



ASTRONERGY



Astronergy has always taken sustainability as its innate mission and is committed to achieving carbon neutrality across entire value chain by 2050.



Download Astronergy 2023 ESG Report

# About Astronergy



## Operation

As a green manufacturing enterprise, Astronergy implements low-carbon actions through every PV module, practices green behaviors through every employee, and guides our partners in the PV industry chain to build a sustainable ecology together.



## Products

Astronergy uses large-size wafers for all of its modules and actively promotes the use of thinner wafers, fluorine-free backsheets, etc., to continually improve module efficiency and reduce the carbon emissions and energy consumption of ASTRO N series modules.



## Customer

Astronergy always puts customers' needs first and focuses on communication and cooperation. We are constantly looking for new ways to better serve our customers with more convenient services and sustainable products.



## Employee

Astronergy is deeply committed to employee welfare and implements various initiatives in recruitment, training and corporate culture, emphasizing equal opportunities and respecting employees from different backgrounds.

## International Initiatives



Science Based Targets Initiative (SBTi)



PV Cycle



Women's Empowerment Principles (WEPPs)



United Nations Global Compact UNGC 'Forward Faster' Initiative

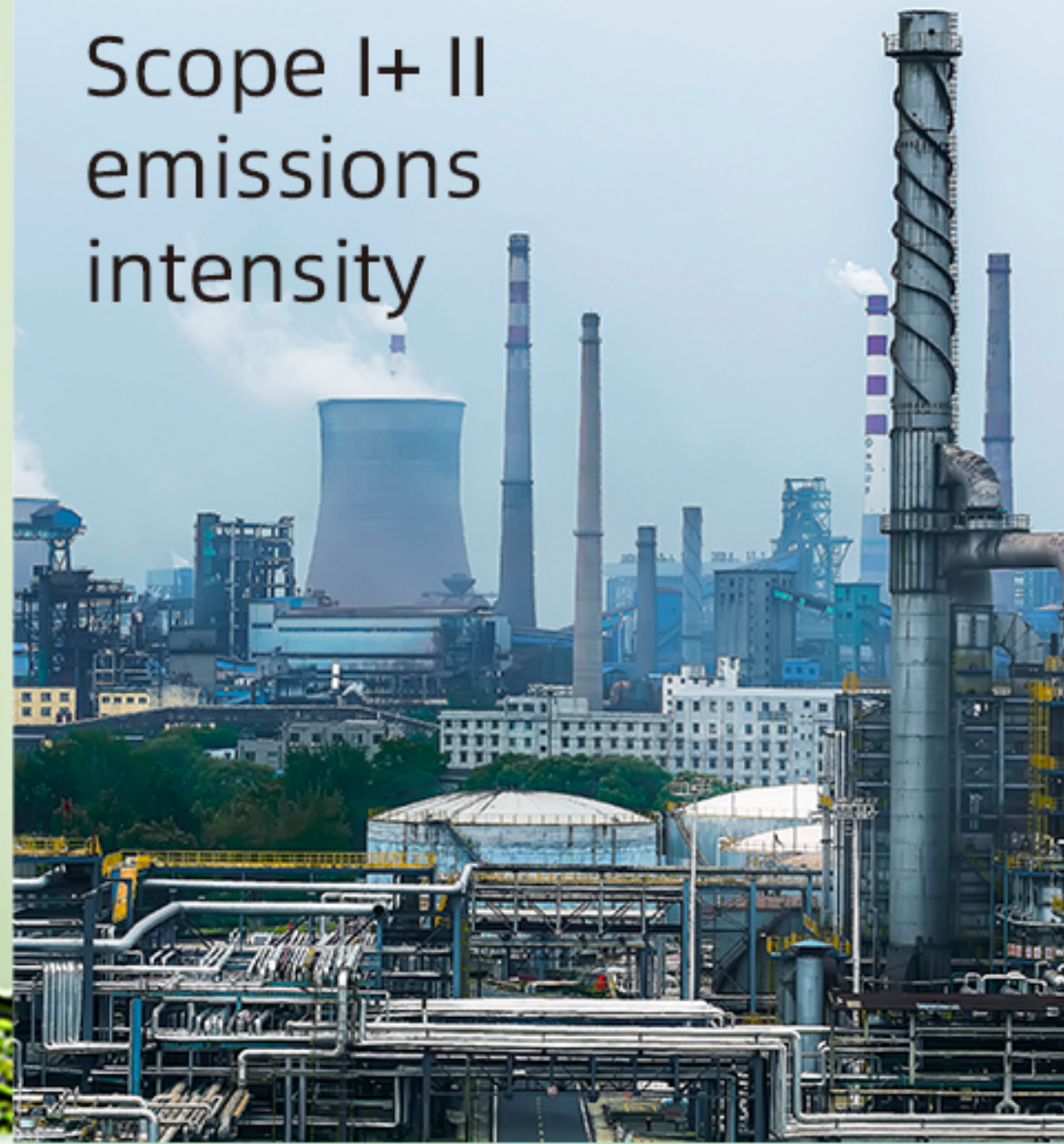


Carbon Disclosure Project (CDP) Disclosure Insight Action

Committed to  
**Sustainability Strategy**



**28.73** tCO2e/MW  
Scope I+ II  
emissions  
intensity



**15,768,400** kWh  
**Green Electricity  
Production**



**41.56** tons/MW  
**Water Consumption  
Intensity**



**Diverse Workforce**  
of **38** Countries and  
**42** Nationalities



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**Key Figures in 2023**

**32%**  
**Female Employee  
Proportion**



**2 Million**  
US Dollars  
**Social Welfare  
Investments**



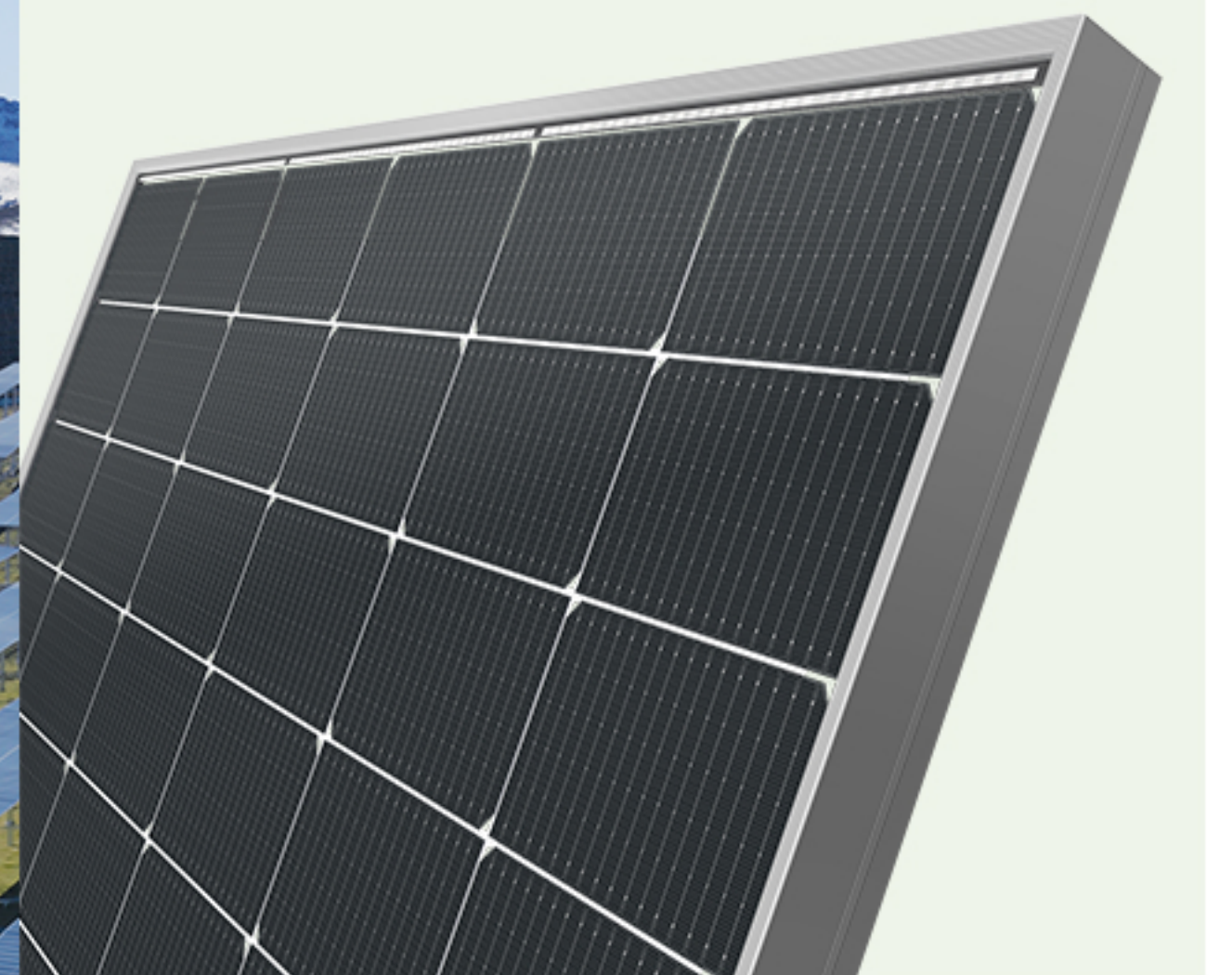
**All Core Suppliers  
Passed  
ISO 45001 Certification**  
(81.8% of core suppliers passed  
ISO 14001 certification)



