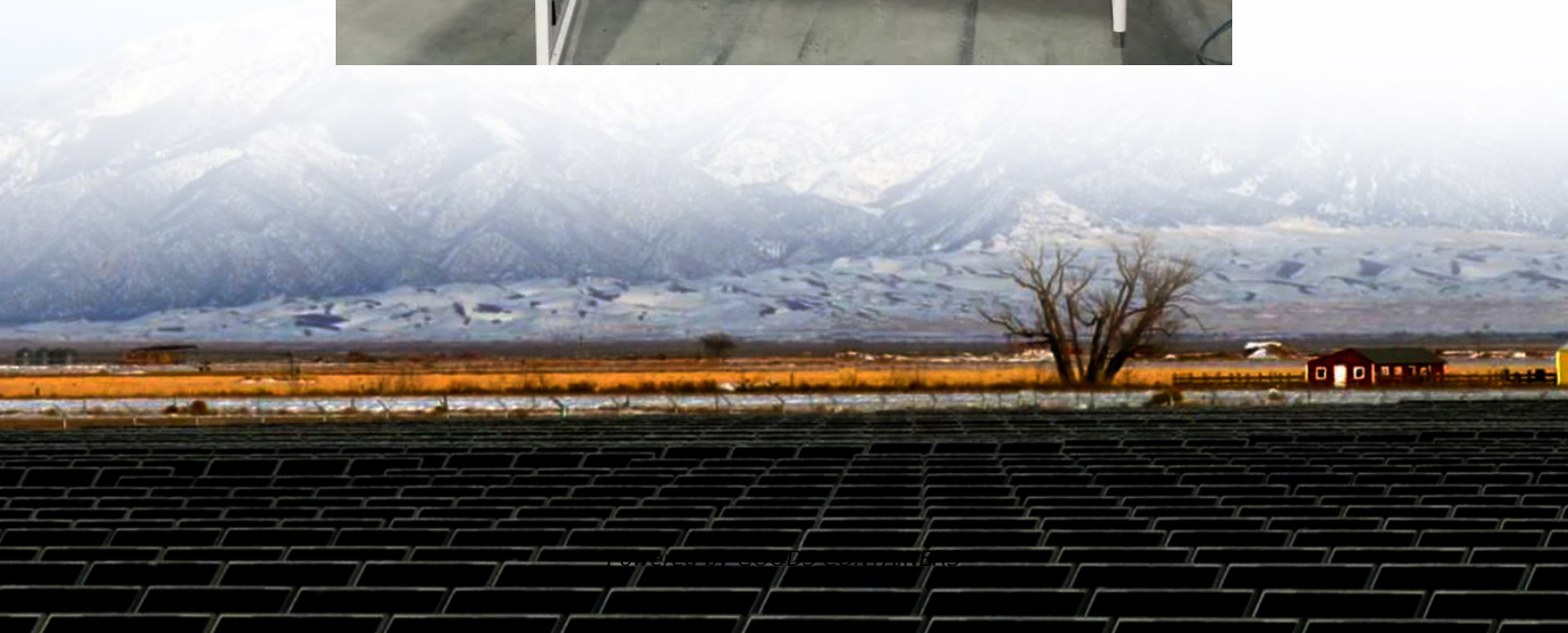


# **Distribution of air energy storage power stations**





## Overview

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How is distributed compressed air energy storage system based on regional microgrids?

Firstly, the architecture of distributed compressed air energy storage system based on regional microgrids is constructed. Then, considering the thermodynamic characteristics of the air storage device under constant volume and insulation, a cogeneration model of distributed compressed air energy storage is established.

What is compressed air energy storage (CAES)?

As the world transitions to decarbonized energy systems, emerging long-duration energy storage technologies are crucial for supporting the large-scale deployment of renewable energy sources. Compressed air energy storage (CAES) is a promising solution for large-scale, long-duration energy storage with competitive economics.

