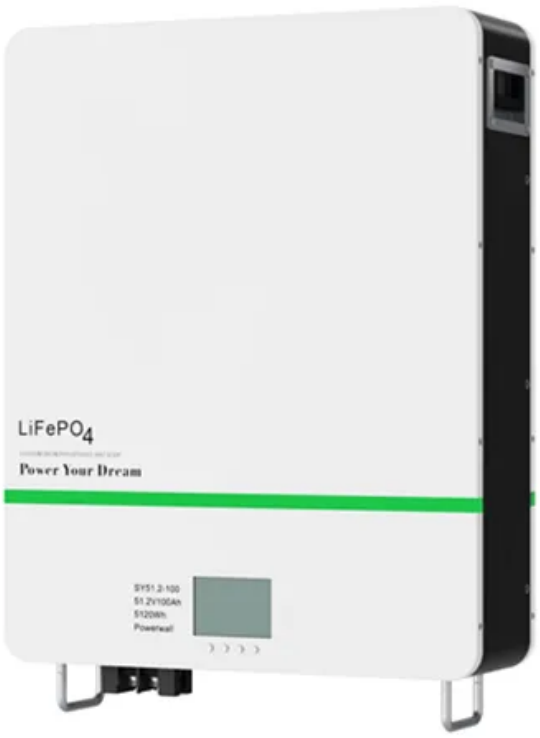
Geologic thermal energy storage



Overview

This thermal energy storage, GeoTES (Geologic Thermal Energy Storage), would store concentrated solar heat for very long durations - able to supply 40 consecutive 24-hour days or 80 consecutive nights at any one time, and even while simultaneously charging with daily sunshine. Storing rather than dumping excess energy for later demand is more efficient and may become more cost effective when given a better understanding of available geologic storage resources. Geologic Energy Storage Subsurface energy storage options including natural gas storage, compressed air storage . Later, the stored hot water is produced and either used directly in industrial processes or converted into electricity. GeoTES can have extremely large energy capacities in surprisingly small subsurface volumes. For example, a cubic formation with a 275-meter side-length can store enough ~200°C . Seasonal energy storage can shift energy generation from the summer to the winter, but these technologies must have extremely large energy capacities and low costs. Geological thermal energy storage (GeoTES) is proposed as a solution for long-term energy storage. The objective of SI 2030 is to develop specific and quantifiable research, development, and .

Geologic thermal energy storage

[Geological Thermal Energy Storage (GeoTES) Charged with Solar Thermal]

Geological thermal energy storage (GeoTES) utilizes the underground reservoirs to storage and dispatch energy per given demand schedule over a time scale up to seasons of a year.

Geologic Thermal Energy Storage (GeoTES)

Concentrated Solar Thermal-Geologic Thermal Energy Storage (CST-GeoTES) works by producing brackish water from a geological formation using a production well. The water is heated by the solar

Geologic Energy Storage , U.S. Geological Survey

The purpose of this research is to develop a better understanding of the geologic screening criteria needed to develop a potential future U.S. Geological Survey (USGS) methodology

Technology Strategy Assessment

This technology strategy assessment on thermal energy storage, released as part of the Long-Duration Storage Shot, contains the findings from the Storage Innovations (SI) 2030 strategic initiative.

1000-hour thermal energy storage to get test in California

Next year, at a five-acre test site near Bakersfield, California, parabolic trough solar collectors will gather the sun's heat daily and accumulate it in a depleted oil reservoir underground,

A review of Geological Thermal Energy Storage for

Geological thermal energy storage (GeoTES) has emerged as a promising long duration, grid scale solution, providing stability and security through flexible operations and valuable grid

Geological Thermal Energy Storage Using Solar Thermal and

Geological thermal energy storage (GeoTES) is proposed as a solution for long-term energy storage. Excess thermal energy can be stored in permeable reservoirs such as aquifers and depleted

Progress on Geological Thermal Energy Storage Analysis

In this article, we will describe progress made by a consortium of national laboratories and industry organizations on the analysis and development of GeoTES.

Geological Thermal Energy Storage Using Solar Thermal and

In this research paper, two systems that create thermal energy storage within the geological subsurface are introduced. These GeoTES systems are evaluated using techno-economic models.

A review of Geological Thermal Energy Storage for

These innovative systems are designed to store excess thermal energy e.g. generated from renewable sources in the subsurface using borehole heat exchangers (BHE) and release it

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