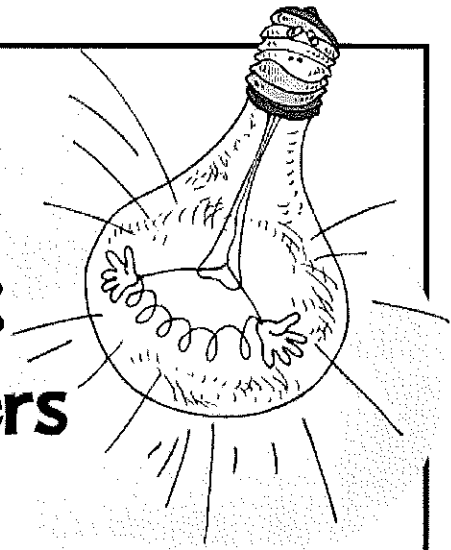


## Renewable Energy: What it is, and why it matters



**Solar Energy** – Solar energy is derived from an abundant resource that we see nearly every day and often take for granted: The sun. In fact, the earth gets far more energy from the sun in a single day than the entire planet uses from other sources. Solar energy can be collected in a variety of ways, the most common being photovoltaic (PV) cells, and there are even solar thermal power plants.

**Benefits:** Solar energy doesn't create pollution or greenhouse gases and can be used on a small scale (a solar cell to charge your phone) or a larger scale (solar panels on a rooftop to power an entire house or town).

**Wind Energy** – If you've ever seen a windmill, you've seen wind energy in action; in fact, it's one of the oldest forms of energy humans have used. Modern versions are called wind turbines, which use propellers to harvest the wind energy. It's a relatively inexpensive energy source, but requires careful planning and use of the right location with enough wind to regularly generate power.

**Benefits:** Wind energy does not create any harmful emissions and has far fewer impacts on the environment than other forms of energy.

**Biomass Energy** – This type of energy might already sound kind of gross, and sometimes it is. Basically anything that comes from plant or animals, including waste, can be used as biomass energy. Examples include: Animal manure, sewage, agricultural crops, food and yard waste, and wood. Biomass energy is generally obtained by burning this type of waste, where it can be converted into methane gas or fuels like ethanol for vehicles. Landfills, sewage treatment plants, and livestock farms can also either use or collect and resell biogases like methane, which would otherwise end up in the earth's atmosphere.

**Benefits:** Many biofuels are considered "carbon neutral" because the plant matter that is converted into biofuel helps keep carbon dioxide levels down while it is growing. Ethanol is considered a cleaner burning fuel for automobiles.

**Geothermal Energy** – This type of energy comes from steam naturally made within the earth, and is often used to generate electricity or to heat a building. There are geothermal power plants that use heat within the earth to produce electricity for an entire region, and more individual geothermal systems that can heat your home. Geothermal heat pumps are probably the most efficient and cheapest way to heat any building.

**Benefits:** Geothermal energy is renewable and clean energy that comes from the earth. Geothermal power plants have lower emissions compared to other types of power plants.

**Hydroelectric Energy** – Power generated from water is the most common renewable energy source in the United States. This power source depends upon the amount of available water and rainfall in a given area. Hydroelectric power can be generated by dams, tidal flow, or waves. The force of water flow is used to power a turbine that then generates electricity. While dams are a common source of this type of power, their environmental impact can be massive, from flooding habitat when creating a reservoir to disrupting migratory paths for fish like salmon.

**Benefits:** A clean renewable energy source if an existing dam is already in place.

