

The widespread construction of photovoltaic power stations within northwest China poses an environmental threat because of severe increased wind erosion and land degradation. ... The placement of solar panels caused wind speed variation and resulted in distinct abrasion and deposition zones between the rows of the solar panels and the formation ...

1. Introduction. Replacing fossil fuels with clean energy sources to reduce carbon emissions is an important step toward achieving carbon neutrality (Armstrong et al., 2014) recent years, great progress has been ...

Previous studies have shown that plant biomass between PV panels is 1.5 times greater than that outside the photovoltaic field, while plant biomass under PV panels is lower (Alona et al., 2016). The redistribution of rainfall runoff by PV panels leads to a lower soil moisture content under the panels, and weak annual light conditions result in reduced plant biomass ...

We aimed to address these gaps by considering seven factors constraining the construction of centralized PV power stations (CPPS) and developing an indicator system ...

An aerial view of the 100-megawatt molten salt tower solar thermal power plant in Dunhuang, Northwest China's Gansu province, on Dec 25, 2018. ... photovoltaic power generation ...

Since solar farms may potentially affect the patterns of local and even regional ecosystems through changed microclimates (Yang et al., 2018; Yue et al., 2021), these related ecological and environmental issues are becoming a matter of public and governmental concern, including whether solar farms suck up all the energy from the sun or become a photovoltaic ...

Northwest China is an ideal region for large-scale grid-connected PV system installation due to its abundant solar radiation and vast areas. For grid-connected PV systems in this region, one of the key issues is how to reduce the shading effect as much ...

PV power plant site suitability assessment is affected by different factors such as solar radiation, land value, slope, aspect, shadow, etc. These factors depend on the geographical location and techno-economic infrastructure of the investigation area, to achieve maximum energy with a desirable construction cost.

PV power stations in the Northwest tend to be developed in the form of large-scale centralized PV parks. ... A site where several solar power stations are clustered together is commonly referred to as "solar parks", a concept first developed in China and India (Wolfe, 2020).

The construction of PV power stations in the European Union has accelerated to achieve a 55% reduction in greenhouse gas emissions by 2030. ... Most of the six provinces in Northwest China receive stable solar radiation, rendering them suitable for constructing CPPS. Therefore, the spatial heterogeneity of the site suitability of CPPS is ...

Up to now, a series of studies have been conducted on the advanced photovoltaic technologies and electricity generation optimization [8]. Meanwhile, previous studies were conducted focusing on the regional development patterns and photovoltaic industry development [[9], [10], [11]] general, photovoltaic power stations have been built in most ...

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