

# 2024

## Sustainability Report





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# About this Report

The Chint New Energy Technology Co., Ltd. 2024 Sustainability Report (hereinafter referred to as "this report") is the third Sustainability/ESG Report issued by Chint New Energy Technology Co., Ltd. (hereinafter referred to as "Astronergy" or "we"), aimed at presenting our management strategies, practical achievements, and performance in Environmental, Social and Governance (hereinafter referred to as "ESG") in a transparent and open manner.

## Reporting Scope

This report is an annual report, covering the time period from January 1, 2024 to December 31, 2024 (hereinafter referred to as "the reporting period"), and the scope of information disclosed covers Chint New Energy Technology Co., Ltd. and its subsidiaries<sup>1</sup>. When specific information differs from the reporting scope, it will be explained at the relevant sections.

Company Name	Abbreviation	Address
Chint New Energy Technology Co., Ltd.	Astronergy	No. 1 Jisheng Road, Jianshan New District, Haining City, Zhejiang Province
Chint Solar (Haining) Co., Ltd.	Haining Base	No. 2 Jisheng Road, Jianshan New District, Haining City, Zhejiang Province
Chint New Energy Technology (Yancheng) Co., Ltd.	Yancheng Base	No. 1 Tonghui Road, Shanghai-Suzhou Industrial Linkage Agglomeration Area, Dafeng District, Yancheng City, Jiangsu Province
Chint New Energy Technology (Jiuquan) Co., Ltd.	Jiuquan Base	No. 15 Jingwu Road, Jiuquan Economic and Technological Development Zone, Suzhou District, Jiuquan City, Gansu Province
Songyuan Chint New Eergy Photovoltaic Technology Co., Ltd.	Songyuan Base	YadaHong Industrial Zone, Ningjiang District, Songyuan City, Jilin Province
Hangzhou Zhengtai Import and Export Co., Ltd.	/	Room 723, Building 2, No. 1335 Bin'an Road, Puyan Street, Binjiang District, Hangzhou City, Zhejiang Province
Hangzhou Branch of Chint New Energy Technology Co., Ltd.	/	Room 724, Building 2, No. 1335 Bin'an Road, Puyan Street, Binjiang District, Hangzhou City, Zhejiang Province
Chint Solar Technology (Yiwu) Co., Ltd.	Yiwu Base	No. 1 Qingcheng West Road, Fotang Town, Yiwu City, Jinhua City, Zhejiang Province
Chint Solar Technology (Yancheng) Co., Ltd.	Yancheng Base	No. 8, Fengyang Road, HuSu Dafeng Industrial Linkage Cluster, Dafeng District, Yancheng City, Jiangsu Province
Chint Solar Technology (Yueqing) Co., Ltd.	Yueqing Base	No.1 Xinneng Road, Yueqing Bay Harbor Economic Development Zone, Yueqing, Wenzhou City, Zhejiang Province
Chint Solar Technology (Fengyang) Co., Ltd.	Fengyang Base	No. 268 Fengxiang Avenue, Fengyang Economic Development Zone, Chuzhou City, Anhui Province
Chint New Energy Technology (Yanchi) Co., Ltd	Yanchi Base	Block 2, Yanchi County Industrial Park, Wuzhong City, Ningxia Hui Autonomous Region (North of Gaoshawo)

<sup>1</sup> M.L.T. SOLAR ENERGY PRODUCTS CO., Ltd. and other companies are not included in the scope of this report due to not having year-round production operations or still being under construction. The relevant data for Chint Solar Technology (Jiuquan) Co., Ltd. is recorded under Chint New Energy Technology (Jiuquan) Co., Ltd.; Hangzhou Zhengtai Import and Export Co., Ltd. and the Hangzhou branch of Chint New Energy Technology Co., Ltd. do not have physical operations and are therefore not covered in the environmental data statistics.

## Data Source

The information and data cited in this report are sourced from Astronergy's internal documents, public documents, and financial statements, etc. Unless otherwise specified, all amounts in this report are denominated in RMB.

## Preparation Basis

- Global Reporting Initiative (GRI) Sustainability Reporting Standards (GRI Standards-2021)
- International Sustainability Standards Board (ISSB) International Financial Reporting Sustainability Disclosure Standard No. 1 – General Requirements for Sustainability-related Financial Disclosures and International Financial Reporting Sustainability Disclosure Standard No. 2 – Climate-related Disclosures
- United Nations Sustainable Development Goals (SDGs 2030)
- United Nations Global Compact (UNGC)

## External Assurance

The report has been third-party audited by the British Standards Institution (BSI) and an independent verification statement is provided.

## Confirmation and Approval

This report has been confirmed by the management, approved by the Senior Management and published in April 2025.

## Report Version and Access

This report is available in both Chinese and English language versions; in case of any discrepancies in understanding, the Chinese version shall prevail. The electronic version of the report can be accessed and downloaded from Astronergy's website: <https://www.astronergy.com.cn/>

## Feedback

If you have any comments or suggestions on this report, you can contact our Sustainability Department through the following means:

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# Chairman's Message

In 2024, the photovoltaic industry faced intense market competition and complex industrial transformation. Accelerated technological iteration, supply-demand imbalances and trade barriers have placed tremendous pressure on industry development and severely compressed profit margins along the value chain. Against such backdrop, sustainable development has become the key for enterprises to break through challenges. As an intelligent manufacturing company under the Chint group specializing in the R&D, production, and sales of high-efficiency crystalline silicon solar cells and modules, Astronergy has always adhered to the corporate mission of "create a sustainable and net-zero carbon world with solar power" and our firm commitment to a sustainable future. By deeply embedding sustainability principles into business operations, Astronergy has faced challenges with determination, actively explored sustainable development pathways for the industry, and made meaningful contributions to the global energy transition.

**Upholding our mission and vision to build a sustainability strategy system.** Guided by our corporate mission, Astronergy has established a comprehensive and systematic sustainability strategic framework. From top-level design, Astronergy integrates the concept of sustainability into all aspects of our strategic planning, organizational structure, and resource allocation. We have developed a sustainability roadmap with milestones for 2028, 2035, and 2050, and established a robust management mechanism for sustainability, strengthening internal supervision and assessment to ensure the effective implementation and execution of our strategy. At the same time, Astronergy actively participates in international sustainability initiatives, joining several important organizations and initiatives such as the United Nations Global Compact's "Forward Faster" Initiative, the Science Based Targets Initiative (SBTi), UN Women's Empowerment Principles (WEPs), and the SSI Solar Stewardship Initiative.

**Deepening Intelligent Manufacturing and Setting a New Benchmark for Green Production.** Astronergy continuously optimizes our intelligent manufacturing and green production systems, accelerating the integration of AI, IoT, and manufacturing scenarios. By implementing comprehensive energy-saving, emission-reduction, and consumption-lowering measures, Astronergy is upgrading towards cleaner and greener production and operations. As of the end of the reporting period, Astronergy has been awarded the national-level Green Factory honor, while our Yancheng, Jiuquan, and Songyuan Bases have each received provincial-level Green Factory recognition. Additionally, both the Yancheng and Jiuquan Bases have obtained Zero-Carbon Factory certification.

**Expanding Global Presence and Responding to Contemporary Challenges with a Localization Strategy.** In the face of rapidly changing overseas market policies, frequent trade barriers, and complex geopolitical issues, Astronergy has proactively addressed the challenges of de-globalization by accelerating our global market expansion and capacity layout. We have established 11 major manufacturing bases worldwide, with products exported to more than 140 countries and regions, gradually realizing the globalization of marketing, manufacturing, and supply chains. In the practice of globalization, Astronergy continuously pursues "Glocalization", placing high importance on compliance with local policies, laws and regulations, taxation, labor, and environmental standards. Adopting a differentiated strategy and a localization mindset, Astronergy comprehensively considers factors such as capacity planning, supply chain management, technological innovation, corporate management, local talent development, market expansion, and brand building. By establishing overseas manufacturing bases, Astronergy continues to advance steadily in the global market.

**Fulfilling Social Responsibility and Leading Sustainable Development.** Astronergy has always regarded employee well-being and development as a vital part of corporate growth. We tightly integrate employee development with business progress by improving

employee welfare systems, fostering a dignified work environment, building an inclusive and diverse talent team, and empowering women and employees to further their education. Leveraging our technological expertise and resource advantages in the photovoltaic sector, Astronergy has established a platform to support community development and is committed to empowering global communities through sustainable practices. In 2024, we officially launched the "Solar The Future" Green Energy Community Public Welfare Program, supporting a range of initiatives including biodiversity, youth and children's education, and women's empowerment, continuously promoting the organic integration of corporate development and social progress. By the end of 2024, Astronergy's cumulative photovoltaic module shipments exceeded 130 GW, capable of generating approximately 169 billion kWh of green electricity annually. In the internationally renowned EcoVadis sustainability assessment, Astronergy was awarded a group-level Gold Medal, ranking among the top companies globally on the list.

In the face of global climate change challenges and the urgent need for sustainable development, Astronergy will continue to uphold our green mission, driving green development through innovation, fulfilling social commitments with responsibility, and ensuring sound governance with integrity. We are dedicated to providing customers with higher-quality green energy products and services, creating greater value for society, and contributing our wisdom and strength to advancing global sustainable development.




# Chief Sustainability Officer's Message

The year 2024 was a pivotal year for Astronergy in deepening the implementation of our sustainability management system and achieving substantial results. We have thoroughly integrated the concept of sustainability into our daily operations, making significant progress in key areas such as carbon reduction, employee development, and compliance governance.

**Improving Governance Structure and Building a Company-Wide Responsibility Network.** The Company has established a Strategy and Sustainability Committee under the Board of Directors, serving as the highest decision-making body for sustainability. We have formulated and published the key document, Chint New Energy ESG Policy, which clearly specifies management guidelines for a range of key topics across four major areas: environment, labor and human rights, business ethics, and sustainable procurement, and establishes a stakeholder communication matrix. Furthermore, we have broken down sustainability strategic goals such as energy conservation and emission reduction, workplace safety, and anti-bribery management, into annual operational targets, incorporating them into the annual performance evaluations of the management team and linking them to management compensation. This approach ensures the transformation of sustainability strategy from a guiding principle into concrete, company-wide action.

**Deepening Environmental Management and Building a Low-Carbon Ecosystem Across the Entire Value Chain.** Astronergy takes carbon management as a key focus, vigorously advancing initiatives such as the Science Based Targets initiative (SBTi), carbon footprint management, zero-carbon factory construction, and circular economy practices, striving to reduce energy consumption and carbon emissions. In 2024, Astronergy completed Scope 1, 2, and 3 carbon emissions inventories, which were verified by authoritative third-party organizations. We have achieved a unit module Scope 1+2 carbon emissions intensity of 6.47 tCO<sub>2</sub>e/MW, with a year-on-year decrease of 25.2%. Comprehensive water consumption intensity (cells + modules) reached 34.74 tons/MW, down 16.42% year-on-year. Electricity savings amounted to approximately 122 million kWh, and water savings reached about 2.1 million tons, with the water resource recycling rate rising to 91.56% and the general waste recycling rate reaching 96.23%. Through technological innovation, Astronergy continues to address and overcome resource constraints.

**Protecting labor rights and creating a warm, diverse workplace.** Astronergy has always placed great emphasis on employee rights, community development, and public welfare. We are firmly committed to fulfilling our corporate social responsibility and building a warm, diverse workplace. Guided by the SA8000 certification standards, we have established a people-oriented management system. In 2024, female employees made up 27.56% of our workforce and 16.52% of our management team. We have supported a total of 196 employees in advancing their education and qualifications, fostering mutual growth between employees and the company. At the same time, we launched the "Solar The Future" public welfare initiative, establishing an eco-friendly public education center and actively exploring innovative models combining photovoltaics with public education. We organized seven "Green and Low Carbon, Walking Hand in Hand with Children" public welfare events in Haining, Hangzhou, Jiuquan, and other cities, benefiting over 3,000 students and igniting the hope for sustainable development through the spark of photovoltaic knowledge.

