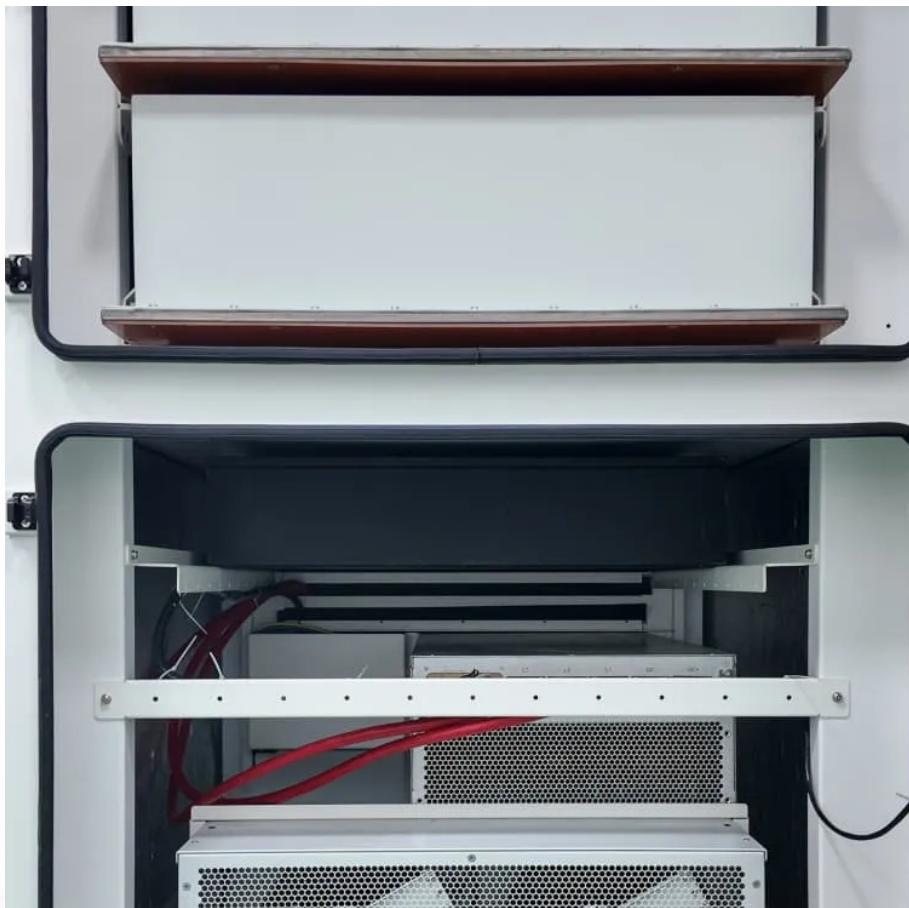




BUHLE POWER

# CO2 solar container energy storage system





## Overview

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What is compressed carbon dioxide energy storage (CCES)?

They are now characterized as large-scale, long-lifetime and cost-effective energy storage systems. Compressed Carbon Dioxide Energy Storage (CCES) systems are based on the same technology but operate with CO<sub>2</sub> as working fluid. They allow liquid storage under non-extreme temperature conditions.

What is CO<sub>2</sub> energy storage?

Scholars have also innovated energy storage working fluids in CAES system. The technology of compressed carbon dioxide (CO<sub>2</sub>) energy storage (CCES) is further proposed according to CAES as well as CO<sub>2</sub> power cycle. Because of the distinct thermophysical characteristics of CO<sub>2</sub>, CCES exhibits superior performance.

Can a carbon dioxide energy storage system be integrated?

Scientific Reports 15, Article number: 22263 (2025) Cite this article Integrating a carbon dioxide energy storage system (CES) with an integrated energy system (IES) can significantly enhance renewable energy utilization, reduce carbon emissions, and improve both economic and environmental performance.

What is liquid CO<sub>2</sub> energy storage (LCEs)?

Liquid CO<sub>2</sub> Energy Storage (LCEs) represents a promising technology in the realm of energy storage, with favorable physical properties of carbon dioxide compared to the complex liquefaction process of air. Nonetheless, the performance of these systems is constrained by factors such as compression heat and the thermal efficiency of the expander.



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