Construction of  
**17 Eco-power  
Plant Projects**



**15 Main Products  
Product  
Life Cycle Assessments**



## Certification



**Low Carbon Footprint Certificate**  
granted by Certisolis



**ISO14067 Product  
Carbon Footprint**



**GOLD Rating**  
by EcoVadis



**Greenhouse Gas Emissions  
Verification Certification**  
(ISO 14064-1:2018) granted by BSI



**UL EPD**



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# ZERO <sup>BY 2050</sup> Carbon Neutrality

# Sustainability Strategy

2035  
Year

- 100**  
Bio-power Plant Collaborations
- 40%**  
Female Employee Proportion
- 100%**  
Operate With Renewable Energy

- 1,000**  
Employees Gain Support For Their Continuous Education
- 30%**  
Female Senior Management Staff Proportion
- 100%**  
Key Suppliers Attain Iso 14001/45001 Certification

- 10,000**  
Farmers Gained Help For Income Increase
- 30%**  
Female Technician Proportion
- 90%**  
Product Recycling Rate

2028  
Year

- 0**  
Landfill Waste
- 8**  
Zero Carbon Factories

- 100%**  
Key Suppliers Conduct Due Diligence And Environmental & Social Impact Assessment
- 100%**  
Executive Pay Linked To ESG Performance

2023  
Year

- 1st**  
Zero Carbon Factory
- CRE4 ECS**  
French Carbon Footprint Certification

# Sustainability Approach

As a clean energy industry involver, Astronergy is still on its way to practicing its vision of creating a sustainable and net-zero carbon world with solar power. We believe, with combined efforts, we can contribute to a green, sustainable life in the near future and realize the harmonious co-existence between humans and nature.

