



Tech Talk - Can Alaskan Coal Be Considered a Reserve?

Posted by [Heading Out](#) on September 25, 2011 - 2:23am

Topic: [Supply/Production](#)

Tags: [alaska](#), [brooks range](#), [chuitna](#), [coal](#), [red dog](#), [usibelli](#) [[list all tags](#)]

When I originally started to write about the Alaskan fuel sources, I had intended to write only about the oil and gas reserves in the state, as I have done over the past few weeks. I was, however, also asked about coal in the state. And then, to reinforce the need to at least look at this fuel, there was [this recent quote](#) from the Chancellor of the University of Alaska-Fairbanks, Dr. Brian Rogers.

Rogers said he has heard objections to the construction of a coal-fired plant, but that it was the only cost-effective way to heat the campus in interior Alaska.

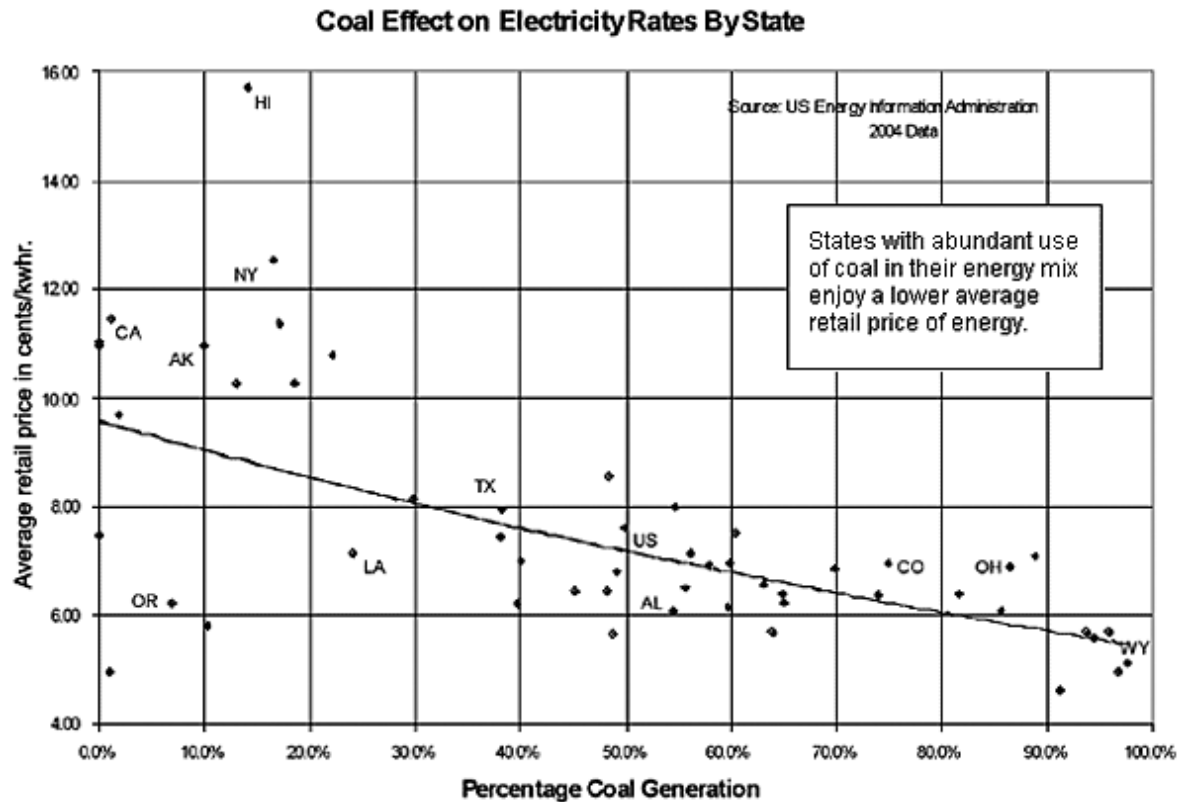
Until now, I have had only one chance to visit an Alaskan coal mine, [the Usibelli mines](#) near Fairbanks. Further honesty compels me to admit that I played hookey that day and took myself and my grad student off to have look at the Yukon River, the Dawson Highway, and the Arctic Circle (certificates provided) instead. Not that the coal mining in Alaska is not important and coal's presence not also visually obvious, but I had seen a lot of strip mines in my time.

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Coal outcrop Alaska ([DNR](#))

