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| Type | Definition | Examples | Advantages | Disadvantages  |
| Solar | Solar Energy is energy produced within the sun’s core as a result of nuclear fission.  | --- Active and Passive Solar Heating would be useful near the equator. There is no equipment required for passive heating. --- Another example is by producing electricity by using photovoltaic (PV) cells, which power toys, calculators, etc. This method can be used anywhere in the world. --- Solar thermal systems concentrate the sunlight onto a receiver to superheat a liquid. It makes steam and powers electrical generators. You need a lot of machinery and money for this.  | --Unlimited Supply--Causes no air or water pollution | --May not be cost effective--Storage or backup is necessary |
| Hydropower | Hydropower is energy that comes from the force of moving water.  | --- Hydroelectric power plants are expensive but are cheap to use in the long run. It can be used where there is a good water source. --- Ocean thermal energy conversion (OTEC). It uses the temperature difference between the surface and deep ocean to boil fluids. It can be used where there is a good water source. --- Tidal power uses the enormous power of ocean tides. This also can be used near a reliable water source.  | --- Abundant, Clean, and Safe--- Easily stored in reservoirs. --- Relatively inexpensive--- Offers recreational benefits like boating, fishing, etc.  | --- Possible significant environmental impact. --- Only useful where there is a water supply. --- Best sites for dams have already been developed.  |
| Wind Energy | Wind Energy is the when the wind’s kinetic energy is converted into mechanical energy.  | --- Horizontal machines have airplane propellers blades. They produce more electricity. They are used more. It can be used in a windy place. --- Vertical machines look like giant egg-beaters. They are easier to maintain. They can receive wind from any direction. They don’t require protection against high winds. It can be used in a windy place.  | --- Free energy source. --- No water or air pollution. --- Relatively inexpensive to build. --- Land around wind farms can have other uses.  | --- Constant and significant amounts of wind needed.--- Wind farms require significant amounts of land.--- Wind energy can have a significant visual impact on landscapes.  |
| Geothermal | Geothermal energy is energy that comes from within the crust. The heat is produced by the radioactive decay of elements under Earth’s crust. One type of geothermal energy is called hydrothermal energy.  | --- Hydrothermal energy is made up of water and heat. Water under Earth’s crust touches the heated rocks and changes it into steam. This heats buildings or it powers turbines to generate electricity. Steam is piped directly to a turbine, which then powers an electrical generator. It is expensive and needs land to build the turbines on.  | --- Unlimited supply of energy. --- No air or water pollution. | --- Start-up /development costs can be expensive. --- Maintenance costs can be a problem due to corrosion.  |
| Biomass | Biomass is an organic substance used as an energy source. ***Some examples***--- Wood; can be used where there are trees, such as in a forest like in Africa. --- Crops; can be used where there is farmland, where corn is grown. --- Seaweed; near a water source.--- Animal Wastes; can be used where there is livestock or wild animals, like in the plains of Africa.  | --- Waste-to-energy power plants are like a coal plant, but steam is made to run the turbines by using garbage. It is usually costlier to make electricity from biomass, but the amount of waste in landfills is reduced. -- The methane from the landfills is used for biomass energy. Methane (“biogas”) is burned at the site. --- 10% ethanol and 90% gasoline created gasohol, which is costlier but has a higher octane rating is cleaner burning. | --- Abundant, “Renewable”--- Used to burn waste products | --- Can result in air pollution--- Probability is that it will be cost effective.  |