
Albania Compressed Air Energy Storage Power Generation

What is the exergy efficiency of a compressed air energy storage system?

In the exergy analysis, the results indicate that the exergy efficiency of the compressed air energy storage subsystem is 80.46 %, which is 16.70 % greater than the 63.76 % of the reference compressed air energy storage system, showing that the system integration can decline the exergy loss.

How much does a compressed air energy storage system cost?

In the economic analysis, the results indicate that the compressed air energy storage subsystem requires an equipment investment cost of 256.45 k\$. The dynamic payback period spans 4.20 years, as well as the net present value reaches 340.48 k\$, showing that the system integration has a good economic performance.

What is compressed air energy storage (CAES)?

Compressed Air Energy Storage (CAES) systems offer a promising approach to addressing the intermittency of renewable energy sources by utilising excess electrical power to compress air that is stored under high pressure. When energy demand peaks, this stored air is expanded through turbines to generate electricity.

How much CO₂ does a compressed air energy storage system emit?

Besides, the proposed system's CO₂ emission is 258 kg/GWh. This study provides a new option for enhancing the performance of compressed air energy storage through the system integration.

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To improve the energy efficiency and economic performance of the compressed air energy storage system, this study proposes a design for integrating a compressed air energy ...

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