congress and court challenges. A Republican

president could roll back any EPA rules that are issued. And none of the regulations are as far-reaching or beneficial as setting a price on carbon, Burtraw said.

Meanwhile, the cumulative effect of carbon-dioxide emissions means that the world needs to figure out how to be carbon neutral by 2050, a long way from a slight reduction in the U.S. by 2035, according to Armond Cohen, the executive director of the Clean Air Task Force in Boston.

“Right now people are thinking incrementally,” Cohen said in an interview. “The climb is a lot steeper than anyone is willing to talk about.”

For Related News and Information:

News on hydraulic fracturing: [NI FRACK <GO>](#) Stories about sustainability: [NI SUSTAIN <GO>](#) Bloomberg New Energy Finance Model: [CARX <GO>](#)
Bloomberg Emissions Quote: [CMBQ EMIS <GO>](#) Emissions-trading stories: [NI ENVMARKET BN <GO>](#) Global Emissions Data [EMDA <GO>](#)

--Editors: Jon Morgan, Daniel Enoch

To contact the reporter on this story:

Mark Drajem in Washington at +1-202-624-1964 or mdrajem@bloomberg.net