

What is the capacity potential for large-scale solar PV in China?

4. Discussion This work reports that the total capacity potential for large-scale PV in China is 108.22 TW with 150.73 PWh annual solar PV generation (implying an average capacity factor of 15.9), which can bring 150.28 billion tones of CO₂ emission mitigation caused by coal-fired power generation.

Why is China focusing more on solar photovoltaic (PV)?

The solar photovoltaic (PV) power is abundant, clean, and convenient and also has been considered as one of the most promising renewable energies [5,6]. Due to the ever-increasing energy and environmental pressures, China is switching to focus more on fostering the PV industry.

Why is China a global leader in solar power plants?

China's rapid deployment of solar photovoltaic (PV) power plants has positioned it as the global leader in cumulative installed capacity. The expansion patterns of PV power plants in China play a crucial role in promoting PV diffusion in markets, shaping policies, and analyzing environmental and social impacts.

Is solar photovoltaic power possible in China?

Some previous research has evaluated the geographic and technical potential of solar photovoltaic power in China (;), in which only some basic geographic and climatological factors such as land-use type, slope, and solar radiation are considered.

Where are PV power plants located in China?

The PV power plants in eastern and central China mainly established on croplands (24.6%) and the occupation of croplands presents a significant reduction of 48% from 2017 to 2022.

What is the growth rate of PV power plants in China?

The area of PV power plants in China has over 600-fold increase from 5.86 km² in 2010 to 3712.1 km² in 2022 with the average annual growth of 285 km² and western China has the highest annual growth proportion of 53%.

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