# The best journal for geothermal energy storage

What is geothermal energy storage?

Geothermal Energy Storage is explored as a key strategy for large-scale storage of renewable energy. Effective or improved energy conservation is essential as energy needs rise. There has been a rise in interest in using thermal energy storage (TES) systems because they can solve energy challenges affordably and sustainably in various contexts.

What are the most cited journals on geothermal energy?

Following closely is the Energies Journal, with 25 documents and 201 citations, while Applied Thermal Engineering holds the third position with 20 documents and 576 citations. It is noteworthy that all of the most cited journals also rank among the top sources for publishing articles on geothermal energy.

Is a shallow geothermal system a seasonal energy storage system?

However,a shallow geothermal system is not designated for seasonal energy storage. The system uses the steady earth temperature closer to the surface for daily cooling and heating . Therefore,this system's collector area is relatively equivalent to the building's cooling or heating load.

What is geothermal power?

Provided by the Springer Nature SharedIt content-sharing initiative Policies and ethics Geothermal power,a renewable energy source that harnesses the Earth's internal heat,has the capacity to generate electricity at a rate of around 15,000 TWh per year,exceeding global annual energy consumption.

Can geothermal energy storage be used in large-scale energy storage?

The Geothermal Energy Storage concept has been put forward as a possibility to store renewable energy on a large scale. The paper discusses the potential of UTES in large-scale energy storage and its integration with geothermal power plants despite the need for specific geological formations and high initial costs.

How many occurrences of 'geothermal' are there?

Additionally,the term 'geothermal' is implicitly referenced across various contexts such as district heating networks,energy efficiency,industrial waste heat,energy,and renewable energy. The cumulative frequencies of these related items amount to 280 occurrenceswithin the top 20 keywords.

?(CO<sub>2</sub>)?,CO<sub>2</sub>CO<sub>2</sub>? ...

SDG 7 - Affordable and Clean Energy. Geothermal energy generated below the Earth"s surface has been increasingly explored as a renewable source of heat and electricity to support infrastructure ...

The Geothermal Battery Energy Storage concept uses solar radiance to heat water on the surface which is then injected into the earth. This hot water creates a high temperature geothermal reservoir acceptable for

conventional geothermal electricity production, or for direct heat applications. Storing hot water underground is not new, the unique feature of the GB is its ...

Besides, the direct applications of geothermal energy for domestic and commercial use, as well as power generation in a variety of power plant setups, both are significantly beneficial.

The authors of the current paper are involved in assessing the viability of HT-ATES systems in Australia. The concept is to use renewable energy sources to generate water at > 150 ? C, and store it underground for less than a week (depending on supply and demand) before producing it back and generating electricity.The main differences between the proposed ...

Geothermal energy, which relies on hot rock far below the earth"s surface, has long been used as a source of heating and electricity generation.But recent advances in drilling technology have opened up new opportunities to ...

In this work, an integrated framework is proposed for synergistic geothermal energy storage and CO 2 sequestration and utilization. Within this framework, CO 2 is first injected ...

The extent of the challenge in moving towards global energy sustainability and the reduction of CO 2 emissions can be assessed by consideration of the trends in the usage of fuels for primary energy supplies. Such information for 1973 and 1998 is provided in Table 1 for both the world and the Organization for Economic Co-operation and Development (OECD countries ...

recoverable geothermal energy is in the same order as the annual world final energy consumption of 363.5 EJ [Limberger et al. 2018]. The theoretical potential for geothermal power is very large and even exceeds the current electricity demand in many countries. For the EU, the economic potential for geothermal power was estimated at 34

The aquifer thermal energy storage (ATES) has gained attention in several countries as an installation for increasing the energy efficiency of geothermal systems and the use of waste heat. The Lower Cretaceous reservoir is known as one of the most prospective for geothermal purposes in Poland. However, in the southern part of the Mogilno-?ód? Trough ...

The research on mine geothermal energy exploitation has attracted global interest for many years. This paper proposes an innovative new method for geothermal-coal synergetic mining (GE-COSM) to expand the valorization of coal-based solid waste (C-BSW), reduce the environmental damage caused by coal utilization, and achieve a low-carbon transformation of ...

In an era of accelerating energy transition and growing demand for critical metals essential for clean technologies, the innovative integration of geothermal energy with critical metal extraction stands as a

paradigm shift in ...

