



Concerning coal, some numbers and a thought

Posted by [Heading Out](#) on September 5, 2007 - 10:00am

Topic: [Supply/Production](#)

Tags: [coal](#), [energy cost](#), [eroei](#), [eroi](#), [original](#) [[list all tags](#)]

When I started posting to this site, one of the last things that I intended was to become an apologist for either the mining or petroleum industries. I worry however, sometimes, that if there is only one side of a debate being given visibility, then, by default, a public picture is painted that may not reflect reality, and which may in the future have unfortunate consequences. The immediate cause of the comment was the [Jeff Goodell's editorial in the Post](#) last weekend. And while I recognize that editorials have different rules, nevertheless the choice of adjectives in describing the various participants and activities leaves little doubt as to which side of the line the story falls.

Over this past week the editorial has continued to ferment in the back of my mind. I very much agree with the opening comments about the invisibility that is usually the miners' lot, and the neglect that mining issues usually get in the Congress. But from that point on it takes an unmistakable tack against the industry. Why should this be of concern? Well consider, for a second, these costs, which I got from [the Energy Insider](#) this week.

Solar costs about 25 cents a kilowatt hour. That's compared to about 9 cents a kilowatt hour for natural gas and 5 cents a kilowatt hour for modern coal-burning plants, as well as 6 cents a kilowatt hour for wind energy if tax considerations are included. The good news is that the cost of solar power is falling all the time. It once stood at \$1 a kilowatt hour and advocates say that it could soon cost 12-16 cents a kilowatt hour.

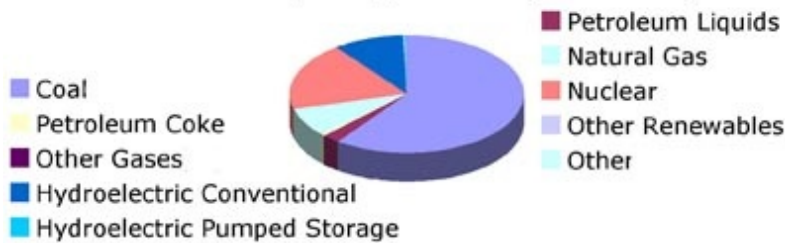
To put those numbers in perspective a little, the [NYT](#) had an article in January on power costs around the nation, noting that costs in Chicago in 2006 varied from \$0.01 to \$0.365 per kWh with an average around \$0.0825, and in New York from down around \$0.01, to up around \$0.50, with an average of around \$0.14 (estimating from the graph). (The cost varies with season and time of day). (Oh and, for Gail, it takes around 12 kWh per ton to mine coal, if you want a baseline average number).

In the WaPo article, Jeff comments that

Politically, the war in Iraq has been a boon for coal, allowing coal-friendly politicians to tout America's 250-year supply as a substitute for our addiction to Middle Eastern oil -- even though, in the real world, there is no overlap between coal (used to generate electricity) and oil (used for transportation fuels, among other things).

And while this is superficially true (less than 2% of oil goes toward major power generation in the United States – more perhaps in other countries), it perhaps skips a fuel of concern – natural gas.

U.S. Electricity Energy Sources (EIA for 2004)



There has been a considerable discussion in these pages about the coming problems in the supply of natural gas, and since it has been used increasingly in electricity generation in recent years, while concurrently it plays a significant role in oil production – whether in the Canadian oil sands or the production of oil in Iran. And as natural gas becomes in increasingly short supply on this continent, the impact that this has on both industries is likely to make that evident.

And, with his indulgence, it is appropriate to include a comment from [Westexas](#) near the bottom of Euan's post last week.

I just got off the phone with an acquaintance of mine, in a diplomatic service, who has considerable knowledge of Saudi Arabia. He actually leans toward the mostly voluntary decline scenario, but in any case, he said that because of severe shortfalls in natural gas production, about 500,000 bpd of liquids production over the next two years will be diverted to power plants and desalination plants. This is why the Saudis are talking about importing coal.

