Mitigating Technology Risks in PV Project

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Jinko Solar

Content

Vertical Integration

Solar JinKO

Wafers

120GW

Cells

110GW

Modules

130GW

100GW
TOPCon Delivered*

15%
Market Share

6
Years no.1 Global Shipments

300GW+
Cumulative Shipments

Global Manufacturing and Global R&D

Global Manufacturing

JinkoSolar is the first company in the industry to establish "vertically integrated" production capacity from wafer, cell and module production, with over 10 global manufacturing facilities across China, the US, Southeast Asia, and the Middle.

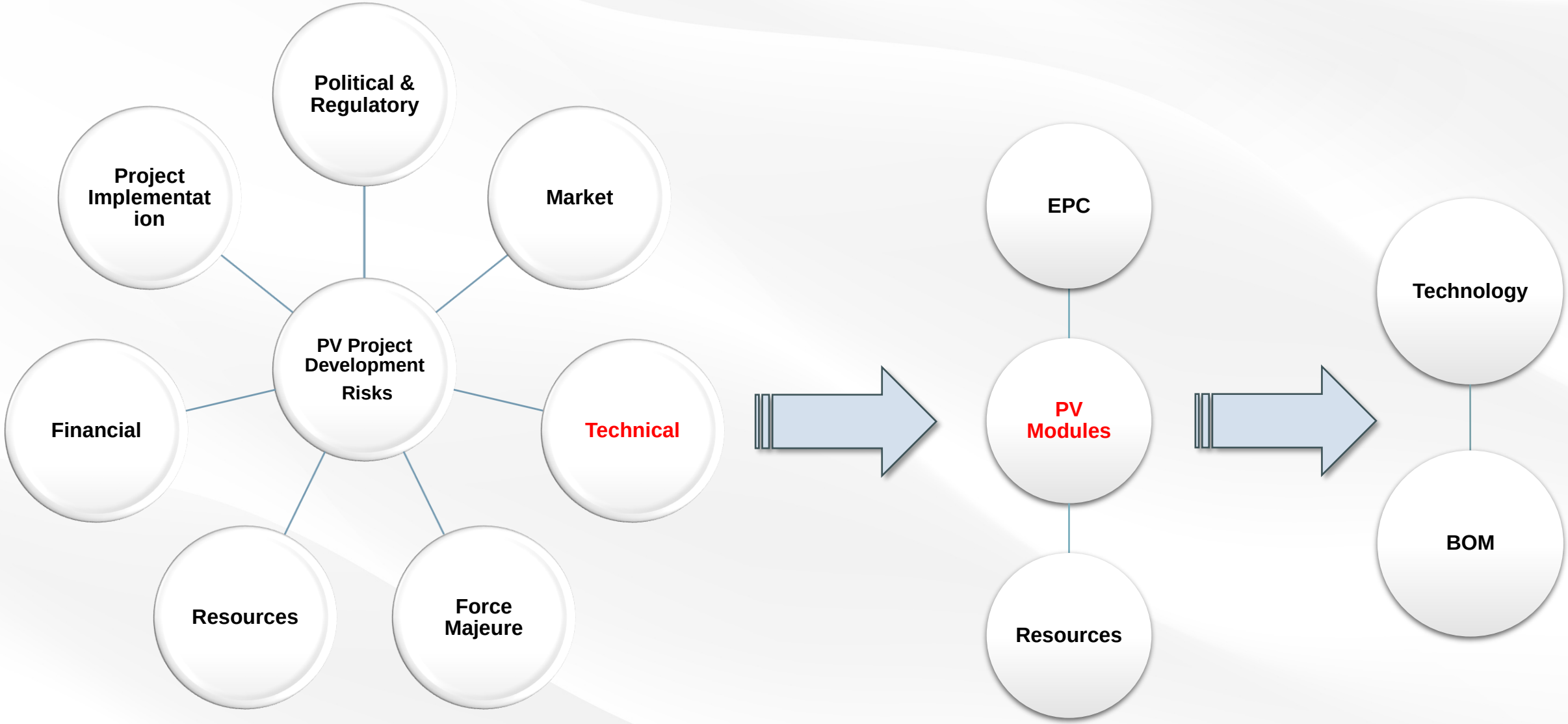
Global R&D

JinkoSolar has global R&D capabilities, with R&D centers in Haining, Zhejiang Province, Shangrao, Jiangxi Province, Leshan, Sichuan Province, Xining, Malaysia and Vietnam, as well as joint R&D labs in Singapore and Australia.

