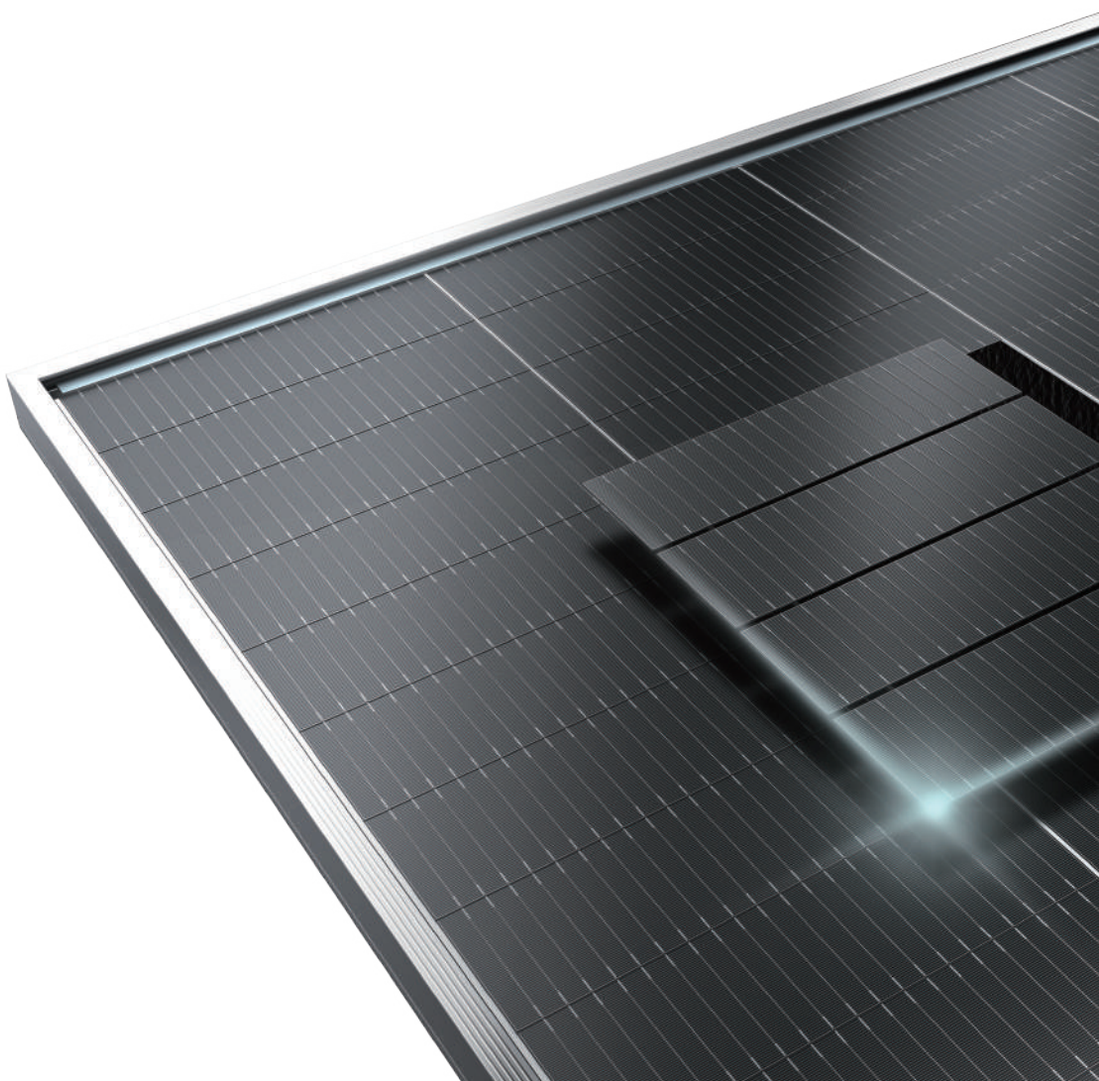
ASTRONERGY

ASTRO N7 Pro
Technical White Paper



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01 Background

1.1 Industry Development: A Profound Transition Toward High-Quality Growth

Driven by global "dual carbon" goals and energy security strategies, the photovoltaic industry is accelerating its transition from a capacity-centric growth model toward a new phase centered on technological innovation and high-quality development. This transformation reflects both the inevitable outcome of policy guidance and market selection, and an intrinsic imperative for the industry to overcome cost bottlenecks and enhance core competitiveness. The industry's development paradigm has shifted from single-dimensional competition based on capacity and cost to technology-driven, high-quality development.

Cost reduction and efficiency improvement remain the fundamental drivers of PV industry development. High efficiency and high-power output, as critical levers for sustained LCOE reduction, have become the focal points of technological innovation across the value chain. Concurrently, the industry is actively moving beyond homogeneous, price-driven competition through product innovation and application scenario diversification, thereby fostering a healthier ecosystem.

1.2 Technological Development: An Iterative Path of Multidimensional Collaborative Innovation

The iterative advancement of PV module technologies underpins the industry's high-quality development, characterized by multidimensional, collaborative innovation.

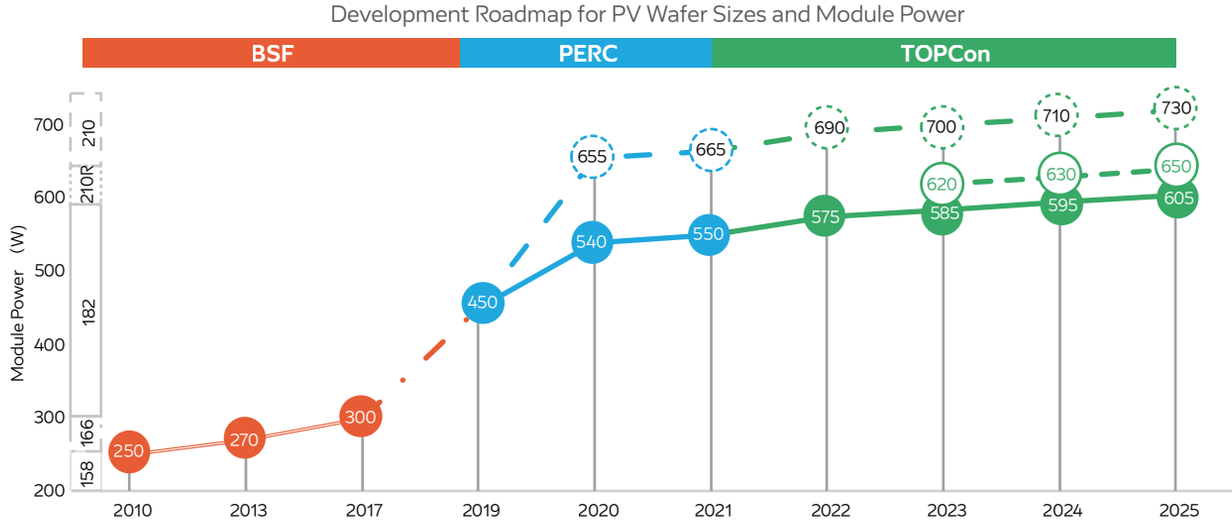
Cell Technology: The technological landscape has largely completed the large-scale transition from PERC to TOPCon (Tunnel Oxide Passivated Contact). Leveraging advanced passivation technologies, TOPCon cells offer significant advantages in reducing interfacial recombination and enhancing open-circuit voltage (Voc).