How efficient is compressed air energy storage system?

Finally, the results of combined heat and power supply of distributed compressed air energy storage system are discussed by case study simulation in different air storage chamber models. The results show that constant volume insulation as the air storage device is the best choice, which improve the system efficiency by up to 25.6%.

Can adiabatic compressed air energy storage improve grid frequency security?

The advanced adiabatic compressed air energy storage (AA-CAES) is a promising solution to enhancing grid frequency security due to its flexible and high inertia properties. Therefore, based on distributionally robust optimization, this paper proposes a dispatch strategy with the participation of AA-CAES to enhance frequency security.



## Distribution of air energy storage power stations

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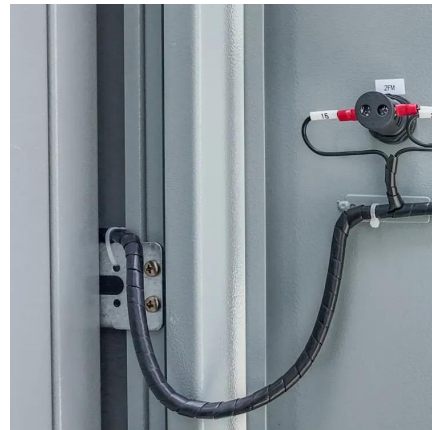


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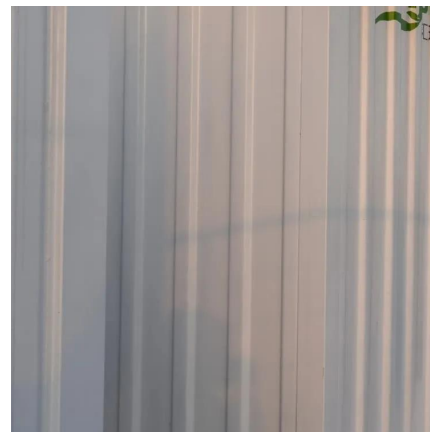
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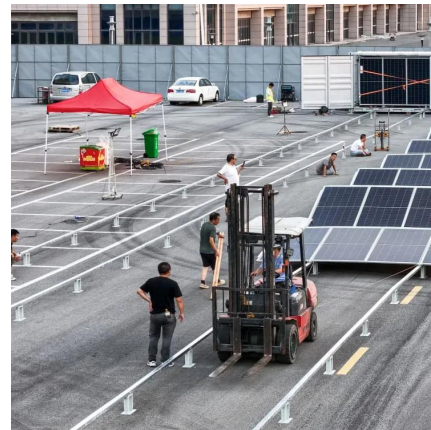
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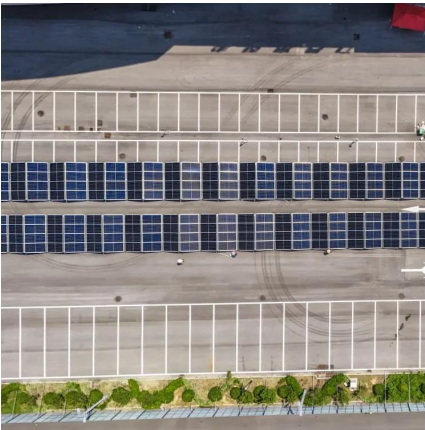
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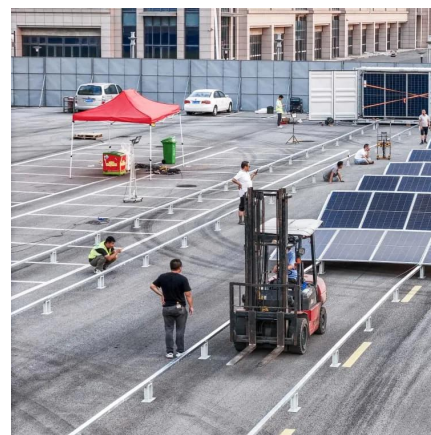


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