10+	4	8	4
Production Sites	Overseas Sites	R&D Centers	Overseas R&D

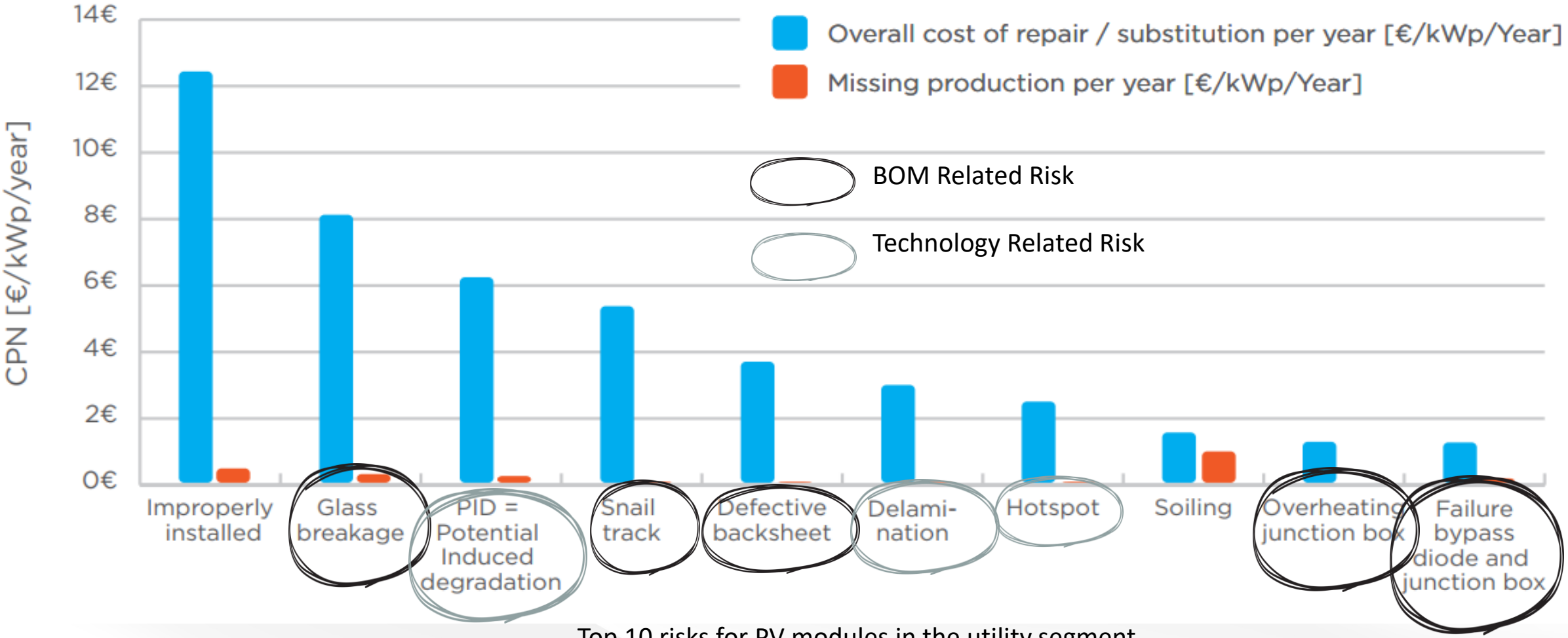
Content

PV Project Development Risks



Risks in PV Project Developments, (Source: RENAC)

