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Coal relegated to the back burner: More countries look to natural gas for electricity generation

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Last month, Senate Republicans joined their Democratic counterparts in approving legislation acknowledging that “climate change is real and not a hoax.” Senators could not, however, agree on its cause, with two measures attributing climate change to human activity failing to pass. In stark contrast, across the Atlantic, political leaders in the United Kingdom (U.K.) have not only recognized the climate problem, but agreed to work together across party lines to address it.

Echoing recent comments by President Obama, leaders of the three major U.K. political parties – the Conservatives, Liberal Democrats, and Labour – last week issued a [joint statement](#) declaring that “[c]limate change is one of the most serious threats facing the world today. It is not just a threat to the environment, but also to our national and global security, to poverty eradication and economic prosperity.” Like the Obama Administration and other governments around the world, leaders in the U.K. emphasized the need to slow global climate change, including by expanding clean energy development. To that end, the U.K. will phase out the use of unabated coal in electricity generation. Going forward, coal-fired generating units will have to be fitted with carbon capture and storage technologies or be replaced by cleaner generating systems.

This shift is already underway, with substantial increases in natural gas-fired electricity generation, together with rising investment in renewable generating systems. The [U.K. Department of Energy and Climate Change](#) estimates that, between 2012 and 2014 alone, gas-fired generation rose by nearly 23 percent. Wind and solar based generation has increased even more, growing by roughly 33 percent during the last two years. Over the same period, coal-fired generation almost halved.

There have also been similar changes in the generating mix here in the U.S. While coal remains the predominant fuel used in domestic electricity generation, its use is declining. The [U.S. Energy Information Administration](#) estimates that coal-fired power plants accounted for approximately 39 percent of electricity generation in 2013, down from 50 percent in 2004. That represents a 20 percent decline in coal-based generation in just 10 years. Over the same period, natural gas-fired generation increased by nearly 60 percent and renewable generation by more than 200 percent. This trend is expected to continue over the next decade, with tighter restrictions on carbon pollution from fossil fuel based generating units foreshadowed by the Environmental Protection Agency (EPA).

As previously reported on this [blog](#), in June 2014, the EPA proposed [new rules](#) aimed at reducing total carbon dioxide emissions from fossil fuel generation by 30 percent below 2005 levels by 2030. To that end, the rules set emissions reductions goals for each state. The goals are intended to reflect the extent to which statewide carbon dioxide emissions could be reduced through application of the best system of emission reduction (BSER) at generating facilities. In calculating the goals, the EPA considered four changes in generation (referred to as Building Blocks). These are: (1) heat rate improvements at coal fired power plants, (2) increased utilization of natural gas combined cycle units, (3) increased use of renewable and nuclear energy, and (4) increased energy efficiency.

The proposed goals vary considerably between states. The highest goal is in Washington, which would have to reduce carbon dioxide emissions from its power sector by 71.6 percent between 2012 and 2030 under the EPA’s proposal. At the other end of the spectrum is North Dakota, which would be required to cut its power sector emissions by 10.6 percent between 2012 and 2030. That is less than any other state besides Vermont which, along with Washington D.C., is excluded from the proposed rule as it does not have any fossil fuel power plants. (Vermont does have a mixed fuel natural gas and biomass plant, but it currently burns more biomass than natural gas).

In Texas, power plant emissions will have to be reduced by 38.4 percent between 2012 and 2030. To meet that goal, many of the state’s existing coal-fired plants will likely have to be shut down, with the EPA forecasting a 45 percent reduction in coal-fired capacity in Texas. There and elsewhere, coal-fired plants will likely be replaced with cleaner natural gas based systems, which emit approximately half as much carbon dioxide per megawatt hour of electricity generated. However, as [previously reported](#), the production of natural gas can emit substantial methane; a greenhouse gas 84 times more potent than carbon dioxide over a 20-year time horizon.

This shift away from coal-fired generation has been the subject of much debate among state officials and others in recent weeks. Perhaps unsurprisingly, large coal producing states like Wyoming and Kentucky have raised serious concerns about the impact on their economies. [Others](#) however, point to the potential for job creation and economic growth from expanded use of natural gas and renewable energy. The [EPA](#) has identified another benefit, estimating that reducing carbon pollution could avoid up to 2,800 hospital admissions and 6,600 premature deaths. That is surely worth something.

[Clean Air Act](#) [Clean Power Plan](#) [climate change](#) [coal](#) [energy](#) [epa](#) [natural gas](#) [Texas](#) [U.K.](#)

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