

In the present work, we propose an analysis strategy for multi-criteria optimization applied to inter-seasonal solar heat storage for residential building energy needs, including heating and domestic hot ...

The prospects of solar heating in China are promising, but solar energy's intermittency and variability challenge its alignment with winter heating demands. Seasonal thermochemical energy ...

Solar energy inter-seasonal soil heat storage is the combination of solar energy and ground source heat pump, that is, the use of soil in spring, summer, autumn three seasons more abundant solar energy ...

This model is an important tool for sensitivity analysis and optimization of key parameters such as the aperture area of heliostat field, solar seasonal heating storage (SSHS) volume, geometric shape, ...

The fundamentals of sorption and reaction-based TCES can be applied to an inter-seasonal heat storage application for storing low- and medium-temperature heat. TCES systems ...

Interseasonal Heat Transfer integrates solar thermal collection in summer with heat storage in ThermalBanks to double the efficiency and Coefficient of Performance of ground source heat pumps ...

?: The combined efforts promoting an improved insulation and a growth of renewable energies use in buildings play a key role in the road towards greenhouse gas reduction and better energy ...

These detailed results may be interesting for the design of a thermal inter-seasonal storage system that is not bound to provide building overall heating needs but only aims at reducing ...

The rock is a common inter-seasonal sensible thermal energy storage medium, which is embedded in solar systems to heat buildings [6]. Compared to sensible heat storage, thermochemical heat storage ...

It is stated also that reported data [38] shows that the solar energy seasonal heating system with underground soil as a thermal storage body can compete with the electric heating ...

Ground-coupled heat pumps (GCHP) integrated with inter-seasonal underground thermal energy storage systems are being investigated as an alternative way of heating and cooling buildings. This ...

In engineering applications and specific experimental research, V. Tirilat-Berdal et al. [[44], [45], [46]] used simulation and experimental method to study the analysis of the solar-soil ...

This study presents a novel system configuration with an operational strategy guided by a simple control

method that uses surplus photovoltaic electricity to power an inter-seasonal heating and cooling ...

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The inter-seasonal solar system includes two thermal storages, in the short and long term, to ensure the needs for Domestic Hot Water (DHW) and for heating. Particular attention is being ...

This requires the use of solar energy as the thermal energy source, and a solid-liquid phase change material as an inter-seasonal energy storage medium. A design optimisation study was thereafter ...

In order to reduce the impact of unbalanced heating and cooling load on the system performance and the ground temperature, an inter-seasonal thermal storage system integrated with unglazed solar ...

Combined cooling, heating, and power (CCHP) systems are recognized for their high energy efficiency, with utilization rates exceeding 80%. However, traditional CCHP systems often rely on microgas ...

Abstract Inter-seasonal thermal storage technologies are focused on storing and transitioning abundant solar energy from summer to winter for heating, often ignoring the fact that ...

Urban energy systems need to improve the quality of energy use, as well as to achieve energy conservation and emission reduction. Inter-seasonal heat technology has satisfactory ...

Overview Annualized geo-solar STES technologies Conferences and organizations Use of STES for small, passively heated buildings Small buildings with internal STES water tanks Use of STES in greenhouses See also Annualized geo-solar (AGS) enables passive solar heating in even cold, foggy north temperate areas. It uses the ground under or around a building as thermal mass to heat and cool the building. After a designed, conductive thermal lag of 6 months the heat is returned to, or removed from, the inhabited spaces of the building. In hot climates, exposing the collector to the frigid night sky in winter can cool the building in summer.



Inter-seasonal solar container heating

Web: <https://www.lpsolar.co.za>

