

SolarInnovate Energy Solutions

Moroni bifacial solar panel system



Overview

What are bifacial solar panels?

Bifacial solar modules are modules that generate energy on both their front and rear sides, based on solar cells with two active sides. While the energy production of traditional monofacial solar panels is relatively easy to forecast, bifacial panels provide a bit more of a challenge.

Are bifacial PV modules better than monofacial?

The outdoor studies revealed clear advantages in the energy yield performance of bifacial over monofacial PV modules. However, the quantification of energy gain is only possible when the module performance ratio is referred to the output power of the front side. Bifaciality depends strongly on cell-technology, varying from 60% to 90%.

Are bifacial panels a monofacial?

Monofacial modules usually include a solid backsheet which blocks any possibility of light capturing on the rear side. However, with bifacial panels, the back side requires a translucent material that allows sunlight to pass through. Many bifacial panel designs, including Trina Solar's, use a double glass structure for this purpose.

Are bifacial PV modules degraded?

Degradation due to potential differences has been seen in bifacial PV modules based on different types of bifacial solar cells: n-type, and p-type. The frame, glass, encapsulant, and other module packaging components can play an important role in the extent of PID of PV modules.

Why do bifacial PV modules need more IR-radiance?

For bifacial PV modules, the additional rear-side ir-radiance may result in higher temperatures. The maximum reverse current should reflect the worst-case operating conditions possible in the field, i.e., 1300 W/m² front side

irradiance with a high albedo and solar tracking.

How bifacial photovoltaic cell and module technologies are growing?

Bifacial photovoltaic cell and module technologies are rapidly increasing their market shares. The International Technology Roadmap for Photovoltaic (ITRPV) 2019 Results notes that as of 2020 bifacial cells account for about 20% of the total world PV cell market. By 2030, it is predicted that this share will increase to 70%.

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