Design of cold energy storage device

What is cold storage technology?
At present, cold storage technology has been widely used in energy storage, such as building energy conservation [4, 5, 6, 7], solar heat storage [8, 9, 10, 11], food and medicine cold preservation [12, 13, 14, 15].

What is cool storage technology?
Cool storage technology means that when the night power load is low, the cooling unit is operated to generate cooling capacity stored in the cold storage medium, and then the cooling capacity is released during the peak load period to meet various cooling load demands, shifting peaks and filling valleys, and saving electricity costs .

What are phase change cold storage materials?
Because of its high energy storage density, phase change materials have become a research hot spot in the field of energy storage. Therefore, phase change cold storage materials have great potential applications in cold chain transportation and distribution.

How to improve the performance of cold storage equipment?
The performance improvement of cold storage materials, rational design of storage tanks, and simulation of temperature field under the influence of different factors in cold storage equipment should be the focus of future research on cold storage transportation and distribution.

What is latent heat storage technology?
Latent heat storage technology,which is the application of phase change material cold storage technology,has received extensive attention and research due to its high energy storage density .

What is a cascade utilization of LNG cold energy?
Cascade utilization of LNG cold energy by integrating cryogenic energy storage,organic Rankine cycle and direct coolingA novel combined electricity-gas storage system by synthesizing natural gas liquefaction and regasification processes in pressure reduction stations

Energy storage can be used to reduce the abandonment of solar and wind energy by flattening the fluctuation of power generation and increasing the utilization of renewable energy sources ...

Qu et al. invented a phase change cold storage device, which can effectively suppress the temperature stratification problem of energy storage materials, improve the cold ...

This paper proposed a novel LNG cold energy cascade utilization (CES-ORC-DC-LNG) system by integrating cryogenic energy storage (CES), organic Rankine cycle ...

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The paper proposes and compares two different simulation models for a cold-storage refrigeration system based on PCM. First, a continuous model, the application of ...

Through energy power calculation and demand analysis, this paper accomplished the design and installation arrangement of energy, control and cooling modules in the box, and proposed the ...

A 20-feet latent cold energy storage device integrated with a novel fin-plate unit was used to cool a 400 m 2 building space, in which the cold energy could be generated from ...

Downloadable (with restrictions)! Due to the fluctuation of LNG supply, the profile of power generation has a mismatch with that of power demand, which causes power shortage at the ...

Among various energy storage technologies, thermal storage allows energy to be stored in form of heat or cold so that it can be used, later on, for heating and cooling ...

The rapid consumption of fossil fuels in the world has led to the emission of greenhouse gases, environmental pollution, and energy shortage. 1,2 It is widely acknowledged that sustainable ...

Parametric analysis and dimensional optimization study for the melting process of the phase changing material placed in cold energy storage devices have been conducted.

To address this issue, a combined system containing standalone power generation subsystem and liquid air energy storage subsystem is proposed. The energy ...

As a unique form of thermal energy storage (TES), phase change cold storage (PCCS) with air as heat transfer fluid (HTF) is receiving constantly growing attentions ...

With the rapid prosperity of the Internet of things, intelligent human-machine interaction and health monitoring are becoming the focus of attention. Wireless sensing ...

It turns out sensible and latent heat based cold energy storage methods have been widely studied using numerical methods. Therefore, they are considered as ...

The chapter gives an overview of cold thermal energy storage (CTES) technologies. Benefits as well as classification and operating strategies of CTES are discussed.

A cold storage material for CAES is designed and investigated: ... Flywheel energy storage: Power distribution design for FESS with distributed controllers ... (USDOE), ...

Concerning cold energy storage tank design, storage reservoirs filled with a PCM have emerged as a popular strategy compared to sensible thermal storage systems ...

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