## Strengthening compliance governance and upholding the bottom line of business ethics.

Astronergy has established and continuously improved our corporate governance framework, adhering to high standards of business ethics. While maintaining integrity and compliant operations, we also focus on protecting corporate information and data security. We are committed to creating a fair, transparent, and clean business environment, comprehensively preventing business ethics risks to safeguard the company's high-quality development. By the end of the reporting period, Astronergy had obtained ISO 37301 compliance management system certification, ISO 37001 anti-bribery management system certification, and achieved 100% coverage of ISO 27001 information security management system certification across 100% of our operational sites.

Astronergy will always believe that enduring success can only be achieved when business value resonates in harmony with social value, and when the pace of development complements the depth of responsibility. Let us build a sustainable future tomorrow through the actions we take today.








# About Astronergy

## Corporate Overview

Founded in 2006, Chint New Energy Technology Co., Ltd., an intelligent manufacturing enterprise engaged in solar cells and solar modules under Chint Group, is among the pioneering private enterprises in China to venture into the PV sector, and also an early adopter of mass production of n-type TOPCon modules within the industry.

Astronergy is committed to becoming the world's most competitive supplier of PV/solar modules guided by the mission of "to create a sustainable and net-zero world with solar power". Engaged in the R&D, production and sales of high-efficiency crystalline silicon solar cells and modules, the Company continues to launch the ASTRO series high-efficiency, high-quality, high-performance module products with a specific focus on large-size, monofacial-and bifacial series, intending to cater to various applications such as utility-scale power stations, industrial and commercial distributed power plants, household power plants and other multi-scene application scenarios.

With business footprints in over 140 countries and regions, Astronergy has established intelligent manufacturing bases at Haining in Zhejiang, Yancheng in Jiangsu, Jiuquan in Gansu, Songyuan in Jilin, Fengyang in Anhui, Yiwu in Zhejiang, Yanchi in Ningxia, Yueqing in Zhejiang, and Thailand. Astronergy has also set up branch companies and sales centers in countries like Germany, Spain, the Netherlands, Poland, the United States, Canada, Brazil, Australia, Singapore, Japan, and Thailand, achieving great sales performance in international mainstream markets of Europe, North America, Latin America, Australia, and Asia Pacific.

Due to Astronergy's stable financial situation, reliable product quality, and outstanding brand value, Astronergy's financing strength continues to rise. In the quarterly bankability rankings released by PV ModuleTech, Astronergy has consistently been in the upper tier for multiple quarters.

## Mission, Vision, and Values

Astronergy is dedicated to providing global customers with high-quality, highly reliable, and long-term stable module products. Committed to being the most competitive photovoltaic module supplier worldwide, we aim to make the world better understand the value of light.



### Mission

To create a sustainable and net-zero carbon world with solar power



### Values

Customer focus, accountability, collaboration, high efficiency, and innovation



### Product value proposition

Create sustainable and efficient green energy



# Our 2024

## Environment

Based on clean production, create a sustainable and net-zero carbon world with solar power.



- Response to Climate Change
- Product Lifecycle Management
- Circular Economy
- Energy Management
- Water Resource Management
- Emission and Waste Management
- Biodiversity Conservation

- By the end of 2024, the cumulative shipment of PV modules exceeds **130**GW, capable of generating **169** billion kWh of green electricity annually, equivalent to reducing **160** million tCO<sub>2</sub>e of GHG emissions.
- **38** products have conducted lifecycle assessments, representing a year-on-year increase of **153%**
- Through design optimization, the total amount of raw materials saved has reached **6,789.19** tons, with a year-on-year increase of **2.8** times
- A total of **184** energy-saving projects were carried out throughout the year, saving approximately **122** million kWh of electricity

- The carbon emissions intensity per unit of cell production was **34.92** tCO<sub>2</sub>e/MW, with a year-on-year decrease of **3.22%**
- The carbon emissions intensity per unit of module production was **6.47** tCO<sub>2</sub>e/MW, with a year-on-year decrease of **25.20%**
- The energy consumption intensity per unit of cell production was **6.91** tce/MW, with a year-on-year decrease of **9.24%**
- The energy consumption intensity per unit of module production was **1.60** tce/MW, with a year-on-year decrease of **10.32%**

- Implemented **17** water-saving projects throughout the year, saving **2,103,900** tons of water
- Water resource recycling rate of **91.56%**
- Comprehensive water consumption intensity (cells + modules) **34.74** tons/MW, with a year-on-year reduction of **16.42%**
- **Zero landfill** for non-hazardous waste
- Non-hazardous waste recycling rate **96.23%**, with a year-on-year increase of **89.80%**

## Social

Promote decent work, create an inclusive and diverse workplace.



- Protection of Labor and Human Rights
- Equality and Diversity
- Human Capital Development
- Occupational Health and Safety
- Community Construction & Charity and Public Welfare
- Sci-tech Innovation
- Sustainable Supply Chain

- Employee satisfaction **83.93** points
- Corporate social responsibility training coverage rate **100%**
- **ZERO** incidents of discrimination or harassment
- **100%** of security personnel received human rights training

- Average training hours per employee **35.65**, with a year-on-year increase of **14.08%**
- Cumulatively supported **196** employees in completing continuing education to enhance their academic qualifications, with a year-on-year increase of **24.05%**
- Hired **193** disabled employees, with **9.17%** of employees coming from minority and/or vulnerable groups
- Conducted **885** EHS safety training sessions, with a cumulative participation of **92,071** person-times
- Conducted **330** emergency drills, with a cumulative participation of **8,586** person-times

- Implemented **30** ecological power station projects, with a year-on-year increase of **76.47%**
- **137** new authorized patents, with a year-on-year increase of **179.59%**
- **100%** of core suppliers certified to ISO 45001
- **100%** of core suppliers certified to ISO 14001, with a year-on-year increase of **22.25%**
- **32** suppliers granted the national Green Factory qualification

## Governance

Responsible operations, create positive environmental and social impacts in the value chain.



- Corporate Governance
- Business Ethics
- Anti-Unfair Competition
- Product Quality and Safety
- Customer Relationship Management

- Female directors account for **22.22%**
- **3** independent directors
- Conducted internal and external assessments or reviews of business ethics at **3** main operating premises

- ISO 27001 Information Security Management System certification covers **100%** of main operating premises
- **ZERO** incidents of information security and customer privacy breaches, **ZERO** verified complaints related to customer privacy violations

- ISO 9001 Quality Management System certification covers **100%** of major operating premises
- Customer satisfaction reached **97.37** points, with a year-on-year increase of **4.81%**

## Awards and Honors

"Overall Highest Achiever" awarded  
by the Renewable Energy Test Center  
(RETC)



"Top Performer" honored by Kiwa  
PVEL for eight years



The first "Gold Trust Mark" awarded  
by Ariel Re



"TOP Brand PV" awarded by EUPD  
Research for great performances at  
the Germany and Italy markets



"TOP PV Supplier" awarded by  
EUPD Research in Hungary, Ireland,  
and Romania



"VERY GOOD" rated by PV Magazine  
test for great module performances



"Tier 1 PV Module Maker" rated by  
Bloomberg NEF

**Tier 1**  
BloombergNEF

"All Quality Matters Award" honored  
by TÜV Rheinland



## Sustainability Management

### Sustainability Strategy

Astronergy, adhering to the mission of "to create a sustainable and net-zero world with solar power", relentlessly advances towards becoming the world's most competitive photovoltaic module supplier. Astronergy has formulated a sustainability strategy system focusing on the three strategic pillars of "zero-carbon future", "diversity and inclusion", and "responsible operations". We conduct sustainable operations and management, creating positive environmental and social impacts throughout the value chain, and are committed to achieving higher quality and more sustainable development.

Strategic Approach	Zero-Carbon Future	Diversity and Inclusion	Responsible Operations
Strategic Connotation	<p>Based on clean production, create a sustainable and net-zero carbon world with solar power</p> <p>Astronergy has always taken "green and sustainable development" as the company's long-term strategic plan. Throughout the entire product lifecycle of "development - procurement - production - sales - delivery - recycling", we adhere to the practice of green concepts and continuously implement energy-saving and low-carbon actions in all links of manufacturing. Meanwhile, Astronergy is also actively carrying out smart energy supply and utilization projects that are green, energy-saving, and low-carbon to advance the construction of green factories.</p>	<p>Promote decent work, create an inclusive and diverse workplace</p> <p>Astronergy always adheres to people-oriented principle and is committed to building a harmonious, inclusive and better society. We fully protect the rights and interests of employees, create safe working environment, and provide employees with broad career development opportunities. Meanwhile, we actively carry out public welfare activities, promote the development of local communities and serve the society with concrete actions.</p>	<p>Responsible operations, create positive environmental and social impacts in the value chain</p> <p>Corporate governance is the core of modern corporate system and a permanent topic. It is the pivot to ensure stable business operation and scientific decision-making, and a key mechanism to breaking information barriers across stakeholders. A well-established governance structure is the guarantee of sustainable corporate operation, continuously enhancing overall corporate power and demonstrating outstanding market competitiveness.</p>





# ESG Governance

We deeply recognize and practice the value of sustainable development, establishing an ESG governance structure from top to bottom composed of the governance layer, management layer, and executive layer. We have set up a Strategy and Sustainability Committee under the Board of Directors, with a designated director serving as the Chief Sustainability Officer (CSO), responsible for leading and coordinating Astronergy's sustainability strategy, policies, and practices, supervising the execution and implementation of strategic objectives, and mitigating ESG risks.



## Governance Level

- The Board of Directors of Astronergy is the highest governance body for sustainability matters. The Board of Directors has set up a strategy and sustainability committee, and one director serves as the Chief Sustainability Officer (CSO), who is responsible for managing and coordinating the enterprise's sustainability strategies, policies and practices, supervising the implementation and realization of strategic objectives, and managing ESG risks.

## Management Level

- The Company has set up an independent sustainability department as the ESG management level to implement and supervise the relevant resolutions of the Sustainability Committee. The department has set up three special working groups on environmental governance, social responsibility and corporate regulation for coordinating, planning, implementing and supervising matters related to ESG and climate change.

## Executive Level

- Carry out ESG stakeholder research and communication plans, prepare ESG reports, implement ESG strategic objectives and key work plans, and regularly report to the management level on the achievement of key ESG tasks and objectives.

Astronergy has established a comprehensive ESG management system, dedicated to integrating ESG strategic guidelines into Astronergy's strategy, governance, and operations. We have formulated and issued the Chint New Energy ESG Policy (referred to as the ESG Policy), clearly defining the management mechanisms, departmental responsibilities, and management objectives for multiple key issues under the four major areas of environment, labor and human rights, business ethics, and sustainable procurement; around the sustainable development strategy, we also set short-term and medium-to-long-term goals and regularly track the progress of goal completion to effectively promote ESG management matters; we break down ESG strategic objectives such as energy conservation and emission reduction, safe production, and anti-corruption management into annual business indicators and include them in the annual business performance assessment of the management team, directly linking the management team's compensation to these indicators.

We regularly organize ESG thematic training, covering various aspects such as sustainable procurement, environmental management, health and safety, and social responsibility management systems, continuously empowering various functional departments of Astronergy in daily ESG management. During the reporting period, Astronergy organized a total of 37 ESG-related thematic training sessions, with a **100%** employee coverage rate.



