

Coal mine phase change energy storage bag

Can abandoned coal mines be used as energy storage systems?

The existence of large cavities and the reduced environmental impact make underground coal mines exceptionally suitable for CAES projects. This paper analyzes the potential of abandoned coal mines as energy storage systems and lists the benefits of these projects in the depressed mining areas by the closure of the mines.

Can a compressed air energy storage system be used in coal mines?

The present study focuses on the compressed air energy storage (CAES) system, which is one of the large-scale energy storage methods. As a lot of underground coal mines are going to be closed in China in the coming years, a novel CAES system is proposed for application in roadways of the closing coal mines.

Which datasets are important for repurposing abandoned coal mines?

We have identified the different key datasets and recommendations critical for repurposing abandoned coal mines as UPSH, CAES, heat storage and geothermal production. It is essential to consider different parameters when evaluating the significance of each dataset for a specific repurposing project.

Can abandoned coal mines be repurposed?

The repurposing of abandoned coal mines in Europe presents significant opportunities and challenges for sustainable underground spatial utilization, particularly for energy storage solutions.

Can coal mines be used as heat storage reservoirs?

Heat storage The successful reuse of coal mines as heat storage reservoirs requires a comprehensive understanding of the hydrogeology in the surrounding flooded area to estimate the volume of the reservoir, mass and heat transport within the reservoir and assessing potential water contamination risks [57,58](Table 6).

Are coal mines suitable for reuse after closure?

The initial conditions of coal mines, characterized by heterogeneous rock mass properties and unfavourable permeability, present significant challenges to ensure long-term stability and suitability for reuse after closure.



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