

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.

What is a supporting cable structure for PV modules?

Czaloun (2018) proposed a supporting cable structure for PV modules, which reduces the foundation to only four columns and four fundamentals. These systems have the advantages of light weight, strong bearing capacity, large span, low cost, less steel consumption and applicability to complex terrain.

What are the characteristics of a cable-supported photovoltaic system?

Long span, light weight, strong load capacity, and adaptability to complex terrains. The nonlinear stiffness of the new cable-supported photovoltaic system is revealed. The failure mode of the new structure is discussed in detail. Dynamic characteristics and bearing capacity of the new structure are investigated.

What is a cable-supported photovoltaic system (CSPs)?

Cable-supported photovoltaic systems (CSPSs) are a new technology for supporting structures that have broad application prospects owing to their cost-effectiveness, light weight, large span, high headroom, few pile foundations, short construction period, and symbiosis with fisheries and farms.

What is a PV support structure?

Support structures are the foundation of PV modules and directly affect the operational safety and construction investment of PV power plants. A good PV support structure can significantly reduce construction and maintenance costs. In addition, PV modules are susceptible to turbulence and wind gusts, so wind load is the control load of PV modules.

How does a cable-supported PV system change structural parameters?

Parametric analyses The new cable-supported PV system often changes structural parameters to adapt to different geographic environments, such as changing the row spacing to obtain different amounts of daylight or enlarging the cable diameter to enhance the bearing capacity of the structure.

Due to the limitation of the traditional rigid ground photovoltaic support, a long-span flexible photovoltaic support structure composed of the prestressed cable system is being used more and more in recent years. The new system uses ...

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 ...

(1) Background: As environmental issues gain more attention, switching from conventional energy has become a recurring theme. This has led to the widespread development of photovoltaic (PV) power generation ...

In recent years, a flexible photovoltaic support structure composed of a pre-stressed cable system has been widely used [1] ~ [6], and its span is generally 10m~30m. The structural design 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 ...

In the solar photovoltaic power station project, PV support is one of the main structures, and fixed photovoltaic PV support is one of the most commonly used stents. For ...

Cable structure flexible photovoltaic support system. Greatly improve the efficiency of land and space utilization, Widely used in centralized and distributed photovoltaic power stations. PV IOM. Based on the collection ...

Fig. 4 Layout diagram of double layer cable truss structure for photovoltaic power generation 3. Wind load values for photovoltaic power generation brackets Wind load shape coefficient m s. ...

