



SANY Silicon Energy

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SMART PV ZERO CARBON FUTURE



A scenic landscape at sunrise or sunset. The sky is a gradient of blue, orange, and yellow. The sun is low on the horizon, casting a warm glow over the scene. In the foreground, there is a dense forest of green trees and shrubs. In the background, there are several layers of mountains, with the closest ones in sharp focus and the distant ones fading into a hazy blue. The overall mood is peaceful and hopeful.

SMART PV ZERO CARBON FUTURE

| Introduction to SANY Silicon Energy



Driven by global sustainable development and environmental protection, SANY Group, as a global leading enterprise in construction machinery, actively responds to the United Nations Framework Convention on Climate Change and the Paris Agreement, seizing the dual opportunities of the global industrial and energy revolutions. It has taken the transformation of new energy as an important strategic direction and entered the photovoltaic field in 2022, founding SANY Silicon Energy. SANY Silicon Energy focuses on independent R&D and production across the entire PV value chain, including ingot, wafer, cell, module, and PV power plants, and has been honored as the "National High-Tech Enterprise." The Company of nearly 2,000 people employs over 400 R&D talents and an R&D team with over 15 top-tier PhDs.

Currently, SANY Silicon Energy is constructing factories for manufacturing wafers, cells, and modules with a capacity exceeding 10GW in Zhuzhou, Hunan, and Shuozhou, Shanxi. Propelled by SANY's comprehensive industrial strengths in wind, PV, storage, and hydrogen, it offers highly efficient and highly integrated PV power plants and full-lifecycle new energy solutions. Under the "SANY Intelligent Manufacturing" brand, we aim to create high-quality PV products and solutions, contributing to the global new energy industry.


2

PV Industrial Chain Bases


AI

Intelligent Factories


180+

Nations and Regions Marketing Network


80+

Offices


400+

R&D Talents

Group Honors

Forbes Global 500

Forbes Best Employers

Fortune's Most Admired Chinese Companies

China Grand Awards for Industry

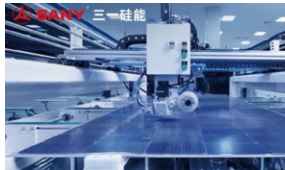
China's First Construction Machinery Enterprise to Exceed 100 Billion in Revenue

China's Construction Machinery Enterprise with the Most Patent Applications and Authorizations

SANY Silicon Energy Milestones


January

The first high-efficiency module of SANY Silicon Energy successfully rolled off the production line.




May

SANY's 5GW-capacity Ingot and wafer project was implemented in Shuozhou.



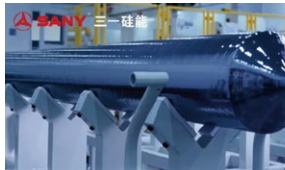
May

SANY Silicon Energy's debut at SNEC 2023.




October

The first monocrystalline silicon ingot from SANY Shuozhou officially rolled off the production line.




October

SANY Silicon Energy won the 'Asian Photovoltaic Innovative Enterprise.'



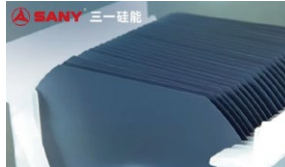
October

The first solar cell from SANY Silicon Energy's 5GW base in Zhuzhou rolled off the production line.




December

The first-piece silicon wafer from the ultra-thin monocrystalline silicon wafer project in SANY Shuozhou Phase II successfully rolled off the production line.




December

SANY Silicon Energy's 5GW PV manufacturing base in Zhuzhou commenced production.



April 2024

SANY Silicon Energy's Shuozhou PV full-industry project kicked off.



Vertically Integrated Photovoltaic Industrial Chain Intelligent Manufacturing Expert

Leveraging advanced N-type TOPCon technologies, SANY Silicon Energy focuses on independent R&D and production in the PV sector, ranging from ingots, wafers, cells, and modules to PV power generation. Empowered by 'SANY Intelligent Manufacturing,' it ensures high-quality products to safeguard high returns for customer projects and promotes the PV industry's rapid, healthy, and low-carbon development.

