Zero-carbon solar energy cross-seasonal heat storage

The integration of Power-to-Heat and seasonal thermal energy storage technologies with variable renewable energy sources presents a promising pathway toward low-carbon energy systems.

However, only a few technologies are capable of offsetting the long-term (seasonal) mismatch between renewable generation and energy demand. ...

Therefore, this study explores the feasibility of low-carbon heating through a solar-driven cascaded phase change heat storage cross-seasonal heating (SD-CPCH) system in a plateau region with ...

This study presents an experimental study into the seasonal cycles of an underground thermal energy storage (TES) system used for heating an energy efficient house.

In the high-cold and high-altitude area in western China, due to the abundant solar energy and hydropower resources, the use of electric auxiliary cross-season solar heat storage ...

The literature review indicates that renewable energy technologies, including solar power, heat pumps, cross-seasonal thermal storage, and battery storage, are frequently examined either ...

A team of researchers from Imperial College London has ...

This study integrates cascaded phase change with a cross-seasonal heat storage system aimed at achieving low-carbon heating. The simulation analyzes heat distribution and temperature changes ...

Utilizing phase change materials with high energy density and stable heat output effectively improves energy storage efficiency. This study integrates ...

Common seasonal heat storage includes seasonal sensible heat storage, seasonal latent heat storage, and seasonal thermochemical heat storage. Among them, both sensible and latent heat are used to ...

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