UNIT V
ENERGY RESOURCES

NOTES

1. **Energy -** Energy is the primary input in the production of goods and services. It is required for activities in our daily life such as for cooking, provide light and heat, drive vehicles and run machinery in the different sectors of economy.

2. **Conventional sources of energy -** Conventional sources of energy are those which are popular and have been used since a long time. Among the conventional sources of energy, fossil fuels are expensive to prospect, extract and process.

3. **Non - Conventional sources of energy -** Non -conventional sources of energy – are those which are to come into common use. Non -conventional sources are inexpensive once machinery for harnessing them is installed.

4. **Coal -** Coal provides a substantial part of the nation's energy needs. Not only being the major industrial fuel or the source of power, it is also used as raw material for a large number of industries. Hence coal is often called Black Gold.

5. **Petroleum -** Petroleum or mineral oil is another major source of energy in India after coal. It is used for all internal combustion engines in automobiles, railways and aircraft. It not only provides fuel for heat and lighting but also provides many by – products which are used as the raw materials for a number of petrochemical and other industries.

6. **Natural Gas -** Natural gas is used as a source of energy and as a raw material in the petroleum and fertiliser industry. It is a clean and environment friendly resource because the emission of Carbondioxide into the atmosphere is quite low while using it.

7. **Electricity -** Electricity has a wide range of application in today's world and plays an important role in the progress and prosperity. Electricity is generated in three different ways Hydro-electricity, Thermal electricity and Nuclear electricity.

- Hydro Electricity - Hydro-electricity is generated by driving turbines using fast - flowing perennial water.
- Thermal Electricity - Thermal electricity is generated by using coal, petroleum and natural gas.
- Nuclear Energy - Nuclear energy is generated by altering the structure of atom.

8. **Solar Energy -** India, being a tropical country, is well endowed with plenty of solar energy. It receives solar energy equivalent to 20 MW/ sq. km per year which is more than the total energy consumed in the country.

9. **Wind Energy -** The kinetic energy of wind through turbines is converted into electrical energy.

10. **Tidal Energy -** For the generation of tidal energy, floodgate dams are to be built across inlets. During high tide, ocean water flows into the inlet and gets trapped when the gate is closed. After the tide recedes, the trapped water is released through a power- generating turbine to produce electricity.

11. **Geothermal Energy -** Geothermal energy refers to the heat and electricity produced by using heat from the interior of the earth.

12. **Biogas Energy -** Biogas is derived from biological products such as bagasse, farm waste, rice husk, sewage, vegetable waste, animal and poultry wastes and human excreta.

13. **Conservation of Energy Resources -** Steps to be taken up for the conservation of energy resources are: –

- To improve the efficiency of power plants
- To use energy efficient engines in vehicles
- To use power saving devices at home and in industries
- Popularisation of non-conventional sources of energy
- To develop alternative sources of energy

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