Research on wind vibration of flexible photovoltaic bracket

Overview

An analysis of the wind-induced vibration responses of the flexible PV support structures was conducted. The results indicated that the mid-span displacements and the axial forces in the wind-resistant cables are greater under wind-pressure conditions compared to wind-suction. These flexible PV supports, characterized by their heightened sensitivity to wind loading, necessitate a thorough analysis of their static and dynamic responses. This study involves the development of a MATLAB code to simulate the fluctuating wind load time series and the subsequent structural. Existing measurement technologies and methods have limited previous aeroelastic wind tunnel tests on long-span flexible photovoltaic (PV) to localized measurement points, lacking refined, multi-region, and multi-point analysis. A finite element model is established using SAP2000 software for time course analysis. This study employs a vision-based.

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Comparison and mechanism analysis of wind-induced vibration ...

These findings provide insights for wind-resistant design optimization of flexible PV supports.

Experimental study on wind-induced vibration and aerodynamic

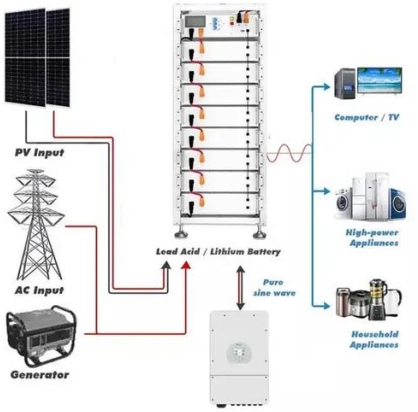
This study investigates the wind-induced vibrations (WIVs) of photovoltaic (PV) modules possessing unique characteristics such as lightweight construction, low frequency, and susceptibility ...

A Review on Aerodynamic Characteristics and Wind-Induced

Relevant studies have been carried out, using either physical or numerical simulation tools, and the effect of a series of governing parameters, such as spacing ratio, angle of attack, ...

Title of paper

Ma et al. (2021) investigated the effects of wind direction, inclination angle, spacing ratio and installation position on the wind loads of the flexible PV modules support structures.



Effect of tilt angle on wind-induced vibration in pre-stressed flexible

This study presented a comprehensive numerical assessment focused on understanding the impact of panel tilt angle on wind-induced vibrations in flexible cable-supported photovoltaic ...

Wind induced structural response analysis of ...

Wind-induced vibration in photovoltaic tracking support can lead to structural instability and even component fractures under extreme conditions.

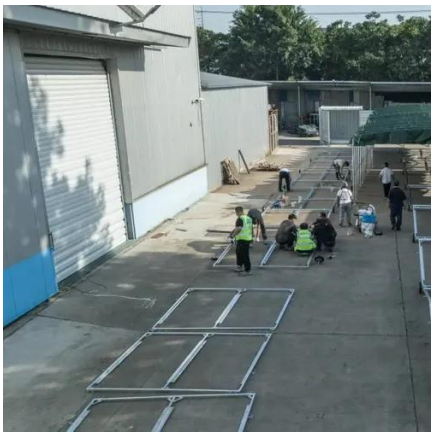
Static and Dynamic Response Analysis of Flexible Photovoltaic ...

This research focused on the safety and critical wind speed of flexible PV mounting structures, as well as the calculation of wind-vibration coefficients, and proposed reinforcement ...

Analysis of the response of wind-

induced vibrations on flexible

This article investigates a flexible photovoltaic bracket's response to wind vibration. A finite element model is established using SAP2000 software for time course analysis.



Investigation of wind-induced vibration evolution mechanisms in long

By examining aerodynamic vibration characteristics at smaller scales, the study reveals the most adverse vibration evolution mechanisms for the flexible PV.

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