In electricity generation coal, like nuclear power, is more commonly used for baseload generation, while natural gas is more for times of high demand, since it can be more easily brought on line and, later, turned off. However, as natural gas supply becomes more in question, then something will have to replace those generators. It is a debate that is facing an increasing number of communities around the country as increasing electricity demand begins to strain existing resources. (Anecdotal story - in discussing load shedding with a group of students this week, suggesting that it would be a future concern as they graduated and moved to manage industries that would see this in years ahead, several commented that they had seen it required by the utility several times, in the places that they worked this summer – suggesting that we are closer to a power generation problem than I thought, given that this is a form of demand destruction).

The cheapest alternative would appear to be coal. The price differential between it and competing sources would still appear to be sufficiently large as to accommodate the cost increases that would be required for flue gas treatment and carbon sequestration (which as I noted in the past, could likely [double the energy cost](#) per kWh). Yet, while there is a lot of talk about doing something, there has been little action. This is, perhaps understandable. Politicians are not going to be wildly enthusiastic about imposing laws that their opponents can then wave on TV as being responsible for a doubling of power costs. You have only to see the current waves of outrage from existing increases in power costs to understand that.

Unfortunately this is not the only consequence. The cost of new mines, power stations and transmission lines continues to increase significantly. If there is a question as to whether the

major investments that companies are going to have to make to create those facilities will not be rewarded, then the investments will not be made. The energy industry has been burned before (remember the investments made in oil shale as an example). Thus they seek some guarantee that the investments that they make will at least have some return. It is a matter of perception as to whether this is just prudent management or, as Jeff puts it:

This is not to say that the coal industry would not dearly love to get into America's gas tank. In recent months, it has pushed hard for subsidies and tax breaks that would accelerate the construction of coal-to-liquid plants, a technology developed by the Nazis during the 1930s that can transform coal into liquid fuels such as diesel

As the [NRC study](#) noted, for an industry that is fundamental to the current life-style of the country, the research investment whether for mine safety, better mining technologies, or better use technologies is sadly lacking. This is in part, because the industry itself is quite small (in physical numbers of people) and for the past couple of decades has been more concerned with keeping costs down so that it can compete with other fuels, than it has been on focusing on better technologies, which usually have a longer-time payback.

And sadly comments such as

But we've been mining coal in this country for 150 years -- all the simple, high-quality, easy-to-get stuff is gone. What's left is buried beneath towns and national parks, or places that are difficult, expensive and dangerous to mine.

get accepted, even when they are obviously untrue (Wyoming coal as a simple example). They set a tone for public perception, and when the light switch no longer works, somehow it won't be their fault.

I had just put this post aside as being done, when the Washington Post ran [another story](#) on Tuesday about the impacts that the debate is having on plans for coal plants.

In early August, Mayor John Engen (D) won city council support to buy electricity from a new coal-fired plant scheduled to begin operation in 2011. He said the city government would save money on its electric bills.

But three weeks later, Engen pulled out of the deal after receiving hundreds of e-mails and phone calls from constituents upset that Missoula would contribute to the creation of a coal plant and concerned about what the town would do if the plant never got built.

The debate is, therefore already having consequences. And while I am sure that there are a fair number of folk that are glad to see this, one of the issues that concerns us here is the rate at which the energy supply to the world is going to change. The relative size of the problem and the large gap between the reality of what solar and wind power can currently achieve, and that needed (look for example at the numbers at the top of this post) gets neglected in a rosy view of the future that might be better reviewed by going back and looking at what happened the last time we had a problem with fuel in the winter, in the North-East.

I will however, apologize to Senator Reid, since I did comment just up-page that no politician would force a rise in utility prices, giving his opponent ammunition for a debate. The Senator has

Last month, after a speech in Reno, Reid said he was opposed to new coal-fired plants anywhere.

"There's not a coal-fired plant in America that's clean. They're all dirty," Reid told reporters after speaking at a conference on renewable energy. He said that the United States should turn to wind, solar and geothermal power in an effort to slow climate change. "Unless we do something quickly about global warming, we're in trouble," he said.

Reid's opposition to coal plants is the latest in a series of new obstacles for power companies seeking to use the fuel to generate electricity. A combination of rising construction costs, state mandates for the use of renewable energy and lawsuits by environmental organizations have forced many utilities to drop or postpone coal projects this summer.

We are thus not going to get as well prepared as we perhaps need to be, and since there is a foreseeable consequence if natural gas supplies fade as they seem fated to, it may press the reality of the debate a little earlier than might otherwise be the case.



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