Technical Risks in PV Projects

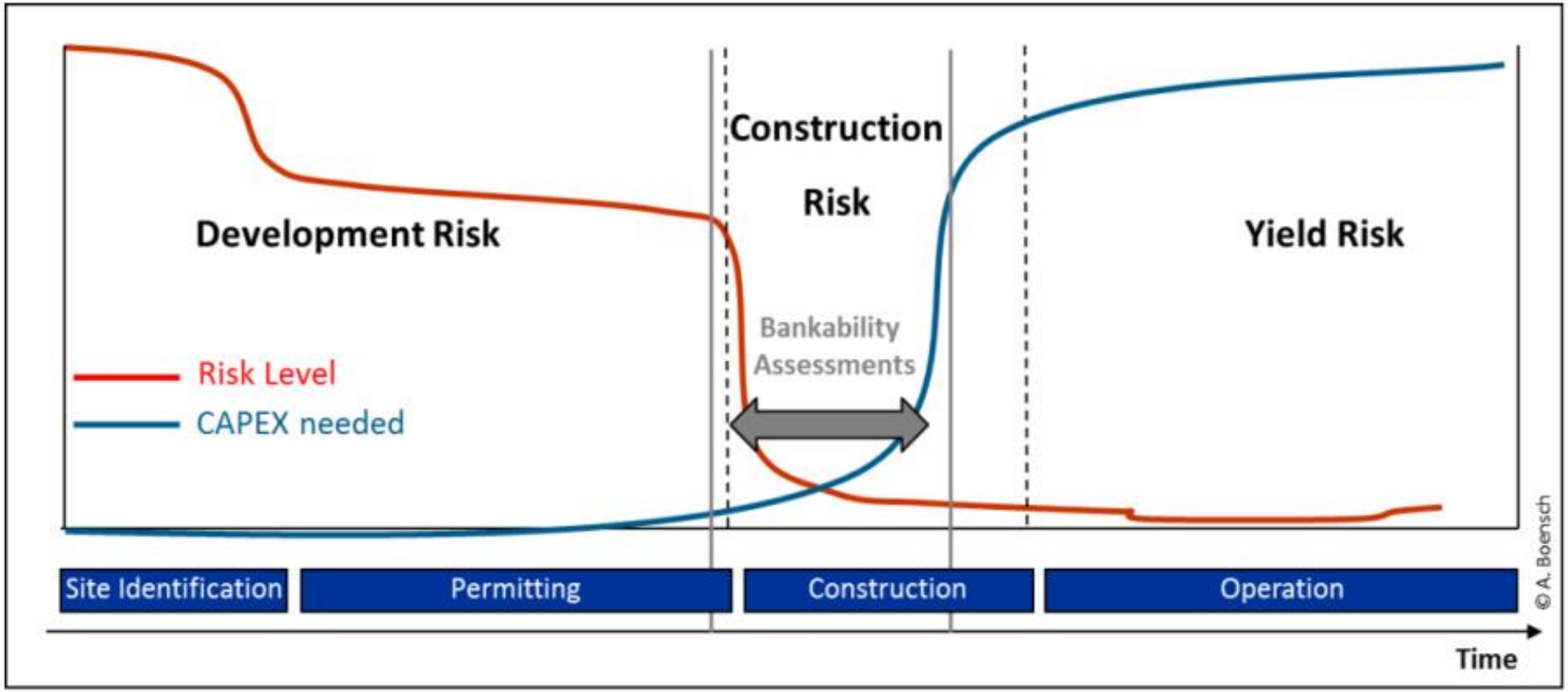


Top 10 risks for PV modules in the utility segment

Technical Risks in PV Project 2016

www.solarbankability.eu

Risk Level Vs. CAPEX Impact

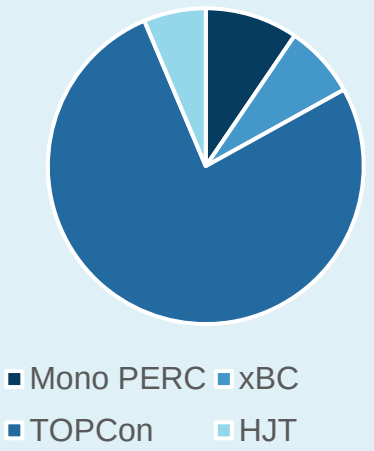


The project value chain, risk and CAPEX development and the bankability assessment phase (Source: RENAC)

How To Mitigate PV Modules Risks?

