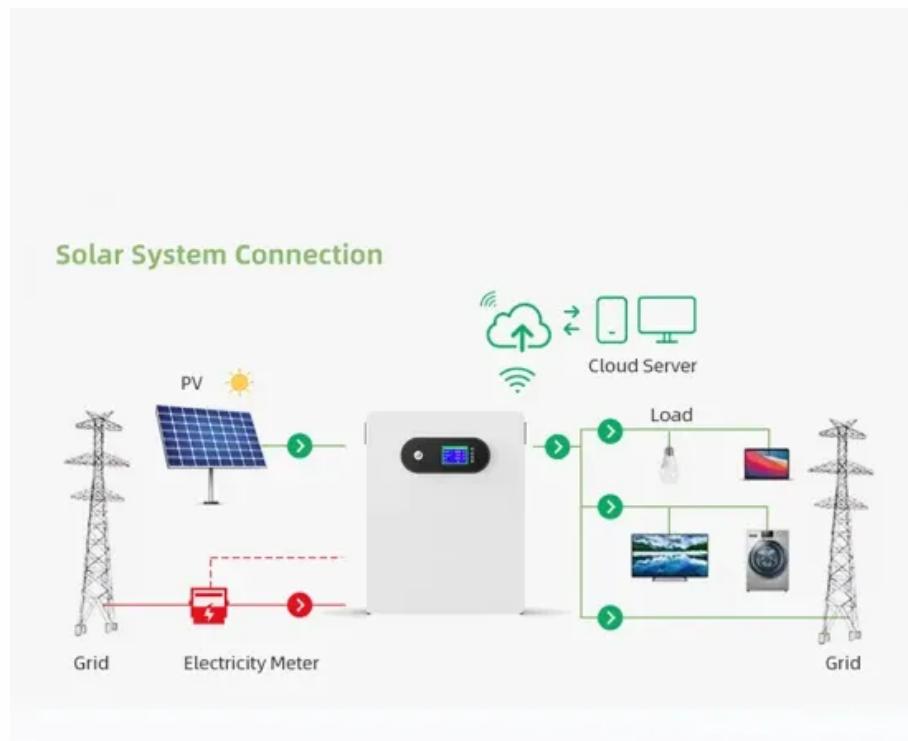


Coal chemical enterprise energy storage project



Overview

How is CO₂ transported from a coal plant to a storage site?

The coal plant data and some techno-economic parameters of the model are obtained from an internal investigation of the enterprise, and the storage site data is from the research results of Wei et al. [30, 31]. The point-to-point sources and sinks are connected by pipelines; CO₂ from source to sink is transported through pipelines.

Can a coal chemical plant carry out CO₂ -EWR in situ?

The leveled cost (LC) of a coal chemical plant with full-chain CO₂ -EWR is 11.7–23.0 USD/t, with cumulative emissions of 45.9 Mt/a CO₂ and the possible production of deep saline water of 70.1 Mt/a. Therefore, the source-sink matching of a coal chemical is effective, and most coal chemical plants can carry out CO₂ -EWR in situ.

What challenges do coal-based energy and industrial sectors face?

Under carbon neutralization and carbon peak targets in China, coal-based energy and industrial sectors, including coal-fired power and coal chemical plants, face considerable challenges in carbon emission reduction and low-carbon transition.

How CCUS is used in coal chemical plants?

Coal chemical plants with CCUS are only evaluated for high-concentration CO₂ emitted by the industrial separation processes. This CO₂ can be compressed and transported through a simple process transformation.

Can CCUS retrofit a coal-fired power plant?

The ITEAM-CCUS model, which integrates the methods of emission source assessment, storage site suitability assessment, CCUS techno-economic assessment, and source-sink matching, can quantificationally evaluate the potential and contribution of CCUS retrofitting to existing coal-fired power

plants and coal chemical plants.

Is coal-based enterprise CCUS Technology feasible?

Regarding the technological feasibility of the coal-based enterprise CCUS, 86% of coal-fired power (installed capacity) is suitable for CCUS technology, and 85% of them have successfully matched the source and sink. Of the coal chemical plants, 80% are ideal for CCUS technology and are all successfully source-sink matched.

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