

Danish air compression energy storage project





Overview

Is compressed air energy storage a viable alternative?

Current long-term energy storage is mainly provided by Pumped-Storage Hydroelectricity (PSH). Compressed Air Energy Storage (CAES) has appeared for decades as a credible alternative but its poor energy efficiency, the need of fossil fuels and the use of existing underground cavities as storage reservoirs have limited its development.

What is compressed air energy storage (CAES)?

Compressed Air Energy Storage (CAES) offers potential, but faces challenges including poor efficiency and reliance on fossil fuels. In this context, the EU-funded Air4NRG project aims to improve long-term energy storage. Specifically, it targets over 70 % round-trip efficiency, sustainability, and integration with the grid.

What is an example of a widespread storage technology deployment?

One example they mention is precisely CAES. The IEA Technology Roadmap states that the key to achieving widespread storage technology deployment is enabling compensation for multiple services delivered across the energy system.

How many mw can a compressed air system produce?

CAES systems are categorized into large-scale compressed air ES systems and small-scale CAES. Large-scale systems are capable of producing >100 MW, while the small-scale systems only produce 10 MW or less . Moreover, the reservoirs for large-scale CAES are underground geological formations such as salt formations, host rocks and porous media.



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