ESG Commitment



ESG Strategic Approach

ESG Management Mechanisms

Organizational structure, three-level responsibilities, management procedures

ESG Issue Management

Four Modules: Environment, Labor and Human Rights, Business Ethics, Sustainable Procurement

Four Frameworks: Qualitative commitments, quantitative targets, responsibility allocation, review mechanisms

# ESG Industry Communication

As a leading enterprise in the photovoltaic industry, Astronergy has always been active at the forefront of the ESG field, deeply involved in global ESG industry exchange activities, actively promoting multilateral cooperation, and helping to achieve global low-carbon sustainable development goals.

## Chairman of Astronergy Invited to Attend BNEF 2024 Shanghai Summit

On December 3, 2024, the BloombergNEF (BNEF) 2024 Shanghai Summit was grandly convened. Dr. Lu Chuan, Chairman and President of Astronergy, was invited to attend the summit, where he shared Astronergy's initiatives and achievements in global application practices, coordinated development of the industrial chain, and internationalization, providing Astronergy's insights for the global green energy transition. During the dialogue on "China's Energy Transition Roadmap After Carbon Peak", Dr. Lu Chuan shared his insights into the prospects of the renewable energy industry and highlighted Astronergy's achievements in leveraging its power plant solution business to promote synergistic advantages across the entire industrial chain. In the future, Astronergy will continue to support the global low-carbon transition and drive the development of clean energy.



## Haiyan Huang, Chief Sustainable Officer of Astronergy, Invited to Attend 2024 ESG Global Leaders Conference

In October 2024, Haiyan Huang, Astronergy's Executive Vice President (EVP) and Chief Sustainability Officer (CSO), was invited to attend the 2024 ESG Global Leaders Conference. She shared Astronergy's practices and experiences at the thematic forum "Safeguarding Employee Rights and Building a Responsible Corporate Image". Additionally, Astronergy engaged in in-depth discussions with participants on cutting-edge topics such as energy and dual carbon, green finance, sustainable consumption, technology and public welfare, jointly exploring paths to green, inclusive, and sustainable development, contributing to building a better Earth home.



Fortune Most Powerful Women (MPW) Summit



Participate in the 3rd China PV Green Supply Chain Conference



Participate in Sustainable Solar Europe



Participate in the 20th China SoG Silicon and PV Power Conference



Attend the 2024 PV Industry Annual Conference



# ESG Honors and Recognitions



**Group-level Gold Medal**  
EcoVadis



**Level B**  
CDP Climate Change Score



**Silver**  
SSI ESG Certification



**2024 DEI Employer® Awards**  
Employer Branding Institute



**2024 Annual Sustainable Development Model Enterprise Award**  
**2024 Annual ESG Pioneer Award (Chief Sustainability Officer Huang Haiyan)**

The 14th Philanthropy Festival and 2024 ESG Summit



**2024 Green Sustainable ESG Case TOP100: "Top 10 Model on Environmental Contributions" and "Top 10 Model on Innovation Contributions"**

China Energy News, China Institute of Energy economics research, Green Climate Academy



**2024 SMM & Dun & Bradstreet New Energy Field ESG List "ESG Outstanding Enterprise Award"**

Shanghai Metals Market SMM



**Selected for "Navigating Sustainability: Corporate Dual Carbon Action Observation and Case Collection (2024)"**

Southern Weekly



**Participate in the "SDG Innovation Accelerator for Young Professionals, SDGI" Project (2024)**

United Nations Global Compact (UNGC)



**Participate in the "SDG Ambition Accelerator, SDGA" project (2024)**

United Nations Global Compact (UNGC)



**Annual Low-Carbon Product (ASTRO N7s)**

Southern Weekly Green Innovator Conference



**Honour Award - Annual Low-Carbon Management Pioneer**

2024 (7th) Social Responsibility Conference





## Management System Certifications (Taking Astronergy as an Example)



ISO 9001 Quality  
Management System



ISO 14001 Environmental  
Management System



ISO 50001 Energy  
Management System



ISO 45001 Occupational  
Health and Safety  
Management System



ISO 37001 Anti-Bribery  
Management System



ISO 37301 Compliance  
Management System



ISO 27001 Information  
Security Management  
System








SA 8000 International  
Standard System

## Stakeholder Engagement

Astronergy attaches great importance to the demands of stakeholders and regularly communicates with them through diverse channels to understand their expectations and opinions on Astronergy's ESG performance. Our stakeholders include but are not limited to shareholders and investors, government and regulators, customers, employees, partners, general public and social media. During the reporting period, Astronergy systematically established a stakeholder management mechanism and comprehensively carried out a stakeholder engagement and communication plan. Based on the stakeholder impact-dependence matrix analysis tool, Astronergy further deeply refined and standardized the communication and demand management mechanisms for different types of stakeholders. This allows for a deeper understanding of the core concerns of different types of stakeholders both domestically and internationally, and their opinions are fully considered in daily operational decisions, with timely actions taken in response, in order to help continuously improve Astronergy's sustainability performance.

Stakeholders	Issues Concerned	Main Communication Channels
 Shareholders and Investors	Corporate Governance Opportunities in Clean Tech Sustainable Supply Chain Human Capital Development	Telephone interviews Field visits Investor relations department Investment and financing interface Business exhibition platform
 Government and Regulatory Authorities	Compliance and Risk Management Response to Climate Change Sci-tech Innovation Environmental Management System Sustainable Supply Chain	Face-to-Face Interviews Regular Visits Daily Communication
 Customers	Sci-tech Innovation Product Quality and Safety Compliance and Risk Management Product Lifecycle Management Human Capital Development	Telephone interviews Customer visits Email correspondence Dedicated contact Business sales overlap
 Employees	Protection of Labor and Human Rights Human Capital Development Equality and Diversity Occupational Health and Safety	Directors communication Internal official account Satisfaction survey questionnaire Company OA platform Department reports
 Partners (including but not limited to Suppliers and contractors)	Sustainable Supply Chain Response to Climate Change Product Lifecycle Management Circular Economy Business Ethics	Regular Follow-up Visits Satisfaction Survey Email Correspondence Exhibition Exchange Business Exhibition Platform

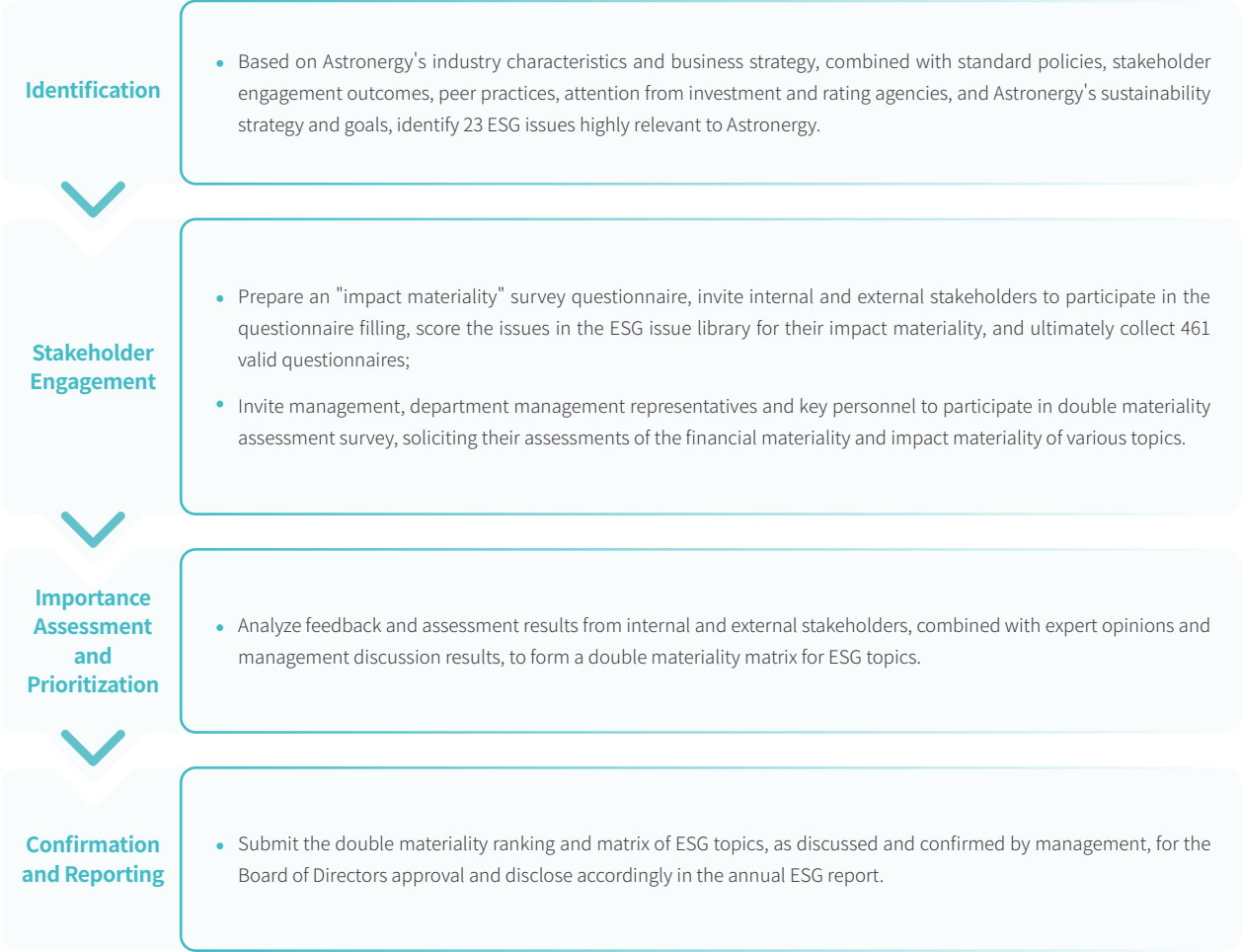


Stakeholders	Issues Concerned	Main Communication Channels
 <p>General Public and Social Media</p>	<p>Response to Climate Change</p> <p>Compliance and Risk Management</p> <p>Sustainable Supply Chain</p> <p>Business Ethics</p> <p>Protection of Labor and Human Rights</p>	<p>Satisfaction questionnaire survey</p> <p>Official account platform</p> <p>Telephone</p> <p>Business exhibition platform</p> <p>Interviews</p>
 <p>Surrounding Communities (including residents)</p>	<p>Environmental Management System</p> <p>Community Construction &amp; Charity and Public Welfare</p> <p>Response to Climate Change</p>	<p>Questionnaire survey</p> <p>Official account platform</p> <p>Telephone interviews</p> <p>Daily communication</p>
 <p>Research Institutions</p>	<p>Sci-tech Innovation</p> <p>Product Lifecycle Management</p>	<p>Research collaboration</p> <p>School-enterprise cooperation</p> <p>Sales platform</p> <p>Technical exchange</p> <p>Trade exhibitions</p>
 <p>Industry Associations</p>	<p>Environmental Management System</p> <p>Response to Climate Change</p> <p>Product Lifecycle Management</p> <p>Circular Economy</p> <p>Community Construction &amp; Charity and Public Welfare</p> <p>Human Capital Development</p>	<p>Telephone interviews</p> <p>Regular follow-up visits</p> <p>Business exhibition platform</p> <p>Department contact</p> <p>Offline communication</p>
 <p>Companies in the same industry</p>	<p>Response to Climate Change</p> <p>Biodiversity Conservation</p>	<p>Telephone interviews</p> <p>Regular follow-up visits</p> <p>Satisfaction survey</p> <p>Social software</p> <p>Sector head communication</p>

