

Can photovoltaic power plants be developed in the Gobi Desert?

Author to whom correspondence should be addressed. The global expansion of photovoltaic (PV) power plants, especially in ecologically fragile regions like the Gobi Desert, highlights the suitability of such areas for large-scale PV development.

Do Gobi PV power plants affect LST?

Ultimately, a comprehensive understanding of the impacts of Gobi PV power plants on LST can provide valuable insights for informed decision-making regarding power plant siting, scale, design, and land management. Our study suggests that the cooling effects of PV power plants are scale-dependent, with larger installations causing more cooling.

Can solar energy improve ecological conditions in Gobi deserts?

PV-induced climate effects could contribute to improving ecological conditions in Gobi Deserts. In this study, a promising photovoltaic (PV) deployment scenario is firstly designed to represent China's solar energy development in the context of its dual carbon target.

Why are solar power plants growing in the Gobi Desert?

The Gobi Desert, mainly located in northern China and southern Mongolia in East Asia, is experiencing rapid expansion of PV power plants because of its low cloud cover, abundant solar radiation, and cheap land resources.

How many PV plants are in the Gobi Desert?

The map was developed by integrating a multiresolution segmentation algorithm, the object-based classification (ISOC) algorithm, and Landsat imagery within Google Earth Engine. This map includes a total of 885 PV panels in northwestern China, 95 PV plants of which occurred within the Gobi Desert.

Could PV plants in China's Gobi deserts reduce evaporation and wind?

[Google Scholar] [CrossRef] Chang, R.; Yan, Y.; Wu, J.; Wang, Y.; Gao, X. Projected PV Plants in China's Gobi Deserts Would Result in Lower Evaporation and Wind. *Sol. Energy* 2023, 256, 140-150.

ZHOU Maorong, WANG Xijun. Influence of photovoltaic power station engineering on soil and vegetation: Taking the Gobi Desert Area in the Hexi corridor of Gansu as an example[J]. ...

PDF | On Jan 1, 2021, Zhenchao Li and others published A Comparative Study on Surface Energy Flux Characteristics of Photovoltaic Power Station in Gobi in Summer | Find, read and ...

The most direct impact of PV development in the Gobi Desert is temperature change that results from the land-use-induced albedo changes; however, the detailed and systemic understanding of the effects of PV ...

the characteristics of surface energy ux of PV site and Gobi underlying surface. We dened the photovoltaic virtual ux and calculated the proportion of photovoltaic power generation in the ...

A 100 MW very large-scale photovoltaic power generation (VLS-PV) system is designed assuming that it will be installed in the Gobi desert, which is one of the major deserts ...

3.1 Vast areas of land. The desert in China is concentrated in the arid areas of the northwest of the country and the west of Inner Mongolia. The 4 th national census of desert conducted in ...

area of desert and Gobi, with frequent dust storms and aeolian sand, as well as rich sunlight resources. Therefore, to develop the PV industry in the desert and Gobi regions will not only ...

China continues its relentless expansion of solar power capacity, now home to the world's largest solar plant. The 2.2 gigawatt facility spans an area of over 25 square kilometers in the Gobi desert. This \$3 billion ...

In general, the development potential assessment results of wind and PV resources in China's main desert-Gobi-wilderness areas provided by this paper can provide decision support for related provinces to develop these ...

4 · Longyuan Renewables. Once a coal mining site, the Otog Front Banner, Ordos in Inner Mongolia is now home to the Mengxi Blue Ocean Photovoltaic Power Station, China's largest ...

In addition, in desert Gobi, Photovoltaic pow-er generation can consume the power source of sand flow and dust storm in desert Gobi through wind power generation, so as to reduce the ...

Using data observed at a photovoltaic (PV) power plant at the edge of the Gurbantünggüt Desert and at an undeveloped site in the Gobi desert in the summers of 2019 ...

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