Sustainable and Unsustainable Energy Sources

The main form of energy used in our homes is electricity. Electrical energy sources are classified as either sustainable or unsustainable. Sustainable sources of energy will never run out. They are renewable, and include solar, wind, geothermal and hydroelectric power.

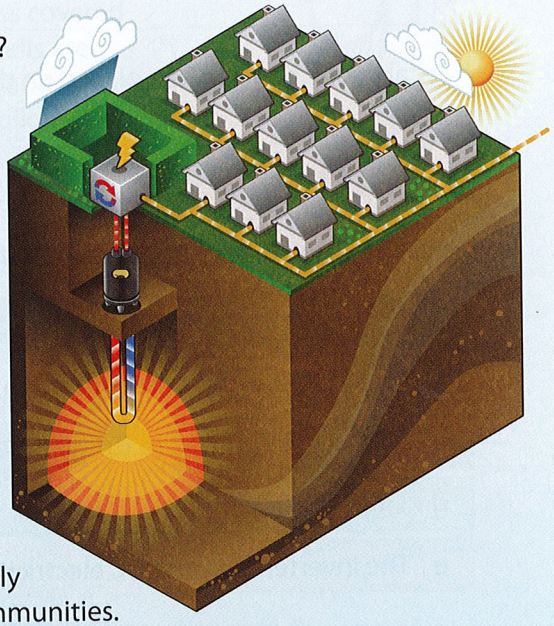
Unsustainable sources of energy come in the form of fossil fuels. Fossil fuels are the result of extreme heat and pressure on the remains of plant and animal matter buried deep under Earth's crust. Oil, natural gas and coal are fossil fuels used to generate electricity. Fossil fuels are not only unsustainable, they also produce gases that pollute the air and are harmful to our environment.

Energy Sources	
Sustainable	*Unsustainable*
Geothermal	Oil
Biomass	Natural gas
Solar	Coal
Wind	
Hydro	

Scientists are constantly looking into ways we can produce energy in a more environmentally-friendly manner than using our fossil fuel resources. Below we will look at two fascinating sustainable energy sources.

Geothermal Energy

Did you know Earth's core is hotter than the surface of the Sun? Geothermal energy is stored heat in the centre of Earth. The most common sources of geothermal energy include volcanoes, geysers and hot springs. However, it is also found abundantly in underground areas throughout Australia as hot granite.



In one method of generating electricity using geothermal energy, a well must be dug deep into Earth's surface. The well releases and captures hot water and steam from Earth's core.

The steam is piped many kilometres to eventually reach the surface. At the surface, the force of the steam turns a turbine which in turn rotates a generator to create electricity. The generator sends the new energy to power grids that supply electricity to homes, schools and other buildings found in communities.

Bioenergy

If you have ever sat by a campfire, you have seen bioenergy in action. Bioenergy is energy produced by burning biomass which is any organic matter that can be used as an energy source. This includes trees, crops, plants, animal waste, leftover wood from sawmills and unrecyclable paper and cardboard. Biofuel is derived from biomass and can be used to generate electricity.

Plants absorb energy from the Sun in a process called photosynthesis. Waste organic plant matter collected from farms and factories can be burned in order to release the stored energy and create heat.

Collected animal waste is stored and broken down by bacteria. During this process, methane gas is released. Methane gas and waste plant matter are burned to heat water and create steam. In a very similar process to geothermal energy production, steam drives a turbine and generator to create electricity to send to power grids.