

Ground-mounted solar power plants must have energy storage stations





Overview

What is the optimum design of ground-mounted PV power plants?

A new methodology for an optimum design of ground-mounted PV power plants. The $3V \times 8$ configuration is the best option in relation to the total energy captured. The proposed solution increases the energy a 32% in relation to the current one. The $3V \times 8$ configuration is the cheapest one.

What are the requirements for large PV power plants?

Large PV power plants (i.e., greater than 20 MW at the utility interconnection) that provide power into the bulk power system must comply with standards related to reliability and adequacy promulgated by authorities such as NERC and the Federal Energy Regulatory Commission (FERC).

How many ground-mounted PV power stations are there in China?

According to our dataset, China has a total of 2467.7 km² ground-mounted PV power stations in 2020. The top three largest provinces refer to Xinjiang, Inner Mongolia and Qinghai, whose PV area ratio are 14.92%, 12.49% and 11.26%, respectively, with a total of nearly 40% of all the PV power stations of China.

What land is used for PV power stations?

The land used for PV power stations includes gobi (left), grassland (top), water bodies (right), mountain land (bottom), etc. As for PV power station mapping, previous methods mainly focused on field survey and visual inspection, where manual annotation was performed to delineate the locations or boundaries based on the remote sensing imagery.



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