

What Railroads Haul: Coal

Although coal shipments have declined in recent years, coal is still an important part of the nation's industrial economy. Well over 90% of U.S. coal consumption is used for electricity generation while some coal is used to produce coke and for other industrial purposes. U.S. coal is also exported to countries all over the world for steelmaking and power generation. In the past few years, U.S. coal exports have been equivalent to around 14% of U.S. coal production, more than double the percentage of ten years ago.

Coal markets have been changing.

According to the Energy Information Administration (EIA), U.S. coal production in 2019 was 705 million tons, down 40% from the all-time high of 1.17 billion tons set in 2008 and the lowest annual total since 1978.

U.S. coal consumption in 2019 was approximately 597 million tons, down 13% from 2018 and 47% lower than the 2007 peak of 1.13 billion tons.

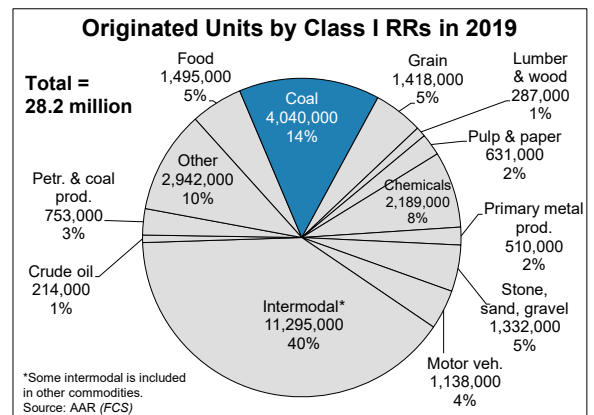
Because electricity generation accounts for so much of U.S. coal consumption, the electricity market is key to coal's fortunes. For decades, total U.S. electricity generation rose steadily, more in less in tandem with economic growth.

Over the past decade, though, growth in total generation has slowed while coal's share has plunged. In the 1990s, coal's share averaged 52%. By 2005 it had fallen to 50%. In 2019, it was down to 23%. Meanwhile, the natural gas share rose from 16% in 2000 to 24% in 2010 to 38% in 2019. For renewables other than hydroelectric (mainly wind and solar), the share rose from 2% in 2000 to 11% in 2019.

Concerns about the environmental impact of coal has played a major role in its decline, but market forces have been even more important. Rapid increases in natural gas production brought about by technological advances in natural gas extraction especially hydraulic fracturing, or fracking, has meant that natural gas is much more plentiful and cheaper for electricity producers than it used to be.

Key Takeaways

- Just five states account for nearly 70% of U.S. coal production, but coal is consumed all over the country — a feat made possible by freight railroads.
- Rail coal volumes have fallen in recent years, but coal is still a crucial commodity for U.S. freight railroads and the larger economy. In 2019:
 - U.S. railroads moved 4.04 million carloads of coal, with each rail car carrying enough coal to power 19 homes for a year.
 - Coal accounted for 30.1% of originated tonnage for U.S railroads, far more than any other commodity.
 - Coal accounted for 12.7% of revenue for railroads, behind only intermodal and chemicals



Through technological advances, responsive service, competitive rates and massive private investments, railroads continue to provide safe, reliable high-value transportation service to their coal customers.

U.S. coal production is focused in a relatively small number of states, but large amounts of coal are consumed all over the country.

According to EIA data, 69% of U.S. coal shipments in 2019 were delivered to their final destinations by rail, followed by water (12%, mainly barges on inland waterways); truck (9%); and conveyor belts (9%, mainly at minemouth plants).

As coal's share of U.S. electricity generation has fallen, so too has rail coal volumes. In 2008, U.S. Class I railroads originated a record 7.71 million carloads of coal. In 2019, coal carloads were down to 4.04 million, 47.6% lower than 2008's peak.

In 2019, coal accounted for 30.1% of originated tonnage for U.S. Class I railroads, far more than any other commodity, but coal tonnage in 2019 was down 46.3% from 2008's peak. Coal accounted for 12.7% of Class I rail revenue in 2019; only intermodal and chemicals accounted for more.

Nearly all coal transported by rail moves in highly productive unit trains, which often operate around the clock, use dedicated equipment, and generally follow direct shipping routes. Revenue per ton-mile (RPTM) is a surrogate for rail rates. In 2018, average RPTM for coal was 2.17 cents. The average for all commodities other than coal was 4.82 cents.