## Building A Green Supply Chain

- Green Supplier
- Green Design
- Green Manufacturing
- Green Recycling
- Green Data Disclosure

## Addressing Climate Changes

- Carbon Neutrality
- Sustainable Energy

## Creating A Harmonious Community

- Human Rights
- Community Relations

## Protecting Environments

- Water
- Waste
- Biodiversity Conservation

## Advancing Products And Services

- Product Quality Assurance
- Sci-tech Innovation



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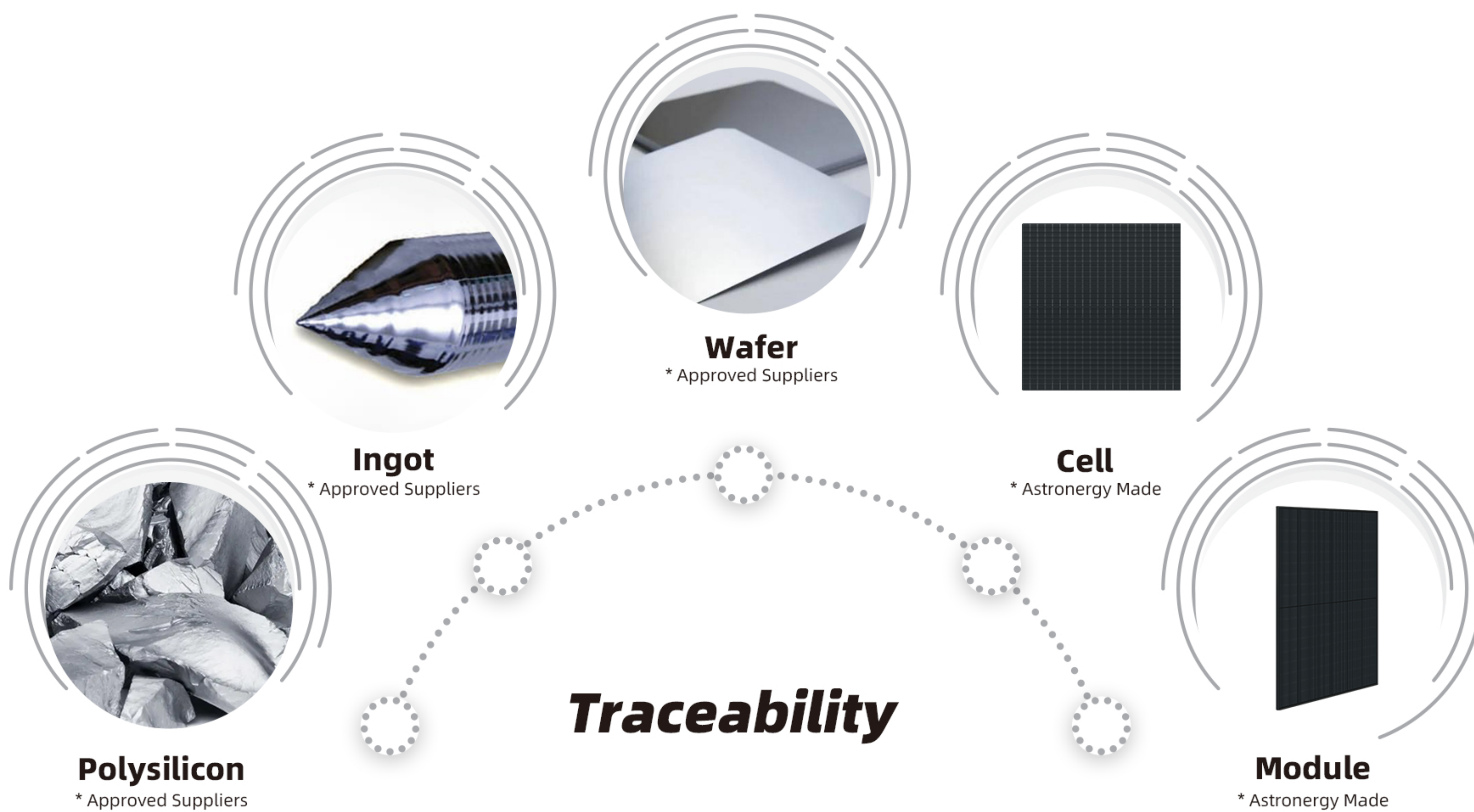
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# Building A Green Supply Chain

We shoulder our responsibility to outline a green supply chain management system, to minimize the environmental impact of every step of our manufacturing.



