Coal explained
Use of coal

BASICS

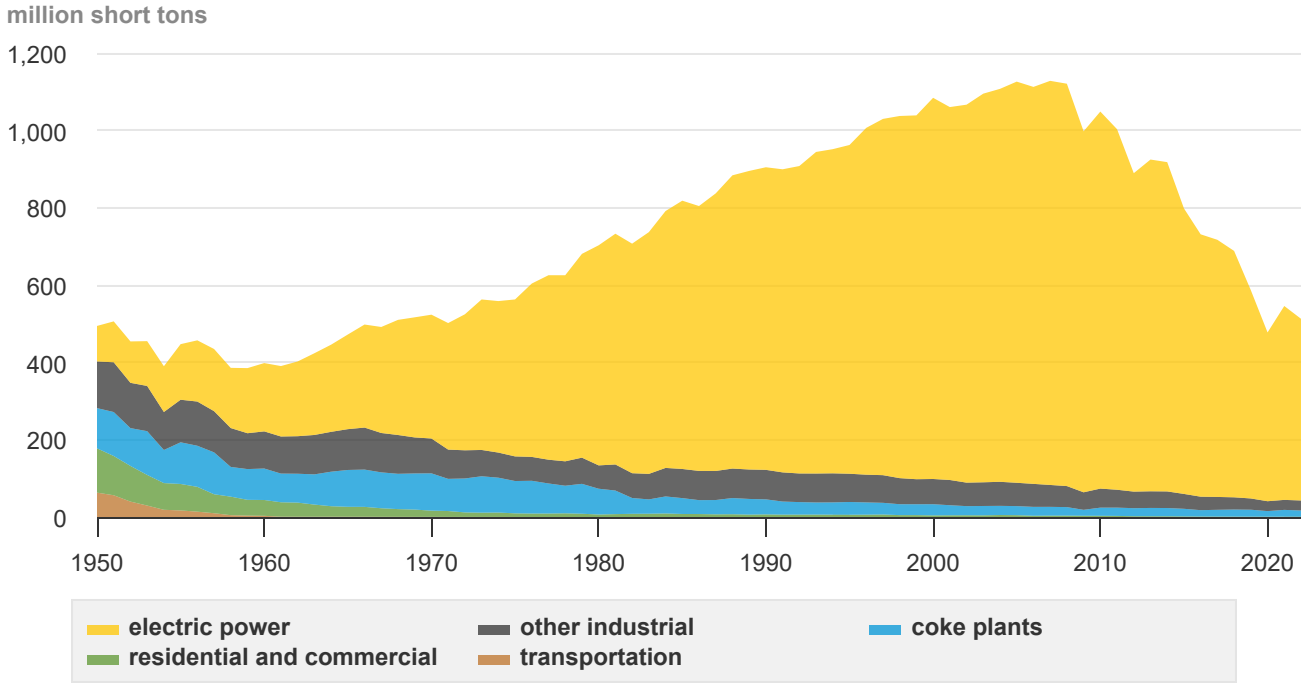
In 2022, about 513 million short tons (MMst) of coal were consumed in the United States. On an energy content basis, this was equal to about 9.8% of total U.S. energy consumption in 2022, or 9.85 quadrillion British thermal units, and the lowest percentage share since at least 1949. Although coal use was once common in the industrial, transportation, residential, and commercial sectors, today the primary use for coal in the United States is to generate electricity. The electric power sector has accounted for the majority of U.S. coal consumption since 1961.

U.S. coal consumption by consuming sector and by amount—in million short tons (MMst) —and percentage share of total coal consumption in 2022 was:[1]

- Electric power—469.9 MMst—91.7%
- Industrial total—41.9 MMst—8.2%
    - Industrial coke plants—16.0 MMst—3.1%
    - Industrial combined heat and power—10.1 MMst—2.0%
    - Other industrial—15.8 MMst—3.1%
- Commercial—0.8 MMst—0.2%
- Residential and transportation—not available [2]

Total annual U.S. coal consumption based on weight (tons) peaked in 2007, but when based on energy content, it peaked in 2005. Coal consumption has declined in most years since 2005, primarily because of declines in electric power sector coal consumption and in the energy content of the coal consumed by the electric power sector.

U.S. coal consumption by major end users, 1950-2022



Data source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 6.2, June 2023, preliminary data for 2022
Note: Coke plants are industrial coking coal plants; other industrial includes all other, non-coking coal industry use.

Coal use for electricity generation

Coal-fired power plants burn coal to make steam and the steam turns turbines (machines for generating rotary mechanical power) to generate electricity. Many industries and businesses have their own power plants, and some use coal to generate electricity for their own use, mostly in combined heat and power plants. In 2022, coal accounted for about 19.5% of U.S. electricity generation.

Coal use by industry

Many industries use coal and coal byproducts. The concrete and paper industries burn large amounts of coal to produce heat. The steel industry uses coal indirectly as coal coke to smelt iron ore into iron to make steel. The high temperatures created by burning coal coke give steel the strength and flexibility needed for bridges, buildings, and automobiles.

did you know?

Coal is made into coal coke for producing steel.

Blast furnace in a modern steel works

Source: BBC (copyrighted)

Converting coal into gas and liquids

Coal can be turned into gases and liquids that can be used as fuels or processed into chemicals to make other products. These gases or liquids are sometimes called *synthetic fuels* or *synfuels.* Synthetic fuels are made by heating coal in large vessels.

In North Dakota, the Great Plains Synfuels Plant converts coal into synthetic natural gas (syngas). Syngas produced from coal can also be used to produce electricity and hydrogen. Currently, no commercially operating facilities in the United States produce liquids from coal, but coal has been converted to liquids in South Africa for decades.

[1] Source: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, Table 6.2, June 2023, preliminary data for 2022.
[2] Minor amounts of coal are still consumed in the residential and transportation sectors. However, EIA no longer tracks coal consumption in these sectors.

Last updated: September 14, 2023, with data from source reports as indicated; data for 2022 are preliminary.