Metallization Processes: Gridline technology has evolved from MBB (Multi-Busbar) to SMBB (Super Multi-Busbar), and is now advancing toward 0BB (Zero-Busbar) technology. Through finer gridline widths and increased contact points, these advances effectively reduce shading losses, lower series resistance, and optimize current collection efficiency, while significantly reducing silver paste consumption and resistive losses. Concurrently, SE (Selective Emitter) technology employs laser doping to create heavily doped regions beneath electrode contacts and lightly doped regions in illuminated areas, effectively reducing carrier recombination and serving as a key auxiliary technology for enhancing cell efficiency.

Module Encapsulation: To match high-efficiency cells and ensure long-term reliability, the module BOM (Bill of Materials) has been comprehensively upgraded. AR-coated glass has become standard, leveraging its advantages in enhanced light trapping and reduced reflectance; high-density encapsulation technologies, enabled by low-stress, flexible interconnection designs, improve active area utilization and mitigate cell micro-crack risk.

Silicon Wafers and Sizes: Silicon wafer sizes have evolved iteratively from 166 mm to 182 mm and 210 mm. The 210R rectangular silicon wafer, a key innovation in standardization, is gaining accelerated market traction. The resulting 2382×1134 mm module format—the "golden size"—achieves an exceptional space utilization of 98.5%, striking an optimal balance among power output, efficiency, system compatibility, and logistics costs, thereby serving as a key enabler of cost reduction and efficiency gains across the value chain.

Development Roadmap for PV Wafer Sizes and Module Power



Source: CPIA "China PV Development Roadmap 2024–2025", PV Infolink, and other third-party reports.

1.3 Product Philosophy: Comprehensive n-type Upgrades, Establishing a New Benchmark for Lower LCOE

Astronergy remains steadfastly customer-centric, continuously advancing module product iterations through sustained technological accumulation and R&D breakthroughs. In recent years, the company has strategically focused on the n-type TOPCon technology pathway, achieving significant advances in cell efficiency, manufacturing processes, and production stability. Guided by the R&D philosophy of "commercializing one generation, reserving one generation, and pioneering the next," and recognizing the remaining potential for performance enhancement in existing n-type products, the team conducted comprehensive evaluations across multiple dimensions, including conversion efficiency, manufacturing cost, production yield, process feasibility, and long-term reliability. Following extensive testing and optimization, we are pleased to officially launch the ASTRO N7 Pro series. This product represents a comprehensive upgrade over its predecessor, with notable improvements in power output, temperature characteristics, degradation control, and structural integrity, thereby further reducing system-level LCOE and delivering superior returns for our customers. The launch of the ASTRO N7 Pro not only accelerates technological iteration within the PV industry but also provides a more competitive product foundation for the global clean energy transition.

02 ASTRO N7 Pro Technological Innovations

The ASTRO N7 Pro series modules are built on the 210R rectangular silicon wafer platform and integrate cutting-edge technologies, including Astronergy's TOPCon 5.0+ high-efficiency cell technology, quarter-cut technology, and high-density encapsulation technology, effectively enhancing module output power and long-term reliability.

2.1 TOPCon 5.0+ High-Efficiency Cell Technology

TOPCon 5.0+ represents a further evolution from the previous-generation TOPCon 4.0. Building upon proven mature technologies, it incorporates industry-leading ASP (ASTRONERGY Side Passivation), Poly Finger rear-side localized passivation, and SNOP (Super Narrow Opending Print) combined with Dense Grid 3.0. Compared to the previous generation, this yields a cell efficiency improvement exceeding 0.7% absolute.

ASP（ASTORNERGY Side Passivation)

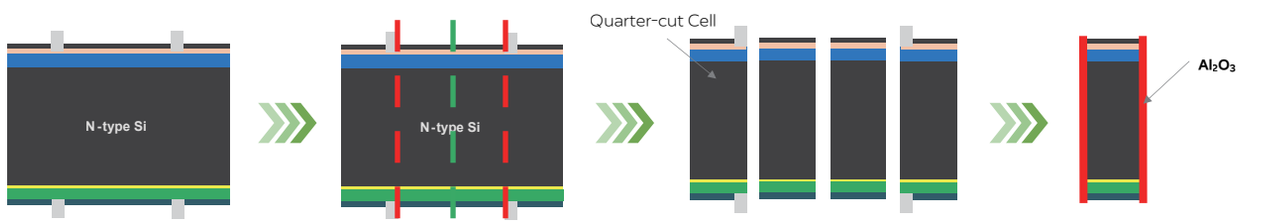
Principle: By depositing an oxide film on cell cut surfaces for passivation repair, surface defects and dangling bonds are reduced, thereby significantly suppressing surface carrier recombination.

Technical Advantages:

Suppression of Edge Shunting: The passivation layer blocks bypass paths caused by impurity diffusion or metal migration, enhancing open-circuit voltage (Voc) and fill factor (FF), achieving a Voc increase of 3 mV and a cell efficiency improvement of approximately 0.25–0.3% absolute. By suppressing edge recombination, photogenerated carriers in edge regions can be effectively collected, enhancing short-circuit current (Isc) and further contributing to efficiency gains.

Enhanced Environmental Reliability: The edge passivation layer effectively prevents moisture and oxygen ingress into the cell interior, significantly improving the module's resistance to PID (Potential Induced Degradation), ensuring stable long-term operation under harsh conditions such as high temperature and humidity.

Improved Mechanical Durability: The passivation layer can partially fill and repair microscopic cutting cracks, mitigating crack propagation under mechanical stress and thereby enhancing mechanical durability.

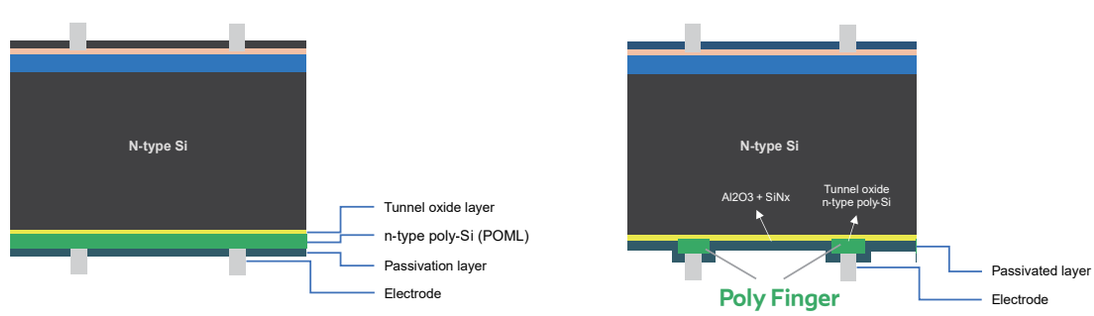


PF（Poly Finger）Rear-side Localized Passivation

Principle: By removing or thinning the n-poly layer (doped polysilicon layer) in non-metallized regions on the cell rear side, while simultaneously optimizing passivation in non-poly regions, parasitic absorption by the rear-side doped poly layer is reduced.

