

What are the applications of thermal energy storage (TES)?

Applications for the TES can be classified as high, medium and low temperature areas. In high temperature side, inorganic materials like nitrate salts are the most used thermal energy storage materials, while on the lower and medium side organic materials like commercial paraffin are most used.

What is a thermal energy storage material?

During discharge, the thermal energy storage material transfers thermal energy to drive the heat pump in reverse mode to generate power, as well as lower-grade heat that can be used in various other applications.

What are the properties of solar thermal energy storage materials?

2. The properties of solar thermal energy storage materials Applications like house space heating require low temperature TES below 50 °C, while applications like electrical power generation require high temperature TES systems above 175 °C .

What are the different modes of thermal energy storage?

Various modes of thermal energy storage are known. Sensible heat storage represents the thermal energy uptake owing to the heat capacity of the materials over the operational temperature range. In latent-heat mode, the energy is stored in a reversible phase transition of a phase change material (PCM).

Does thermal energy storage offer a wide range of energy technologies?

Nature Communications 8, Article number: 1446 (2017) Cite this article Thermal energy storage offers enormous potential for a wide range of energy technologies. Phase-change materials offer state-of-the-art thermal storage due to high latent heat.

What are the components of a solar thermal energy storage system?

The performances of solar thermal energy storage systems A TES system consists of three parts: storage medium, heat exchanger and storage tank. Storage medium can be sensible, latent heat or thermochemical storage material . The purpose of the heat exchanger is to supply or extract heat from the storage medium.



Thermal and light energy storage materials



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