Astronergy has developed a comprehensive traceability system to ensure product quality, which covers all aspects of the supply chain from upstream suppliers to finished products, showing our superior product reliability and corporate responsibility as an industrial benchmark.



## Third-Party Audits



## Green Supplier

Astronergy emphasizes the responsible sourcing of raw materials and partnerships with environmentally responsible suppliers.



First Company Enabling Automatic 'AI Detection of EL Defects'

## Green Manufacturing

Astronergy enables the intelligent monitoring and traceability in the production process from raw materials to finished products.



Automated Guided Vehicle (AGV)  
95% Automation Rate

## Green Recycling

Astronergy believes that green recycling plays a vital role in promoting a circular economy, in which resources are used effectively.

100%



Recycling rate of packaging, glass, and frame materials

95%



Recycling rate for PV cells

80%



Recycling rate of welding ribbons



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# Addressing Climate Changes

We take addressing climate change as an important issue and practice actions to promote green transformation through our daily operations.

## Rooftop

<b>26,590</b> PV Modules Installed	<b>80,000 m<sup>2</sup></b> Coverage
<b>11.18 million kWh</b> Electricity Annually	<b>6,376 tons</b> Carbon Emission Reduced

Astronergy finished the upgrade of its first zero-carbon factory - Yancheng Zero-Carbon Factory.

## Lighting System

<b>200+</b> Streetlights Installed	<b>31,080 kWh</b> Electricity Annually
<b>17.7 tons</b> Carbon Emission Reduced	

