

Renewable Energy Sources



System Requirement:- IBM-PC Compatible Min P-III with Window-OS, 128 MB RAM/Multimedia Kit

List of Topics

Sources of Energy on the Earth : Fossil fuels, Solar energy, Wind energy, Tidal energy, Geothermal energy, Bio energy, Ocean wave energy, Nuclear Energy.

The Energy Utilization : Conversion, storage, transmission & supply.

The Solar Energy : Average solar radiation, Radiation characteristics, seasonal variation, conversion of energy. **Thermal** :- Types of heat collectors, focusing & tracking systems, domestic equipments, large scale plants, Solar pond, Distillation, Cooling and heating of Buildings. **Photovoltaic** : Types of cell, Storage collection, Design Aspects. **Electrical** : Electric Power generation -Thermoelectric, Photovoltaic.

Wind Energy :Types of Converters -Vertical, Horizontal, Cross wind converters. Types of Propellers, Electric Generators and control systems, **Design aspects**: Energy of wind, Variable wind velocities. Selection of site for energy conversion, Estimation of energy, **Types of plants** - Single basin system, Double basin system.

Tidal Energy : Hot water springs, Design Aspects.

Geothermal Energy : Heat generation in the earth, Temperature gradient. **Conversion - Methods** : Low temperature thermodynamic cycle. Hydro Thermal Power generation. **Sources** : Dry hot-rock site, Molten Rock chambers, Hot water springs. Geothermal Energy Exploration and Environmental Aspects.

Bio Energy : Plant photosynthesis, Bacterial photosynthesis, Thermo- chemical gasification, liquid bio-fuels, alcohols. Bio-Gas Generation from plant waste, house-hold waste, animal waste etc.

Ocean wave Energy : Power of waves, seasonal effects & utilization. Devices for wave energy conversion-Micro/Mini Hydro power station, small scale turbine and generators, Prospectus of the Technology.

Nuclear Fusion Energy : Fusion of the helium from heavy hydrogen. Sources of Deuterium. Utilization of energy in vacuum chambers .

The economics of energy sources, ecological effects of non renewable energy.

Other Energy sources : Fusion chain, Ocean, Conversion of electric charge in atmosphere.

