

Compressed air energy storage power generation in Portugal





Overview

Can storage replace thermal generation in Portugal?

The pursuit of economic viability by storage facility owners will inherently lead to charging during low-cost hours and discharging during hours that are more economically attractive. Storage can replace thermal generation in constraint markets, easing the grid and supporting Portugal's 2040 phase-out target.

Which technologies have the highest potential in the Portuguese context?

Technologies with the highest potential in the Portuguese context are CAES and Underground Gas Storage. This article presents the methodology and results of the first screening conducted in Portugal to identify geological formations suitable for large-scale storage of energy from renewable sources.

Where can a compressed air energy storage facility be built?

Compressed Air Energy Storage (CAES) facilities can be built in locations that have suitable geological formations for storing compressed air. Ideal sites typically include underground caverns, such as salt domes, depleted natural gas fields, or aquifers, which can effectively contain the high-pressure air.

Where are solar and hydropower sources located in Portugal?

Solar sources are not favourably located with respect to the storage opportunities, being mostly located in the south of the country, in Alentejo, where the geology is dominated by metamorphic and some igneous rocks, invariably highly tectonised. Hydropower sources predominate in the north and central Portugal.



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Jul 16, 2025 · Technical Terms Compressed Air Energy Storage (CAES): A method of storing energy by compressing air and storing it under high pressure, which is later expanded to ...



Research progress of compressed air energy storage and its ...

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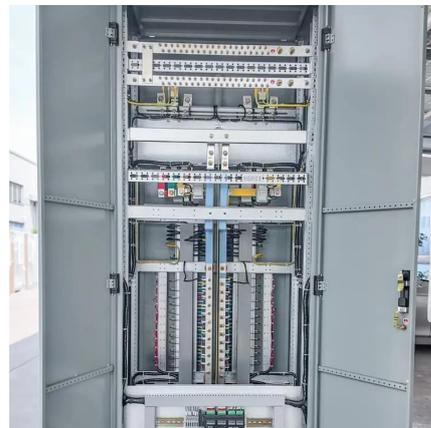


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Jan 13, 2023 · ARTICLE INFO Keywords: Long-duration energy storage Utility energy storage Innovation Compressed air energy storage Carbon-neutral world Offshore wind ABSTRACT ...



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