Coal in Montana

The Montana coal industry exists to support the generation of electricity. All but a tiny fraction of the coal mined in Montana eventually is converted to electricity. In recent years, over half the electricity generated in Montana has come from coal-fired plants. Almost three-quarters of the coal mined in the state are exported, primarily to Midwestern utilities. Even though new generating stations built around the country in recent years have relied on natural gas or wind, coal continues to provide half of the nation's electricity.

I. Production

Montana is the sixth largest producer of coal in the United States, with over 37 million tons mined in 2002 (Table C1). Almost all the mining occurs in the Powder River Basin south and east of Billings. With the exception of the small lignite mine at Sidney, Montana production is entirely low-sulfur subbituminous coal, with 17-18 million Btu per ton. Like most Western coal, Montana coal is cleaner but lower in heat content than coal mined in the East.

Coal has been mined in Montana since territorial days, first as a heating fuel and later primarily for the railroads. Production initially peaked in the 1940s at around 5 million tons (see Figure 1). As steam locomotives were phased out, production declined, bottoming in 1958 (Table C2).



Figure 1. Historical coal production

1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 Source: U.S. Department of Energy, Energy Information Administration (http://www.eia.doe.gov/cneaf/coal/statepro/imagemap/mt.htm)

That year, only 305,000 tons were mined, an amount equivalent to less than 1 percent of current output. Output remained stagnant for a decade, maintained by production for a

small generating plant opened in Sidney in 1958 by Montana-Dakota Utilities. Production began to grow again in 1968, when Western Energy Company began shipping coal from Colstrip to a generating plant in Billings owned by its parent, Montana Power Company.

As Montana mines began supplying electric generating plants in Montana and the Midwest, coal production jumped. Production in 1969 was I million tons; ten years later, it was 32.7 million tons. Since the end of the 1970's, production increased gradually to almost 43 million tons in 1998 and then dropped off slightly to its current level (Table C2; see Figure 2). Over the last decade, Montana has more or less maintained its share of the U.S. market. In comparison most eastern states lost market share during this decade, primarily to Wyoming. Western states other than Wyoming followed a path similar to Montana, more or less maintaining market share. Over the past decade Montana has produced less than 4 percent of the coal mined each year in the U.S..





The price of Montana coal averaged \$9.27 per ton at the mine in 2002 (Table C2); this includes taxes and royalties. The price of coal has been on a downward trend since the early 1980's, when the average price of coal peaked at \$14.22 per ton (\$22.67 in 2002 dollars). By 2002 that price had fallen 60 percent in real terms. The decline in Montana prices mirrors the decline in prices nationally.

Most coal in Montana is mined on federal lands (Table C3; see Figure 3). A significant portion also comes from Indian reservations. In 2001, the most recent year for which data

Source: Table C2.

are available, over 55 percent of Montana coal came from federal lands and under 15 percent from reservation lands.



Figure 3. Production by land ownership type

Montana had eight coal mines in operation in 2003 (Table C4). The largest mine is Westmoreland's Rosebud Mine at Colstrip, producing 10-11 million tons per year. During the 1990's, the last Montana mine producing less than 100,000 tons annually closed, but a new mine at that site, near Roundup, opened in 2003. No major new mines have opened since 1980, though the West Decker and Spring Creek mines have expanded significantly.

Westmoreland is the largest producer in Montana, accounting for 47 percent of 2003 production. Kennecott is the second largest, accounting for 24 percent of coal production outright and holding a half-interest in mines producing an additional 22 percent of Montana coal. The year 2001 marked the passing of an era in Montana coalfields. With Westmoreland buying Montana Power Company's Western Energy and MDU Resources Group's (Knife River Coal) Savage Strip Mine in 2001, over 40 years of utility ownership of operating coalfields in Montana came to an end. Utility production had been substantial. MPC, through Western Energy, was the 11th largest coal producer in the country in 1998.

2. Consumption

Over 95 percent of the coal consumed in Montana in recent years has been used to generate electricity. Minor amounts of residential and commercial heating and some industrial use account for the remainder. Montana coal consumption has been more or less stable since the late 1980's, after the Colstrip 4 generating unit came on line (Table C5).

Source: Table C3

Similarly, almost all of Montana coal production is used to generate electricity (Table C6). In recent years, about three-quarters of production has been shipped by rail to out-of-state utilities. Most of the remaining quarter is burned in-state to produce electricity, primarily at Colstrip. Prior to deregulation, about 40 percent of the electricity generated in Montana with coal went to Montana customers, and 60 percent was shipped by wire to out-of-state utilities. No public data are available now, but it's likely that the majority of coal burned in Montana still produces electricity for export. Over the last decade, Michigan, Minnesota and Montana have taken about three quarters or more of all the coal produced in Montana (Table C7; see Figure 4). The remaining quarter now goes to 9 other states and Canada.





Source: Table C7.

3. Coal Economics

The Montana industry, like the coal industry nationwide, has become more productive, with the number of employees dropping even while the amount of coal mined increased (Table C8; see Figure 5). Taxes on coal, despite decreases from historical highs, remain a major source of revenue for Montana, with \$30.1 million collected in coal severance tax in state fiscal year 2003 (July 2002-June 2003).¹ That is one-third in nominal terms the amount collected in fiscal year 1984. Coal severance tax collections dropped due to changes in the tax laws that began with the 1987 Legislature and due to the declining price of coal. While the tax rates vary based on a number of factors, the rate on most coal in Montana has dropped from 30 percent to 15 percent of price. This drop in rates has had a bigger impact

¹ Also, a gross proceeds tax of 5% goes to the county where the coal was mined. Another 0.4% goes for the Resource Indemnity and Groundwater Assessment Tax that, among other things, pays for reclamation of old unreclaimed mined areas.

on tax collections than the drop in the price of coal. The impact on levels of coal production is less clear. Production has risen modestly since the cut in taxes and Montana has been able to retain most of its share of the national market.

While significant, Montana's output is dwarfed by Wyoming, which produced 34.1 percent of the country's output in 2002. This is ten times as much coal as Montana produced. This due in part to a combination of physical factors that make Montana coal less attractive than coal from Wyoming. Montana coal generally is more costly to mine because the coal seams tend to be thinner—though still thick in comparison to eastern coal—and buried under more overburden than seams in Wyoming. Moreover, Wyoming coal tends to have slightly lower average ash and sulfur content than Montana coal. Coal from the Decker area does have the highest Btu in the entire Powder River Basin and about the same sulfur as Wyoming coal, but it has the disadvantage of having a high sodium content, which can cause problems in combustion.





The cost of transportation to distant markets may also affect the competitiveness of Montana coal. Nearly all coal exported from Montana leaves on Burlington Northern Santa Fe lines. Some is later transshipped by barge. Transportation costs can double to more than triple the delivered cost of Montana coal bought by out-of-state generating plants. Though transportation costs have fallen over the last fifteen years, the minemouth cost of coal has fallen faster, making transportation a larger component of final cost. Coal shipped from the Powder River Basin (Wyoming and Montana) in 2000 had the highest ratio of transportation cost to delivered price, on a per ton basis, for U.S. coalfields. (U.S. Department of Energy, Energy Information Administration *Energy Policy Act Transportation Rate Study: Final Report*

Source: Table C8.

on Coal Transportation, 2000). The cost of Montana coal may be further affected by the rail transportation network being better developed in the southern end of the Powder River Basin than in the northern end.