# Materiality Assessment

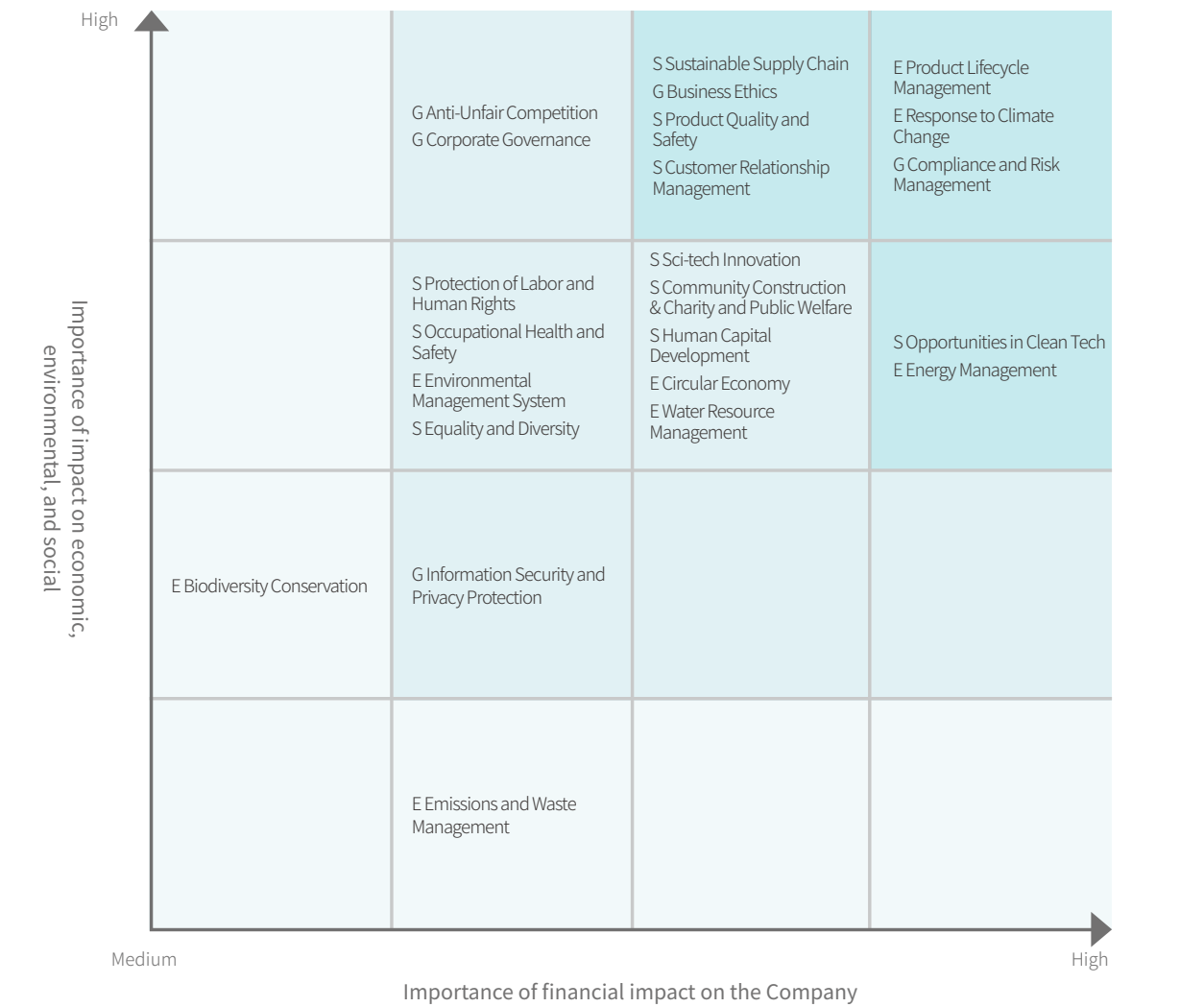
In 2024, based on significant changes in the market environment and the field of sustainability, Astronergy re-aligned with international initiatives and standards, investment and rating agencies, best practices of peer excellent enterprises, and Astronergy's sustainable development strategy and goals, identifying 23 ESG issues highly relevant to us. Following the "double materiality" principle, internal and external stakeholders were invited to evaluate the ESG issues from two dimensions: financial materiality (the importance of impact on Astronergy's business model, operations, development strategy, and financial status) and impact materiality (the importance of impact on the economy, society, and environment), ultimately forming a double materiality matrix. In this report, we have provided detailed information disclosure on highly important issues to address stakeholders' concerns regarding Astronergy's sustainable development efforts.

## Double Materiality Assessment Steps



Selection Results and Change Details of Materiality Topics for Astronergy			
Scope	Material topics for 2023	Material topics for 2024	Description of changes
Environment	Environmental Management System	Environmental Management System	Unchanged
	Response to Climate Change	Response to Climate Change	Unchanged
	Energy Management	Energy Management	Unchanged
	Water Resource Management	Water Resource Management	Unchanged
	Waste Management	Emissions and Waste Management	Description Change
	Biodiversity Conservation	Biodiversity Conservation	Unchanged
	/	Circular Economy	New Topic
	Product Lifecycle Management	Product Lifecycle Management	Scope Change
Society	Protection of Labor and Human Rights	Protection of Labor and Human Rights	Unchanged
	/	Equality and Diversity	New Topic
	Talent Strategy, Training, and Development	Human Capital Development	Description Change
	Occupational Health and Safety	Occupational Health and Safety	Unchanged
	/	Opportunities in Clean Tech	New Topic
	Product Quality and Safety	Product Quality and Safety	Unchanged
	Customer Relationship Management	Customer Relationship Management	Unchanged
	Privacy Protection	/	Scope Change
	Community Contribution & Charity and Public Welfare	Community Construction & Charity and Public Welfare	Description Change
	Sci-tech Innovation	Sci-tech Innovation	Scope Change
Governance	Sustainable Supply Chain	Sustainable Supply Chain	Scope Change
	Corporate Governance	Corporate Governance	Unchanged
	Risk Management	Compliance and Risk Management	Topics consolidation
	Tax Strategy		
	Business Ethics	Business Ethics	Unchanged
	/	Anti-Unfair Competition	New Topic
	Information Security	Information Security and Privacy Protection	Topics consolidation

Astronergy Double Materiality Matrix



High Impact Materiality Topics		High Financial Materiality Topics	
Topics	Response Chapter	Topics	Response Chapter
Sustainable Supply Chain	Superior Innovation-Sustainable Supply Chain	Product Lifecycle Management	Green Development- Product Lifecycle Management
Business Ethics	Robust Governance-Business Ethics	Energy Management	Green Development-Resource Utilization
Product Quality and Safety	Superior Innovation-Product Quality and Safety	Customer Relationship Management	Superior Innovation-Product Quality and Safety
Response to Climate Change	Green Development-Response to Climate Change	Opportunities in Clean Tech	Superior Innovation- Sci-tech Innovation





# Robust Governance

Astronergy establishes and continuously improves the corporate governance structure, adheres to high-level business ethics, ensures information and data security while maintaining integrity and compliant operations, and effectively safeguards the long-term interests of all stakeholders.

## Key ESG Topics

- Corporate Governance
- Compliance and Risk Management
- Business Ethics
- Anti-Unfair Competition
- Information Security and Privacy Protection





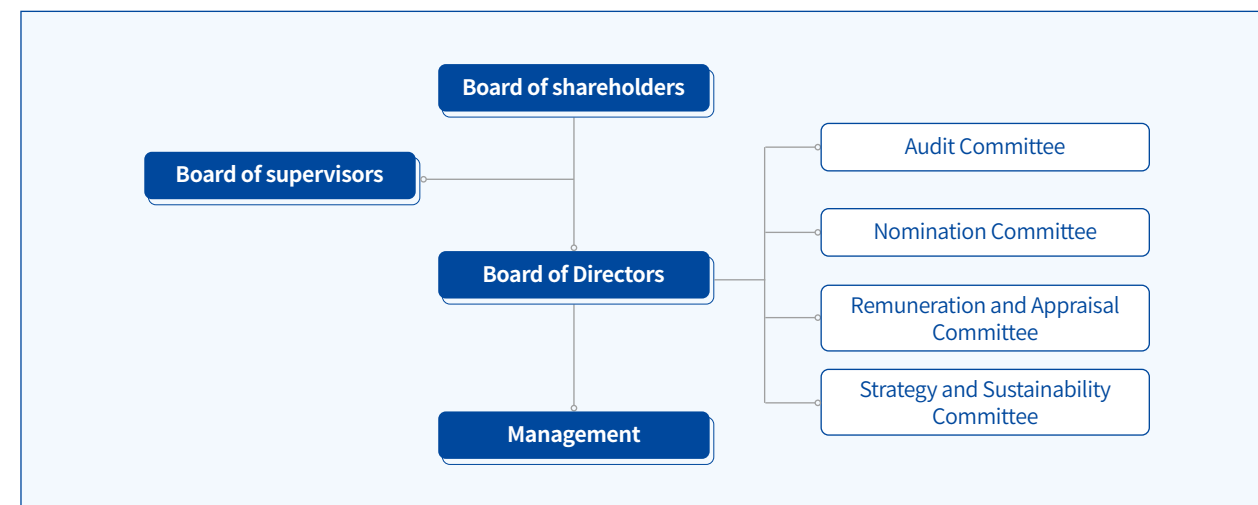
# Corporate Governance

We believe that high-level corporate governance can lead to the stable development of Astronergy, therefore, we continuously enhance governance effectiveness, forming a governance system with clear responsibilities, standardized procedures, and efficient operations, laying a solid foundation for Astronergy's sustained and long-term development.