01

Ingot

02

Wafer

03

Solar Cell

04

PV Module

05

PV Power
Station



| Global Industrial Presence



Beijing Industrial Cluster

Huilongguan/Nankou
Piling machinery
Wind power equipment
Petroleum equipment

Zhuhai Industrial Park

Large harbor
machinery

Yangtze River Delta Industrial Cluster

Lin'gang/Kunshan/Changshu
Nantong/Rudong/Huzhou
Excavation machinery loading machinery
Crawler crane
Truck-mounted crane; environmental protection equipment

SANY America

Peachtree City,
Georgia, USA

SANY Germany

Bedburg, North Rhine-Westphalia
Putzmeister
Stuttgart, Baden-Württemberg

Shenyang Industrial Park

Coal machinery
Mining machinery

Zhuzhou Production Base

High-efficiency PV cell
High-efficiency PV module

Shuozhou Production Base

Silicon ingot
Silicon wafer
High-efficiency PV module

SANY Brazil

São Paulo, Brazil

SANY India

Pune, Maharashtra

- ★ SANY Industrial Bases
- ▲ SANY Silicon Energy Industrial Bases
- SANY Marketing Companies
- 🚛 Putzmeister (SANY Concrete Machinery International Headquarters)

SANY Intelligent Manufacturing Empowers Innovative PV Productivity



Inheriting the intelligent manufacturing philosophy from the SANY Group, SANY Silicon Energy has integrated cutting-edge technology to create fully automated intelligent production lines and management systems that are digitalized and informationized. From R&D to manufacturing and then to digital marketing, every link has been intelligentized and precisionized to form a closed-loop of integrated intelligent manufacturing. We are dedicated to providing global customers with products of excellent quality, creating endless possibilities with innovative technologies, and maximizing value.



Leading Manufacturing Technologies



Class 1000 Cleanroom



AI Digitalized and Intelligentized Factory



Comprehensive Quality Assurance

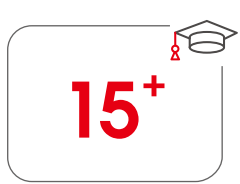


5G Fully Intelligent AGV

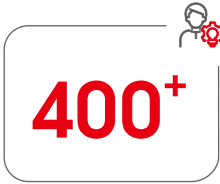


Fully Digitalized MES Management

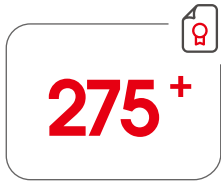
R&D Innovation for Low-Carbon Production



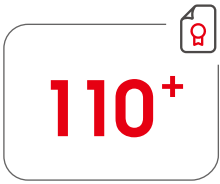
PhDs



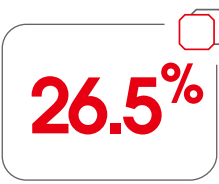
R&D Talents



Patents Applied



Patents Granted



Mass Production
Cell Efficiency

• Professional International R&D Team

SANY Silicon Energy boasts an international team with years of experience in N-type PV technology research. The team consists of over 400 R&D talents, including R&D teams led by 15 top-tier PhDs. The company has been recognized as a National High-Tech Enterprise.

• Innovative Industrial Chain from R&D to Industrialization

With its strong R&D capabilities, SANY Silicon Energy has built a high-quality N-type TOPCon cell technology platform and actively ventured into cutting-edge technology fields such as HJT, Perovskite, and IBC to create a vertically integrated and innovative PV industrial chain, thus empowering high-quality PV products.

Stringent Supply Chain Management Standards



SANY Silicon Energy establishes strategic cooperation with top-tier global suppliers to ensure that the materials used in products meet customers' current and future needs.