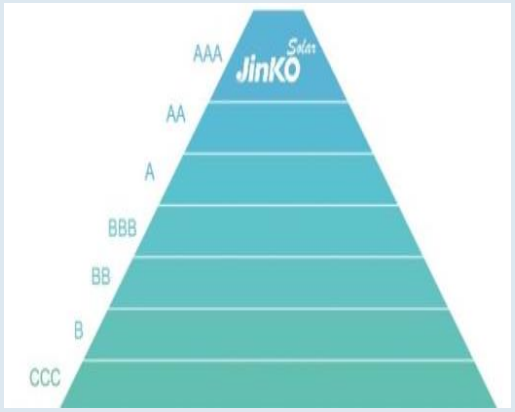
Proven Technology

- Global acceptance of the technology
- Proven track record in similar weather conditions
- Published performance data by 3rd party entities



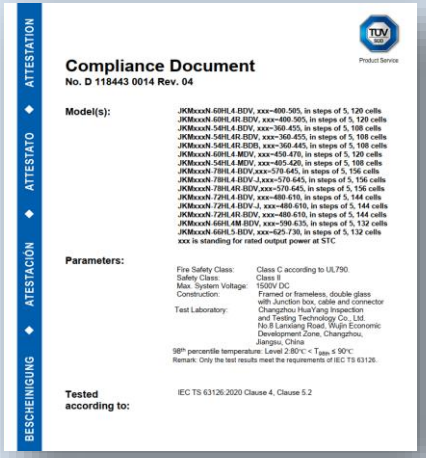
Bankable Supplier

- The PV module supplier should have high bankability ratings by various authorities (Bloomberg, PV TECH)



Basic and Enhanced Certifications

- Basic IEC certification can only simulate the real project conditions for the first 3-5 years
- Enhanced testing/certification can simulate for 20/30 years (2x-4x IEC)


Compliance Document
No. D 118443 0014 Rev. 04

Model(s):

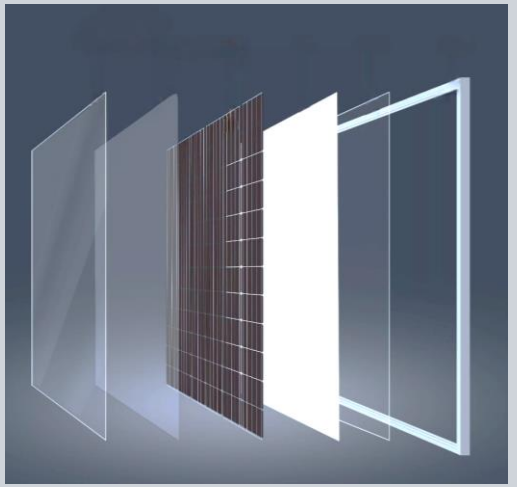
Parameters:

Tested according to:

IEC TS 63126:2020 Clause 4, Clause 5.2

Premium Bill of Materials (BOM)

- Even with the cutting-edge technology, having low quality BOMs combinations can lead to catastrophic results



