Hot dry rock power generation and energy storage

Carbon capture and sequestration (CCS) is necessary to mitigate global warming caused by anthropogenic $$hbox {CO}_{2}$$ CO2 emissions in the atmosphere. However, due to very high storage cost, it is difficult to sustain the CCS industry. The hot sedimentary and dry rock reservoirs with very high temperature can support both geothermal energy production, and carbon ...

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2021 7th International Conference on Advances in Energy Resources and Environment Engineering (ICAESEE 2021), November 19-21, 2021, Guangzhou, China. Research on a novel type of hot dry rock power generation system coupled with Kalina and ORC. Author links open overlay panel Dongxi Liu, Wei Zhang, Xinli Lu, Jiaqi Zhang, Qingyao Meng, ...

As a significant part of geothermal resources, the hot dry rock (HDR) resources have drawn more and more attentions because it potentially can provide clean, stable, and huge potential of high-temperature geothermal energy. China started research on HDR resources since 1990s, relatively later than advanced countries. Until now, researches on the genetic ...

Figure 1. Hot dry rock electric power generation schematic. system is much less mature. HDR reservoir creation and use has been demonstrated at experimental sites in the U.S., Europe, and Japan, but not on a commercial scale. The reservoir subsystem is developed by drilling wells into hot rock about 4 kilometers deep, and connecting the wells

If these resources can be economically developed to replace fossil fuels for the power generation, ... utilization, and storage (CCUS) to facilitate carbon emission reduction. Due to its low viscosity and high ... The situation analysis of hot dry rock geothermal energy development in China-based on structural equation modeling. Heliyon, 8 ...

Due to the higher thermal extraction rate, injection capacity and fluidity of supercritical CO 2, supercritical CO 2 as the circulating working fluid in the enhanced geothermal systemfor thermal utilization of hot dry rock resources will achieve higher energy efficiency. In view of the low power generation efficiency of the supercritical CO 2 cycle and the decrease in ...

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