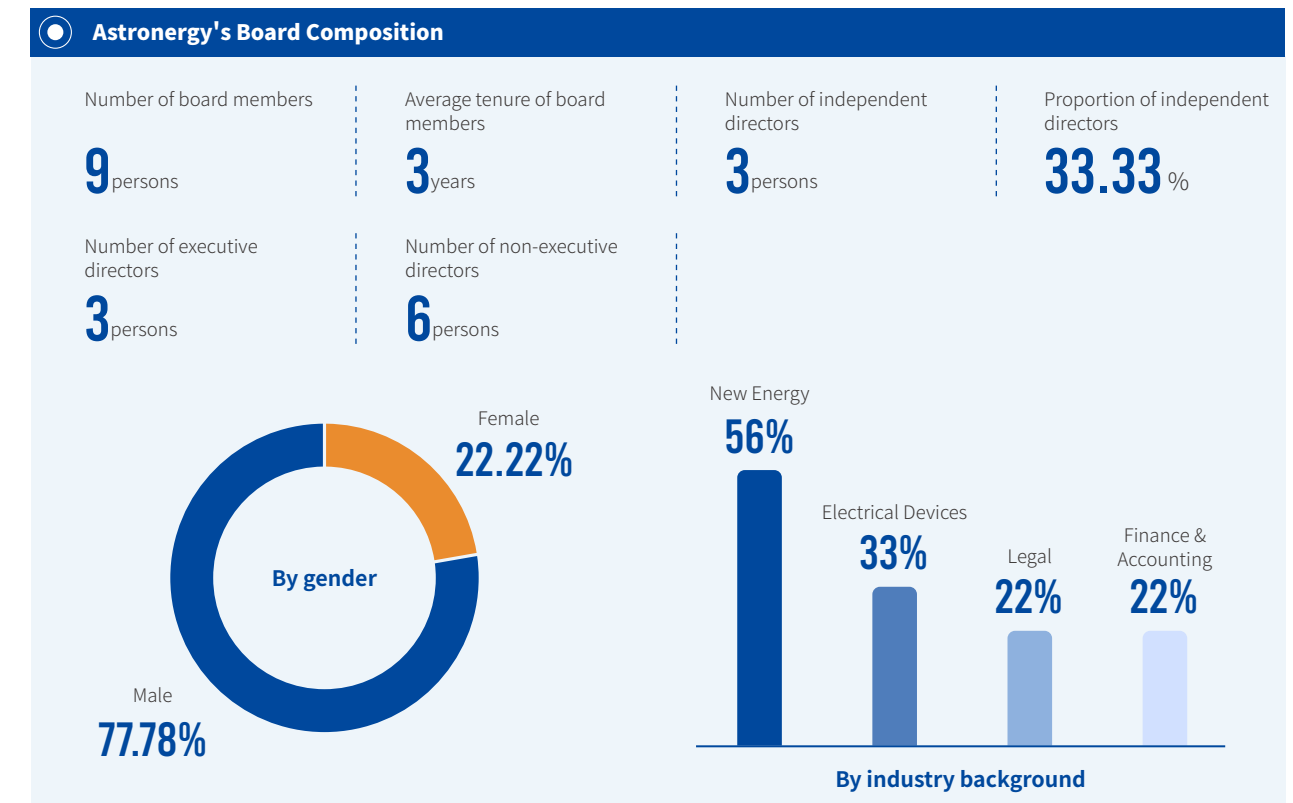


We strictly comply with the requirements of national relevant laws and regulations such as the Company Law of the People's Republic of China, and formulate corporate governance systems including the Articles of Association of Chint New Energy Technology, Rules of Procedure of the Shareholders' Meeting, Procedural Rules for the Board of Directors, and Procedural Rules for the Supervisory Meetings, continuously improving the corporate governance structure composed of Board of shareholders, Board of Directors, and Board of supervisors. The Board of Directors has established four specialized committees: the Audit Committee, Nomination Committee, Remuneration and Appraisal Committee, and Strategy and Sustainability Committee. The responsibilities and authority of each governance level and committee are clear, and the operational mechanism is smooth, ensuring the stable operation of Astronergy. During the reporting period, Astronergy held 6 board meetings, with an average attendance rate of **100%** for board members.

## Astronergy's Corporate Governance Structure



Astronergy formulates and implements the Work System for Independent Directors, emphasizing the key role of board independence in supervising company risks and other aspects. We formulate and issue the Principles and Implementation Status of Board Member Diversity, believing that the diversity of board members helps to improve corporate governance and decision-making levels, including but not limited to board members having different educational backgrounds, professional skills, regional perspectives, industry experience, cultural backgrounds, gender, and other characteristics. The Nomination Committee of the Board needs to nominate and select board members based on the above independence and diversity principles and strive to maintain an appropriately balanced professional knowledge and ability structure, enhancing the effectiveness and quality of major decisions.






# Compliance and Risk Management


## Compliance Management

We strictly adhere to applicable laws, regulations, and relevant policy provisions, establishing and continuously optimizing our compliance management system to effectively prevent and control compliance risks. Under the leadership of the compliance management officer, Astronergy's compliance management department is responsible for coordinating with various business departments and department compliance ambassadors, overseeing all compliance management activities, and reporting regularly to the Board of Directors and executive team. We have formulated internal documents such as the the Code of Integrity, Compliance and Business Conduct, clearly defining key compliance management issues and normative requirements to ensure that Astronergy and our employees' behaviors align with laws, regulations, industry standards, and ethical norms. As of the end of the reporting period, Astronergy and our Haining Base have obtained ISO 37301 compliance management system certification.



## Compliance Management Measures

 <b>Compliance risk identification</b>	<p>Develop and adhere to the Compliance Risk and Opportunity Management system, comprehensively identify and sort out potential compliance risks faced by Astronergy, update the Compliance Risk Identification and Assessment List annually, clearly define the definitions and potential impacts of different types of compliance risks, and formulate control measures based on risk levels.</p>
 <b>Interpretation of laws and regulations</b>	<p>The compliance management department collects and organizes relevant laws and regulations lists based on 17 key compliance management topics, continuously tracks changes in external laws, regulations, and regulatory requirements, and holds regular interpretation meetings to ensure that compliance management work is legally supported.</p>
 <b>Compliance capability building</b>	<p>Establish a compliance subscription account for all employees, organize compliance culture theme days, enable employees to deeply understand Astronergy's compliance policies through multiple channels, and enhance compliance awareness. In addition, Astronergy builds a compliance training system, combining current domestic and international situations and key compliance risk positioning results, and conducts institutional publicity, standard training, and special training for different groups of people through online courses, on-site training, online live streaming, and other methods, to continuously strengthen compliance awareness and capabilities.</p>



**Astronergy Compliance Subscription Account**

In 2024, Astronergy launched a compliance subscription account for all employees, presenting key compliance topics in the form of Compliance Columns and timely delivering hot compliance news in the form of News Express. The posts combine professionalism and interest, aiming to convey compliance requirements to employees and foster a corporate compliance culture and atmosphere. During the reporting period, the subscription account cumulatively published 56 articles, covering topics such as compliance essentials of multilateral financial institutions, data compliance, export controls and sanctions, and anti-commercial bribery, with the highest single article read count exceeding 38,000 times.

On the basis of strengthening internal compliance management, we also actively participate in external compliance joint actions, sharing and exchanging experiences in the construction and maintenance of compliance systems with the compliance departments of various multinational groups, establishing important channels for external compliance communication, and fully showcasing our compliance image. During the reporting period, we participated in 29 compliance joint actions and delivered special speeches at over 10 events, engaging in multiple dialogues with officials from the World Bank's Integrity Department and consultants from the Asian Development Bank's Anti-Corruption and Integrity Office.

## Risk Prevention and Control

We attach great importance to risk prevention and management, with the Board of Directors serving as the highest decision-making body for risk management, responsible for deciding on risk identification, assessment, and response matters. We have formulated system documents such as the Risk and Opportunity Management Procedure and the Social Responsibility Risk Assessment and Control Procedure, establishing and continuously optimizing our risk management mechanisms to ensure comprehensive and effective control of all types of risks.

We establish a risk assessment and management mechanism composed of "three lines of defense", conducting risk and opportunity review at least one time annually. Organized by the system operation department, various business and functional departments separately carry out risk identification, risk analysis, risk control, and risk evaluation work. Based on the evaluation results, we continuously improve business processes and implement risk control measures. We also regularly review the effectiveness of risk management to ensure the practical impact of risk management efforts. During the reporting period, Astronergy identified, assessed, and conducted risk avoidance measures and effectiveness evaluations for 45 types of potential risks and opportunities in all business activities, continuously enhancing Astronergy's risk management capabilities.

### Risk Management "Three Lines of Defense"

#### First line

Business departments are responsible for identifying existing or potential risks and reporting to management and compliance management departments. Each business department is responsible for the daily management of risks and control measures.

#### Second line

Departments such as Compliance, Legal, Supply Chain, EHS, Sustainability, Quality Management, Human Resources, Finance, and IT undertake risk management and supervisory functions in their respective professional fields.

#### Third line

The Audit Department is responsible for ensuring that the activities of the first and second lines comply with Astronergy's risk management system and ensuring the effective implementation of the system. The Audit Department conducts audits on the risk management activities of each department according to the annual audit plan and uses systematic methods to evaluate and improve the effectiveness of risk management and control processes.

## Tax-related Strategy

Astronergy strictly adheres to the tax regulations in all operating premises, actively fulfills tax obligations, and establishes a dedicated tax management department, to participate in significant business activities such as strategic planning and investments, maintaining effective communication with the Board of Directors, Board of supervisors, and other corporate governance and the management layers. We have formulated several policy systems and management norms, which establishes a closely linked working mechanism between tax monitoring and business operations, continuously enhancing tax professional capabilities and management practice levels. As of the end of the reporting period, Astronergy had no incidents involving tax violations.

## Astronergy Tax Policy

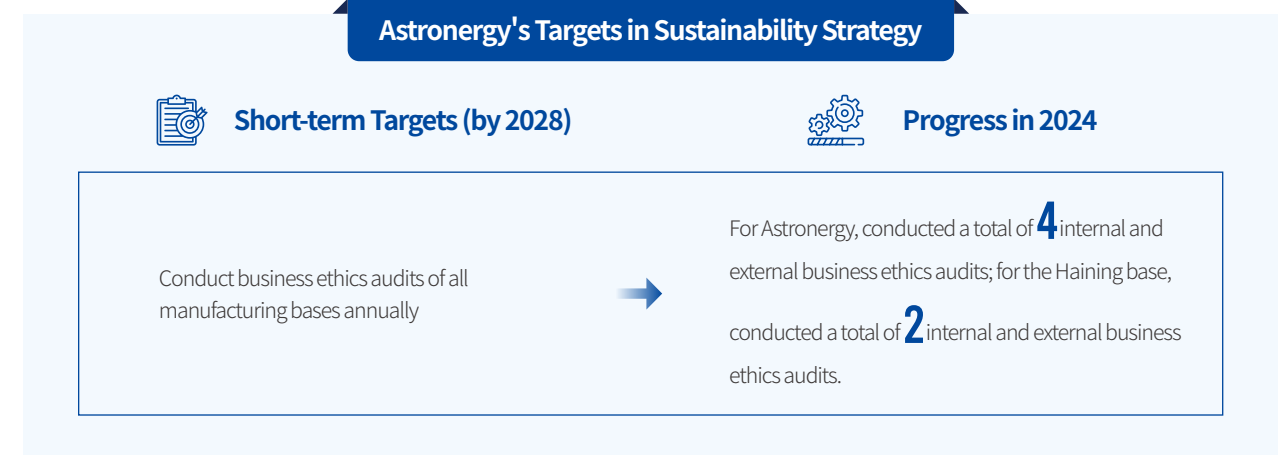


To effectively enhance tax management capabilities, we have built a digital sales invoice management platform, strengthened the full-chain informatization management of tax risks, and promoted the digital transformation of tax management. We have established a tax policy and regulation database, combined with business scenarios for sorting and analysis, and regularly conducted employee business and skill training to help them accurately understand and implement Astronergy's various tax policies and management regulations, effectively controlling tax risks.



## Business Ethics

Astronergy values the guiding role of corporate integrity culture, adheres to honest operation and strictly abides by business ethics. We are committed to establishing a fair, transparent, and clean business environment, comprehensively preventing business ethics risks, and safeguarding the high-quality development of Astronergy.



We strictly comply with laws and regulations such as the Criminal Law of the People's Republic of China, Anti-Unfair Competition Law of the People's Republic of China, Anti-Money Laundering Law of the People's Republic of China, and Anti-Monopoly Law of the People's Republic of China, and have formulated internal management regulations such as the Integrity and Compliance Business Conduct Management System, Conflict of Interest Avoidance Management, Anti-Bribery Management Manual, and Donation and Sponsorship Management to standardize and control the business conduct of employees, management personnel, and partners, explicitly prohibiting illegal and unethical behaviors such as commercial bribery, corruption, monopoly, money laundering, and unfair competition. During the reporting period, Astronergy did not experience any related legal or regulatory litigation cases or penalty events involving corruption, bribery, conflict of interest, fraud, or insider trading.

