Energy makes change possible. We use it to do things for us. It moves cars along the road and boats over the water. It bakes a cake in the oven and keeps ice frozen in the freezer. It plays our favorite songs on the radio and lights our homes. Energy is needed for our bodies to grow and it allows our minds to think.

Scientists define energy as the ability to do work. Modern civilization is possible because we have learned how to change energy from one form to another and use it to do work for us and to live more comfortably.

Energy comes in different forms:

- Heat (thermal)
- Light (radiant)
- Motion (kinetic)
- Electrical
- Chemical
- Nuclear energy
- Gravitational

Energy is in everything. We use energy for everything we do, from making a jump shot to baking cookies to sending astronauts into space.

There are two types of energy:

- Stored (potential) energy
- Working (kinetic) energy

For example, the food you eat contains chemical energy, and your body stores this energy until you use it when you work or play.

Energy Sources Can be Categorized As Renewable or Nonrenewable

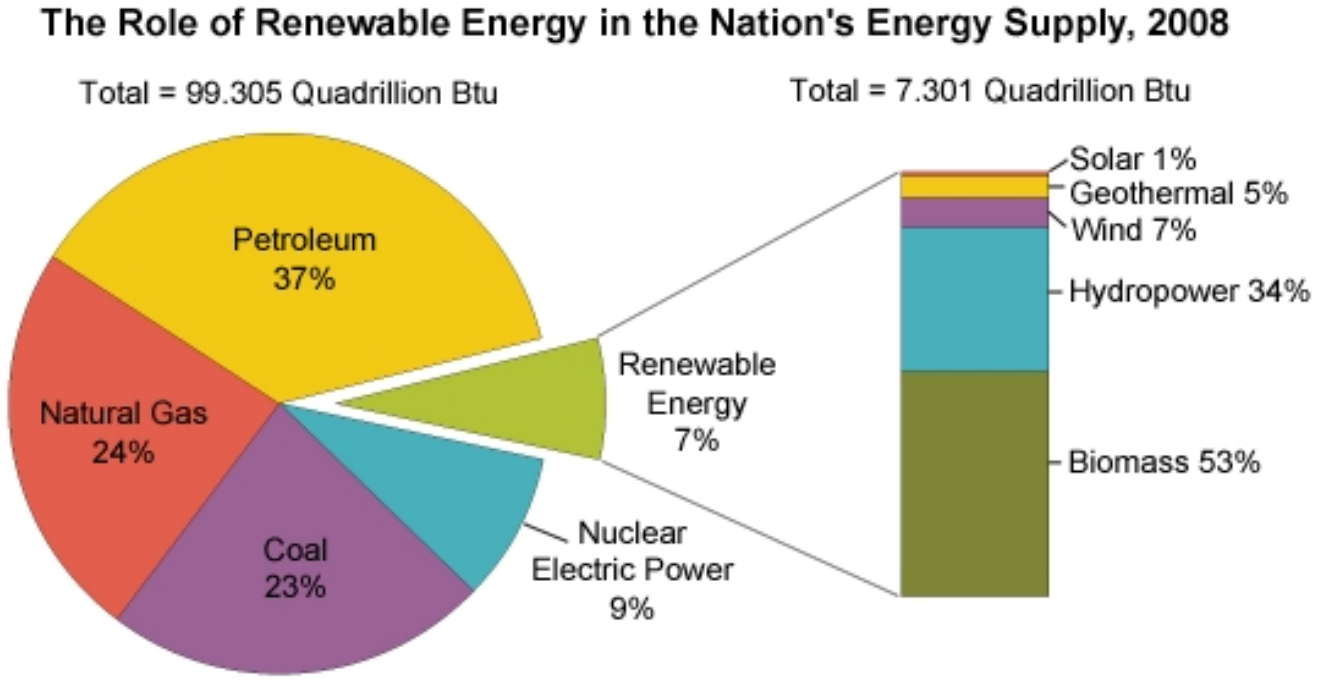
When we use electricity in our home, the electrical power was probably generated by burning coal, by a nuclear reaction, or by a hydroelectric plant at a dam. Therefore, coal, nuclear and hydro are called energy sources. When we fill up a gas tank, the source might be petroleum or ethanol made by growing and processing corn.

Energy sources are divided into two groups — renewable (an energy source that can be easily replenished) and nonrenewable (an energy source that we are using up and cannot recreate). Renewable and nonrenewable energy sources can be used to produce secondary energy sources including electricity and hydrogen.

Renewable Energy

Renewable energy sources include:

- Solar energy from the sun, which can be turned into electricity and heat
- Wind
- Geothermal energy from heat inside the Earth
- Biomass from plants, which includes firewood from trees, ethanol from corn, and biodiesel from vegetable oil
- Hydropower from hydroturbines at a dam



Note: Sum of components may not equal 100% due to independent rounding.
Source: Energy Information Administration, *Renewable Energy Consumption and Electricity Preliminary Statistics 2008*, Table 1: U.S. Energy Consumption by Energy Source, 2004-2008 (July 2009).

Nonrenewable Energy

We get most of our energy from nonrenewable energy sources, which include the fossil fuels — oil, natural gas, and coal. They're called fossil fuels because they were formed over millions and millions of years by the action of heat from the Earth's core and pressure from rock and soil on the remains (or "fossils") of dead plants and creatures like microscopic diatoms. Another nonrenewable energy source is the element uranium, whose atoms we split (through a process called nuclear fission) to create heat and ultimately electricity.

We use renewable and nonrenewable energy sources to generate the electricity we need for our homes, businesses, schools, and factories. Electricity "energizes" our computers, lights, refrigerators, washing machines, and air conditioners, to name only a few uses.

Most of the gasoline used in our cars and motorcycles and the diesel fuel used in our trucks are made from petroleum oil, a nonrenewable resource. Natural gas, used to heat homes, dry clothes, and cook food, is nonrenewable. The propane that fuels our outdoor grills made from oil and natural gas, both nonrenewable.

The chart above shows what energy sources the United States uses. Nonrenewable energy

sources account for 93% of all energy used in the Nation. Biomass, the largest renewable source, accounts for over half of of all renewable energy and 3.7% of total energy consumption. (Note: 53% of 7% is 3.7%.)