Strategic Supplier Development Management



Feature Management



On-The-Spot Audit Management



Daily Monitoring Management



Product BOM Change Management



Supplier Performance Assessment Management

High-Quality Manufacturing System for High-Quality Products

01

Industry's Most Advanced Quality Management System



ISO 9001
Quality Management System

ISO 14001
Environmental Management System

ISO 45001
Occupational Health and Safety Management System

02

Stringent Quality Testing

IEC Tightened Testing



03

Comprehensive Quality Assurance

- **Supplier Management**
Global supply chain system, stringent supplier import process, and digital tracking system
- **Inventory Management**
Digital management platform for raw materials and finished products
- **Online Control of Products**
MES system for online digital monitoring and implementation feedback
- **Customer Management**
Digital customer management system for building customer-first interactions



Self-developed Intelligent Manufacturing Equipment for PV

With independent R&D and production capabilities for the complete set of equipment encompassing ingot, wafers, cells, and modules, an advanced digital management platform, and a highly integrated intelligent FMS system, SANY Silicon Energy is committed to providing customers with comprehensive solutions encompassing high-efficiency PV automation full-line equipment.

01 Ingot Equipment

Mono-crystal furnace





02 Cell Equipment

Bifacial Poly-PECVD edge passivation equipment

03 Module Equipment

Smart production line
4.0 welding equipment



N-type TOPCon High-Efficiency Cells



Dual Print Technology for Significant Improvement in the Cell's Front-Side Efficiency and Busbar Pull



Unique Bifacial Light-Receiving Structure and Half-Cell Design for Effective Increase in Module Power Generation



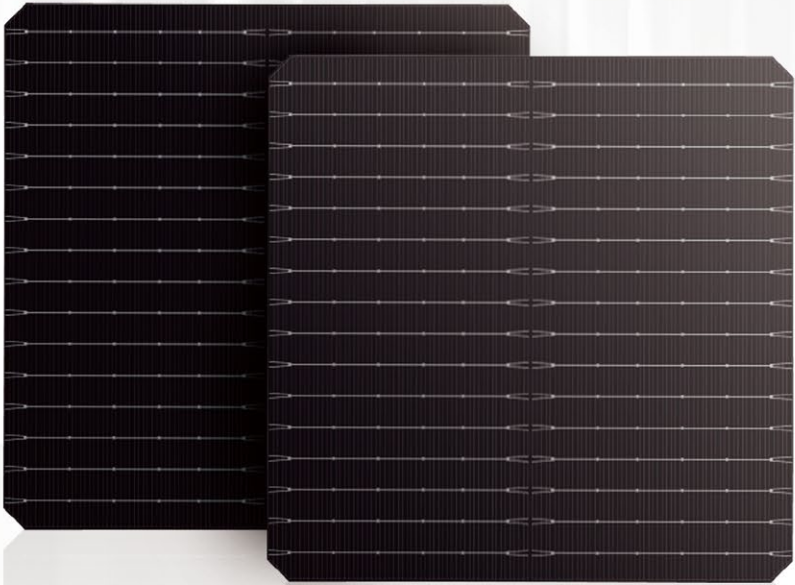
Unique Front and Back Electrode Pattern Design for Enhanced Mechanical Load and Reduced Fragmentation during Module Production