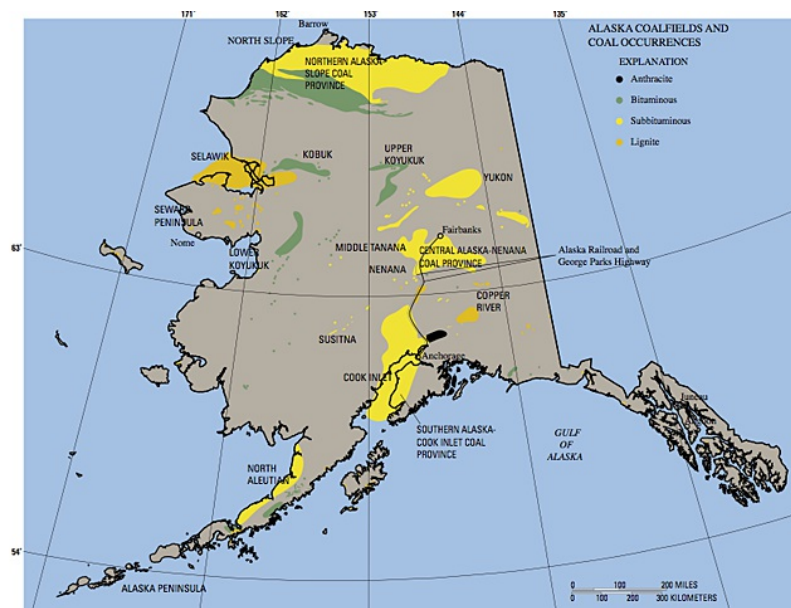
The coal seams of the region are clearly rich, thick, and near the surface, and so it is relatively easy to remove the overlying rock, mine out the coal, and reclaim the surface after the mine has passed. I have written about the [evolution of the mining shovels](#) used to remove the coal and rock and the [use of explosives](#) to break the rock and coal in earlier posts; there are also, at the Usibelli Web site, [video](#) and [animations](#) to show how they mine the seams of coal shown in the outcrop above.

As the University Chancellor noted, coal provides a considerable power benefit to the state, though it also has created several bodies that are [opposed to its growth](#), particularly the operation of a new mine at [Wishbone Hill](#). This opposition comes in a region where, in the past, mining operations have removed some 7 million tons from some [18 different operations](#). But again, in this series I don't want to argue the pros and cons of individual sites. Usibelli currently mines more than 1.5 million tons of coal a year, with about 1 million tons used domestically and half-a-million tons shipped to the Pacific Rim (mainly Korea). Usibelli makes the point that one of the reasons power costs in Alaska remain high is because coal plays a smaller part in power generation than it does in other states.



Relative electricity price in comparison with the coal mix in providing electrical energy ([UCM](#))

If problems arise in bringing natural gas to more of the state, then coal's fraction of the mix may well increase. Certainly the amount of coal within the state is vast. It has been suggested that there is as much as [5 trillion tons of coal](#) in Alaska, some 40% more than in the lower 48 states combined. The coal is found in three provinces: Northern Alaska-Slope, Central Alaska-Nenana, and Southern Alaska-Cook Inlet.



Coal regions of Alaska ([USGS](#))

[More recent estimates](#) have had a tighter focus.

Previous coal resource assessments attempted to assess the total coal in the ground in the United States and Alaska, but those estimates tended to be high and included coal deposits that are either not available - containing coal beds that are too thin and / or too deep to be economically mined using present mining technology or that are not of sufficient quality to serve as a fuel for electrical power generation. Thus, this required a new assessment that focused on coal resources likely to be utilized in the next 30 years, which are for the most part, the coal beds currently being developed in existing mines or in areas that are currently leased in Alaska.

As a result, the 5-trillion ton estimate from the 1977 study has been trimmed to consider just the 160 billion short tons that includes the coal defined in the quote.

However, coal can only be considered a reserve if it is likely that it will be mined. At the moment it is the coal in the region around Fairbanks where the need is sufficient for coal to contribute to the state energy budget. But there has been exploratory activity in other regions as well, where mines have existed in the past.

North of the Brooks Range and lying over the National Petroleum Reserve, the Arctic Coal deposits hold the likely [majority of the Alaskan coal](#). Unfortunately for those who would use it, it is not the easiest place in the world to reach and operate in. And although there was coal mining in the region as far back as 1879 (when it was used to [supply whaling ships](#)) it is not active presently. BHP Billiton have been and looked, and while not abandoning the idea completely, do not currently seem active. On the other hand, the state has been looking to approve prospecting permits in the Nanushuk region, which lies north of the Brooks Range just off the main haul road that runs up to Deadhorse and Prudhoe Bay. The request for a permit [was approved](#) by the state board, though there has been an objection from the Naqsrugmuit Tribal Council (though I could not find a current web page for the Council).

However, in order for any coal to be mined above the Brooks Range, there has to be a viable method of transport. Though it has proved relatively straightforward to move coal by rail from the Powder River Basin in Wyoming, conditions are considerably different above the Arctic Circle and the Brooks Range is a tad hillier than the Upper Great Plains. There is talk of moving the coal to the terminal where the Red Dog Mine ships out zinc concentrate, but that facility is only open [from July to October](#) - which might help China build up stocks in the summer but does little for the global high winter demand for fuel. Further, the haul road is not such that I can see it being able to handle heavy consistent loads of coal. (On the September day we went up that short distance, a haul truck went off the road ahead of us on one of the many snow-covered bends that snaked up and down the mountains).

There is active consideration of a mine at [Chuitna](#), which is just north of Cook Inlet, in the Southern of the three provinces. About [45 miles from Anchorage](#) the project would mine up to 12 million tons of coal a year for an initial period of 25 years. At present it appears that the Division of Mining, Land and Water is awaiting an updated proposal before moving ahead to [make a ruling](#), possibly in a preliminary form next year.

Put altogether, although there is a lot of coal in Alaska, in relative terms it is unlikely that any significant volumes of that resource will be brought to the market in the near future. As a consequence, unless and until the demand pattern changes (and I think that it likely will) it is impractical to think that Alaskan coal will remain more than a resource. Further, given the need for a supporting infrastructure, it seems unreasonable to expect that even after global demand starts to rise, that the coal could come to the market and become a reserve in less than an additional 5 – 10 years.



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