Solar Power Generation Institute of China Electric Power Research Institute

Which technologies are used in concentrated solar power plants in China?
Fig. 6. Annual power generation and potential installed capacity of concentrated solar power (CSP) plants with four different technologies by province in China: (A) Parabolic trough collector (PTC), (B) linear Fresnel collector (LFC), (C) central receiver system (CRS), and (D) parabolic dish system (PDS).

Can solar energy be used for power generation in China?
Solar radiation received on the surface in China was estimated to be up to 5.28 × 10 16 MJ . However,not all solar resources can be used for power generation,depending on the specific land-use type and other geographic constraints,e.g.,nearby available water resources and slope.

Is China a good place to build a solar power plant?
The results show that China is rich in solar resources and has excellent CSP development potential. Approximately 11% of China's land is suitable for the construction of CSP stations,of which more than 99% is concentrated in five provinces in the northwest region (i.e.,Xinjiang,Tibet,Inner Mongolia,Qinghai,and Ningxia).

Why is concentrating solar power important in China?
Over 99% of China's technical potential is concentrated in five western provinces. Concentrated solar power (CSP) technology can not only match peak demand in power systems but also play an important role in the carbon neutrality pathway worldwide. Actions in China is decisive.

Where are the best solar energy resources in China?
As shown in Fig. 3,the best solar energy resources in China are mainly concentrated in the western regions of Inner Mongolia,Tibet,Qinghai,Xinjiang,Gansu,Yunnan,and Sichuan. The annual mean DNI of these areas is between 1700 and 3100 kWh/m 2,which satisfies the standard for establishing CSP stations per Section 2.1. Fig. 3.

How big is China's power generation potential?
The current installed capacity of CSP of 420 MW is much lower than China's total potential installed capacity (2.45 × 10 7 -5.40 × 10 7 MW) estimated in this study. The power generation potential is expected to be 6.46 × 10 13 -1.85 × 10 14 kWh,which is 8.91-25.52 times the national power consumption in 2019.

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