

SolarInnovate Energy Solutions

Underground Energy Storage Container



Overview

What are the five underground large-scale energy storage technologies?

In this work, the characteristics, key scientific problems and engineering challenges of five underground large-scale energy storage technologies are discussed and summarized, including underground oil and gas storage, compressed air storage, hydrogen storage, carbon storage, and pumped storage.

What is underground energy storage?

The underground energy storage system involves not only energy fuels (oil, natural gas, hydrogen, etc.) but also thermal or cold energy storage and electric energy storage, such as compressed air energy storage. Compared with caverns (e.g., salt caverns and rock caverns), underground energy storage in porous media occupies much larger market.

What is large-scale underground energy storage?

Renewable and Sustainable Energy Reviews, 2011, 15 (1): 839-844. <p>Large-scale underground energy storage technology uses underground spaces for renewable energy storage, conversion and usage. It forms the technological basis of achieving carbon peaking and carbon neutrality goals.

Is underground hydrogen storage possible?

The hydrogen energy industry is at the preliminary research stage, and field experiments of hydrogen storage are planned in several high-grade salt mines in Jiangsu and Hubei Provinces to evaluate the feasibility of underground hydrogen storage.

What are the different types of underground energy storage technologies?

For these different types of underground energy storage technologies there are several suitable geological reservoirs, namely: depleted hydrocarbon reservoirs, porous aquifers, salt formations, engineered rock caverns in host

rocks and abandoned mines.

How deep is the underground space for energy storage?

The underground space for energy storage mainly includes porous or fractured porous media (e.g., depleted oil and gas reservoirs, aquifers) and caverns (e.g., salt caverns, rock caves, abandoned mines or pits) (Jannel and Torquet, 2021) (Fig. 3). The depth can range from several hundred meters to several kilometers (Kabuth et al., 2017).

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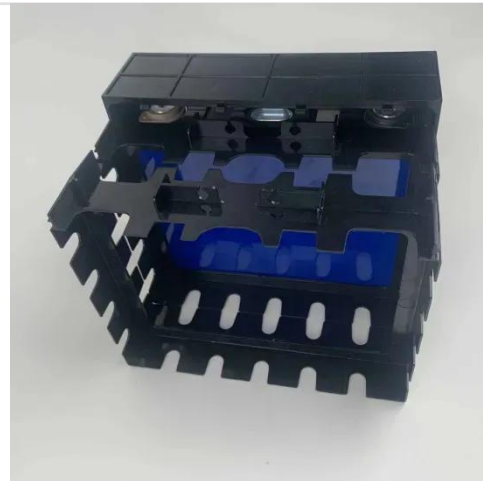


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