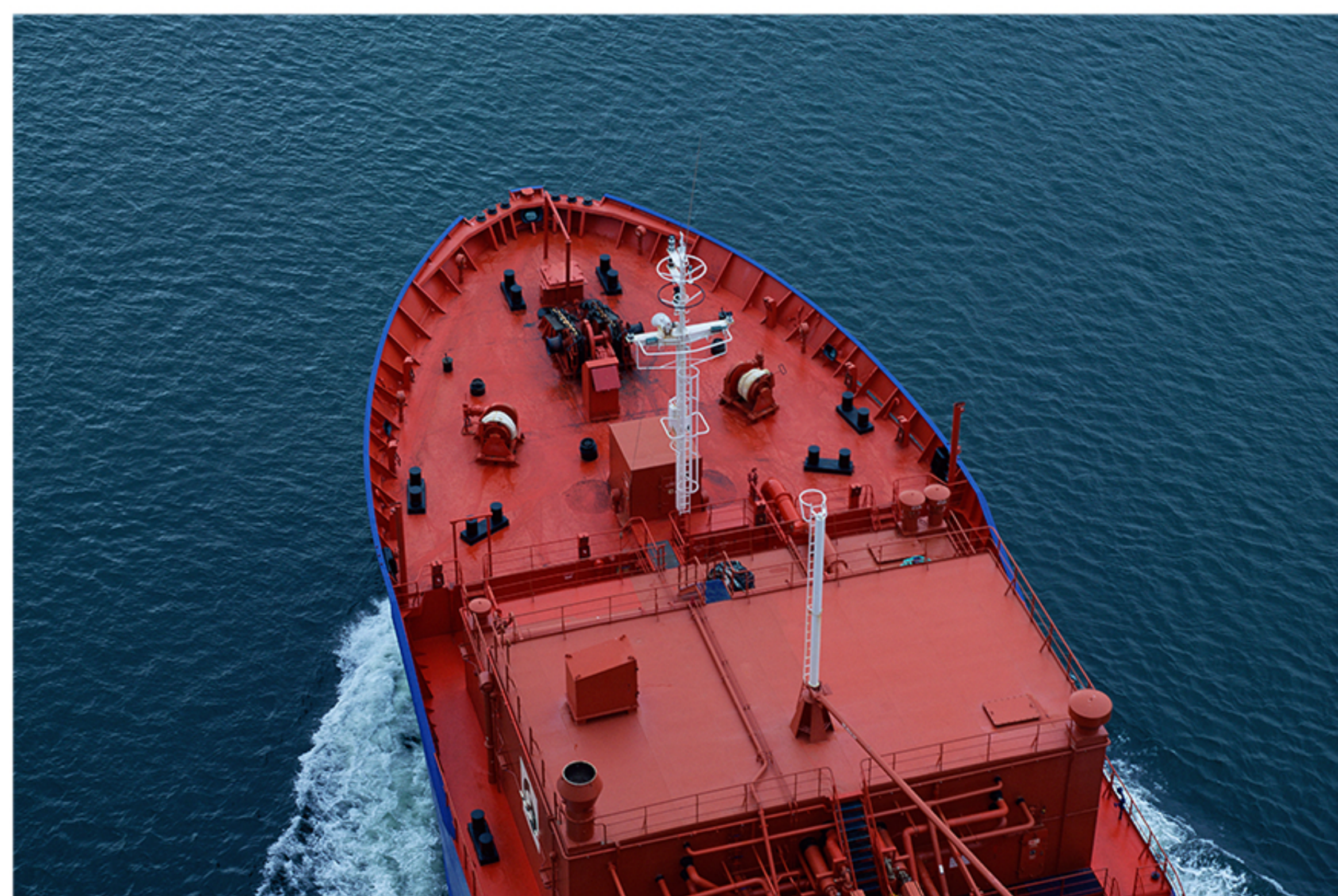
## Carport

<b>4,614 m<sup>2</sup></b> Coverage	<b>220</b> Motor Vehicles Parked
<b>920,000 kWh</b> Electricity Annually	<b>400</b> Non-motorized Vehicles Parked

Astronergy improved transport mechanism by increasing the water transport and reducing the transportation of container trucks.

## Water Transportation

**571.84 tons**  
Carbon Emission Reduced (Haining MFG. To Ningbo Port)





# Protecting Environments

We endeavour to reduce waste, conserve water and contribute to a biodiverse environment through our operations.



Astronergy, NIO and OPF hand for the world's first EV PV Self-consumption System with V2G Chargers at Qilian Mountain National Park.

## Clean Park

**75**  
ASTRO N PV Modules Installed

**53 tons**  
Carbon Emission Reduced

**670,000 kWh**  
Electricity Annually

Astronergy focuses on the management of water resources in the production and operation process, and is committed to improving the efficiency of water use.

## Cooling Tower

**69,000 cubic meters**  
Water Consumption Saved







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# Creating A Harmonious Community

We not only pursue harmony and peace within the enterprise, but also hope to influence the society with more innovative PV+ concepts to accelerate green development.



## 'PV+' Public Education

Astronergy has initiated a public education center for promoting eco-friendliness, which has attracted hundreds of kids and their families come to manufacturing bases to get inspirations for a sustainable and eco-friendly future.