Technical Advantages:

Improved Photoelectric Conversion Efficiency: This reduces series resistance (Rs) and enhances short-circuit current (Isc), improving cell efficiency by approximately 0.1–0.15% absolute. PF technology substantially enhances rear-side conversion efficiency, enabling efficient utilization of rear-incident light, thereby increasing module bifaciality by approximately 5% absolute.



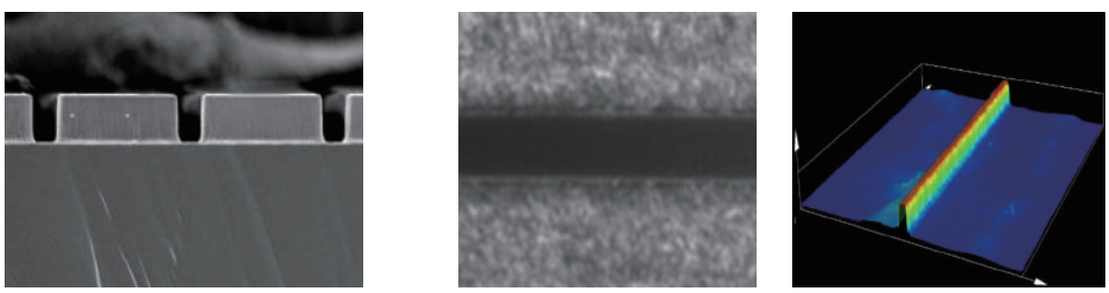
SNOP（Super Narrow Opening Print）Technology

Principle: SNOP technology employs a specially designed full-open stencil, eliminating mesh obstruction in the printing area. Compared to screen printing, the stencil exhibits minimal deformation during printing, offering superior edge definition and precision. The stencil facilitates smoother paste transfer, producing finer, flatter, and more uniform gridlines with an aspect ratio exceeding 70%, thereby improving paste utilization.

Technical Advantages:

Optimized Current Transmission and Optical Performance: Fine gridlines and optimized aspect ratio enable superior current collection pathways while further reducing shading area.

Broadened Process Window and Enhanced Efficiency: Combined with Dense Grid 3.0 technology, SNOP effectively broadens the boron diffusion process window. By accommodating higher sheet resistance, it reduces surface doping concentration, suppresses carrier recombination, and ultimately achieves a further cell efficiency improvement exceeding 0.1% absolute.



Steel plate structure SEM

2.2 Multi-Cut Technology

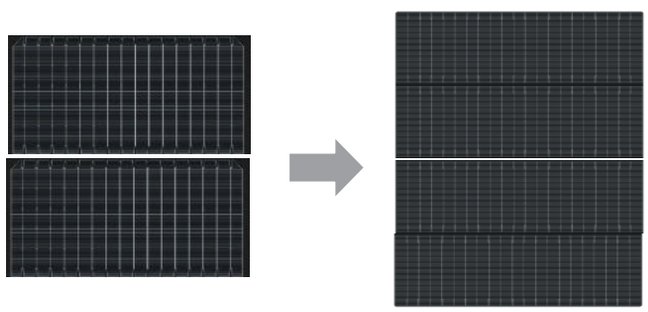
Beyond cell-level efficiency gains, the ASTRO N7 Pro series adopts quarter-cut technology—a platform-level technology that optimizes internal current flow paths through "physical division and circuit reorganization."

Principle and Advantages:

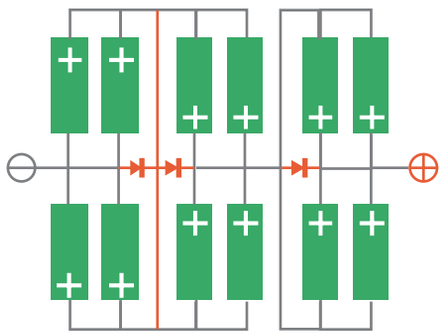
Reduction of Internal Losses: By dividing standard cells into four segments, each quarter-cell becomes an independent power generation unit, with internal current reduced to 1/4 and theoretical resistive loss to 1/16 of full-cell values, significantly reducing current-induced power losses.

Enhanced Shading Tolerance: Through a series-parallel hybrid circuit design, only the affected branch is bypassed when partial shading occurs. Compared to half-cut modules, quarter-cut modules exhibit significantly lower hot-spot temperatures, minimizing power loss due to hot spots while improving module reliability and system safety.

Improved Mechanical Reliability: Smaller individual cell dimensions enhance the module's resistance to mechanical stress and inhibit micro-crack propagation.



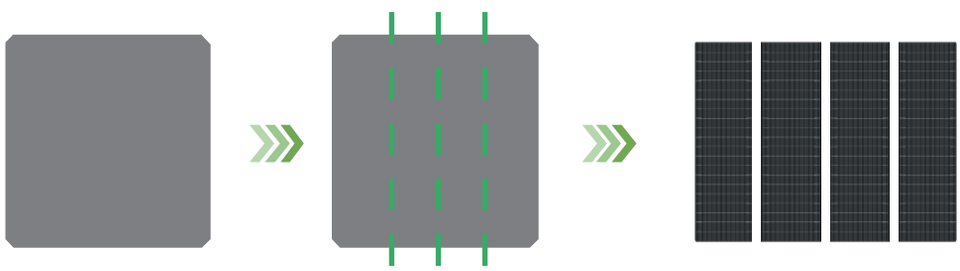
Multi-segment cutting



Special circuit design

Process Assurance: To address challenges during cutting and encapsulation, the ASTRO N7 Pro series employs damage-free laser cutting, high-precision stringing with stress-buffering, and comprehensive in-process EL (Electroluminescence) crack detection. While fully leveraging multi-cut advantages, these measures minimize fragmentation rates and crack risk during production.

Synergistic Effects: Multiple cuts introduce additional cell cut surfaces, leading to edge defects and carrier recombination. However, the aforementioned ASP technology substantially mitigates these defects by passivating edge dangling bonds to form a protective layer, effectively suppressing carrier recombination and enhancing minority carrier lifetime, thereby forming a perfect complement to multi-cut technology.



Full Cell

Laser damage-free cutting

1/4 cell as the standard unit

2.3 “20BB + Seamless Design” High-Density Encapsulation Technology

The "20BB + Seamless Design" high-density encapsulation technology adopted by the ASTRO N7 Pro series represents a disruptive encapsulation process. The synergistic combination of these two approaches redefines module efficiency boundaries from both optical and electrical perspectives.

20BB Technology:

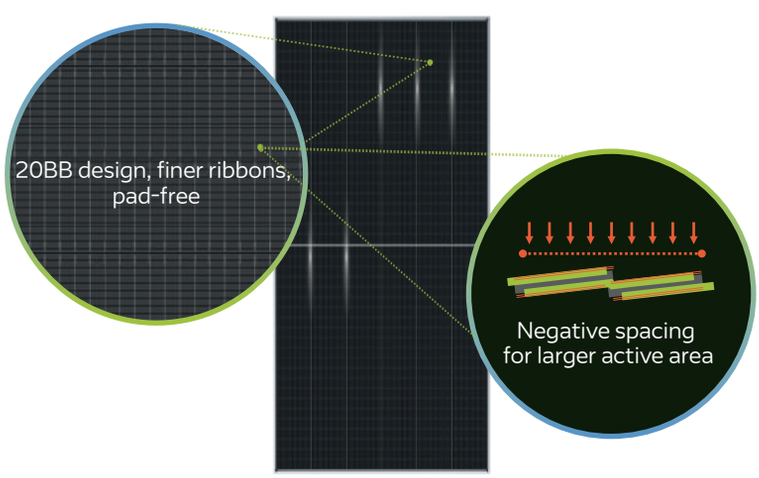
Principle: Metal interconnection ribbons are pre-fixed onto the cell surface via a carrier film, then secured together with the cells in a single lamination step, forming an integrated interconnection. The 20BB design substantially increases contact points and shortens current collection paths.

