

Sharan, P, Kitz, K, Wendt, D, McTigue, J & Zhu, G 2021, " Using Concentrating Solar Power to Create a Geological Thermal Energy Reservoir for Seasonal Storage and Flexible Power Plant Operation Paper No. JERT-20-1280 ", Journal of Energy Resources Technology, Transactions of the ASME, vol. 143, no. 1, 010906.

Conference: Geologic Thermal Energy Storage of Solar Heat to Provide a Source of Dispatchable Renewable Power and Seasonal Energy Storage Capacity ... The study basis is the use of sedimentary geologic formations as a medium for thermal energy storage (TES), specifically for heat collected in concentrating solar collectors. ...

Geologic CO₂ storage (GCS) in sedimentary basins is a promising approach that can reduce CO₂ intensity of fossil energy use, but the high cost of capturing CO₂ requires valuable uses for CO₂ 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 ...

CO₂ geological storage (geo-storage) is a promising approach that can help to reduce greenhouse gas emissions. However, effective storage in geological underground formations requires understanding the main storage techniques and trapping mechanisms. ... Solar and wind energy generation reduces the impact on the climate because these sources ...

Here, we propose geological thermal energy storage (GeoTES) for seasonal energy dispatching. As illustrated in Figure 1, GeoTES can take various energy sources such as solar thermal and excess grid renewable electricity, store the energy with water reservoirs and depleted

Distributed Energy Resources (DERs) is a category of solutions that comprises distributed generation sources like solar, small wind, energy storage such as batteries, combined heat & power (CHP), and many other forms of renewable generation and storage. ... geothermal energy production, geological storage of CO₂ and nuclear waste disposal, ...

The hydrogen economy promises to transform our energy future, but we face significant challenges in realizing its potential--the main one among them is energy storage. For us in South Asia, a region blessed with abundant hydrocarbon basins, the geological storage of hydrogen emerges as a promising solution.

environment. Geologic thermal energy storage (GeoTES) is proposed as a solution to convert depleted oil/gas reservoirs into long-term seasonal energy storage. GeoTES can be hybridized with other techniques for viable commercial deployment, such as 1) concentration solar power (CSP) collectors and 2) heat pumps with excess renewable energy.

For these reasons, rock bed storage should be considered for seasonal applications mostly when geological conditions favour this type of system. 3. ... and Saskatoon Airport; these storage systems were not used for storage of solar energy but to extract extra heat from buildings during summer and use it for space heating during winter. More ...

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Geologic thermal energy storage of solar heat to provide a source of dispatchable renewable power and seasonal energy storage capacity. GRC Transactions, 43 (2019) Google Scholar [9] N. Kincaid, et al. An optical performance comparison of three concentrating solar power collector designs in linear Fresnel, parabolic trough, and central receiver.

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