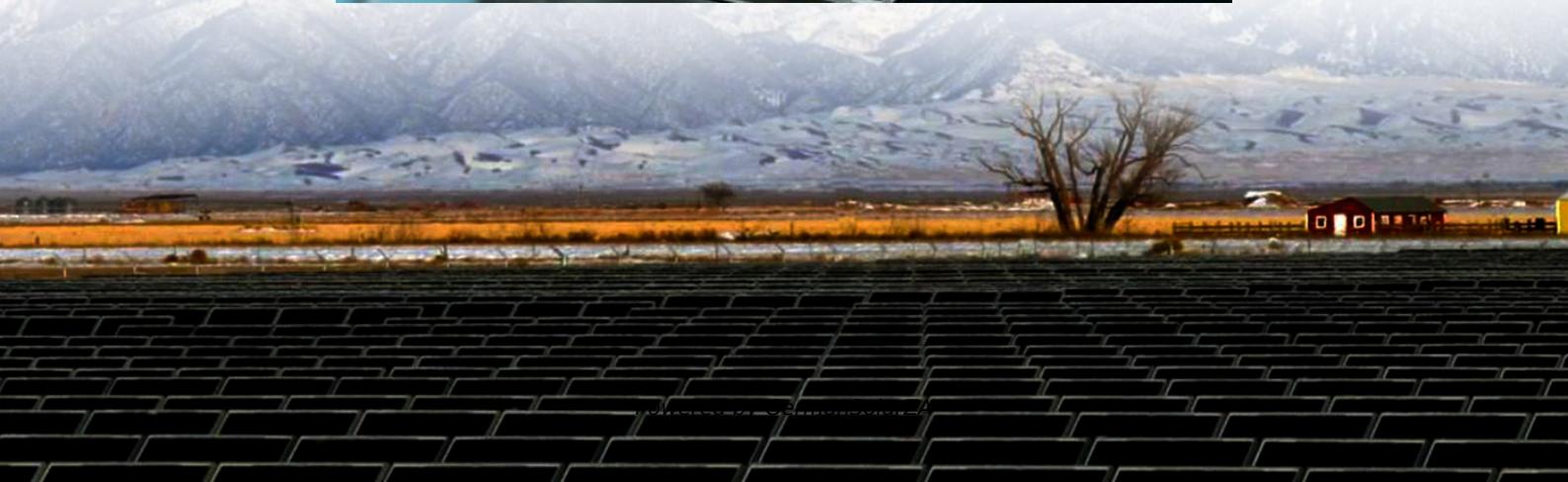




GermanSolarZA

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Overview

Can a solar-wind system meet future energy demands?

Accelerating energy transition towards renewables is central to net-zero emissions. However, building a global power system dominated by solar and wind energy presents immense challenges. Here, we demonstrate the potential of a globally interconnected solar-wind system to meet future electricity demands.

How much energy does China use in Q1 2025?

In Q1 2025, China's wind and solar capacity surpassed its thermal (coal and gas) capacity for the first time, supplying nearly 23% of the country's total electricity consumed, up from roughly 18% in Q1 of 2024, according to the National Energy Administration (NEA).

How many GW of electricity is under construction in 2025?

As of July 2025, 223 GW (37%) of this prospective capacity is under construction, almost four times the combined under-construction capacity of the rest of the world. If these projects become operational, they could generate roughly 1,260 TWh of electricity per year, enough to power about 120 million United States households.

How much wind power does China have in 2025?

As of May 2025, China added 46 GW of new wind capacity for the year, bringing the total to 570 GW of operating capacity. A notable project is the Omattingga Wind Farm in Tibet, a 100 megawatt (MW) installation that is the world's highest-altitude wind farm. At 4,650 meters high, it produces about 200 gigawatt hours (GWh) annually.



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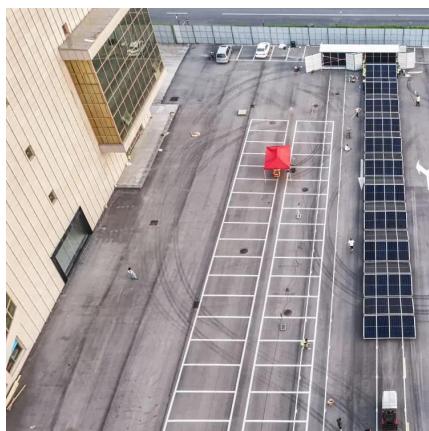
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A globally interconnected solar-wind power system can meet future electricity demand while lowering costs, enhancing resilience, and supporting a stable, sustainable transition to net-zero emissions.



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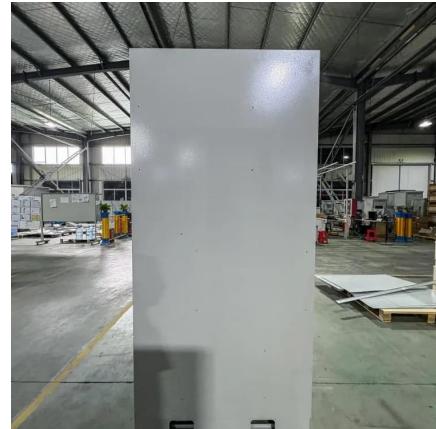
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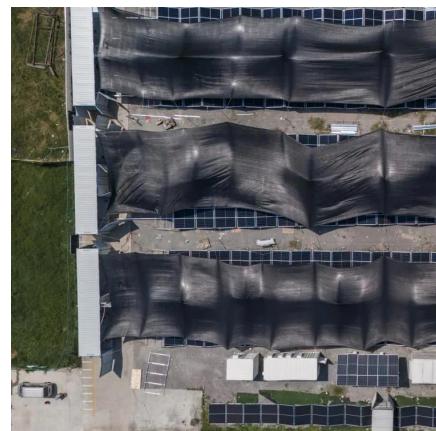
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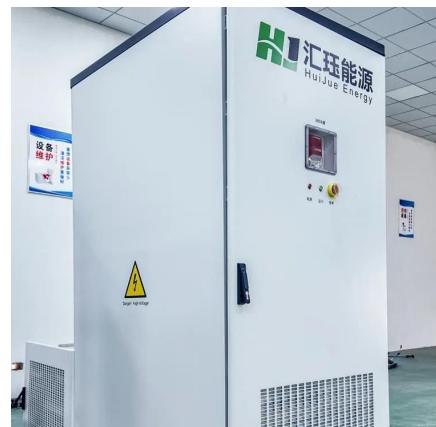
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