We require employees to adhere to the highest standards of business ethics management requirements. New employees must sign the Confirmation of Compliance Policies and Obligations and the Integrity Practice Commitment Letter upon joining, obligating them to be aware of and comply with Astronergy's relevant policies and management requirements. We follow the Employee Due Diligence Management system, conducting due diligence before hiring, transferring, or promoting personnel in key compliance positions to ensure they have not engaged in any actions that violate integrity and compliance requirements. Additionally, we incorporate compliance performance into employee job descriptions and company-level objectives, strengthening effective supervision and management constraints over employee business ethics.



## Key Points of the Integrity and Compliance Business Conduct Management System

### Prohibit Five Major Misconducts

Strictly adhere to integrity and compliance obligations, prohibit employees from directly or indirectly engaging in any form of misconduct, and also require business partners to comply with the same prohibitive requirements. The five major misconducts specifically refer to corrupt behavior, fraudulent behavior, collusive behavior, coercive behavior, and obstructive behavior.

### Other Responsibilities and Normative Key Points



We develop internal audit plans and regularly conduct business ethics audits at all major operating sites to ensure the effectiveness of the business ethics management system. During the reporting period, we carried out a special audit on the anti-bribery management system for the R&D, manufacturing, and sales of photovoltaic solar cell modules at Astronergy. We formulated improvement and corrective plans for non-conformities identified during the audit, such as enhancing employee anti-bribery training and education and optimizing departmental bribery risk lists. After the audit, we regularly review and summarize the implementation of corrective measures, further strengthening the management of each control node to effectively prevent business ethics risks.

While strengthening internal business ethics management, we also require our business partners to adhere to the business ethics and integrity standards upheld by Astronergy. We have formulated the Chint Business Partner Code of Conduct, which requires business partners to read and comply with this code before commencing cooperation, and to sign the Business Partner Integrity and Compliance Undertakings. We also require business partners to complete the Business Partner Due Diligence Questionnaire, conduct compliance due diligence on them, and issue a report to ensure that their business activities meet Astronergy's standards. If a business partner violates the integrity and compliance code of conduct, we reserve the right to cease cooperation with them and include them in a negative list, among other rights. Additionally, we provide compliance training courses for business partners, conveying Astronergy's compliance requirements through online training and other forms, to continuously strengthen the compliance awareness of business partners.

## Anti-Bribery Management

As an important part of business ethics management, we strictly carry out anti-bribery management, formulate the Anti-Bribery Management Manual, and establish an anti-bribery governance structure composed of governance bodies, top management, and the anti-bribery compliance team. The Board of Directors serves as the governance body, and the executive team led by the president serves as the top management, organizing regular management reviews to examine the effectiveness of the anti-bribery management system. The anti-bribery compliance team, consisting of the audit department and the compliance department, is responsible for coordinating the construction and execution of the anti-bribery management system. By collaborating with various departments, a closed-loop management system is established from the identification and assessment of bribery risks to the implementation, monitoring, improvement, and reporting of bribery risk control procedures. The compliance department regularly organizes internal audits, collects the anti-bribery performance monitoring results from various departments, and reports Astronergy's anti-bribery management status to the governance bodies and top management through regular and irregular reports.

In addition, we have established internal and external reporting channels. Through reporting clues and investigation results, we identify potential risks and vulnerabilities in Astronergy's anti-bribery management, ensuring that bribery behaviors can be detected and effectively handled in a timely manner, fostering a clean and transparent corporate culture. As of the end of the reporting period, Astronergy has obtained ISO 37001 anti-bribery management system certification.

## Anti-unfair Competition

We adhere to the principle of fair competition, comply with applicable anti-monopoly and anti-unfair competition laws and regulations, formulate the Integrity Compliance Business Conduct Management System, and prohibit any monopolistic practices, illegal related-party transactions, false advertising, counterfeiting, confusing acts, commercial defamation, infringement of business secrets, and collusive bidding, or any other unfair competition acts that harm the interests of consumers and the public. We maintain a "zero-tolerance" attitude towards violations. We have clearly defined relevant requirements in the ESG Policy, providing employees with detailed codes of conduct and implementation guidelines, consciously maintaining a good market order, and also requiring business partners to comply with the same standards to safeguard the interests of customers and society. During the reporting period, Astronergy did not identify any monopolistic practices, false advertising, commercial defamation, or other unfair competition acts or related situations.

## Donation Behavior and Anti-Money Laundering

Astronergy formulates and implements the Donation and Sponsorship Management, clearly defining detailed rules and procedures for corporate-level donations and sponsorships to avoid corruption or related risks associated with donations and sponsorships. Astronergy also complies with all anti-money laundering laws and regulations in the jurisdictions where we operate, and strictly requires employees in the Code of Integrity, Compliance and Business Conduct to ensure that the business transactions they conduct on behalf of Astronergy do not involve obtaining, using, or holding monetary gains or property derived from criminal proceeds. During the reporting period, we did not have any political donation activities at the company level, and no money laundering-related legal cases or penalty incidents occurred.

Integrity Culture

We integrate the concept of integrity management into every aspect of our operations and management, establishing a training system for honest compliance and anti-bribery. We actively carry out compliance and business ethics training for employees at different levels and positions, as well as business partners, to promote the internalization of integrity culture in mind and externalization in action. During the reporting period, the coverage rate of business ethics training for employees was **100%**, the coverage rate for senior management was **100%**, and the coverage rate for key business partners was **100%**.

Integrity, Compliance and Anti-Bribery Training System

Training types	Training participants	Training content
Internal training	Middle and senior management and key position employees	Specialized training on compliance and anti-bribery standards
	All employees	Training on integrity compliance and anti-bribery knowledge and practical operations
	New employees	New employees must complete the mandatory training course "three moves of compliance" and pass the corresponding assessment
	Departmental key personnel	Training on business ethics standards
	Business partners	Include compliance training video links in the compliance documents signed by business partners, who must watch the videos and sign corresponding compliance commitment letters
External training	Departmental key personnel and internal auditors of each department	Invite external lecturers to conduct training on business ethics, anti-corruption, and compliance standards
	Departmental key personnel and internal auditors of each department	Invite external consultants to conduct training on anti-bribery internal audit standards

Reporting and Investigation Management

To effectively maintain business integrity, strengthen professional ethics and conduct, we have set up various forms of open reporting channels. In internal regulations such as the Integrity Compliance Business Conduct Management System, Anti-Bribery Management Manual, and Reporting and Investigation System, we clearly define the reporting process and whistleblower protection mechanism, encouraging employees and other stakeholders to actively report violations of laws or our Integrity Compliance Business Conduct Management System and other compliance policies.

Compliance Reporting Channels



Reporting hotline: 021-67777777-880080



Reporting email: compliance@chint.com



Reporting mailbox: Compliance-labeled mailboxes are set up throughout Astronergy



Other channels: Employees and other stakeholders can freely choose other channels they deem appropriate for reporting







Upon receiving a report, the Compliance Department will conduct a compliance investigation in accordance with Reporting and Investigation System, confirming the investigation process based on the nature of the report and forming a specialized investigation team. If the reported matter involves corrupt behavior, the Compliance Department will transfer the case to Astronergy's audit department for investigation; if the reported matter involves non-corrupt behavior, the Compliance Officer will designate team members and a team leader from the compliance team to conduct the case investigation, and a case investigation report will be issued upon completion of the investigation. During the investigation process, Astronergy strictly maintains the confidentiality of the identity of the whistleblower and strictly prohibits any form of retaliatory action against the whistleblower; if retaliatory actions occur, we will immediately take compensatory or remedial measures for the whistleblower and legally and compliantly impose severe penalties on the perpetrator. During the reporting period, Astronergy did not experience any violations or cases generated or confirmed through the reporting procedure.

# Information Security and Privacy Protection

We regard information security and privacy protection as crucial elements of corporate compliance operations, establishing and gradually improving the information security management system, and taking various measures to safeguard the privacy of employees, customers, suppliers, and other stakeholders. During the reporting period, Astronergy did not experience any significant information security incidents and data or privacy breaches.

## Information Security Management System

We comply with the Data Security Law of the People's Republic of China, Personal Information Protection Law of the People's Republic of China, and the European Union's General Data Protection Regulation (GDPR), among other relevant laws and regulations in the locations where we operate. We adhere to the information security policy of "protecting information assets and winning customer trust with secure and reliable services", and have formulated and followed multiple system documents and procedural files such as Information Security Management and Information Security Incident Management, systematically and standardly carrying out information security management work. We establish an information security management structure with the Information Security Committee as the highest decision-making body, clearly defining the responsibilities at each level to ensure the achievement of information security management objectives. As of the end of the reporting period, the coverage rate of ISO 27001 information security management system certification in Astronergy's main operating premises reached **100%**.

## Information Security Management Measures

### Risk prevention

- We regularly conduct server security checks and system security penetration tests, and invite qualified third-party organizations to perform system vulnerability scans to prevent information security risks in advance.



### Incident management

- We continuously monitor potential information security emergency incidents, develop reporting processes, emergency response, and disposal processes for different categories and levels of information security emergency incidents, and form an information security incident report after the emergency handling is completed, formulate and implement corrective measures to enhance the level of information security management.



### Awareness enhancement

- In addition to new employees being required to receive information security education upon joining, an annual information security training plan is formulated and strictly implemented, fully conveying Astronergy's information security policies and management requirements to employees.



### Violation penalties

- Maintaining information security has been incorporated into the Integrity and Compliance Business Conduct Management System; employees' information security protection-related behaviors are highly correlated with their performance; if employees violate our information security regulations, the Human Resources Department will impose corresponding performance penalties based on the Employee Management Regulations depending on the severity of the violation.



## Data and Privacy Protection

Astronergy continuously focuses on the management and protection of data information and assets of employees, business partners, finance, and operations, especially in scenarios involving necessary personal data collection, processing, and cross-border transmission during operations. We strictly comply with relevant privacy protection laws and regulations in the locations where we operate, continuously enhance data and privacy protection capabilities, fully implement data compliance requirements, to safeguard the interests of all stakeholders.

We fully respect the rights of relevant parties to be informed, access, correct, and delete information. When collecting information from suppliers and employees, we inform them in advance of the specific types of information required, the methods of information processing, and the purposes of use, and we pledge not to share such information with third parties without authorization. Additionally, we require employees and third-party partners to sign a Confidentiality Agreement and employees to sign an Information Security Commitment Letter to ensure strict compliance with our confidentiality regulations and systems, fulfill confidentiality obligations, and prevent data or privacy breaches.

During the reporting period, our compliance management department thoroughly interpreted data protection laws in 23 major countries and regions worldwide, assessed compliance risks in the entire data lifecycle management in conjunction with our business needs, and released the 2024 Data Compliance Observation, proposing management recommendations. After its release, the report was circulated to all employees, garnering over 30,000 views, effectively supporting and assisting Astronergy in better addressing the increasingly stringent global data compliance requirements in our global localization strategy and promoting the continuous optimization of the data compliance management system.



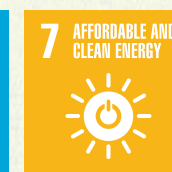


# Green Development

Astronergy is firmly committed to the long-term strategic plan of "green and sustainable development". By increasing investment in green technology research and development, managing the product lifecycle, and enhancing energy and resource efficiency through diversified measures, we strive to reduce the environmental load of our operations, responds to the national "dual carbon" goals, and contributes to environmental protection and social sustainable development.

## Key ESG Topics

- Response to Climate Change
- Opportunities in Clean Tech
- Product Lifecycle Management
- Circular Economy
- Environmental Management System
- Energy Management
- Water Resource Management
- Emissions and Waste Management
- Biodiversity Conservation





# Response to Climate Change

As an intelligent manufacturing enterprise of PV modules, Astronergy believes that climate action is not only a response to global climate change but also a grasp of future opportunities. We refer to the climate-related financial disclosure framework of the Task Force on Climate-related Financial Disclosures (TCFD) and the International Sustainability Standards Board (ISSB) to comprehensively advance climate-related management matters, take more proactive climate actions, fulfill our commitment to sustainable development, and promote the transformation of green energy worldwide.

