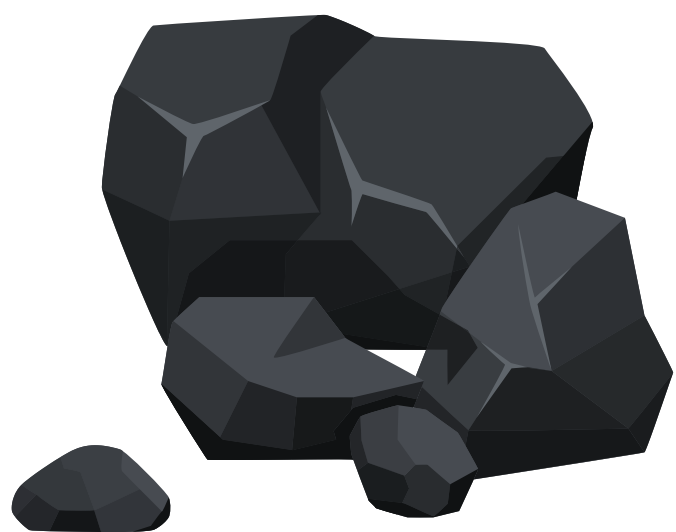


What Is It?

Coal is a sedimentary rock that is made up of compressed organic matter and it can be combusted for heat, fuel, or to generate electricity, with added chemical and industrial applications.



How Clean Is It?

Coal is primarily made of carbon. When burned, coal produces both particulate matter and carbon dioxide emissions. While emissions vary, coal produces around 210 pounds of carbon dioxide per million Btu, among the highest of any fuel type.



What Does It Cost?

Coal was once the cheapest resource for generating electricity in the U.S., but prices have increased due to regulation and market forces. Environmental policies have made new coal plants virtually infeasible.



How Does It Work?

1. Coal is extracted from a mine and transported to a coal-fire power plant, most commonly by railroad.
2. Coal is loaded into a furnace boiler, where it is pulverized and heated.
3. Heat generated by coal combustion is used to create high-pressure steam from water.
4. The steam is transported through pipes to a turbine.
5. The turbine produces electricity.
6. The steam is cooled, condensed back into water, and returned to the boiler.
7. Coal is continuously loaded into the furnace and the process is repeated.

Space



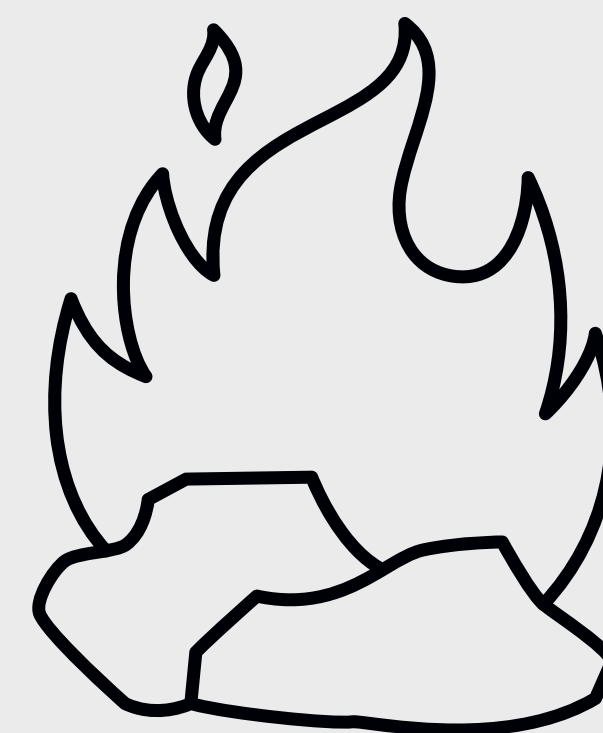
Coal requires mines, power plants, transportation, and waste disposal facilities and together can take up 12 to 19 acres per megawatt (MW) of energy produced.

Point

- Operating costs for a coal-fired power plant stand around 0.06 dollars per kilowatt hour, making coal extremely economical (before factoring future environmental regulations).
- Fatality rates associated with coal mining have reached record lows in the U.S.
- Storage for coal is simple, requiring no pressurized equipment, cooling systems, or advanced materials for storage.
- Technology to harness coal as an energy source has been tested and developed over a century, translating to cheap and mature technology for coal energy.
- Coal mine restoration efforts have reclaimed hundreds of acres of previously heavily mined areas.

Counterpoint

- Aged coal power plants in the U.S. operate under 50 percent efficiency, meaning more coal is needed to produce energy.
- Coal releases several noxious gases when combusted, necessitating increased worker safety at power plants.
- Different types of coal burn at different rates of efficiency and sorting for the most energy-dense coal takes time.
- Technology that limits or reduces coal's emissions has lagged behind due to market transitions away from coal as a main energy source.
- Certain methods of coal mining mean that it is sometimes not economical to restore older mines.



Did You Know?

The U.S. has one of the largest reserves of mineable coal in the entire world at 250 billion tons.

What's Next?

More efficient coal scrubbers on power plants and other technologies like carbon capture facilities can reduce coal's environmental impact, making coal's continued viability as an energy source dependent on the pace of carbon capture and scrubbing technology.