

<div class="df\_qntext">Can salt caverns be used to build compressed air energy storage systems?

With the growing demand for renewable energy and the continuous development of energy storage technology, the use of salt caverns to build compressed air energy storage systems is gradually becoming a key area of natural gas energy storage systems (Hematpur et al., 2023).

<div class="df\_qntext">Why is China developing salt cavern energy storage technology?

(2) China has good geological conditions and policy support in salt cavern energy storage technology, which has promoted the rapid development of this technology. Especially driven by the "double carbon" goal, the development of salt cavern energy storage technology has ushered in unprecedented opportunities.

<div class="df\_qntext">Which countries use underground salt caverns for energy storage?

For example, in 1978, Germany transformed two underground salt caverns into energy storage and built the first Huntorf compressed air energy storage commercial power station with a rated power of 290 MW; In 1991, the U.S. built the McIntosh Power Station using underground salt caverns.

<div class="df\_qntext">Where can a salt cavern storage facility be built?

Salt cavern storage facilities can be built close to energy consumption markets, such as city periphery or industrial areas, reducing the cost and loss of energy delivery.

<div class="df\_qntext">Can salt caverns store hydrogen?

Advanced Clean Energy Storage (ACES), an integrated energy storage project in Utah, plans to use salt caverns to store hydrogen and other forms of renewable energy (Paterson, 1983). This project is a U.S. pioneer in hydrogen storage and integrated energy storage.

<div class="df\_qntext">Why is salt cavern energy storage technology important in Japan?

The field of salt cavern energy storage technology in Japan is experiencing unprecedented rapid development, and with its deep technology accumulation, continuous innovation investment and firm commitment to renewable energy transformation, it has stood out globally and firmly ranked in the forefront of the world (Tarkowski et al., 2024). 4.

Additionally, we introduce the concept of utilizing sediment space for large-scale energy storage purposes. Finally, we anticipate the future development of salt caverns for energy ...

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