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Qatar Outdoor Field Test

Location

- Doha/Qatar

Climate Type

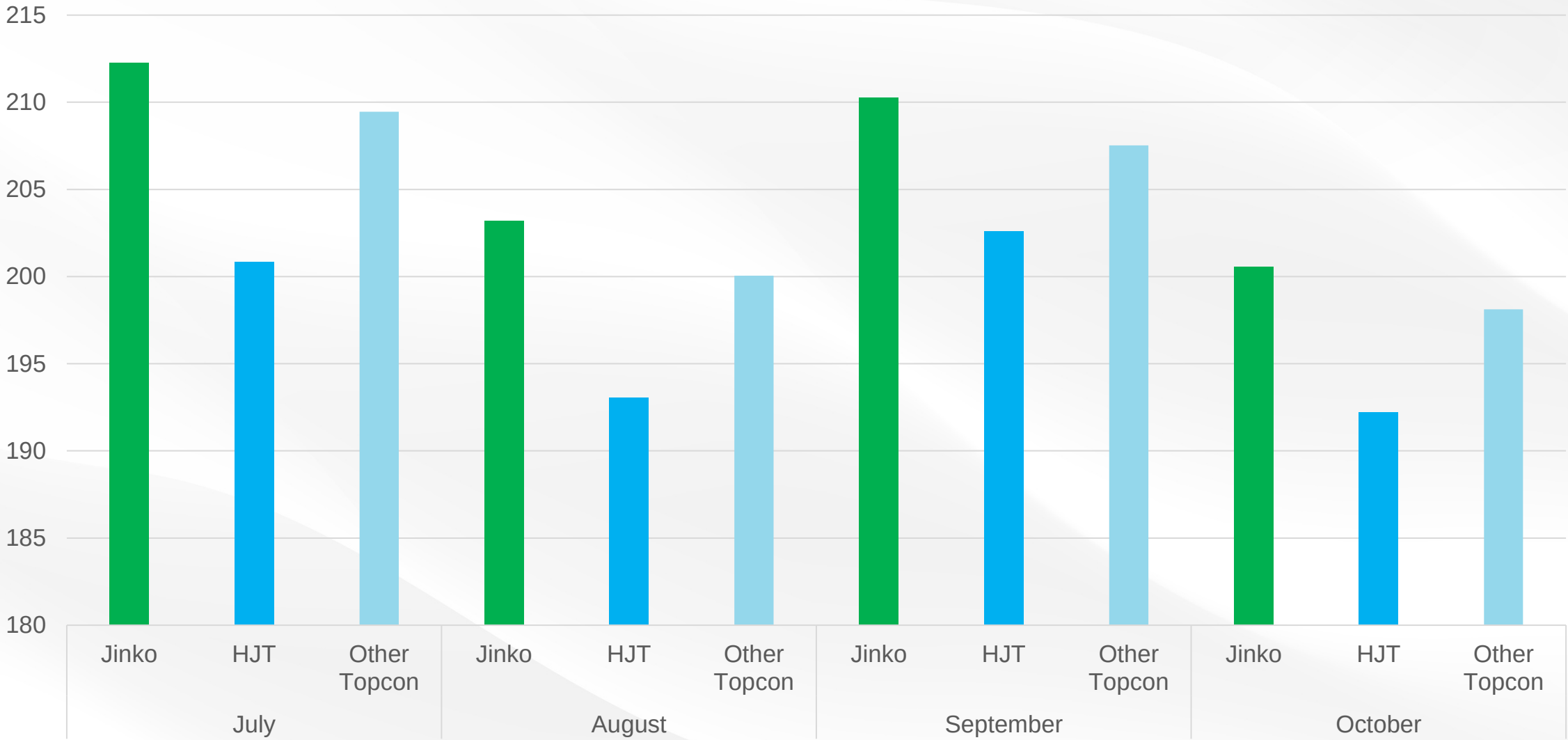
- Desert Climate: High Temperature, High Irradiance, High humidity

Testing Period

- July 2024 – Oct 2024 (4 months)

Module Manufacturer	Technology	Power	Label Efficiency	Dimensions	Number
Jinko	N-type Topcon	575Wp	22.26%	2278x1134x30mm	6
HJT Supplier	N-type HJT	690Wp	22.21%	2384x1303x35mm	6
TopCon Supplier	N-type Topcon	590Wp	22.30%	2333x1134x30mm	6

