

Energy produced from sources that is continuously replenished by nature is termed renewable energy and the sources are thus called renewable energy sources. Such renewable energy sources include biomass, hydro power, geothermal, wind, and solar. According to governmental data, about 7% of the energy used in the United States are produced from renewable energy, of which half of it goes on to produce electricity. Globally, about 18% of energy consumption comes from renewable energy sources. Rising fossil fuel prices, concern for greenhouse gases (GHG) and global warming has created an environment for the proliferation of renewable energy use.

**Solar:** Solar energy is widely available in abundance, but the biggest challenge in harnessing the solar power lies in it being scattered. The method employed in converting solar energy into useful electric energy is through the use of photovoltaic cells and solar concentrators.

Photovoltaic when exposed to sun rays, generates a small electric charge, thus producing a electric current. Solar Concentrators are now been used at the utility level to use solar energy for large scale electric energy output.

**Wind:** Though wind energy accounts for less than 1% of the total renewable energy output, wind power capacity is increasing by almost 30% annually. Rotating wind turbines is the most widely used method to harness wind energy into electric energy. In certain parts of the world, wind speed are strong enough on most days to produce sustainable electric energy through wind turbines. Many wind farms are now been used or under construction to produce massive amount of electricity.

### **Biomass:**

Out of 18% global energy output from renewable sources, 13% of it comes from biomass which includes wood & wood waste, municipal solid waste, bio gas, bio diesel and ethanol. As the name suggest, it is the matter made up of biological substance i.e. wood, leaves, living matter etc. Biomass are organic matter that stores up sun's energy through naturally occurring process called photosynthesis. Biomass is a renewable energy source as newer plant and animal life are replaced continuously. Biomass fuels such as wood, crops, manure, and some garbage when burned, release heat energy that can then be converted to another form of energy by different processes.

### **Geothermal:**

Earth's inner core is very hot compared to the crust. When rainwater seeps deep inside, this hot inner magma heats up this water and converts it into hot steam. This steam of hot water vapor gushes out from deep within to the earth surface in the form of hot springs and geysers. With right technology, this heat energy is tapped and converted into other useful energy.