



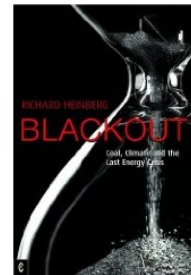
Richard Heinberg's "Blackout - Coal, Climate and the Last Energy Crisis"

Posted by [Heading Out](#) on August 12, 2009 - 10:15am

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When Richard Heinberg's [new book](#) was about to be published, the editors at The Oil Drum were offered a review copy, and I was offered the chance to provide that review. Yet in a way providing that review gives me a bit of a puzzle, because the underlying premise on which the book is based is that, as [David Rutledge](#) has propounded, the world will run out of realistic coal reserves much faster than most folk anticipate. It is a point of view that I don't completely accept, and I have posted on [my disagreements](#) with Dr. Rutledge over some of his assumptions and conclusions in the past. So I could fill this review with another regurgitation of my points of disagreement, but were I to do so I don't think it would be a fair review.



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The book sets out to collect together in sequential order a compilation of those views that state that the world will run out of coal faster than expected (including one source that disagrees); then looks at the coal remaining in the major consumers the United States; China; Russia and India; and then looks at potential exporters Australia, South Africa, Europe, South America, Indonesia and Canada, as it rounds out the major global patterns of coal trade of the world.

The interplay with coal and climate is then reviewed and three different paths forward are then offered, with some closing remarks. It thus provides a relatively concise, yet comprehensive review of the coal supply future from one perspective. That is a very useful thing to have, and (perhaps I shouldn't admit this) had I not been given a copy for review I would have bought one. Would I have got my money's worth? Well it depends on what you are looking for. And to explain that remark let me discuss, very briefly what is in the Chapters and what I would argue about.

The fundamental questions come down to the difference between reserves and resources, and the rate at which reserves are used up. However because use changes as production declines and product cost rises, there needs to be some model of declining production. The references that the book cites rely on Hubbert Linearization, and this forms the basis then for the estimates. The text explains how it works and notes that it has often, historically, been applied to estimating how long oilfields will last. This model is then used to predict how long the current reserves of the different countries will last, based on current reserves.

The resulting numbers are quite dramatic. China is shown, for example, to see a peak in

production around 2020. Given that China produces, and consumes, around 40% of world production - twice that of the United States - the impact on overall world use is likely to be significant. For while, for example, Russia is quoted as having the second largest reserves, the book estimates that "Russia could well cease being an exporter within only a few years." (Part of the problem rises because some of the eastern resources have yet to be tapped, and even when they are the coal has to be moved to the west where the demand is. Russian transportation services are considered currently inadequate to the task.)

In looking at India the author did give me [my one mention](#), when looking at the potential increases in production that might be achieved by Coal India. But he points out ([as I have](#)) that India has a serious current fuels crisis and that increasing coal use is one way to solve it, at least transiently. I did think it a little odd that Pakistan, which also has serious supply problems, and is right next door, only got the courtesy of a passing reference "While the situation in India is not yet as bad as that in neighboring Pakistan, . ." The situation in India is not getting better - [as an aside](#) - and remembering that Bangalore is where a lot of India's IT is located:

The situation is going to be grim across rural Karnataka. People in the rural areas will get electricity just for 10 hours, of which the three phase supply will be available for only five hours. It will be 14 hours of darkness in rural parts over the next 12 months. That is only if the authorities do not take recourse to unscheduled load-shedding as they have often has done in the past.

Energy Minister K S Eshwarappa on Thursday with two hours of regulated load-shedding -- an hour in the morning (anytime between 6 am and 10 am) and another hour in the evening (anytime between 6 and 10 pm).

The situation for both India and Pakistan is that they are therefore going to be increasingly reliant on coal, and as the author points out, India is not yet set up to produce enough for its own needs, which as the above quote from this week shows, are becoming more critical.

And so these nations must turn to imports, and thus Chapter 5 deals with those countries that are most likely to provide that coal (Australia, South Africa, Europe, South America, Indonesia and Canada). Sadly it is this chapter that is the most disappointing, since the question as to whether the world will continue to have enough coal, is going to depend on the ability of the global production units to supply it. The book only recognizes South Africa (the country) as being capable of coal production in Southern Africa (the region) and being the only country there with significant reserves.