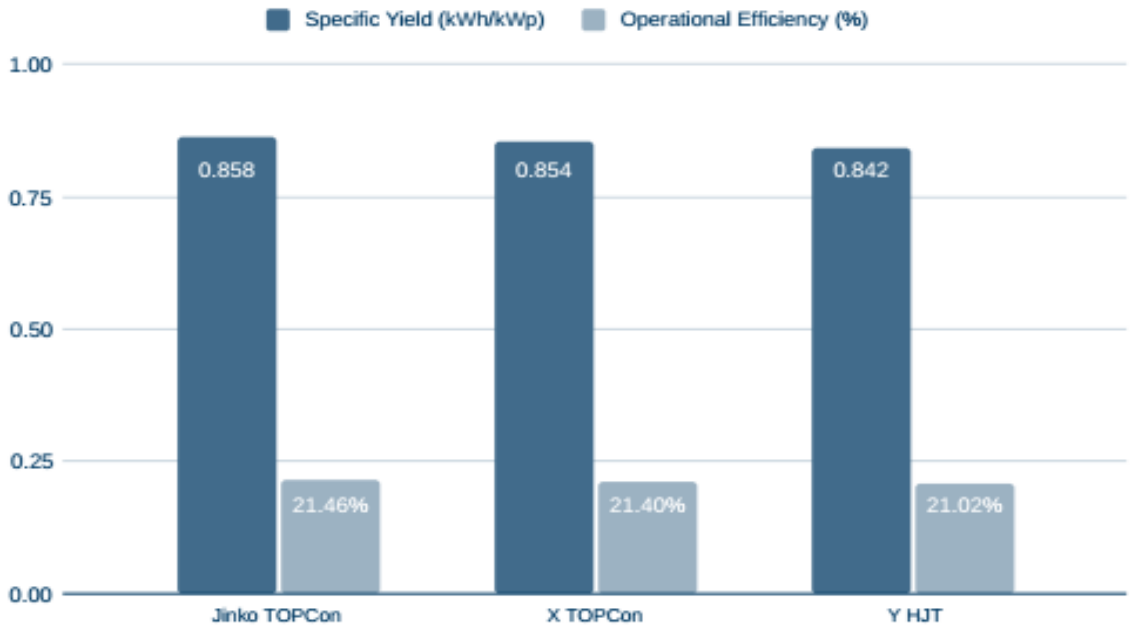
Field Test – Qatar

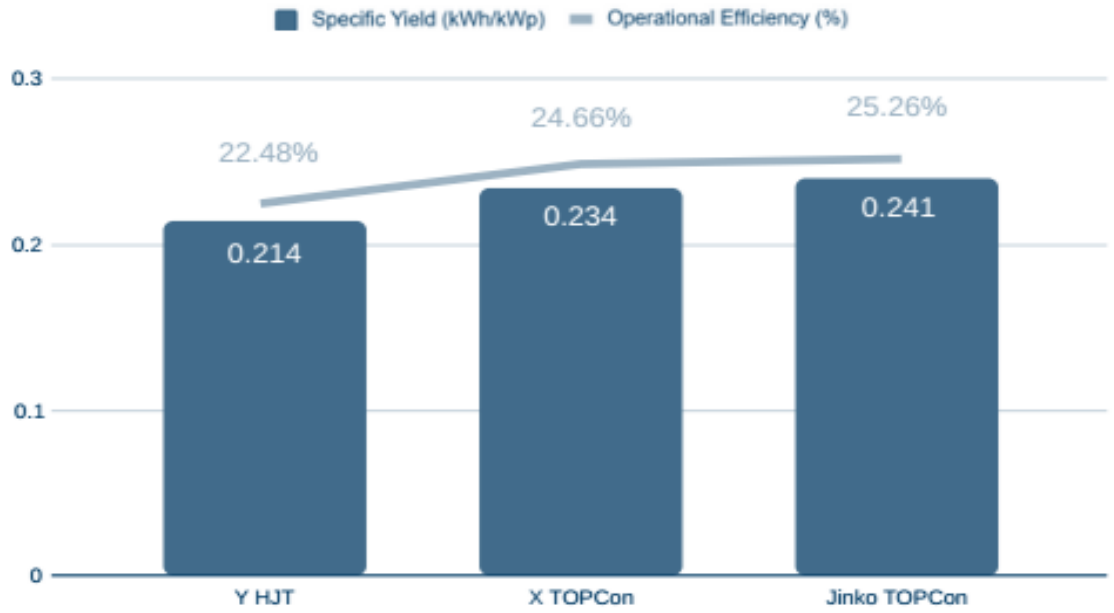


Performance at Specific Weather Conditions

Date & Time	Highest Temperature Recorded	Plane of Array Irradiation
13/07/2024 13:15PM	47.8°C	890W/m²

Date & Time	Highest Humidity Recorded	Plane of Array Irradiation
01/08/2024 7:16AM	82%	212W/m²

