

Can a multi-type photovoltaic power station be built on the Qinghai-Tibet Plateau?

Based on multi-source remote sensing data for information extraction and suitability evaluation, this paper develops a method to comprehensively evaluate the construction potential of multi-type photovoltaic power stations and determine the potential of photovoltaic power generation and carbon emission reduction on the Qinghai-Tibet Plateau (QTP).

Can photovoltaic power stations accurately reflect QTP power generation potential?

The results showed that estimating the power generation potential of only single-type photovoltaic power stations cannot accurately reflect the photovoltaic power generation potential of QTP.

What is the integrated power generation potential of centralized and distributed PV power stations?

The annual integrated power generation potential of centralized and distributed PV power stations in QTP was  $2.96 \times 10^{13}$  kW·h, and its spatial aggregation degree was high, 86.59% were distributed in Guoluo, Yushu, and Haixi prefectures in the Qinghai province.

Can photovoltaic power generation meet national emission reduction targets?

It is also demonstrated that the emission reduction effect of the photovoltaic power generation in all prefecture-level cities of QTP can meet national emission reduction targets, showing high annual power generation potential, of which 86.59% is concentrated in Qinghai province's Guoluo, Yushu, and Haixi.

Can centralized PV power plants be built under multi-decision risk?

Moreover, research involving a comprehensive assessment of regional PV geography, power generation potential, and carbon emission reduction potential has not yet been carried out. Using the AHP-OWA algorithm, a suitable evaluation under multi-decision risk is performed to determine a suitable construction area for centralized PV power plants.

Can distributed PV power plants replace thermal power generation in QTP?

The power generation potential of distributed PV power plants in QTP reaches  $1.04 \times 10^{10}$  kW·h, accounting for 68% of thermal power generation in QTP in 2021. Only by comparing the power generation, the distributed PV power system in QTP cannot completely replace the existing thermal power generation system.

This study re-estimated the installed potential of centralized large-scale and distributed small-scale photovoltaic power stations in 449 prefecture-level cities in China based on a geographic ...

By fully harnessing its natural endowments, the Haixi Mongolian and Tibetan Autonomous Prefecture in northwest China's Qinghai Province has in recent years successfully blazed a trail on the way to developing clean energy. ...

Reassessment of the potential for centralized and distributed photovoltaic power generation in China: On a prefecture-level city scale. Shiwei Yu, Ruilian Han and Junjie Zhang. Energy, ...

The solar photovoltaic panels shine under the sunlight in Haixi Prefecture, northwest China's Qinghai Province, July 30, 2023. /CFP ... State support and a conducive regulatory environment have been chief to improving ...

Downloadable (with restrictions)! The successful development of solar energy primarily depends on the scientific and effective evaluation of the photovoltaic power generation potential. This ...

The project is located in the Dachaidan area of Haixi Prefecture, Qinghai Province, averagely with 8.83 sunshine hours a day. The long sunshine time and wide light coverage bestow on the ...

It is reported that the project plans to build a 200MW photovoltaic power station with an installed capacity of 20MW/40MWh energy storage, and invest in the construction of a 1GWh new water ...

Located in Haixi Mongolian and Tibetan Autonomous Prefecture, Construction has started for China's highest-altitude solar-thermal energy storage project, which aims to meet local energy demands and ...

Haixi Prefecture in the west of Qinghai is another large wind power and coal base. At this stage, power exchanges with neighboring areas are realized through 750 kV lines; Hainan Prefecture ...