## Homing Program

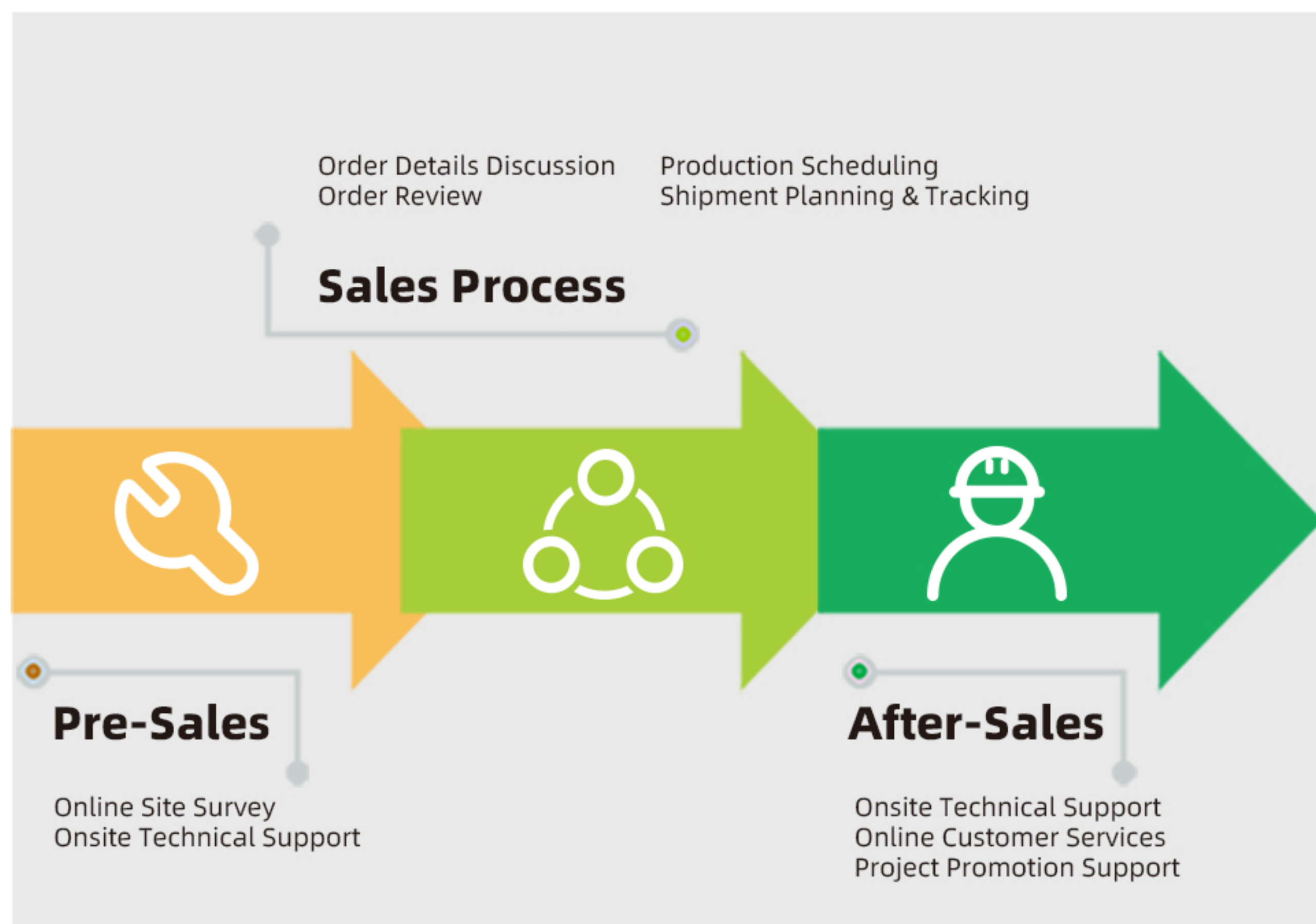
Astronergy fully protects the rights and interests of employees, creates a culturally-integrated working environment like 'Homing' event, and provides employees with broad career development opportunities.





# Advancing Products And Services

We keep innovating and striving for technological advancements in a rapidly evolving industry landscape, delivering products & services that help our customers with their sustainable development.



## One-Stop Service

Astronergy is constantly improving its customer service and establishing a one-stop shop to ensure flexibility, credibility and quick action.

## Leading Technology

Astronergy is in the leading position in the n-type TOPCon, and its main series of products, the ASTRO N7 and N7s, utilize TOPCon 4.0 solar cell technology and more environmentally friendly materials.



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