The Oil Drum
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Coal gasification in National Geographic

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Tags: coal, coal gasification, electricity [list all tags]

This month, National Geographic has an article called "The High Price of Cheap Coal" (you need to actually get the print magazine to read it, unfortunately). If you do a search for "coal gasification" on TOD, you'll see a lot of instances where it came up in the comments, but unless I skimmed by it, there's been no post on coal gasification itself. Just yesterday, Engineer Poet said that coal gasification is well-understood—so is it just cost that makes it fairly uncommon for power plants?

We have had a number of posts about the Fischer-Tropsch process here on TOD (e.g., here), and it should be pointed out that coal gasification is basically the first step on the way toward coal liquefaction. However, what I'm interested in here is the use of gasified coal in its own right, as a way of generating electricity.

As the MSM often does (if National Geographic can be called MSM), it takes a "better" technology and makes it sound like the end-all-and-be-all of our energy-related environmental problems. The relevant point here, as we all know, is that the US has tons of coal (we're the "Saudi Arabia of coal", of course), but traditional coal-burning power plants spit out all of that CO_2 that's causing global warning (more than the all of the cars, trucks, and airplanes in the US combined, according to this article).

Here are some excerpts from the National Geographic article:

> The Wabash plant mixes coal or petroleum coke, a coal-like resideue from oil refineries, with water and pure oxygen and pumps it into a tall take, where a firey reaction turns the mixture into a flammable gas. Other equipment removes sulfur and other contaminants from the syngas, as it's called, befire it's burned in a gas turbine to produce electricity.
>
> Cleaning the unburned syngas is cheaper and more effective than trying to sieve pollutants from power plant exhaust....
>
> The syngas can even be processed to strip out the carbon dioxide. The Wabash plant doesn't take this step, but future plants could.

And then they discuss CO_2 sequestration.

The article notes that just because there are a few apparently successful gasification plants in the US doesn't necessarily mean that everyone will immediately be embracing the technology, but

the fact that the energy bill passed last July has tax credits for gasification projects will help. So far it all sounds very rosy, and the article even ends on this upbeat note:

> ...we may one day be able to cool our houses without turning up the thermostat on the entire planet.

Bonus point: Way back when Matthew Simmons did a live chat with the Washington Post, someone asked him about coal liquifaction (and by extension gasification, I guess, since that's how he answered):

> **Saint John, Canada**: Given that there is a well understood technology for synthesizing other fossil fuels into oil (mostly coal) do you believe it will be possible to offset the production declines from conventional oil wells by increased coal liquefaction? How environmentally destructive is that process?
>
> **Matthew Simmons**: I don't understand the environmental impact of coal gasification. Almost every single aspect of using unconventional oil, whether it's coal or Canadian tar sands or oil shales are all incredibly energy intensive, so they use a lot of energy to convert them into usable energy, and they don't come out of the ground at high amounts. So it becomes a daunting task to begin offsetting oil coming out of a highly pressurized oil field, which can come out at a rate of 5-10,000 barrels per day per well with unconventional oil sources, which are energy intensive and come out in small amounts.

OK. So go at it, TODers. Give us all you've got about coal gasification.

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