

(A.D. 100-200). It was used in the 1300s by Native Americans for cooking, heating and baking pottery.

280 to 345 million years ago - The "Carboniferous period," fossil fuel formation begins.

1300s - The Hopi Indians in what is now the US southwest use coal for cooking, heating and to bake the pottery they made from clay.

1673 - Coal is rediscovered in the US by explorers.

1720 - The first commercial coal mine in North America begins production at Port Morien (Baie de Mordienne) in Canada.

1748 - The first documented mining of coal in the US 50 tons is dug.

The first US commercial coal production begins from mines around Richmond, VA. Coal was used to manufacture shot, shell, and other war material during the Revolutionary War.

1769 - Scottish engineer James Watt invents the steam engine. It used coal to make steam to run the engine.

1770s - The English find that coal could produce a fuel that burned cleaner and hotter than wood charcoal.

1800s - The Industrial Revolution spreads. People used coal to manufacture goods, and to power steamboats and railroad engines. Coal was used to fuel their boilers.

1882 - Thomas Edison builds the first practical coal-fired electric generating station, supplying electricity to some residents of New York City.

1961 - Coal becomes the major fuel used by electricity utilities to generate electricity, and becomes the largest source of electricity.

Today - Coal provides 41% of the world's electricity, according to the World Coal Institute.

Coal to Liquids

Can coal be a liquid? Yes! Coal liquefaction, the process of converting coal to liquid, turns coal into an alternative for liquid fuels. South Africa has the only commercial coal liquefaction industry in the world, and it has been producing fuels this way since 1955. These fuels are used for cars and jets and have potential outside of transportation as well. Coal-derived dimethyl ether, for example, could be used in developing

combustible black or brown rock composed mostly of hydrocarbons—molecules of carbon. The energy in coal remains of prehistoric plants that are part of the fossil fuel

How is Coal Formed?

Coal formation began during the Carboniferous period (280 to 345 million years ago) when the earth was covered by a shallow sea. Over time, and large amounts of organic matter they sank to the bottom of the sea and became a sponge-like material. Over time, the earth's surface changed and the material was buried layer upon layer creating

Types of Coal

Coal is classified in four types based on how it can produce energy. The higher the rank, the more energy it can produce.

Lignite - Over time, heat and pressure turn lignite into a hard and crumbly coal. It is considered the lowest rank of coal to generate electricity.

Sub-bituminous - Lignite that has been heated and compressed into sub-bituminous coal contains more carbon and makes them an attractive fuel for power plants.

Bituminous - More chemically complex than sub-bituminous coal, bituminous coal is dark and has a high heating value.

Anthracite - Mature coal with the highest carbon content, anthracite has a high heating value and low heating costs, making it the most desirable coal for power plants.

Where is Coal Found?

Coal is extracted from the ground by mining underground or at the surface. Coal mines are many miles wide. First, dirt above the coal deposit is removed. Coal is found in thick, flat layers. Explosives are then used to break the exposed coal into smaller pieces. The coal is then loaded into a wagon and lifted to the surface.

Finding coal reserves is a long process of exploring, mapping and drilling. It often starts with the creation of a geological map of an area that may contain coal reserves. Then, geochemical and geophysical surveys are carried out, as well as exploratory drilling. The area will become a mine if it's proven to contain usable coal that can be recovered economically.

Coal is extracted by surface (or "opencast") mining and underground (or "deep") mining. The method used is determined by the geology of the area.

Underground mining accounts for about 60% of the world's coal production.

Surface mining recovers a higher percentage of the coal deposit than underground mining, but it is only feasible when the coal deposit is near the surface.

Demand for Coal

Worldwide proven coal reserves are more than 847 billion tons—enough to last approximately 130 years at current consumption levels. The countries with the largest reserves of coal are the United States, Russia, China and India. Together they make up 67% of the world's coal reserves.

Coal provides 26% of global primary energy needs and generates 41% of the world's electricity, according to the World Coal Institute Coal Facts 2008. The US Energy Information Administration expects coal use to double by 2030 to meet rising world energy demand.

Uses for Coal

In some countries, coal may be burned directly for heat or cooking, but most coal is used in power plants to generate electricity. Coal has plenty of uses outside of electricity too. Materials that contain coal and coal coke (a concentrated form of coal that has been stripped of its volatile materials) are ingredients in many products we use every day, including:

- Perfumes
- Golf balls
- Chalk
- Sugar substitute
- Soap
- Aspirin
- Tar

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