Excellent Anti-PID Performance that Ensures Module Power Generation Stability

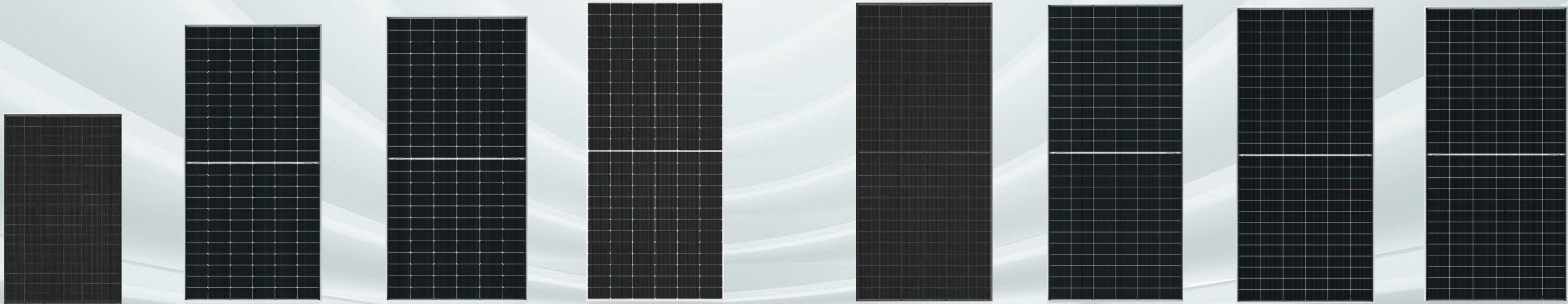


Mass-Produced TOPCon Cell Efficiency Exceeding **26.5%**



N-type TOPCon High-Efficiency Modules

The comprehensive array of modules fully
meets customers' needs for various application scenarios



SYMNI08TBDB	SYMNI144TBD	SYMNI144R01TBD	SYMNI156TBD	SYMNI156TBD0	SYMNI156TBD (0BB)	SYMNI156R02TBD	SYMNI156R03TBD
Monocrystalline High-Efficiency Bifacial Glass-Glass Modules	Monocrystalline High-Efficiency Bifacial Glass-Glass Modules	Monocrystalline High-Efficiency Bifacial Glass-Glass Modules	Monocrystalline High-Efficiency Bifacial Glass-Glass Modules	Monocrystalline High-Efficiency Bifacial Glass-Glass Modules	Monocrystalline High-Efficiency Bifacial Glass-Glass Modules	Monocrystalline High-Efficiency Bifacial Glass-Glass Modules	Monocrystalline High-Efficiency Bifacial Glass-Glass Modules
440 W Maximum Module Power	600 W Maximum Module Power	625 W Maximum Module Power	650 W Maximum Module Power	650 W Maximum Module Power	655 W Maximum Module Power	680 W Maximum Module Power	750 W Maximum Module Power

New Energy Integrated System Solution Provider

Propelled by SANY's comprehensive industrial strengths in wind, PV, storage, and hydrogen, SANY Silicon Energy helps customers build highly efficient, highly integrated, and user-friendly power plants, provides solutions for the integration of power generation, grids, demand, storage, and hydrogen across various scenarios, and delivers full-lifecycle solutions for new energy projects, including system R&D, development investment, design, construction, and operation management.

In May 2024, SANY Group signed a memorandum of cooperation with the Zambian government for the Ruida Mining 30MW PV power generation + 60MWh energy storage project. SANY's exploration of the 'Mining + PV + Electric' business model provides a new approach for SANY Group's presence in Africa as well as its expansion to the entire overseas PV markets, marking a milestone achievement.



Project
Financing



Project
Development



Engineering
Design



Project
Procurement



Project
Construction



Operations &
Maintenance



| Project Cases



01 Jiangsu | Kunshan
12MW Model: SYMN144TS

02 Hebei | Tangshan
20MW Model: SYMN156TBD

03 Jiangsu | Suzhou, Changshu
9.4MW Model: SYMN144TS

04 Hunan | Loudi
8.4MW Model: SYMN144TS

| Project Cases



01 Hunan | Changsha
20MW Model: SYMN144TS

02 Hunan | Zhuzhou
6MW Model: SYMN144TS

03 Uzbekistan
10MW Model: SYMN144TS

04 Thailand | Phuket
0.4MW Model: SYMN144TS

Partners



Environmental, Social, and Governance (ESG)



Intelligent
Manufacturing
that Promotes
Low-Carbon Production



Technological
Innovation that Empowers
Cost Reduction and
Efficiency Improvement



Green Empowerment
for Upstream and
Downstream Partners



Continually Giving
Back to Society

Creating a Beautiful Zero-Carbon New World with Technological Innovations

SANY Silicon Energy believes that the most precious resource is the natural environment we rely on for survival. Guided by the "Dual Carbon" goals, driven by technological innovations, and leveraging a vertically integrated industrial chain, we uphold our commitment to sustainability and actively employ green technologies from raw material procurement, product R&D, and manufacturing to energy resource utilization and waste management. We are dedicated to practicing sustainability throughout the entire product lifecycle, fostering the thriving of the green energy industry, and bringing green energy into households.

