

# COAL AT A GLANCE

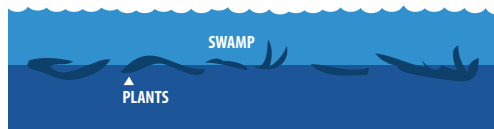


## WHAT IS COAL?

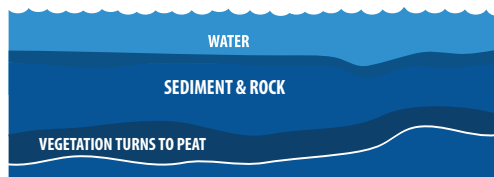
Coal is a fossil fuel created from the remains of plants that lived and died about 100 to 400 million years ago when parts of the Earth were covered with huge swampy forests. Coal is classified as a nonrenewable energy source because it takes millions of years to form.

## HOW COAL WAS FORMED

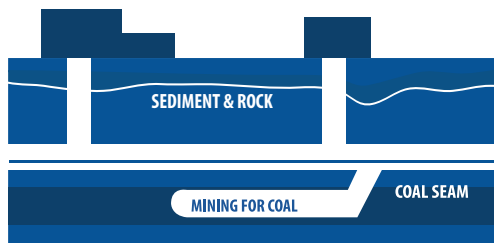
Millions to hundreds of millions of years ago, dead plant matter fell into swampy water and over time, a thick layer of dead plants lay decaying at the bottom of the swamps. Over time, the surface and climate of the Earth changed, and more dirt and water washed in, halting the decay process, forming peat. The weight of the top layers of water and dirt packed down the lower layers of plant matter. Under heat and pressure, this plant matter underwent chemical and physical changes, pushing out oxygen and leaving rich hydrocarbon deposits. What once had been plants gradually turned into coal.



100 TO 400 MILLION YEARS AGO



100 MILLION YEARS AGO



TODAY

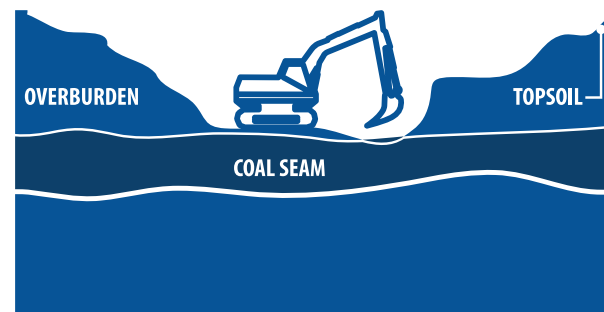


## COAL MINING

*There are two ways to remove coal from the ground—surface and underground mining.*

Surface mining is used when a coal seam is relatively close to the surface, usually within 200 feet. The first step in surface mining is to remove and store the soil and rock covering the coal, called the overburden. Workers use a variety of equipment—draglines, power shovels, bulldozers, and front-end loaders—to expose the coal seam for mining. After surface mining, workers replace the overburden, grade it, cover it with topsoil, and fertilize and seed the area. This land reclamation is required by law and helps restore the biological balance of the area and prevent erosion. The land can then be used for croplands, wildlife habitats, recreation, or as sites for commercial development. Almost more than two-thirds of all coal in the U.S. is mined using this method today. Why? Surface mining is typically much less expensive than underground mining. With new technologies, surface mining productivity has almost doubled since 1970. Underground (or deep) mining is used when the coal seam is buried several hundred feet below the surface. In underground mining, workers and machinery go down a vertical shaft or a slanted tunnel called a slope to remove the coal. Mine shafts may sink as deep as 1,000 feet. One method of underground mining is called room-and-pillar mining. With this method, much of the coal must be left behind to support the mine's roofs and walls. Sometimes as much as half the coal is left behind in large column formations to keep the mine from collapsing. A more efficient and safer underground mining method, called longwall mining, uses a specially shielded machine that allows a mined-out area to collapse in a controlled manner. This method is called longwall mining because huge blocks of coal up to several hundred feet wide can be removed.

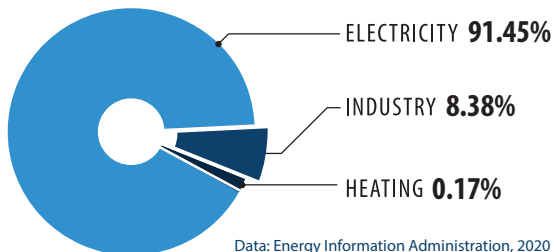
### SURFACE MINING



### DEEP MINING



### U.S. Coal Consumption by Sector, 2017



Data: Energy Information Administration, 2020

## TOP COAL STATES



WYOMING



WEST VIRGINIA



PENNSYLVANIA



ILLINOIS



KENTUCKY

Data: Energy Information Administration, 2020