

# Steel strand flexible photovoltaic support in mountainous areas

What is a large-span flexible PV support structure?

Proposed equivalent static wind loads of large-span flexible PV support structure. Flexible photovoltaic (PV) support structure offers benefits such as low construction costs, large span length, high clearance, and high adaptability to complex terrains.

What is cable-supported photovoltaic (PV)?

Cable-supported photovoltaic (PV) modules have been proposed to replace traditional beam-supported PV modules. The new system uses suspension cables to bear the loads of the PV modules and therefore has the characteristics of a long span, light weight, strong load capacity, and adaptability to complex terrains.

Why are flexible PV mounting systems important?

Traditional rigid photovoltaic (PV) support structures exhibit several limitations during operational deployment. Therefore, flexible PV mounting systems have been developed. These flexible PV supports, characterized by their heightened sensitivity to wind loading, necessitate a thorough analysis of their static and dynamic responses.

What is a flexible PV mounting structure?

**Flexible PV Mounting Structure Geometric Model** The constructed flexible PV support model consists of six spans, each with a span of 2 m. The spans are connected by struts, with the support cables having a height of 4.75 m, directly supporting the PV panels. The wind-resistant cables are 4 m high and are connected to the lower ends of the struts.

Are flexible PV supports sensitive to wind?

Flexible PV supports are highly sensitive to fluctuating wind, and thus numerous scholars have studied the wind-induced response of flexible PV supports.

Are flexible PV support structures prone to vibrations under cross winds?

For aeroelastic model tests, it can be observed that the flexible PV support structure is prone to large vibrations under cross winds. The mean vertical displacement of the flexible PV support structure increases with the wind speed and tilt angle of the PV modules.

The wind load is a critical factor for both fixed and flexible PV systems. The wind-induced response is also one of the key concerns. Existing research mainly concentrates ...

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2, Water Surface Flexible Support Solution Advantage-Combining the pipe piles, flexible supports and photovoltaic modules with the wire rope clips through the pressing block;-Reducing the ...

Flexible photovoltaic (PV) support structures are limited by the structural system, their tilt angle is generally small, and the effect of various factors on the wind load of flexibly ...

In recent years, the flexible photovoltaic module support system, as one of the support forms of the photovoltaic modules, has been widely concerned and applied due to its characteristics ...

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Cable structure flexible photovoltaic support system. Greatly improve the efficiency of land and space utilization, Widely used in centralized and distributed ... is a comprehensive solution provider for the application of ...

In this paper, we mainly consider the parametric analysis of the disturbance of the flexible photovoltaic (PV) support structure under two kinds of wind loads, namely, mean ...

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methods to evaluate the potential of photovoltaic power mountainous areas [5-8]. The undulating terrain in installation of PV mounts, so it is important to choose the Energy Proceedings Vol ...

Photovoltaic (PV) systems have received much attention in recent years due to their ability of efficiently converting solar power into electricity, which offers important benefits to the ...

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A series of experimental studies on various PV support structures was conducted. Zhu et al. [1], [2] used two-way FSI computational fluid dynamics (CFD) simulation to test the influence of ...

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