

Solar Energy South Africa

Marine solar power generation configuration



Overview

Can floating solar systems be deployed in marine environments?

Currently there is momentum in the sector to develop floating solar systems to be deployed in marine environments. Experience from inland floating solar projects could open up possibilities to scale up and move to nearshore or even offshore conditions.

Is there a standard for marine FPV design?

Although there are no specific standards for the design of marine FPV systems, the recommended practice for floating solar design published by DNV (2021) and experiences for mature marine engineering, e.g., from the offshore oil and gas industry, may be referenced.

How will FPV technology change the marine environment?

The analysis of the different FPV technologies revealed that pontoon type plants will probably play a major role in the transition to the marine environment. Class 1 systems could adopt flexible joints, rescale their floating systems and consider a higher truss structure to keep the modules safe.

Are flexible floating photovoltaics suitable for marine environments?

Flexible FPVs Flexible floating photovoltaics are potentially one applicable type toward marine environments with the capability to deform when suffering from dynamic wave loads, which yield wave motion rather than withstanding its forces (Trapani and Santafé, 2015).

Can marine FPV systems be synchronized with other MREs?

Synergy with other MREs may significantly save costs by sharing logistics, operation and maintenance, and power grid infrastructure (Pérez-Collazo et al., 2015). Synergies of marine FPV systems with other MREs could be achieved in two ways: hybrid spatial layout and hybrid platform.

What mooring systems should be used for marine FPV systems?

Mooring systems for marine FPV systems are still far from being resolved, but a good starting point is conventional offshore mooring designs, such as catenary, taut, compliant and rigid. Typical anchoring systems, like dead weights, drag anchors, embedded anchors, or suction foundations may also be applied.

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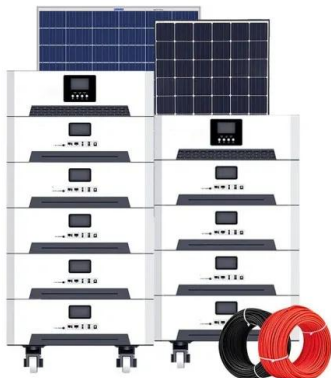
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