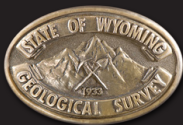


Coal Resources in Wyoming

January 2020 Summary Report

Wyoming State Geological Survey
Erin A. Campbell, Director and State Geologist

Laramie, Wyoming
phone: 307-766-2286
email: wsgs-info@wyo.gov
website: www.wsgs.wyo.gov



Wyoming's coal industry had a challenging year, with multiple bankruptcies and declining demand for thermal coal. The following sections summarize these changes as well as statewide production trends.

Production Trends

Looking back at 2018, total U.S. production was 755 million short tons (MST), down 2.4 percent from 2017 totals, while Wyoming's 2018 production (304 MST) was down 3.9 percent from 316 MST in 2017, according to the U.S. Energy Information Administration, or EIA. Wyoming's surface mines were operating at 70 percent of total production capacity in 2018, meaning that the mines reduced production to appropriately match demand. Despite these declines, Wyoming's coal production still makes up approximately 40 percent of the nationwide total, a proportion that has held steady over the past few years. More than 91 percent of Wyoming-mined coal in 2018 was shipped via rail to 29 other states; the largest consumers were coal-fired power plants in Texas, Missouri, and Illinois.

The October CREG forecast for Wyoming's 2019 coal production is 270 million tons.

Wyoming coal production during the first half of 2019 was 134 MST, down from 139 MST during the same period in 2018. In the third quarter of 2019, Wyoming produced 74 MST, a 10 percent increase when compared to the previous quarter, but lower than third-quarter production in recent years. In total, annual production in 2019 is expected to be less than the 304 MST produced in 2018 due to the continuing retirement of coal-fired power plants, the low price of natural gas, and the increasing competition from renewables.

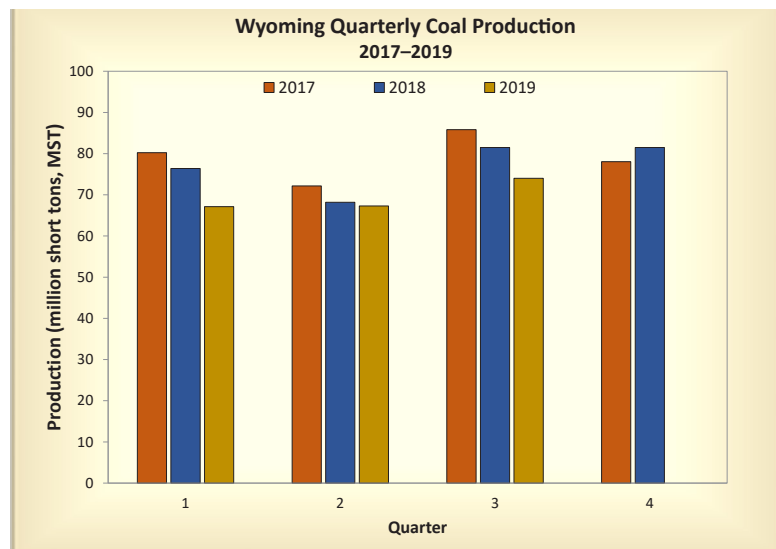
In the Wyoming portion of the Powder River Basin (PRB), while January to September 2019 production was down 8 percent compared to the same period in 2018, production trends are highly variable for individual mines within the basin. Most mines experienced decreasing production over this period, but four mines had increases: Arch's Black Thunder, Kiewit's Buckskin, and Peabody's Caballo and Rawhide. Within the PRB, production trends do not appear to be correlated to the heat content (BTU/lb) of the coal produced by a mine. The two mines producing the lowest heat content coal, Wyodak and Dry Fork, had production decreases proportional to those seen at

mines with higher heat content coal. And the four mines with increased 2019 production mine coal with a wide range of heat contents, between 8,200 and 9,000 BTU/lb. However, it is worth noting that the mines with the highest annual production—North Antelope Rochelle, Black Thunder, and Antelope—also happen to extract the highest heat content coal (~9,000 BTU/lb) within the Wyoming portion of the PRB.

Coal-Fired Power Plants

Nationally, coal-fired power plant retirements occurred at record levels in 2018; the coal-fired generating capacity lost during this year was only exceeded in 2015. Many of the plants retired in 2018 and 2019 had previously purchased coal from Wyoming mines, and their decommissioning likely contributed to the corresponding drop in production. Data obtained from the EIA currently shows a slowing in planned retirements of coal-fired plants in 2020 and 2021.

The biggest news of the year for Wyoming power plants was Pacificorp's October 2019 release of its biennial Integrated Resource Plan. This plan calls for the early retirement of the two remaining coal-fired generators at Naughton by 2025, while converting the third generator that was idled in January 2019 to natural gas in 2020. The plan also outlines the early retirement of two out of four generators at Jim Bridger—one generator in 2023 and a second in 2028. The Naughton and Jim



Quarterly production of coal in Wyoming between 2017 and third quarter 2019. Fourth quarter 2019 data not available.

Bridger power plants are the primary customers of the Kemmerer and Jim Bridger surface mines, respectively. These two mines will be strongly affected by the retirement of coal-fired generators at these power plants.

PacifiCorp did not alter the retirement dates for their two other Wyoming power plants. Dave Johnston remains scheduled for retirement in 2027 and Wyodak in 2029.