Advantages: This technology employs a low-temperature, low-stress soldering process using flux-free low-temperature ribbons, achieving interconnection during lamination. This reduces thermal damage to cells and enables future wafer thickness reduction. Furthermore, the low-temperature process reduces energy consumption and carbon emissions during manufacturing. Moreover, the integrated film-interconnection acts as a buffer during lamination, enabling more uniform stress distribution across solder ribbons and effectively mitigating micro-crack risk.

Seamless Design:

Principle: By optimizing cell arrangement to eliminate conventional 0.5–0.2 mm inter-cell gaps, and integrating film-interconnection technology to address stress issues during cell contact, ultra-high-density encapsulation is achieved.

Advantages: Eliminating inter-cell gaps increases effective light-receiving area per unit area by approximately 0.81%, directly enhancing absolute module conversion efficiency. It also avoids optical losses from light transmission and reflection through gaps, further improving light utilization. Moreover, the gapless design minimizes front-side blank space, enhancing module aesthetic uniformity and visual appeal.



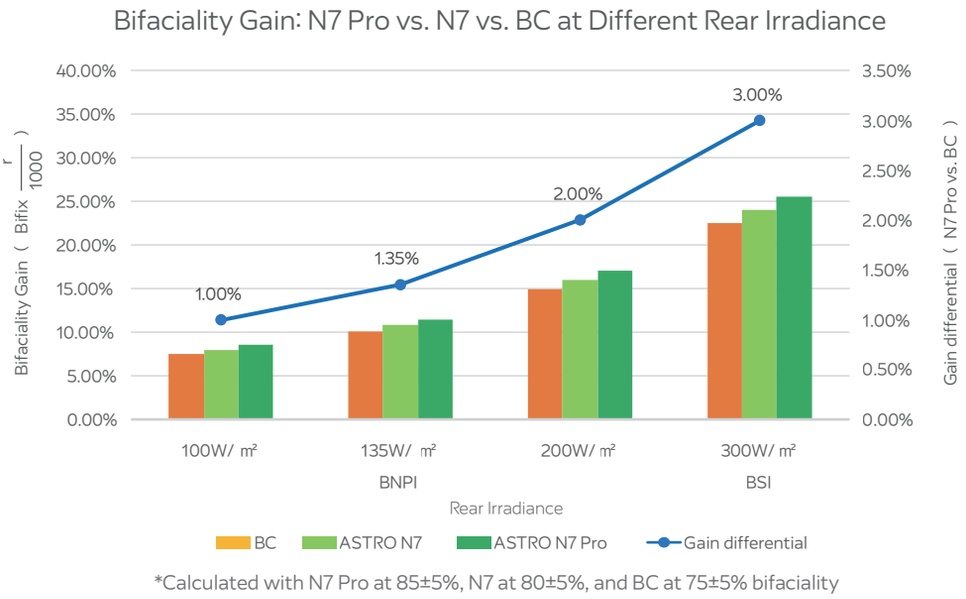
03 ASTRO N7 Pro Product Advantages

Building on the aforementioned technological innovations, the ASTRO N7 Pro series achieves significant improvements in bifaciality, temperature coefficient, shading tolerance, power degradation, and reliability.

3.1 Higher Bifaciality（85±5%）

Enabled by optimized localized passivation on the TOPCon 5.0+ cell rear side, parasitic absorption is effectively reduced, substantially enhancing rear-side light absorption and conversion. Additionally, the cell rear side features an ultra-fine, ultra-high-density gridline design that significantly minimizes shading area, forming a denser, more efficient current collection network that substantially shortens average carrier transport distance.

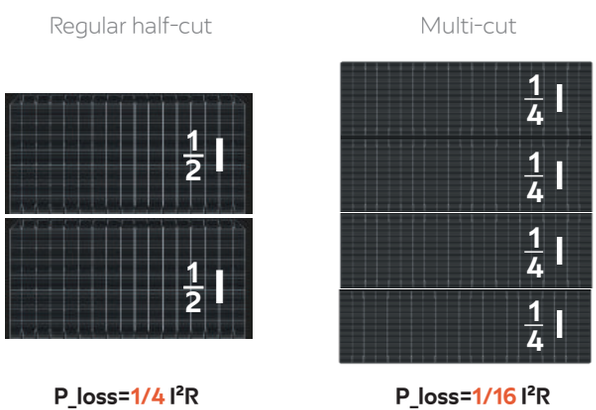
Integrating these technologies, the ASTRO N7 Pro series achieves a bifaciality of 85±5%. Compared to the previous generation, this delivers an additional 1–3% power generation gain under varying rear-side irradiance conditions.



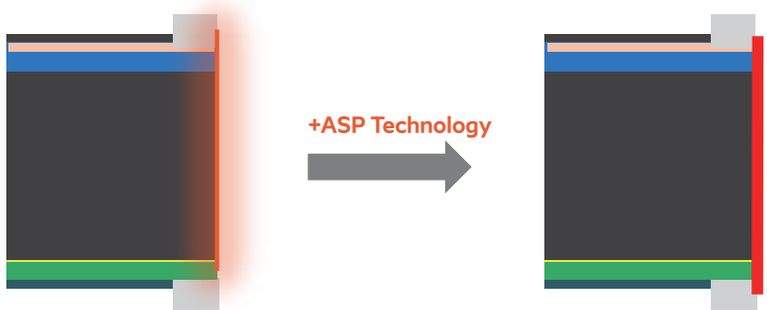
*Calculated with N7 Pro at 85±5%, N7 at 80±5%, and BC at 75±5% bifaciality

3.2 Superior Temperature Coefficient（-0.26%/℃）

Contribution of quarter-cut Technology: By reducing individual cell area, quarter-cut technology achieves lower internal operating current. Per Joule's law ($Q = I^2R$), internal resistive losses in a quarter-cut module are reduced to 1/16 of full-cell values, resulting in significantly lower heat generation and maintaining higher generation efficiency under elevated temperatures.



