

ELECTRICAL ENERGY

Definition: Heat and mechanical energy may be converted into electrical energy using generators driven by steam, flowing air or water and internal combustion engines. Electricity may also be produced from the chemical reactions within fuel cells and light falling on photovoltaic cells. The electricity may be classified as primary or secondary where secondary electricity is produced by alternators driven by steam, gas turbines or internal combustion engines. In short secondary electricity is produced from heat.

HEAT ENERGY

Definition: Heat may be classified as primary or secondary heat. They are obtained from:

Primary heat

- Exothermic chemical processes, where the reactants are not fuels already present in the energy system,
- active capture of solar heat,
- nuclear reactors,
- geothermal reservoirs,
- heat pumps.

Secondary heat

- Combustion of fuels,
- electrical boilers.

Remark: Heat output from heat pumps is partly primary (heat extracted from the ambient air or liquids) and partly secondary (the heat produced from the electricity or fuel used to drive the pump). Heat pumps have been placed under primary only because the primary heat is normally the major part of the output. The main exception is when they are recovering waste heat.

CLASSIFICATION OF GENERATING PLANTS

Definition: Electricity and heat plants are divided into types according to whether they produce only one or both forms of energy and by producer according to the producer's principal reason for generation.