**Non-renewable resources**

Non-renewable resources (also called finite resource) are natural resources that are not naturally replenished once they have been used. Non-renewable resources can be used up completely or consumed to such a degree that they become economically inaccessible. [Fossil fuels](https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/fossil-fuels), minerals, metal ores and nuclear energy are examples of non-renewable resources.

Important: In the language of economics, non-renewables are resources that cannot be replaced at the speed with which they are being consumed.

**Fossil Fuels**

Fossil fuels includes oil, coal and natural gas, are currently the world's primary energy source and

Fossil fuel is a general term for buried combustible geologic deposits of organic materials, formed from decayed plants and animals that have been converted to crude oil, coal, natural gas, or heavy oils by exposure to heat and pressure in the earth's crust over hundreds of millions of years.

**Oil**

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Crude oil is a liquid fuel fossil fuel that is used mostly to produce gasoline and diesel fuel for vehicles, and for the manufacturing of plastics. It is found in rocks below Earth’s surface and is pumped out through wells.

Coal

Coal is a solid fossil fuel that is used for heating homes and generating power plants. It is found in fossilized swamps that have been buried beneath layers of sediment. Since coal is solid, it cannot be extracted in the same manner as crude oil or natural gas; it must be dug up from the ground.

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Coal is primarily used to generate electricity and is responsible for [30 percent](http://www.eia.gov/tools/faqs/faq.cfm?id=427&t=3) of the electric power supply in the United States in 2017 (down from 39 percent in 2017 and 50 percent in 2007). The United States produces around [11 percent](http://energyatlas.iea.org/#!/tellmap/2020991907) of the world’s total with [Wyoming, West Virginia, Pennsylvania, Illinois, and Kentucky](https://www.eia.gov/tools/faqs/faq.php?id=69&t=2) leading in production. China is the global leader in coal production, responsible for [48 percent of world supply](http://energyatlas.iea.org/#!/tellmap/2020991907) (as of 2015).

**Natural Gas**

Natural gas is widely used for cooking and for heating homes. It consists mostly of methane and is found near oil deposits below Earth’s surface. Natural gas can also be turned into a liquid form, called liquid natural gas (LNG). LNG is much cleaner than any other fossil fuels.

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Natural gas generates an increasing share of U.S. electricity and now represents close to [a third of the country's energy use](https://www.eia.gov/energyexplained/?page=us_energy_home). It is most commonly used to produce heat or electricity for buildings or industrial processes; less than [three percent](https://www.eia.gov/energyexplained/index.php?page=natural_gas_use) of U.S. natural gas is used as a transportation fuel, typically for bus fleets. Natural gas is most commonly transported by pipeline, which makes Canada the key exporter to the United States, while Russia remains the main supplier for much of Europe. Increasingly, however, natural gas is being transported by ship in a liquefied form (LNG) to meet greater global demand for the fuel.

Natural gas burns cleaner than coal and oil, with almost zero sulfur dioxide emissions and far fewer nitrogen oxide and particulate emissions. Natural gas releases almost 30 percent less carbon dioxide than oil and 43 percent less than coal.

Natural gas, which is primarily composed of methane (CH4), is also generated by the decomposition of municipal waste in landfills and manure from livestock production. Methane is a greenhouse gas that is more than 20 times as potent as carbon dioxide. Capturing and burning the gas to produce usable heat and power prevents the methane from being released from the landfill or feedlot into the atmosphere directly.

**Nuclear energy**

Nuclear energy comes from radioactive elements, mainly uranium, which is extracted from mined ore and then refined into fuel. Uranium is a naturally occurring metallic chemical found on the earth’s crust. It is the most commonly used nuclear fuel in commercial power plants. It is found in many places in the world. Energy from uranium is called nuclear energy because of the scientific process used to harness its power. Power generated from a nuclear reaction is similar to that of fossil fuels because they all use heat to turn blades (turbines) to generate power.

**Minerals and Metals**

The term non-renewable resource also refers to minerals and metals from the earth, such as gold, silver, and iron. These are similarly formed by a long-term geological process. They are often costly to mine, as they are usually deep within the Earth's crust. But they are much more abundant than fossil fuels.

Non-renewable resources

* [According to the U.S. Energy Information Administration](https://www.eia.gov/tools/faqs/faq.php?id=38&t=6), the global supply of crude oil is only sufficient to meet human demand through the year 2050.
* Fossil fuels formed around [360-300 million years ago](https://www.nationalgeographic.org/encyclopedia/non-renewable-energy/), during the Carboniferous Period.
* Ten feet of solid vegetation compressed and heated over millions of years creates [just one foot of coal](https://www.nationalgeographic.org/encyclopedia/non-renewable-energy/).
* [Approximately 50 percent](https://www.nationalgeographic.org/encyclopedia/non-renewable-energy/) of U.S. electricity is generated from coal.
* Oil platforms are some of the largest manmade structures in the world. (As an example, Berkut is a [200,000-ton oil rig](https://www.fircroft.com/blogs/the-6-biggest-offshore-structures-in-the-world-83272314444) located off the coast of Russia.)
* [About 50 percent](https://www.nationalgeographic.org/encyclopedia/non-renewable-energy/) of the crude oil in the world is converted into gasoline.
* Natural gas in rock formations underground is measured in [million, billion, or trillion cubic meters](https://www.nationalgeographic.org/encyclopedia/non-renewable-energy/).

Sixty-six percent [of the world’s energy](https://www.nationalgeographic.org/encyclopedia/non-renewable-energy/) is generated from fossil fuels, while eight percent is generated from nuclear energy.

**How to Protect Non-renewable Resources**

Our society is dependent on non-renewable resources that have expiration dates. For this reason, it’s important to promote alternative energy sources, including renewable resources like solar and wind power.

Reducing our reliance on non-renewable resources and expanding our renewable energy usage is one of the solutions to a sustainable future.

Actions like driving electric and hybrid vehicles, installing solar panels on and properly insulating your business and home, and using energy-efficient appliances are all smaller-scale changes that you can make to reduce your non-renewable resource usage.