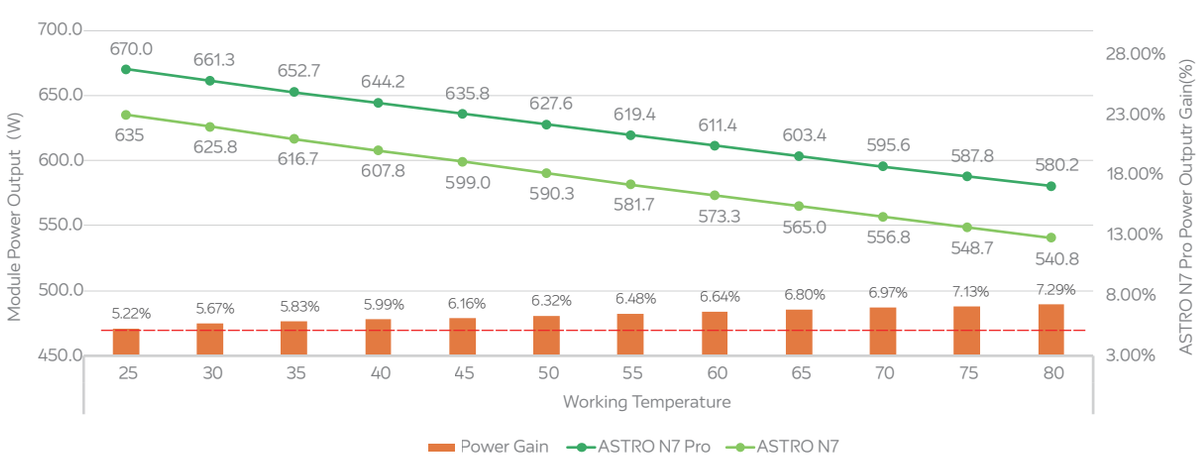
Contribution of TOPCon 5.0+ Cell Technology: The ASTRO N7 Pro modules utilize high-lifetime silicon wafers combined with ASP edge passivation technology, which effectively suppresses carrier recombination at cell edges and reduces overall recombination rates. This yields higher, more stable open-circuit voltage, thereby optimizing module voltage output characteristics at elevated temperatures.



Exposed cut surface,
surface recombination & aggregation

Cut-edge passivation reduces
edge recombination, boosting Voc to 750mV+

Comparison of theoretical operating temperature values
(module output power of N7 1.0 and N7 Pro under various operating temperatures)



3.3 Enhanced Shading Tolerance

Quarter-cut technology divides power generation units into smaller, more independent segments and optimizes internal circuit connections. The module contains a greater number of sub-cells protected by bypass diodes, with the circuit partitioned into more, shorter independent branches. Under partial shading, quarter-cut modules can achieve over 20% higher power output compared to half-cut modules. Furthermore, as each sub-cell operates at only one-fourth of full-cell current, heat generated by reverse current under shading is substantially lower than in half-cut or full cells. Hot-spot temperature is estimated to decrease by over 30 °C, significantly mitigating the risk of permanent cell damage from hot spots and minimizing system power losses.

ASTRO N7 Pro Excellent shading tolerance

Power retention rate up to **87%+**

	ASTRO N7 Pro * Initial power 635W+		Regular TOPCon * Initial power 577W	
0.75 half-cell shading	554.8W	87.4%	461.4W	80%
1.5 half-cell shading	534W	84.1%	401.3W	69.5%
2.5 half-cell shading	532.4W	83.8%	400.4W	69.4%

ASTRO N7 Pro – Excellent Hot-Spot Resistance

Hot-spot temperature **< 100°C** in all cases

ΔT hot-spot: up to **30.9°C**

	ASTRO N7 Pro	Regular TOPCon
Center point	94°C	124.9°C
Upper-left point	90.7°C	114.5°C
Upper-right point	94.4°C	113.5°C

*Measured data comparison (Location: Haining, Zhejiang; Date: Nov. 2025; Temp: 15.2°C; Wind speed: 0.7 m/s; Irradiance: 878 W/m²)

3.4 Lower Power Degradation

The photoelectric conversion capability of PV modules is subject to multiple influencing factors. In the short term, it is primarily affected by temperature, irradiance, spectrum, and soiling; over the long term, it gradually declines due to recombination, resistive losses, optical degradation, and encapsulant aging. Continuous innovation across technologies and materials aims to reduce thermalization, recombination, and resistive losses, while optimizing materials and encapsulation to enhance aging resistance and improve long-term generation efficiency. The ASTRO N7 Pro modules have been enhanced across multiple dimensions, including encapsulant materials, cell technology, and module design, achieving a linear power degradation rate of 0.35% from year 2 to year 30, thereby maximizing total energy yield over the plant lifecycle.

Encapsulation

- **Multi-layer coated glass** — Excellent weather resistance, low susceptibility to physical abrasion, and minimal reduction in light transmittance.
- **Modified encapsulant** — Modified encapsulant – minimizing transmittance degradation from UV, yellowing, and aging

Cell Technology

- **SNOP** — Optimized grid aspect ratio, enhanced ohmic contact, lower internal resistance
- **High Quality Silicon** — Suppression of defect- and impurity-induced recombination for longer minority carrier lifetime
- **Excellent Passivation Technology** — Reducing carrier recombination from surface dangling bonds and impurities

Module Design

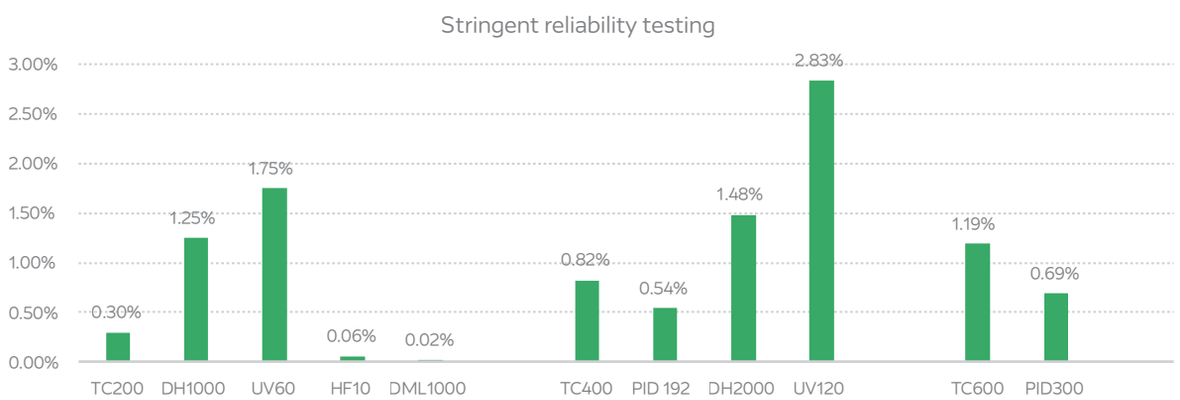
- **Multi-cut Design** — Reduction of internal resistance heat loss, lower operating temperature, and decreased temperature-induced accelerated aging of materials.

