

# Notes 1<sup>st</sup> Copy:

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## Sources of energy

- Conventional sources
  - Solid fuels: Coal (Anthracite, Bituminous, Sub-bituminous, & Lignite), charcoal, coke, & briquettes
  - Liquid fuels: Petroleum-based and derivatives
  - Gaseous fuels: Natural Gas, LPG, and CNG
- Non-conventional sources
  - Solar power
  - Wind power
  - Hydroelectric power
  - Tidal power
  - Nuclear power
  - Biogas

## Types of Power plants

• Thermoelectric power plant	• Wind power plant	• Steam power plant
• Hydroelectric power plant	• Nuclear power plant	• Geothermal power plant
• Solar plant	• Biogas power plant	• Tidal power plant

## Important Terms:

- Calorific value (HCV or Gross CV, LCV or Net CV): The energy liberated by the complete combustion or oxidation of a unit mass or volume of a fuel (expressed as kJ per Kg for solid fuels and kJ per m<sup>3</sup> for liquid or gas fuels).
  - $HCV = LCV + \text{Latent heat of vaporisation}$
- Energy sources such as Renewable (Clean and inexhaustible) and Exhaustible sources (non-replenishable) such as Crude oil or petroleum and its derivatives.

## Important properties of Liquid Fuels:

• Specific gravity	• Flash point
• Fire point	• Volatility
• Pour point	• Viscosity
• Carbon residue	• Octane number
• Cetane number	• Corrosive property
• Ash content	• Gum content
• Calorific or heating value of a fuel	• Sulphur content

## Important properties of Gaseous Fuels:

• Specific gravity	• Viscosity and density
• Calorific or heating value	• Diffusibility