Thermal energy storage patent

An energy storage system converts variable renewable electricity (VRE) to continuous heat at over 1000° C. Intermittent electrical energy heats a solid medium. Heat from ...

The present invention relates to the field of thermal energy storage, and more specifically a system for thermal energy storage at ultra-high temperatures in excess of 873K (600° C.).

The steam which has been compressed by means of the excess electrical power is directed to heat exchanger means where it is used to heat a low vapor pressure (LVP) thermal energy ...

U.S. patent number 10,107,268 [Application Number 14/846,201] was granted by the patent office on 2018-10-23 for thermal energy storage and power generation systems and methods.

Thermal energy storage directly converts off-peak electricity into heat for thermal energy storage, which may be converted back to electricity, for example during peak-hour ...

[0002] Modular thermal energy storage systems are known. They are used for storing and subsequently de-livering thermal energy. The thermal energy provided by these systems can ...

Thermal energy storage compositions comprise a thermal energy storage material, for instance an inorganic hydrate that can undergo a change of hydration with accompanying release or ...

A modular thermal energy storage system for storing and transferring thermal energy at a wide range of temperatures. The system includes processing control circuitry, heat transfer fluid ...

The present invention relates to a novel thermal storage material for use in thermal energy storage systems and process of preparation thereof. More particularly, the present invention ...

The invention provides, in some aspects, a thermal storage system that has one or more fluid-transport vias that contain a heat transfer fluid and that are disposed in thermal ...

Various novel heat exchange components which are designed and/or configured to effectively and efficiently dissipate thermal energy (heat) away from a heat source are described. The heat ...

Mathur, Anoop Kumar, et al. "Thermal energy storage system comprising encapsulated phase change material." US 10,107,564, United States Patent and Trademark ...

Thermal energy storage (TES) systems may be used as an efficiency component in power systems, for

example to store excess energy when energy production exceeds demand, and to ...

The invention provides systems and methods for energy storage for providing low temperature, long-duration thermal energy storage. The system provides for subterranean thermal energy ...

The buffer system serves as a temporary (e.g. intermittent) energy storage system to overcome the disadvantages of unequal energy input and output, thus increasing energy utilization ...

In patent publication WO 2012/169900 A1, a Thermal Energy Storage (TES) is described, having beneficial properties over prior art storages. More specifically, a practical and cost effective ...

The invention relates to a method for producing a ceramic material for thermal energy storage, characterised in that it comprises the production of a mixture ...

A thermal energy storage (TES) system that uses an elemental material (e.g., elemental sulfur) as an energy storage material is disclosed. The energy storage material is separately stored from ...

Methods and devices for long-duration electricity storage using low-cost thermal energy storage and high-efficiency power cycle, are disclosed. In some embodiments it has the potential for ...

A thermal energy storage system utilizes a phase change material with an encapsulating material surrounding the phase change material. The encapsulating material fully contains the phase ...

The controlling use of and applications for thermal energy storage, and the software and components for controlling efficiency of thermal energy storage are applicable to various types ...

Although the patent count for liquefied air energy storage, compressed air energy storage, and thermal energy storage is lower in comparison, these technologies have ...

The present invention relates to a thermal energy storage system. More specifically, the invention relates to maintaining and optimizing a thermocline in a thermal energy storage fluid contained ...

Advantageously, a thermal storage system embodying this invention can store a relatively great quantity of heat energy per unit volume, for example up to at least 45,000 Btu per cubic foot in ...

Current commercially deployed thermal storage systems are two-tank sensible heat designs using molten salt as the thermal storage media [S. Relloso and E. Delgado, "Experience with molten ...

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