2-30 Year Degradation **-0.35%**

04 ASTRO N7 Pro Performance Assurance and Industry-Leading Product Warranty

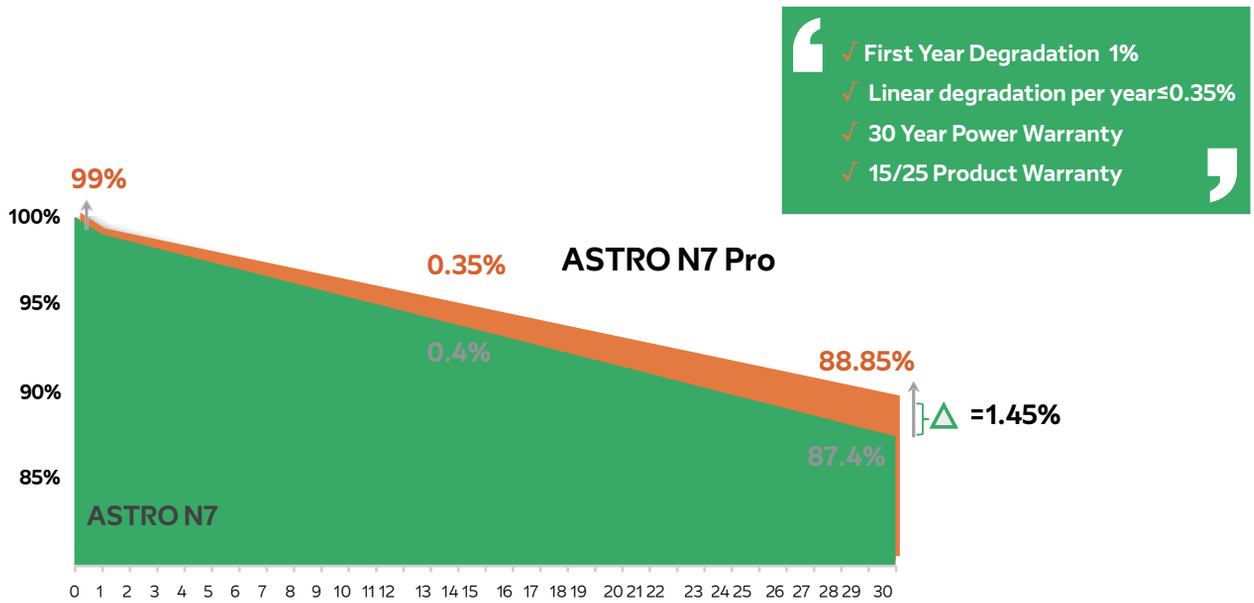
4.1 Reliability Assurance

Module reliability determines outdoor power generation capability throughout the product lifecycle, directly impacting long-term revenue of PV power plants. The ASTRO N7 Pro series has not only passed IEC-specified aging tests but has also surpassed them by successfully undergoing rigorous accelerated aging tests significantly exceeding IEC requirements, fully validating long-term reliability under various extreme environmental conditions.



4.2 Product Warranty

Enabled by ultra-high conversion efficiency, ASTRO N7 Pro series modules convert a greater proportion of light energy into electricity, reducing internal thermal losses. Additionally, as encapsulant degradation is positively correlated with temperature, lower operating temperatures also slow material aging rates. Combined with the low-temperature soldering process of 20BB technology, module tolerance to micro-cracks is enhanced, further mitigating power degradation risk from cracks. The low hot-spot temperatures enabled by quarter-cut technology also minimize damage to encapsulant materials. Based on the aforementioned performance enhancements, the ASTRO N7 Pro series achieves first-year degradation of 1% and linear power degradation of 0.35% from year 2 to year 30. Furthermore, all ASTRO series products are backed by a 15-year product warranty and a 30-year power output warranty.



05 ASTRO N7 Pro Customer Value

5.1 Lower BOS and LCOE

BOS (Balance of System) costs and LCOE (Levelized Cost of Energy) are the two most critical metrics for evaluating PV power plant investments. Leveraging comprehensive advantages—including high efficiency, high bifaciality, low temperature coefficient, and excellent low-light performance—the ASTRO N7 Pro series can significantly reduce project BOS costs. By enhancing lifetime energy yield, it ultimately achieves lower LCOE, delivering superior returns on investment for customers.

Across various project types, considering different site environments, mounting configurations, and foundational plant investments—including major equipment such as inverters, trackers, and cables, as well as civil works, installation, project design, commissioning, and preliminary expenses—the ASTRO N7 Pro series demonstrates measurable advantages in both power generation and LCOE.

Distributed projects，N7 Pro **VS** BC

↑ **1.3~2.1%**

Power Generation Gain

Utility-scale projects，N7 Pro **VS** BC

↓ **1.2~1.5%**

LCOE Reduction

Commercial & Industrial (C&I) Distributed

In a C&I scenario, a 5 MW power plant simulation in Hangzhou, Zhejiang Province, compared the ASTRO N7 Pro-660 module with a BC module of the same format and power rating. Due to installation area constraints, the total number of modules was identical. However, owing to the ASTRO N7 Pro's excellent low-light performance, the plant generated 1,854,638 kWh more over 30 years, representing a 1.3% generation gain. This additional generation is approximately equivalent to the annual electricity consumption of 660 average households (based on 2023 national average annual household consumption of 2,800 kWh; Source: National Energy Administration, China Electric Power Statistical Yearbook).

Energy Yield: ASTRO N7 Pro vs. BC (C&I Applications)

Product Type	ASTRO N7 Pro	BC
Project Location	Zhejiang Hangzhou	
System Capacity	5MW	
Module Power	660W	660W
BOS difference	no difference	BSL
First-year specific yield（kWh/kW）	1052	1039
First-year energy yield（MWh）	5260	5195
30-year cumulative energy yield（MWh）	150047	148193
Energy yield gain	1.3%	BSL
IRR	13.5%	13.4%

*Average annual irradiance: approx. 1,200 kWh/m²; performance at 200 W/m² is calculated with a 2% deviation
*Distributed rooftop PV system; energy yield based on PVsyst simulations with Albedo = 0

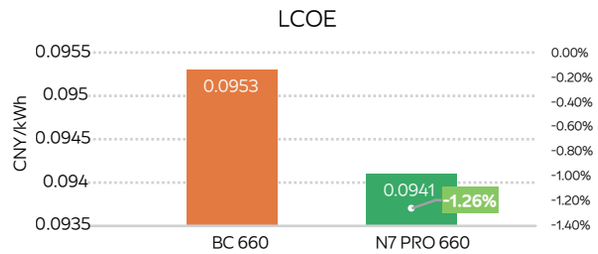
Utility-Scale Ground-Mount

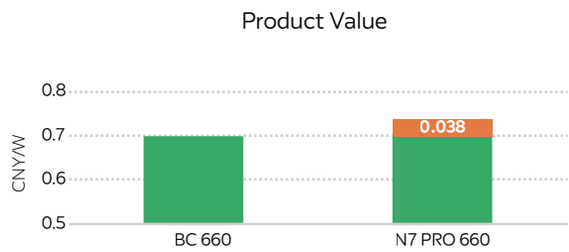
In large-scale distributed and ground-mount scenarios, a 100 MW power plant simulation was conducted in Abu Dhabi, UAE (representative of a hot, arid climate) and Golmud, China (representative of a temperate, high-irradiance climate). The simulation employed single-axis 1P trackers and 2P fixed-tilt configurations, with a DC/AC ratio of 1.2. The ASTRO N7 Pro-660W module was compared against a BC-660W module of the same format for LCOE comparative analysis.

