

Are desert areas suitable for building photovoltaic power stations?

As is shown in Fig. S1, most desert areas are suitable for building photovoltaic power stations when considering three factors: slope, distance from fresh water resources, and solar irradiation, especially deserts in Australia and Africa.

Do PV power stations reduce desertification?

This study shows the great benefits of PV power stations in combating desertification and improving people's welfare, which bring sustainable economic, ecological and social prosperity in sandy ecosystems. Zilong Xia: Conceptualization, Methodology, Writing - original draft, Visualization. Yingjie Li: Conceptualization, Writing - review & editing.

Does PV power station deployment promote desert greening in China?

In general, the desert greening (with a significant increase in vegetation) in China from PV power station deployment is largely promoted by the policy-driven Photovoltaic Desert Control Projects. However, the human activities effects on vegetation are often superimposed on the long-term climate-driven variations.

Does PV power station deployment affect desert vegetation?

Previous remote sensing studies of a few PV power stations have demonstrated that the PV power station deployment does not significantly alter desert vegetation (Edalat and Stephen, 2017; Potter, 2016).

How can solar energy help combat desertification?

Compared to 2010, the greening area reached 30.80 km<sup>2</sup> after PV projects. Opportunity to combat desertification and improve people's welfare in desert areas. Solar energy is considered one of the key solutions to the growing demand for energy and to reducing greenhouse gas emissions.

Which endmembers are used for PV power stations in desert areas?

Consistent with the previous study (Edalat and Stephen, 2017), four typical endmembers applicable to PV power stations are used in desert areas, including high albedo (HA), low albedo (LA), vegetation (VG), and shadow (SH).

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