## Climate Governance, Strategy, and Targets

We have established a climate change related risk management system encompassing governance, management, and executive levels. The Board of Directors, as the highest governance body responsible for Astronergy's sustainability matters, bears ultimate responsibility for climate change governance. The Board of Directors has set up a Strategy and Sustainability Committee to manage sustainability related strategies and practices, including responding to climate change, with a dedicated Sustainability Department and its specialized task forces responsible for coordinating, planning, implementing, and supervising climate change-related matters.

Astronergy complies with the United Nations Framework Convention on Climate Change and its related provisions, committing to join the Science-Based Targets initiative (SBTi), setting carbon reduction targets in line with climate science and the goals of the Paris Agreement, and taking measures to reduce GHG emissions, contributing to the achievement of long-term climate change management objectives.

### Astronergy's Targets in Sustainability Strategy



#### Short-term Targets (by 2028)

**30%** reduction on Scope 1+2 carbon emissions intensity per unit of cell production (taking 2022 as the base year)

Scope 1+2 carbon emissions intensity per unit of cell production: **34.92** tCO<sub>2</sub>e/MW;

**30%** reduction on Scope 1+2 carbon emissions intensity per unit of module production (taking 2022 as the base year)

Scope 1+2 carbon emissions intensity per unit of module production: **6.47** tCO<sub>2</sub>e/MW, decreased by **35.90%** compared with the base year of 2022

**8** factories achieving zero carbon emissions

**2** factories have achieved zero carbon emissions accumulatively



#### Medium and Long-term Targets (by 2035)

**By 2035, achieve carbon neutrality in operations;  
By 2050, achieve carbon neutrality across entire value chain**



#### Progress in 2024

## Strategy and Risk Management

Astronergy deeply engages in the identification, assessment, and management of significant climate risks and opportunities. Based on the results of risk and opportunity identification and assessment, we formulate targeted response measures, integrating climate risk and opportunity management into daily operations, promoting the deep integration of corporate business strategy and sustainable development management, and enhancing climate resilience.

Risks/ Oppor- tuni- ties	Type	Risk Factor	Risk Description	Impact Period	Financial Impact	Response Measures
Phys- ical Risk	Acute Risk	Typhoon	The coastal factory buildings in Zhejiang, Jiangsu, and other areas may be damaged by typhoons, leading to production interruptions and an increased demand for equipment maintenance	Short-term (1-3 years)	Asset impairment, increased maintenance costs	Reinforce and renovate the coastal factory buildings in Zhejiang, Jiangsu, and other areas to withstand strong winds, establish emergency response plans for typhoons and floods, and equip them with emergency supplies
	Chronic risk	Heavy rainfall	The Yangtze River Delta and coastal factory areas may be affected by frequent heavy rainfall, resulting in inventory losses and risks of supply chain disruptions	Short-term (1-3 years)	Inventory scrapping, increased logistics costs	Upgrade flood prevention facilities and optimize the ground elevation of factory areas in the Yangtze River Delta and coastal bases
		Water resource shortage	The water supply for production in some manufacturing bases in Gansu, Zhejiang, and other areas is restricted, which may affect production capacity stability and operational efficiency	Long-term (over 5 years)	Increased operating costs, decreased capacity utilization rate	Carry out special water-saving technical transformation projects, circulating water system transformation, rainwater collection and water-saving technology application
Tran- sition Risk	Policy and regulatory risk	Carbon market mechanism	Implementation of the EU Carbon Border Adjustment Mechanism (CBAM) and national carbon footprint regulations may increase export compliance costs; countries raise low-carbon product entry thresholds, which may gradually increase operating costs	Medium-term (3-5 years)	Decline in export competitiveness, increased compliance and operating costs	Products undergo full lifecycle assessment and improve global carbon footprint certification layout; improve supply chain carbon footprint tracking system construction and empower energy saving and carbon reduction in the upstream value chain; implement clean production and increase the proportion of self-generated and self-used PV power
	Technical risk	Technology iteration competition	With rapid industry technology updates and iterations, if Astronergy fails to maintain technological leadership, may fall behind industry competitors	Medium-term (3-5 years)	Asset impairment, increased R&D investment	Maintain leadership in n-type TOP-Con technology, while reserving and developing leading technologies, deepening industry-academia-research cooperation, and continuously launching products with higher efficiency and diverse application scenarios
	Market risk	Increased trade barriers	Possible impact on export revenue due to additional tariffs and anti-dumping investigations in European and American markets, and export share restrictions from localized production policies in emerging markets	Medium-term (3-5 years)	Decline in export revenue, cost of localizing construction	Accelerate capacity layout in South-east Asia/Middle East, strengthen overseas supply chain and localized cooperation
	Reputation risk	Stakeholder expectations	Increased demands from investors, customers, and the public for ESG management and transparency; failure to respond to key information or meet stakeholder expectations may lead to brand value damage	Medium-term (3-5 years)	Increased financing costs, loss of orders	Conduct stakeholder surveys on an irregular annual basis, expand survey channels, strengthen company ESG management, establish standardized data collection and disclosure mechanisms, publish annual Sustainability reports with third-party verification



Risks/ Opportunities	Type	Risk Factor	Risk Description	Impact Period	Financial Impact	Response Measures
Transition opportunity	Policy opportunity	Coordinated development of solar energy and energy storage	Demand for new power systems drives PV-storage integration projects, enhancing grid stability and electricity price returns	Long-term (over 5 years)	Diversified revenue, enhanced project premium capability	Research and development of grid-forming energy storage technology, cooperation with grid companies to develop peak shaving projects
	Market opportunity	Expansion in emerging markets	Explosive demand for PV in regions like the Middle East and Africa, policy support for low-carbon energy transformation and resource endowment advantages in new markets will increase business volume and market opportunities	Long-term (over 5 years)	Revenue growth, market share expansion	Strengthening localized supply chain construction, collaborating with local governments to develop comprehensive energy projects
	Technological opportunity	Smart manufacturing upgrade	Application of AI and digital twin technology to reduce production costs, improve module yield and production flexibility	Medium-term (3-5 years)	Cost reduction, production efficiency improvement	Smart factory transformation, AI quality inspection system deployment

## Metrics Management

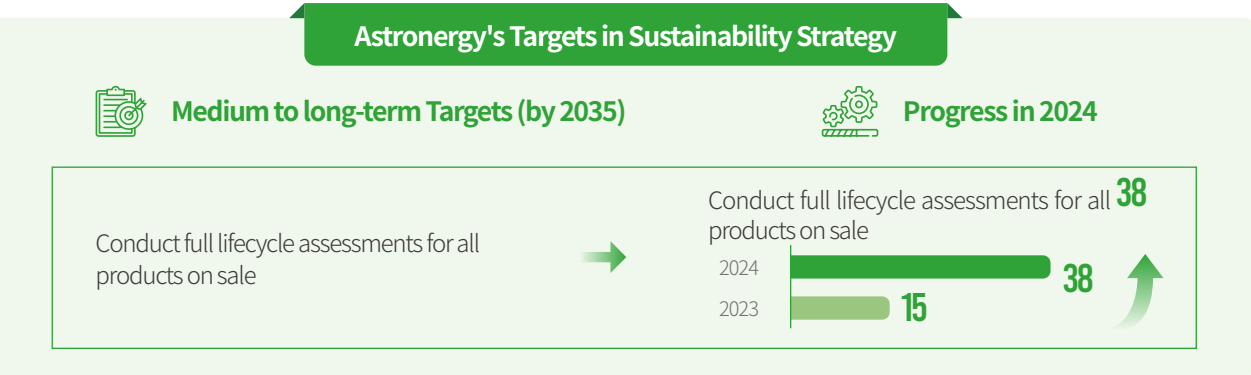
Astronergy has established the Management System for Identification of GHG Emission Source Identification, Data Collection and Quality Management Procedure, specifying the requirements and quantitative methods for identifying GHG emissions sources, data collection, and calculation, as well as the mechanisms for establishing inventories, compiling reports, and conducting internal and external audits. We also set carbon intensity management targets and continuously monitor target achievement, annually conducting third-party GHG verification at all production sites according to the ISO 14064 standard, orderly advancing carbon emissions, carbon inventory, and product carbon footprint management.

### Performance in GHG Emissions Management

Scope 1 GHG emissions:	Scope 2 GHG emissions:	
<b>0.95</b> Ten Thousand tCO <sub>2</sub> e	<b>151.95</b> Ten Thousand tCO <sub>2</sub> e	
<hr/>		
Scope 1+2 GHG emissions intensity per unit of module production:	Scope 1+2 GHG emissions intensity per unit of cell production:	
<b>6.47</b> tCO <sub>2</sub> e/MW	<b>34.92</b> tCO <sub>2</sub> e/MW	
<hr/>		
Scope 3 GHG emissions:	Scope 3 upstream GHG emissions:	Scope 3 downstream GHG emissions:
<b>1,976.92</b> Ten Thousand tCO <sub>2</sub> e	<b>1,890.57</b> Ten Thousand tCO <sub>2</sub> e	<b>86.35</b> Ten Thousand tCO <sub>2</sub> e

## Product Lifecycle Management

Astronergy remains committed to the corporate mission of "to create a sustainable and net-zero world with solar power", practicing green and low-carbon management at every stage of photovoltaic product manufacturing, assessing and striving to reduce the environmental impact of products throughout their entire lifecycle, and promoting the expansion and application of clean technologies in the PV industry.



Astronergy establishes a product full lifecycle carbon footprint evaluation system, formulates green product evaluation indicators, supervises the product development and design process as well as the production and manufacturing process, to ensure the environmental friendliness of products. During the reporting period, Astronergy conducted life-cycle GHG emissions assessments for our core products in accordance with ISO 14040, 14044, and 14067 international standards, and successfully obtained three certifications: ISO 14067 Carbon Footprint certification, EPD (Environmental Product Declaration) certification, and French ECS (Evaluation Carbone simplifiée) certification.