LCOE: ASTRO N7 Pro vs. BC (Ground-Mount Projects)

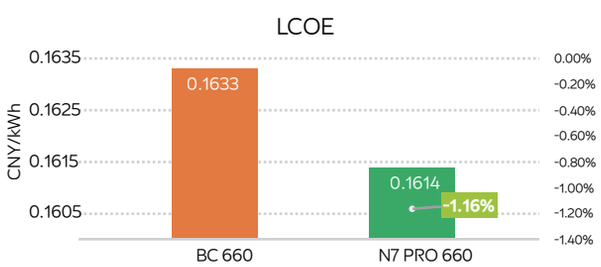
Product Type	ASTRO N7 Pro	BC组件
Project Location	China, Golmud/UAE, Abu Dhabi	
Module Power	660W	660W
Number of modules per string	27/29	
Mounting Method	2P fixed mount/Single-axis tracker	
Ground Albedo	20%	
Min. ambient temp. (annual)(℃)	-15/13	
System voltage(V)	1500	
Temperature coefficient of powe(%/℃)	-0.26	-0.26
Bifaciality	85%	75%
1st year power degradation	1%	1%
Degradation per year	0.35%	0.35%
Power Warranty	30 Years	

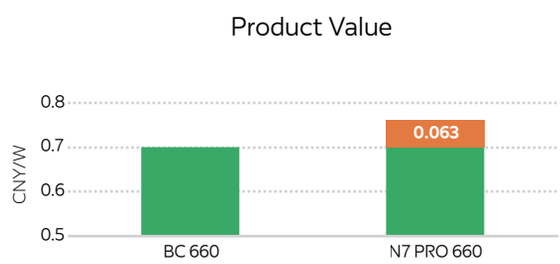
China, Golmud





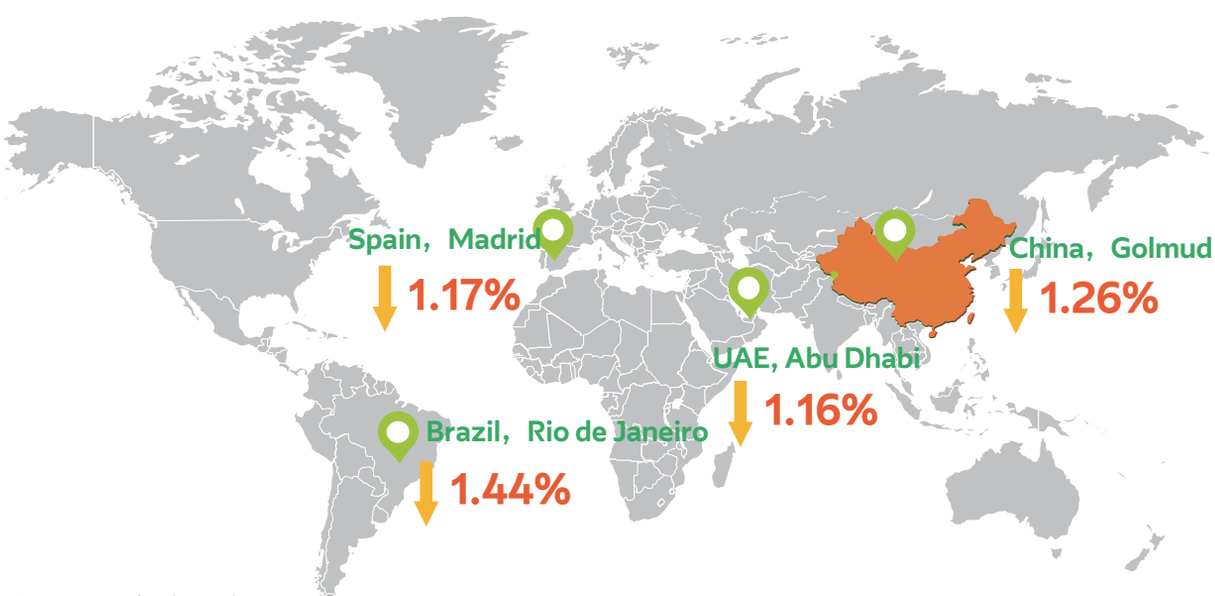
UAE, Abu Dhabi





相Compared to the BC module, the ASTRO N7 Pro's excellent low-light performance and ultra-high bifaciality yielded LCOE reductions of approximately 1.16% and 1.26% for the Golmud, China, and Abu Dhabi, UAE plants, respectively. On an equivalent LCOE basis, the ASTRO N7 Pro demonstrates a product value premium of approximately 0.038–0.063 CNY/W.

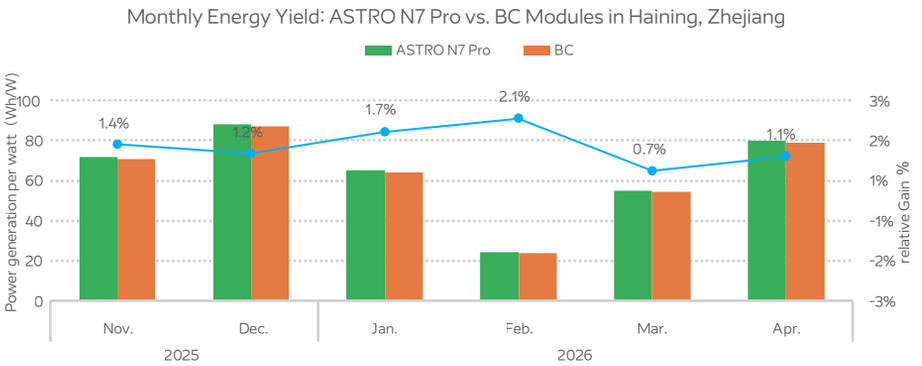
As illustrated in the figure below, across large-scale power plant projects in various global regions, the ASTRO N7 Pro achieves LCOE reductions of 1.15% to 1.5% compared to BC products of the same format and power class, demonstrating strong competitiveness and product value, and offering global customers a superior choice.

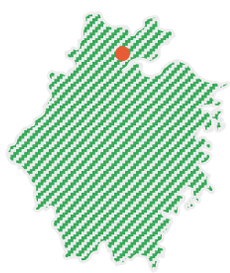


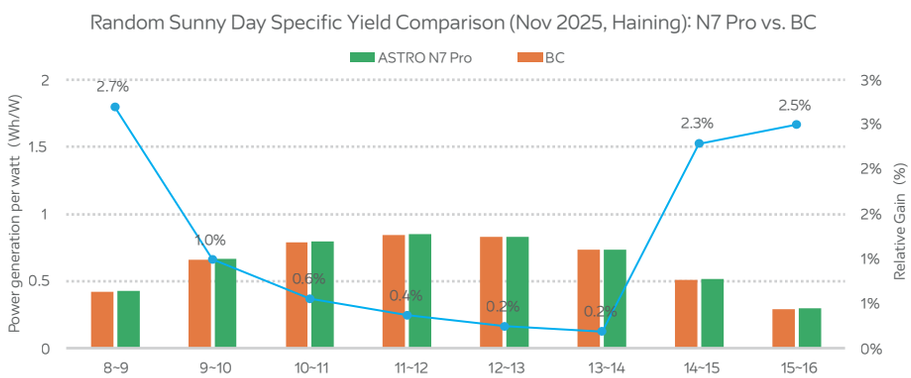
Assumptions for the analysis:
100MW，1500V
ASTRO N7 Pro 660W VS BC 660W
N7 Pro priced the same as BC

