

Bifacial and other high-efficiency solar modules





Overview

What are bifacial and monofacial solar cells?

Front and rear view of monofacial and bifacial photovoltaic (PV) modules . Bifacial solar cells encased in a glass/backsheet structure provide more power under standard test conditions (STC) than glass/glass PV bifacial modules.

How efficient are bifacial solar cells?

Minor adjustments to cell processing steps have resulted in bifacial solar cells with rear side efficiencies from >60% to over 90% of the front side efficiency. Bifacial cells now come in many varieties (e.g., PERC+, n-PERT, HIT, etc.) and many cell lines have converted to producing bifacial cells.

What are bifacial photovoltaic (PV) modules?

EPJ Photovolt. Soufiane Ghafiri^{1,2,3*}, Maxime Darnon², Arnaud Davigny¹, João Pedro F. Trovão³ and Dhaker Abbas¹ Bifacial photovoltaic (PV) modules, capable of capturing solar energy from both sides of the cells, are becoming increasingly popular as their manufacturing costs approach those of traditional monofacial modules.

Why are bifacial photovoltaic cells becoming more popular?

Bifacial photovoltaic cells, modules, and systems are rapidly overtaking the market share of monofacial PV technologies. This is happening due to new cell designs that have replaced opaque, monolithic back surface foil contacts with isolated contacts, which allow light to reach the cell from the rear side.



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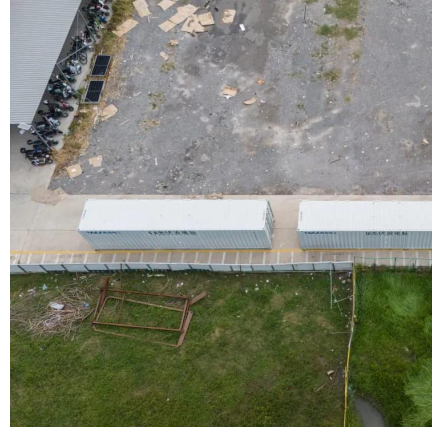


Comparative Performance Analysis of Mono-facial and Bi-facial Solar

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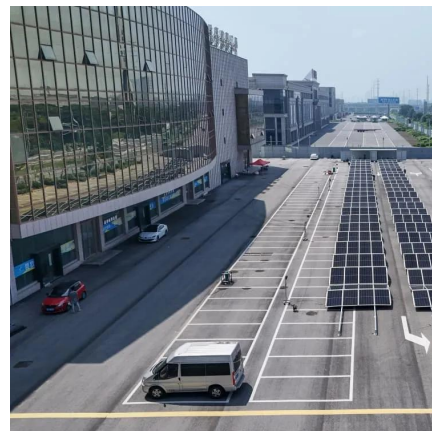
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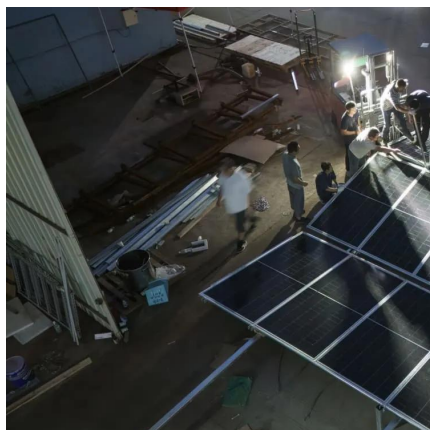


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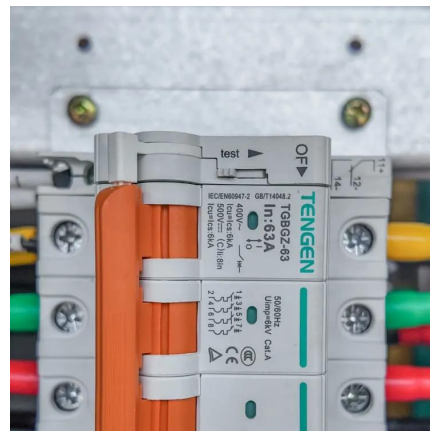


Optimization and performance of bifacial solar modules: A ...

Feb 15, 2018 · In this paper, we present a global study and optimization of bifacial solar modules using a rigorous and comprehensive modeling framework. Our results demonstrate that with a ...

Solar Efficiency Trends 2025: TOPCon, HJT, and Bifacial Gains

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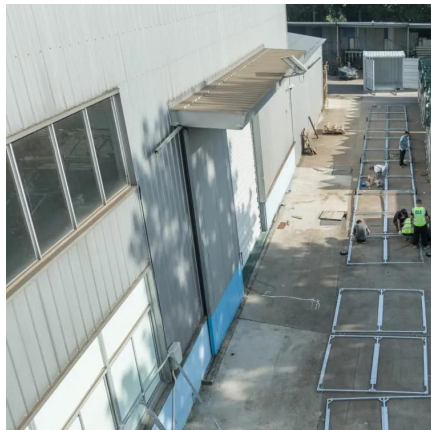
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A comprehensive performance evaluation of bifacial photovoltaic modules

Published online: 10 September 2024 Abstract Bifacial photovoltaic (PV) modules, capable of capturing solar energy from both sides of the cells, are becoming increasingly popular as their ...



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