

# Solar container solution for abandoned coal mine tunnels

In this paper, four mining levels in a closed coal mine in the Asturian Central Coal Basin (NW Spain) have been selected as a case study to investigate the technical feasibility of underground ...

In the context of sustainable development, revitalising the coal sector is a key challenge. This article examines how five innovative technologies can transform abandoned or in-use coal mines into ...

Converting abandoned or soon-to-close coal mines into solar farms could provide enough power to meet the demands of a country the size of Germany, according to a first-of-its-kind ...

Simultaneously, the closure of mining activities has resulted in vast underground spaces potentially becoming available for alternative purposes. This paper explores the potential of ...

Access to clean energy like solar and wind power is increasing massively in the U.S., but our current systems aren't always able to use or store that energy as soon as it's generated. A ...

Groundwater flow can be beneficial to the long-term sustainability of the system. This work confirms the feasibility and sustainability of geothermal resource utilization in backfill stopes of ...

In coal mines, residual methane accumulations can leak, increasing the risk of explosions and contributing to greenhouse gas emissions. Similarly, abandoned metal mines may emit hydrogen ...

Innovative technologies for sustainable post-mining solutions include the geothermal use of mine water and the pumped energy storage using the mine infrastructure, taking advantage of the ...

The coal industry faces difficulties regarding safe and efficient utilization of abandoned mine resources and protection of the ecological environment in the operational mines. As a solution ...

The tunnel design and construction in abandoned coal mine areas confront many challenges. Because of the historical reasons as well as complicated geologic and mining features, it ...

As veteran engineer Zhang Wei puts it: "Designing mine storage is like teaching an old dog quantum physics - you need to work with existing structures while pushing technological boundaries."

The application of Compressed Air Energy Storage (CAES) in large-scale projects offers a promising solution for mitigating fluctuations in renewable energy generation. Focusing on the ...



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



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