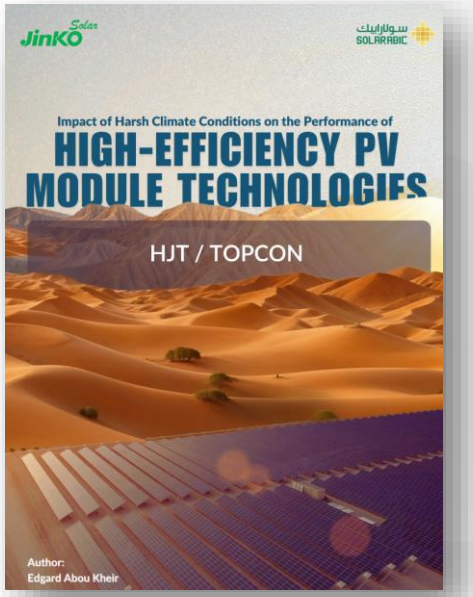




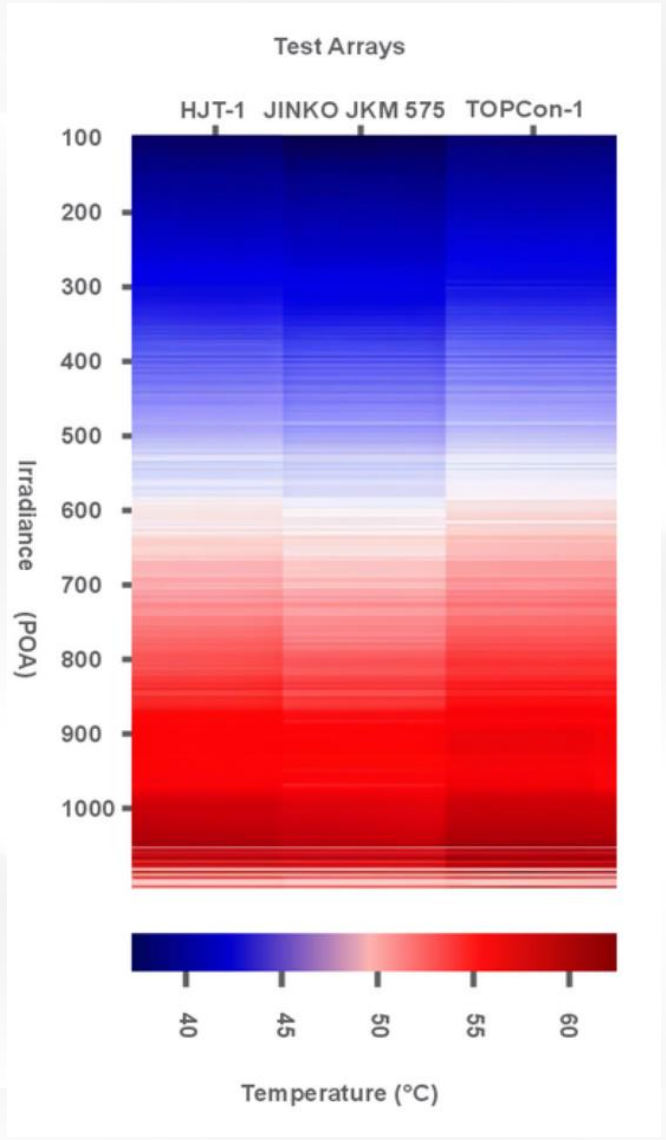
Key Takeaways From The Field Study

- Despite HJT's better values on the datasheet specially the temperature coefficient and bifaciality factor, Jinko's TOPCon modules demonstrated superior field performance in Qatar's summer conditions, achieving a record 100.52% PR.

