Weng likui energy storage

How does a liquid air energy storage system work?
In the current liquid air energy storage system (baseline LAES),heat of compression is recovered and stored in the charging cycle. The stored heat is only used for improving the output power of the turbine in the discharging cycle.

Can packed bed based storage improve liquefying air efficiency?
It was found that the temporary storage of cold energy using packed beds could improve the LAES efficiency to ~50%; however,due to dynamic cycling charge/discharge,packed bed based stores could bring an undesired 25% increase in the energy consumption for liquefying air.

What are energy storage technologies?
Energy storage technologies provide an avenue to meet the energy supply and demand through the chain of generation, transmission, distribution and end use. This is realized through the addition of flexibility, peak shaving, intermittency smoothing and backup generation for electrical networks .

Liquid air energy storage (LAES) has been regarded as a large-scale electrical storage technology. In this paper, we first investigate the performance of the current LAES (termed as a baseline LAES) over a ...

This paper summarizes the developments in inorganic salt-H 2 O systems, called hydrated salts, for the thermochemical adsorption heat storage, including typical thermal chemisorption ...

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It provides reversible Li plating/stripping, high capacity, and stability even at elevated temperatures, suggesting promising prospects for wide-temperature, high-voltage ...

Such a strong coupling between Zn and carbon hence offers an enhanced energy storage capability of the Zn@C. The present study provides suggestions for enhancing efficiency of CO ...

Liquid air energy storage (LAES) uses off-peak and/or renewable electricity to liquefy air and stores the electrical energy in the form of liquid air at approximately -196 °C.

WENG Likui,ZHANG Yelong,JIANG Lin,et al.Research progress on thermochemical adsorption heat storage technology based on hydrate [J].Energy Storage Science and Technology,2020,09 (06):1729 ...

These technologies, depending on the material selection and system design, can reach an efficiency over 90%, with an energy density ranging from 0.2 to 3GJ/m3, and an installation ...

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She, Xiaohui & Peng, Xiaodong & Nie, Binjian & Leng, Guanghui & Zhang, Xiaosong & Weng, Likui & Tong, Lige & Zheng, Lifang & Wang, Li & Ding, Yulong, 2017. " Enhancement of round ...

Even at 80 °C, our LMBs with HCILE also exhibit excellent stability. We believe that our work opens up new possibilities for the design of high-voltage with wide-temperature ...

We have studied a high temperature storage heater containing an inorganic salt based composite phase change material (CPCM) for electrical load shift and operation cost ...

Electrochemical Fixation of Carbon Dioxide in Molten Salts on Liquid Zinc Cathode to Zinc@Graphitic Carbon Spheres for Enhanced Energy Storage 20210418 13:00

The thermochemical adsorption heat storage has a higher heat storage density,a lower heat loss,and a long-term heat storage,which exhibit significant advantages over both sensible heat ...

Although lithium-ion batteries are increasingly being used to achieve cleaner energy, their thermal safety is still a major concern, particularly in the fields of energy-storage ...

Abstract: The thermochemical adsorption heat storage has a higher heat storage density, a lower heat loss, and a long-term heat storage, which exhibit significant advantages over both ...

It provides reversible cathodic electrochemistry at ultra-high voltage, offering new possibilities for addressing the typical challenges faced by high-voltage cathodes in ...

With the increased tap densities (4.15 and 1.75 g cm -3 respectively for the composite and the electrode), these thick electrodes give highly stable and superior volumetric lithium storage. These results pave ...

Energy Storage Materials (IF 20.2) Pub Date : 2024-06-19, DOI: 10.1016/j.ensm.2024.103584 Chaocang Weng, Liang Ma, Bingfang Wang, Fanyue Meng, Jiaqi Yang, Yingying Ji, Botian ...

Abstract In recent years, phase change materials (PCMs) have attracted considerable attention due to their potential to revolutionize thermal energy storage (TES) ...

Fixation of carbon dioxide into advanced energy materials is an ideal protocol to address challenges in energy and environmental sustainability, with the efficiency of CO 2 ...

Chuan Li, Zhiwei Ge, Yi Jin, Yongliang Li, Yulong Ding. Heat transfer behaviour of thermal energy storage components using composite phase change materials. Energy Storage Science and ...

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electrical ff energy in the form of liquid air at approximately -196 °C.

Fixation of carbon dioxide into advanced energy materials is an ideal protocol to address challenges in energy and environmental sustainability, with the efficiency of CO2 fixation and ...

Enhancement of round trip efficiency of liquid air energy storage through effective utilization of heat of compression Xiaohui She, Xiaodong Peng, Binjian Nie, Guanghui Leng, Xiaosong ...