

UNIT II

THERMAL ENERGY STORAGE SYSTEM

Thermal Energy Storage System

Thermal Energy Storage (TES) Systems can store heat or cold for later use, which can help to balance energy demand and supply. It reduces energy costs, and improve energy efficiency. TES systems are used in a variety of applications, including heating and cooling of buildings, industrial processes, and power generation.

Types of TES systems:

There are three main types of TES systems.

- Sensible heat storage
 - Latent heat storage
 - Thermochemical storage
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- **Sensible heat storage:** Stores heat energy by raising the temperature of a material.
Example: water, molten salt
Applications: Concentrated solar power, district heating
 - **Latent heat storage:** Stores heat energy by using phase change materials.
Example: ice melting
Applications: HVAC systems, solar heating
 - **Thermochemical storage:** Stores heat energy by using chemical reactions
Applications: Long duration storage, solar energy systems