However when South Africa started defaulting on power to neighboring countries [at the beginning of 2008](#), those countries had to look to what they can do with their own resources, and in Botswana, and Zimbabwe, among others, this will mean coal. Chinese engineers [have already been engaged](#) to increase production, and there is talk of the country matching or [exceeding its diamond income](#) with the income from coal, based on a 200 billion ton reserve. (In the book South Africa is quoted as having 48 billion tons of reserves. The Botswana reserve was only a resource until S. Africa cut off supplies). Admittedly there are currently some problems getting that program going, since initial plans for electricity production [exceed local needs for power](#).

Europe gets similar short shrift, with UK reserves and production being written off in just less than a page. And so we come to the chapter on climate impacts, that begins:

Recent reports on global coal reserves, surveyed in the previous chapter, generally point to the likelihood of supply limits appearing relatively soon - within the next two decades (a contrary view is represented solely by the BGR report). According to this near-consensus, coal output in China, the world's foremost producer, could begin to decline within just a few years.

I am tempted to quote the [shortest sentence](#) in the Bible. Of course, if you pick your sources, you can get a consensus on anything. For the record I objected to David Rutledge's point of view, not only at ASPO, but later in The Oil Drum. (I wrote both about the [National Academy report on coal](#), and the known coal reserves in the UK ([determined by measurement and observation](#)) not theoretically, and as defined in Trueman's Coalfields of Great Britain. I [listed the tonnages available](#) from that text (though putting Scotland inexplicably in England for the table). That coal has not gone away, and some of it was being mined up to the time that North Sea Oil and Gas came ashore and turned it all (and this is key) temporarily from a reserve into only a resource.

This is not the place to get into more debate on the causes and status of climate change - or of the arguments that Richard Heinberg makes - if you believe they will reinforce that belief, if you don't you can nit-pick over those he got wrong. But that isn't the purpose of the chapter, rather it is to look at how the impact of an early peak in coal production will affect carbon dioxide levels. Recognizing that there is going to be a peak in the production (and use) of all three of the major fossil fuels (oil, natural gas and coal) that may be very imminent means, as the author points out, that most of the IPCC models overstate the levels of carbon dioxide that we face in the next century. And thus, initially, the news is good in that the limits of concern will not be reached.

However the author questions the consequences of further warming, being concerned over, for example, the thawing of the permafrost and the release of methane as an additional forcing to the climate, and foreseeing additional problems beyond those currently anticipated. Thus he concludes that the peaking of the fuels won't solve the problem. On the other hand he notes that climate change concerns are reducing the number of coal-fired power plants being considered in Europe and the United States. Thus perhaps climate change will influence Peak Coal?

One way of solving both problems relies on the introduction of new technology. So in the penultimate chapter there are short reviews of IGCC; CTL; UCG; and CCS though without any projection of hope that they will do much good in resolving the problem of carbon dioxide emissions. And so, in the final chapter three scenarios for the future - one which sees no coordinated plan for the future sees the global economy in ruins by 2040; one that sees a massive investment in CCS and IGCC but yet again, despite that effort the world energy demands are not met and global ruin again arrives; and then there is a third scenario where, through strong central government action (and a declining world population) the world is saved. (I will let you buy the book to see how that happens).

Yes, I am going to keep the book around, not on my desk, but somewhere so that, in five years or so I can pull it back out and see how the world did move on. I have a number of books from the 70's (including a couple by Daniel Yergin) that predicted the then future 20-years of growth, and how without following certain paths we would be doomed. They proved to be quite wrong, each in their own separate way, as this might prove to be. Natural gas, for example, at the moment may play a stronger role in the future than is currently projected.

But that is the fun of future projection - this book gives you some insight into the debate about

the future of coal - I disagree with many of the assumptions and projections, but it does define the arguments of a given viewpoint that is receiving increasing levels of attention. So, yeah, I'm glad I read it.



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