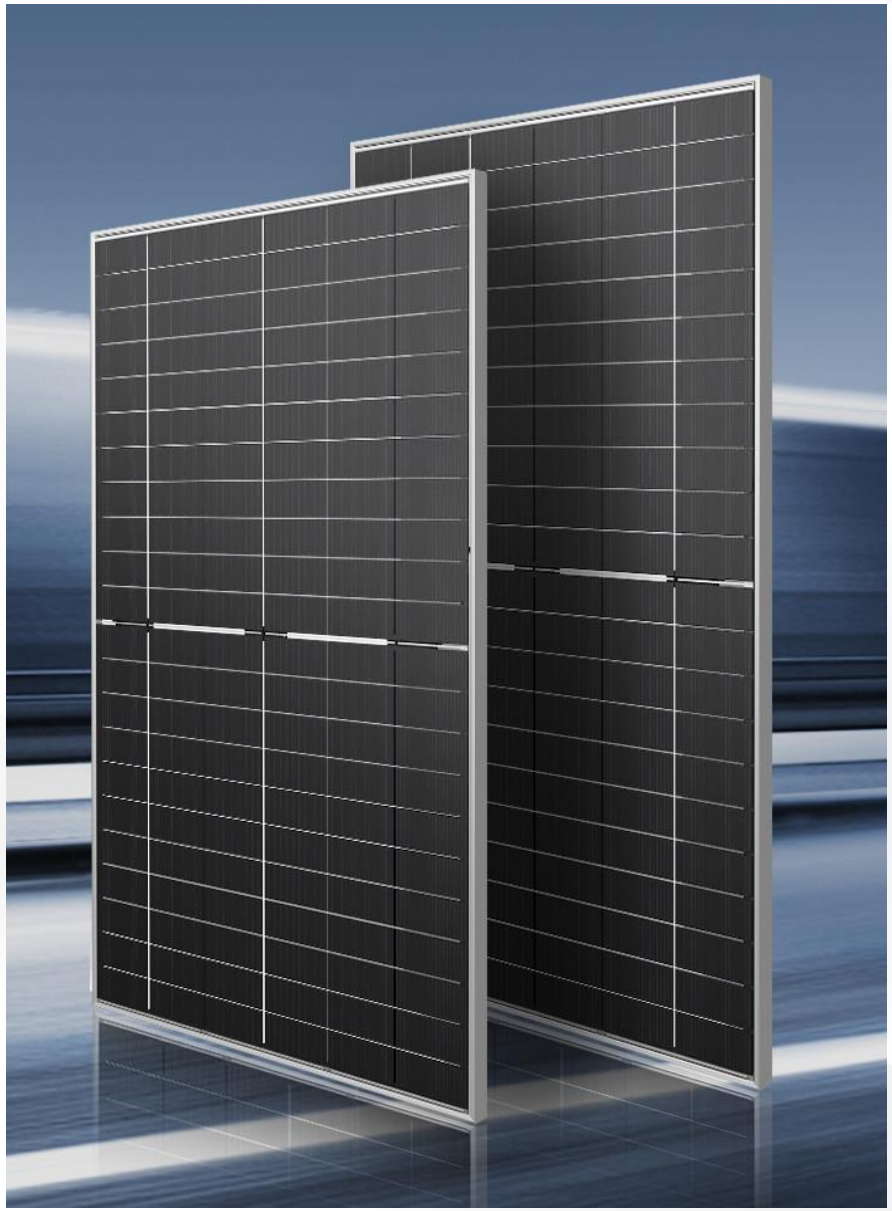
- The study disproves reliance on datasheet metrics alone, this emphasizes the importance of technology and BOM selection for long-term reliability in harsh climates. Stakeholders must prioritize real-world testing and manufacturer transparency to avoid costly inefficiencies



"Across all technologies, monthly PR values remain relatively consistent from July to October, with minor seasonal variations, **with JKS maintaining its superior performance in each month, demonstrating resilience to changes in temperature and irradiance.** However, the HJT string consistently lags behind the others, with noticeable month-to-month PR reductions, particularly in August and October, potentially signaling environmental sensitivity in desert climates or premature degradation effects." QEERI



Tiger NEO Superiority



- More Power: 20Wp more power compared to Tiger Neo
- Higher Efficiency: Exceeding 24% for the first time for TOPCon modules
- High Bi-faciality Factor: Theoretically could reach 90%, we can achieve 85% as average in production
- Improved Technical Specs: temp coefficient -0.28%/C, annual degradation 0.35%
- More Reliable Product: Improved LID, PID & LeTID resistance
- Better Overall Quality: Improved EL criteria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THANK YOU!