



## Energy Sources

# Renewable

## Renewable Basics

### What Is Renewable Energy?

Renewable energy sources can be replenished in a short period of time. The five renewable sources used most often are:

- [Biomass](#) — including wood and wood waste, municipal solid waste, landfill gas, and biogas, [ethanol](#), and [biodiesel](#)
- Water ([hydropower](#))
- [Geothermal](#)
- [Wind](#)
- [Solar](#)

### What Role Does Renewable Energy Play in the United States?

The use of renewable energy is not new. More than 150 years ago, wood, which is one form of biomass, supplied up to 90% of our energy needs. As the use of coal, petroleum, and natural gas expanded, the United States became less reliant on wood as an energy source. Today, we are looking again at renewable sources to find new ways to use them to help meet our energy needs.

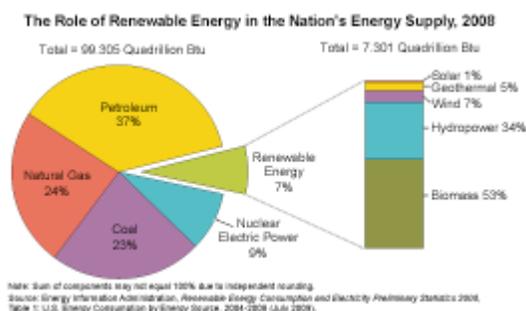
In 2008, consumption of renewable sources in the United States totaled 7.3 quadrillion Btu — 1 quadrillion is the number 1 followed by 15 zeros — or about 7% of all energy used nationally.

Over half of renewable energy goes to producing electricity. About 9% of U.S.

**The Role of Renewable Energy  
Consumption in the Nation's Energy Supply,**

electricity was generated from renewable sources in 2008. The next largest use of renewable energy is the production of heat and steam for industrial purposes. Renewable fuels, such as ethanol, are also used for transportation and to provide heat for homes and businesses.

2008



Renewable energy plays an important role in the supply of energy. When renewable energy sources are used, the demand for fossil fuels is reduced. Unlike fossil fuels, non-biomass renewable sources of energy (hydropower, geothermal, wind, and solar) do not directly emit greenhouse gases.

## Why Don't We Use More Renewable Energy?

In the past, renewable energy has generally been more expensive to produce and use than fossil fuels. Renewable resources are often located in remote areas, and it is expensive to build power lines to the cities where the electricity they produce is needed. The use of renewable sources is also limited by the fact that they are not always available — cloudy days reduce solar power; calm days reduce wind power; and droughts reduce the water available for hydropower.

The production and use of renewable fuels has grown more quickly in recent years as a result of higher prices for oil and natural gas, and a number of State and Federal Government incentives, including the Energy Policy Acts of 2002 and 2005. The use of renewable fuels is expected to continue to grow over the next 30 years, although we will still rely on non-renewable fuels to meet most of our energy needs.

## How Do We Measure Renewable Energy?

Each of the energy sources we use is measured, purchased, and sold in a different form. Many units of measurement are used to measure the energy we use. Learn more about converting energy units in the [Units and Calculators](#)

section.