International Journal of Thermofluids. Volume 18, May 2023, ... Thermal energy storage (TES) technology makes it easier to use renewable energy sources more efficiently and conserve energy. In the future, it''s likely to become more common. ... Capacity of the top 10 countries'' geothermal energy installations in 2021 and (c) ...

The world is rapidly adopting renewable energy alternatives at a remarkable rate to address the ever-increasing environmental crisis of CO2 emissions....

The paper proposes the criteria for selecting geological structures in aquifer for the simultaneous recovery of geothermal energy and the storage of carbon dioxide (main goal). A set of 12 geological criteria was developed for this purpose. Based on the Analytical Hierarchy Process method, the importance of individual criteria was assessed. This assessment was ...

Geothermal power plants function similarly to thermal power plant with steam turbines in which water or another working fluid is heated using heat from the Earth''s geothermal energy storage. The vaporized working fluid is then pump up to the surface where it turns a turbine generator to generate electricity [115]. After cooling, the fluid is ...

Energy Storage provides a unique platform for innovative research results and findings on all areas of energy storage, including the various methods of energy storage and ...

This feature reviews three studies that explore less-obvious ways in which oil and gas expertise could advance geothermal energy development. These examples demonstrate ...

Explore innovative technologies, methodologies, and best practices for optimising the design, operation, and management of geothermal DHN systems. Assess the environmental, economic, and social benefits of ...

Energy Storage is a new journal for innovative energy storage research, covering ranging storage methods and their integration with conventional &  renewable systems. ...

The Geothermal Battery Energy Storage concept (GB) has been proposed as a large-scale renewable energy storage method. This is particularly important as solar and wind power are being introduced into electric grids, and economical utility-scale storage has not yet become available to handle the variable nature of solar and wind.

The switch to a low-carbon economy is heavily reliant on mining, geothermal energy and geological storage. Subsurface geoscientists are critically needed to responsibly source, manage and refine ...

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Considering the issues related to the usage of fossil fuels namely the environmental pollutants and fluctuations in their cost, development of renewable energy technologies is necessary and inevitable for sustainable energy supply in future. Geothermal energy is advantageous compared with solar and wind in term of availability in all hours of a ...

The European Physical Journal Conferences 148:00012; January 2017; 148:00012; ... geothermal energy and consider the storage of thermal energy produced by solar source. ... The best solution seems.

Journal Geothermal Energy: Abbr: Geothermal Energy Science, ISSN: 2195-9706. Geothermal Energy is a peer-reviewed, fully open-access journal published under the SPRINGEROPEN ...

GEOTHERMAL DATA. IGA provides a comprehensive collection of geothermal energy data. Access detailed reports, maps, and statistics to support research and decision-making. Explore valuable insights into geothermal resources and trends, essential for professionals and enthusiasts in the field.

Geologic CO 2 storage (GCS) in sedimentary basins is a promising approach that can reduce CO 2 intensity of fossil energy use, but the high cost of capturing CO 2 requires valuable uses for CO 2 to justify those costs. Our proposed approach (Figs. 1 and 2) of using GCS to generate geothermal energy and store energy is designed for locations where a permeable sedimentary ...

Aquifer thermal energy storage (ATES) has great potential to mitigate CO2 emissions associated with the heating and cooling of buildings and offers wide applicability. Thick productive aquifer layers have been targeted first, as these are the most promising hydrogeological context for ATES. Regardless, there is currently an increasing trend to target ...

Research progress and prospect of geothermal energy storage technology RUI Zhenhua1,2,3,4, LIU Yueliang 1,2,3, ZHANG Zheng2, LI Gensheng1,2 :, , , . . , 2024, 02: 260-281

Geothermal energy storage systems can be classified into various categories according to their design and functioning. An example of such a system is the Advanced ...

Moreover, the use of CO 2 plumes for geothermal energy storage mitigates the greenhouse effect by storing CO 2 in geological bodies. In this work, an integrated framework is proposed for ...

2) is regarded as a potential medium for energy storage due to its superior thermal properties. Moreover, the use of CO 2 plumes for geothermal energy storage mitigates the greenhouse effect by storing CO 2 in geological bodies. In this work, an integrated framework is proposed for synergistic geothermal energy storage and CO 2 sequestration ...

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