

Do stability cables improve wind-induced and critical wind speed of flexible PV support structure?

Liu et al. investigated on the wind-induced and critical wind speed of a 33-m-span flexible PV support structure by means of wind tunnel test on the elastic model. The effectiveness of three different types of stability cables on enhancing the critical wind speed of the flexible PV support structure was assessed.

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.

What is the wind vibration coefficient of flexible PV support structure?

The wind vibration coefficients in different zones under the wind pressure or wind suction are mostly between 2.0 and 2.15. Compared with the experimental results, the current Chinese national standards are relatively conservative in the equivalent static wind loads of flexible PV support structure.

1. Introduction

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.

How wind induced vibration response of flexible PV support structure?

Aeroelastic model wind tunnel tests The wind-induced vibration response of flexible PV support structure under different cases was studied by using aeroelastic model for wind tunnel test, including different tilt angles of PV modules, different initial force of cables, and different wind speeds.

Does wind-induced vibration affect flexible PV supports?

Discussion The wind load is a vital load affecting PV supports, and the harm caused by wind-induced vibration due to wind loads is enormous. Aiming at the wind-induced vibration of flexible PV supports, a PV building integration technology [86, 87] was proposed to reduce the harm caused by wind vibration.

Photovoltaic (PV) system is an essential part in renewable energy development, which exhibits huge market demand. In comparison with traditional rigid-supported photovoltaic (PV) system, the flexible photovoltaic ...

For the cable connection between solar modules and DC/AC Converter; Photovoltaic plants and solar parks; Flexible Photovoltaic modules; Product Features. Excellent Flexibility; Good heat ...

The wind-induced response and vibration modes of the flexible photovoltaic (PV) modules support structures with different parameters were investigated by using wind tunnel based on elastic ...

Analyzing the aerodynamic loads on both solar panels and their support structures is crucial in the operation of a PV system. However, there is limited research on the ...

Wind induced vibration (WIV) of cable-supported system is one of the controlling factors of structural safety. Up to now, only a few papers focused on WIV of cable-supported ...

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As the wind resistance of the original support system is not enough, suppression measures are necessary to control the wind-induced vibration. ... Flexible photovoltaic (PV) ...

For wind-resistant design of flexible PV support structures, it is recommended to prioritize increasing the pretension in the load-bearing cables to enhance the structural flutter ...

Du et al., Ma et al., and Wang et al. also studied the wind load characteristics of the single-layer cable flexible photovoltaic support system with a span of about 20 m and concluded that this ...

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 ...

The model of vector form intrinsic finite element was established for the dynamic analysis of novel cable-suspended photovoltaic module support structures (CPMSS), and the characteristics of ...

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