5.2 Empirical Validation – Higher Per-Watt Energy Yield

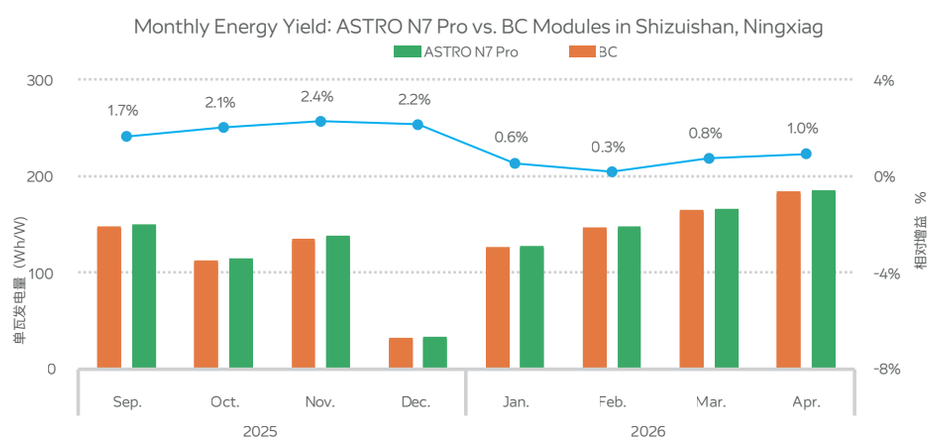
Empirical power plant data demonstrates that the ASTRO N7 Pro series exhibits outstanding power generation capability across diverse environments. Comparative data from validation sites in Ningxia (September 2025–April 2026) and Haining (November 2025–April 2026) are presented below. The data indicates that quarter-cut modules consistently exhibit higher per-watt energy yields compared to BC modules. The ASTRO N7 Pro's advantages are particularly pronounced under overcast conditions, providing robust validation of its real-world performance superiority.







Test site: CHINT Haining Testing Base
Mounting: Fixed, height 1.5 m, tilt 20°
Data period: Nov 2025 – Apr 2026



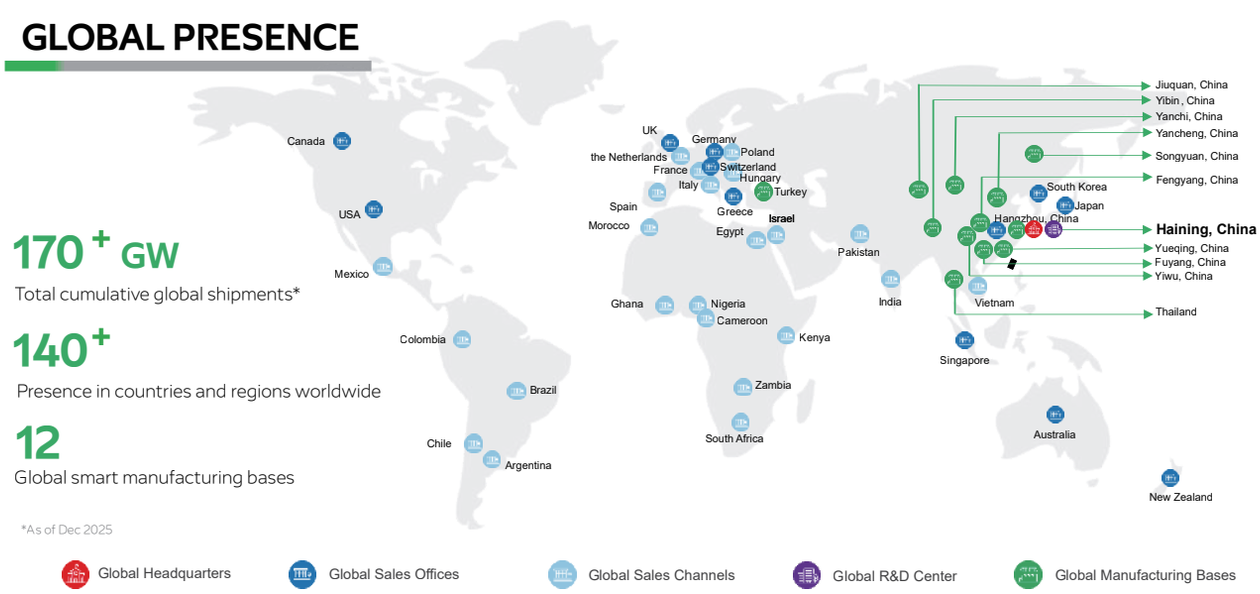
Test Site：Shizuishan, Ningxia
Mounting：Fixed, height 0.5m, tilt 36°
Data period：Sep 2025-Apr 2026

Leveraging advantages of high bifaciality, excellent low-light performance, superior temperature coefficient, and low operating temperature, the ASTRO N7 Pro demonstrates an average generation performance gain of approximately 1.2%–1.4% compared to BC modules at empirical validation sites in Haining, Zhejiang, and Shizuishan, Ningxia. Under low-irradiance conditions (e.g., irradiance below 400 W/m² on cloudy or rainy days), the average gain reaches 3.1%.

06 Outlook

At the historic intersection of profound global energy restructuring and accelerated "dual carbon" goal advancement, the photovoltaic industry stands at a pivotal inflection point—transitioning from "scale dividends" to "technology dividends." As industry competition shifts from pure capacity expansion to technology-driven, high-quality development, and as continued LCOE reduction increasingly depends on pushing conversion efficiency limits and maximizing full lifecycle value, Astronergy firmly believes that only by addressing the challenges of our era with persistent, efficient, and green energy solutions can we achieve steady, sustained progress within the industry's new cycle.

As a pioneer with nearly two decades of deep engagement in the PV sector, Astronergy has consistently evolved in step with industry transformation. From pioneering mass production of n-type TOPCon modules to continuous iterative upgrades of the ASTRO series, we have not only witnessed China's PV industry leap from follower to leader, but have also embedded technological innovation into the very DNA of our corporate development, guided by our mission to "To create a sustainable and net-zero carbon world with solar power." Looking ahead, we will continue to uphold our values of "Customer focus, accountability, collaboration, high efficiency, and innovation," persisting in our deep commitment to high-efficiency crystalline silicon cell and module technologies. With products delivering higher efficiency, higher power output, and greater reliability, we aim to create enhanced value for utility-scale ground-mount, C&I distributed, and residential applications.



Global First-Tier Competitiveness

Industry-Leading Financial Stability

Global First-Tier Competitiveness

NO.1

Tier 1 PV Module Maker
Tier 1 PV Module Maker listed by 2024 BloombergNEF

Ranked 6th globally in shipments
InfoLink 2025 Module Shipment Ranking

Ranked 4th globally in TOPCon module shipments
Calculated Based On Publicly Available Data

Top Performer
10-time Kiwa PVEL Top Performer for Module Reliability

TÜV Rheinland - All Quality Matters
ASTRO N series won the Bifacial Photovoltaic Module Outdoor Power Generation Excellence Award - 2022/2023."
ASTRO N series won the Photovoltaic Cell Conversion Efficiency Excellence Award - 2023."
ASTRO N series won the BIPV Comprehensive Performance Excellence Award

We recognize that the future of the PV industry does not lie in the "involution" of low-quality, low-price competition, but in a virtuous ecosystem that builds differentiated advantages through technological breakthroughs and expands growth opportunities through application scenario innovation. Astronergy remains steadfast in its business philosophy of "Create values for customers; Offer chances for employees to chase better life; Shoulder social responsibilities." Committed to our promise to "Solar Together，For A Greener World," we will join hands with global partners to collectively propel PV technology to new heights, ensure green energy reaches every corner of the world, and contribute enduring, efficient Chinese strength to a zero-carbon future.