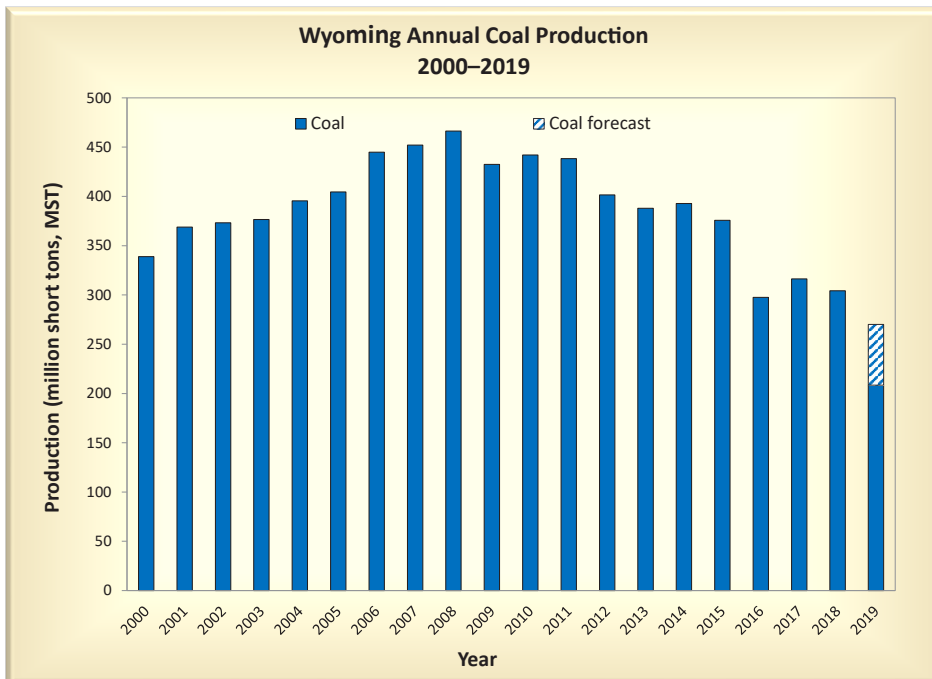
Wyoming Mining Companies

Three companies—Westmoreland, Cloud Peak Energy, and Blackjewel—either emerged from or entered Chapter 11 bankruptcy during 2019. While Westmoreland’s Kemmerer Mine and Cloud Peak’s Antelope and Cordero Rojo mines were able to continue operations during their restructuring and ownership transfer process, Blackjewel’s Belle Ayr and Eagle Butte mines (both now owned by Eagle Specialty Materials) have been operating at a reduced capacity and with fewer employees since early July.

Westmoreland Coal Company, owner of the Kemmerer Mine in Lincoln County, filed for bankruptcy in October 2018; during summer 2019 ownership of the Kemmerer Mine was transferred to the newly formed Kemmerer Operations LLC.

Cloud Peak Energy filed for bankruptcy in May 2019, and sale of all three of its mines was approved for purchase by the Navajo Transitional Energy Company in October. Its Wyoming mines, Antelope and Cordero Rojo, have continued production as usual, but the Spring Creek Mine in Montana experienced a brief shutdown for two days in October as the new company worked out issues with the Montana Department of Environmental Quality.

Blackjewel filed for bankruptcy on July 1, 2019, and shut



Annual production of Wyoming coal from 2000 to 2019 (actual production through September 2019; forecast production from October 2019 CREG report).

down all mining operations a few hours later when long-term financing fell through. Between July and October, Eagle Butte and Belle Ayr mines operated at a reduced capacity, shipping out very low volumes of coal while most employees were furloughed. In October, Blackjewel sold the two Wyoming mines to Eagle Specialty Minerals, an affiliate of FM Coal, a company that operates coal mines in Alabama. The company called employees back to the two mines in late October and early November, and has begun ramping up production.

In the competitive market for thermal coal, mining companies are pursuing all available options to maximize efficiency. Peabody Energy and Arch Coal announced a Joint Venture Agreement that will involve combined asset operations in Colorado and the PRB. Pending approval from regulatory agencies, operations

will be combined for multiple mines, including the merger of the two largest coal mines in the country—Black Thunder and North Antelope Rochelle. It could also include the merging of operations for the Powder River Basin’s Caballo, Rawhide, and Coal Creek mines. This proposal is under review by the Federal Trade Commission in a process that should be completed within the first half of 2020.

Owner	Mine	Avg heat content (BTU/lb)	2018 Production	Region
Arch Coal	Black Thunder	9,011	71,134,606	Powder River Basin
Arch Coal	Coal Creek	8,400	7,987,838	Powder River Basin
Black Hills Energy	Wyodak	7,900	4,085,044	Powder River Basin
Eagle Specialty Materials	Belle Ayr	8,570	18,467,405	Powder River Basin
Eagle Specialty Materials	Eagle Butte	8,434	17,055,796	Powder River Basin
Kemmerer Operations LLC	Kemmerer	10,000	4,016,923	Ham’s Fork Coal Field
Kiewit Corp.	Buckskin	8,297	13,508,689	Powder River Basin
Lighthouse Resources & Occidental	Black Butte	9,720	2,499,798	Rock Springs Uplift
Navajo Transitional Energy Corp.	Antelope	8,880	23,155,741	Powder River Basin
Navajo Transitional Energy Corp.	Cordero Rojo	8,400	12,609,413	Powder River Basin
Peabody Energy	Caballo	8,501	11,333,467	Powder River Basin
Peabody Energy	North Antelope Rochelle	8,800	98,315,794	Powder River Basin
Peabody Energy	Rawhide	8,300	9,504,750	Powder River Basin
PacifiCorp	Jim Bridger (surface)	8,740	1,997,883	Rock Springs Uplift
PacifiCorp	Bridger Underground	9,200	2,210,433	Rock Springs Uplift
Western Fuels Wyoming	Dry Fork	8,125	6,304,022	Powder River Basin

Coal mine ownership, average heat content of coal mined, and annual production (short tons) in 2018.

Caption for cover photo: Fort Union coal exposed in a pit at a Wyoming surface mine.

