

# Read About Renewable vs. Nonrenewable Energy

## DEFINITIONS OF RENEWABLE AND NONRENEWABLE ENERGY

*Nonrenewable* energy sources, like coal, oil, and natural gas, cannot be easily replenished. A *renewable* energy source can be more easily replenished. Common examples of renewable energy include wind, sunlight, moving water, and Earth's heat.

***To better understand renewable vs. nonrenewable energy....***

## LET'S BREAK IT DOWN!

### Fossil fuels are sources of energy made from prehistoric plants and animals.

Our main sources of energy today are fossil fuels. They formed millions of years ago from dead plants and animals. Their remains became covered in mud and rock deep in the earth. The pressure from the ground above, combined with the Earth's heat, converted this matter into substances that can be pumped out of the Earth by humans to be used as energy today.



There are three main types of fossil fuels: coal, oil, and natural gas.

Coal is a solid material that is burned to create heat in homes, or used in power plants to produce electricity.

Oil is a liquid fossil fuel, used to produce gasoline.

Natural gas can be used for cooking, heating, or generating electricity.

Fossil fuels are our primary source of fuel because they are relatively inexpensive, and historically they have been readily available. It is possible that we could run out of fossil fuels in the future so it is a good idea to think about alternatives.

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## **Nonrenewable energy comes from sources that could eventually run out.**

All fossil fuels are nonrenewable resources. It took millions of years to form fossil fuels and we are currently using it up faster than it is being made.

Another challenge to using nonrenewable energy sources is that they can cause pollution.

Burning fossil fuels releases chemicals into the air and water. Reducing our dependence on fossil fuels is important, so governments are working hard to encourage scientists and industries to find new sources of energy and to improve alternatives.



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## **Renewable energy comes from sources that can be more easily replenished.**

*Renewable energy* comes from natural resources that can be more easily replenished. Sunlight, which we will never run out of, is also a renewable source of energy.

Other sources of renewable energy include wind, water, sunlight, and geothermal energy. These sources cause little to no pollution and will last thousands, or maybe even millions, of years.



## EXAMPLES OF RENEWABLE VS. NONRENEWABLE ENERGY



**Electric cars store energy in batteries.** Electricity can be stored in batteries and then used to turn the wheels of an electric car. If the electricity is made from wind turbines, it is green, if it is made at a coal power plant, then it is not.



**Algae can be used to make biodiesel.** This aquatic organism is similar to plants and grows quickly, producing high-energy oils that can be burned as fuel. It's renewable because it can be grown again and again.



**Ethanol is another type of renewable fuel.** Ethanol is a type of alcohol made from corn. It is very flammable and can be used as a fuel in an engine. Since corn can be grown and converted into ethanol relatively quickly (months), it is a renewable fuel.

## RENEWABLE VS. NONRENEWABLE ENERGY VOCABULARY

### Fossil Fuel

The main source of energy today (gasoline, coal and natural gas). It was formed millions of years ago out of plants and animals and is usually extracted from deep underground.

### Renewable Energy

Sources of energy that can be more easily replenished. Things like wind, sunlight, waves, and earth's heat (geothermal energy).

### Non-Renewable Energy

Sources of energy that can't be easily replenished like coal, oil and natural gas.

### Energy

It makes things happen! (Or more formally: the ability to do work)

### Generator

Changes energy from one form to another.

### Engine

A machine that converts chemical energy from burning fuel to motion. Used to make trains, cars and buses go.

## **RENEWABLE VS. NONRENEWABLE ENERGY DISCUSSION QUESTIONS**

### **Do different types of fuels create different types of energy?**

All types of fuels can be burned for energy. Burning coal, oil and natural gas produces heat, which is then converted to other energy forms, like electricity.

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### **Are energy sources unlimited?**

Some energy sources are more limited than others. Coal, oil and natural gas are used a lot right now but they could run out in only a few generations. Renewable sources like wind, sunlight, biomass, geothermal, and water power can be easily renewed and are almost unlimited!

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### **Why are renewable energy sources important for Earth's future?**

If we are still dependent on non-renewable energy sources when they run out, we will not have enough energy to meet our needs.

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### **What are some impacts of our energy use?**

Impacts of our energy use include pollution, damage to the environment, reduced air quality and climate change.

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### **Do renewable energy sources have little or no impact, compared to non-renewable sources?**

Some renewable energy sources can have environmental impacts as well, but the benefits of renewable energy sources is that they are much more easily replenished.

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