### Product Lifecycle Certification

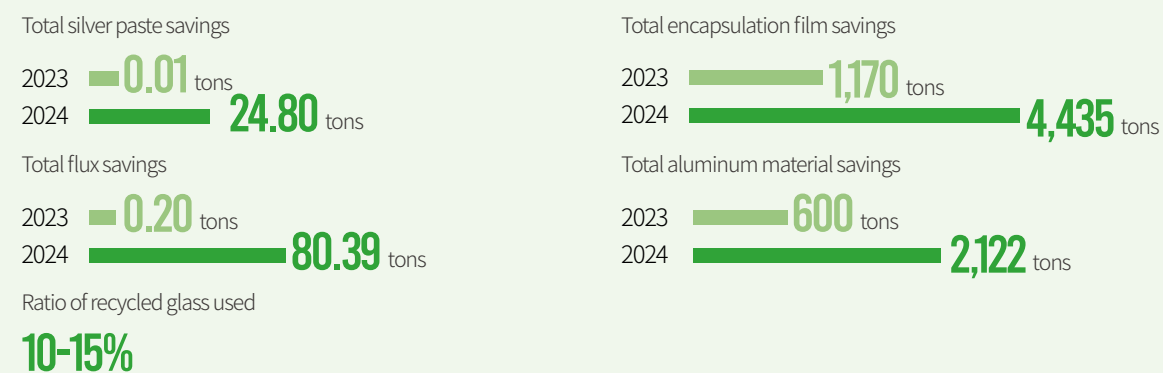
<b>ISO 14067 Certification</b> During the reporting period, 21 products covering Astronergy's mainstream product lines of ASTRO 5, ASTRO 5s, ASTRO N5, ASTRO N5s, ASTRO N7, ASTRO N7s, and ASTRO N8 obtained ISO 14067 product carbon footprint certification.	<b>EPD Certification</b> As of the end of the reporting period, a total of 9 module products, including the ASTRO 5 series and ASTRO N5 series, received EPD certifications from Italy, Sweden, Norway, and Denmark.	<b>French ECS Certification</b> As of the end of the reporting period, a total of 20 module products, including the ASTRO 5 series, ASTRO N5 series, ASTRO N7, and ASTRO N7s series, obtained French ECS certification, with the mainstream products N7 and N7s receiving the French ECS PPE2 low-carbon chain certification and PPE2v2 certification.
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## Green Design

Astronergy is committed to adhering to the principles of green, environmentally friendly, and sustainable development. Through green design, Astronergy aims to create low-carbon, eco-friendly, healthy, and safe products. Astronergy has established management systems for green products, such as Management of New Product Design, Development, and Introduction for Green Building Material Photovoltaic Modules and Green Product Identification, Evaluation, and Control Procedures. Focusing on product usage requirements and application scenarios, Astronergy utilizes high-performance, long-lasting, low-pollution, and recyclable raw materials. We employ high mechanical strength frame designs to enhance the products' self-cleaning capabilities against dust accumulation, extend product lifespan, and improve photoelectric conversion efficiency. Astronergy strives to minimize the consumption of energy, water resources, materials, chemicals, and harmful substances during the product's use, thereby reducing the negative impact of products on the environment to the greatest extent.

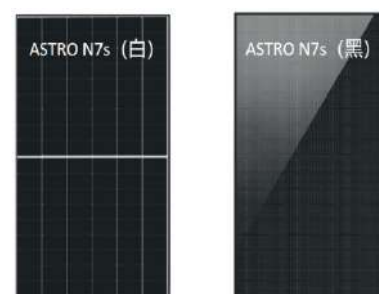
### During the reporting period, materials were saved through green design



## Green Products Design

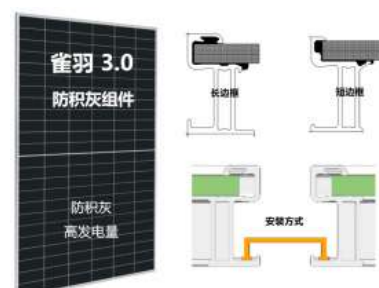
### ASTRO N7s Module Portfolio

ASTRO N7s, based on the independently developed ZBB and low-temperature film-covering platform technology by Astronergy, is equipped with new technologies such as zero-busbar cell screen, low-temperature lead-free solder wire, low-flowing encapsulation film, dealcoholized silicone, and composite frame. For the product, silver paste consumption of cells is reduced by over 20%, and stress and energy consumption is lowered significantly during the module welding process which is compatible with thinner wafers. Moreover, no VOC is emitted during the welding process. The product achieves lower photovoltaic cost as well as lower carbon emissions, making the photovoltaic greener and lower-carbon.



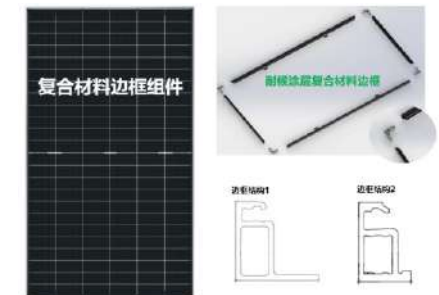
### BIPV 3.0 Anti-Dust Module Portfolio

The short frame surface A of the BIPV 3.0 Anti-Dust module is designed to be narrower, which reduces the risk of dust accumulation effectively when the module installed with a small-angle, hence decreasing the frequency of maintenance cleaning and the associated energy consumption. It is optimized for industrial and commercial distributed color steel tile roofs, sunrooms, and other dust-prone scenarios. Field-measured data shows that the power generation of the BIPV 3.0 module increased by over 1% compared to conventional module products, hence achieving more green power output throughout the PV system's lifecycle.



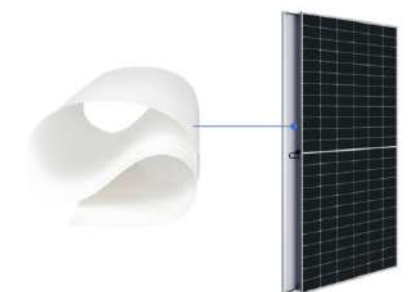
### Composite Material Frame Module Portfolio

The Composite Material Frame module adopts fiberglass-reinforced polyurethane frame, which could offer over 5 times the strength of conventional aluminum frame. The frame has excellent insulation property, eliminating the module grounding in PV system, hence reducing the amount of grounding materials and construction work. It is particularly suitable for the complex distributed PV installation scenarios, such as industrial and commercial roofs and residential roofs. The lifecycle carbon emission of the composite material frame is only 10%~20% of conventional aluminum frame, which could significantly reduce the carbon emission throughout the lifecycle of PV module.



### Fluorine-Free Backsheet

Astronergy actively promotes the use of fluorine-free backsheet in ASTRO series modules. Astronergy conducts extensive studies on fluorine-free backsheet feasibility from various performance dimensions, such as mechanics, electricity, yellowing resistance, and abrasion resistance. After undergoing performance test, reliability test, certification, and module product test, the fluorine-free PC backsheet has been technically reserved and used in mass production of ASTRO series modules.



## Green Manufacturing

Astronergy continuously deepens the application of clean production technologies, strictly adheres to domestic and international regulations and standards such as the EU's Restriction of Hazardous Substances Directive (RoHS) and Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH), formulates the Chemical Management Procedure, strengthens control over chemical use and hazardous substances, and reduces pollutant generation. Meanwhile, Astronergy has set a goal of "8 factories achieving zero carbon emissions by 2028", using the construction of zero-carbon factories as a crucial path and grasp, integrating the concept of clean production into every aspect of production and operation to enhance the level of green manufacturing.

We utilize digital systems to accelerate the transition to clean production, comprehensively optimize energy use management through energy and carbon intelligent information management systems, and carry out refined operation of equipment to improve energy and resource efficiency. Additionally, we further increase the proportion of renewable energy use, apply comprehensive energy-saving, emission-reduction, and consumption-reduction measures, and fully upgrade to a cleaner and greener production and operation method. As of the end of the reporting period, Astronergy has been honored with the title of National Green Factory, and our Yancheng base, Jiuquan base, and Songyuan base have all received provincial green factory titles; the Yancheng base (Phase I) and Jiuquan base have been certified as Zero-Carbon Factories.



National Green Factory Certificate



## Zero-Carbon Factory in Jiuquan Base

In September 2024, Astronergy's Jiuquan Base successfully obtained the Zero-Carbon Factory Certification from TÜV Rheinland, becoming the second zero-carbon factory after the Yancheng Base (Phase I). The Jiuquan Base is committed to the zero-carbon goal, enhancing efficiency through professional management, empowering production with green electricity, and reducing carbon through circular intensification. It has implemented multiple energy-saving and emission-reduction measures to comprehensively advance the Jiuquan Base towards low-carbon operation.

- Enhancing efficiency through professional management:** We refine the GHG emission management system and regulations, promote GHG reduction measures and calculating annual GHG emissions, establish a zero-carbon factory management team, and build a zero-carbon management system from point to surface, spanning from the grassroots to the top level, to improve management quality and efficiency.
- Empowering production with green electricity:** We have constructed approximately 1MW ASTRO factory rooftop PV module products, producing 940,000 kWh of green electricity annually, reducing carbon emissions by about 467 tons. We also have purchased 12 million kWh of green certificates, equivalent to reducing carbon emissions by 5,946 tons, and purchasing 30 tons of carbon credits for 100% carbon offset.
- Promoting carbon reduction through circular economy:** We minimize waste generation and advance recycling, reduce GHG emissions through equipment iteration, energy-saving improvements, and material cycling. The Jiuquan Base, by replacing equipment and using welding rods made of copper and ceramic instead of solder wire, can reduce annual carbon emissions by 328 tons, and optimize cell fragment rates to save production materials, reducing annual carbon emissions by 450 tons.



## Green Logistics

Astronergy actively explores the possibilities of green packaging design for its products, incorporating green packaging materials as part of our green development management initiatives. By using recyclable materials, lightweight designs, and implementing packaging material recycling and resource disposal methods, Astronergy reduces resource consumption and environmental burden generated during the product packaging process. During the reporting period, we optimized the packaging materials for chemical transportation, replacing all chemical container drums at our bases with tank trucks, and replaced easily damaged wooden pallets

with long-lasting iron pallets. We collaborated with 4 encapsulation material suppliers to carry out packaging material recycling and resource utilization projects, achieving a 50% ratio of recyclable packaging materials. Additionally, we conducted verification on reducing the weight and usage of packaging materials. Through industry standard research and internal inspection data collection, we managed to lower the packaging weight while meeting performance requirements, effectively reducing the total weight of 5-layer paper packaging materials from 920 grams to 840 grams, which verified the feasibility of reducing packaging material consumption, and we plan to gradually promote this approach in the future.

In the field of low-carbon logistics, we optimize the logistics model, increase the proportion of rail and water transportation, reduce truck transportation, and enhance transportation efficiency through multimodal transport methods. Meanwhile, we adopt various green logistics improvement measures such as increasing loading rates and promoting new energy transportation tools, effectively reducing the carbon footprint during the transportation of goods and further lowering the carbon emissions generated in Astronergy's operational processes. As of the end of the reporting period, the forklifts used for the internal transfer of module products have achieved **100%** electric vehicle replacement, the proportion of multimodal transport cabinets at the Yancheng base has reached 84%, with a year-on-year increase of 9%; the proportion of multimodal transport cabinets at the Yiwu base has increased by 19% year-on-year.

## Green Circulation

The importance of PV equipment recycling is increasingly prominent. Astronergy actively joins the PV Module Recycling Working Group of the China PV Industry Association(CPIA), serving as the vice-chairman unit of the Recycle Industry Development Center of the PV Committee of China Green Supply Chain Alliance (ECOPV). We have reached a strategic cooperation with the internationally renowned recycling service provider PV CYCLE, working together with authoritative forces to promote the recycling and circular utilization of waste PV products. We also actively engage in exchanges and cooperation with module manufacturing enterprises, material suppliers, recycling enterprises, scientific research institutions, etc., to promote the recycling and reuse of PV modules, help value re-creation, and facilitate the PV industry's advancement towards a higher level and higher quality of development.

Astronergy complies with EU's Waste Electrical and Electronic Equipment (WEEE) Directive and has successfully obtained 17 WEEE compliance membership certificates and PV CYCLE global certificates in 10 major European countries. We actively engage in end-of-life product management, striving to facilitate a closed-loop value chain from PV module recycling to reuse. As of the end of the reporting period, the recoverability rate of Astronergy's module products reached **100%**, with a recyclability rate of **92%**, and the remaining 8% can be recycled for energy through physical methods; among them, the recyclability rates of aluminum frames, glass, and junction boxes reached **100%**, the recyclability rate of cell reached **95%**, and the recyclability rate of PV ribbon reached **80%**.

In addition, we collaborate with industry partners to jointly conduct research on product recycling and circular utilization and participate in standard formulation. During the reporting period, Astronergy carried out research on waste module recycling and circular utilization technology, as well as feasibility studies on recyclable materials from scrapped modules, participated in the "Market Analysis and Technical Demonstration of Retired PV Module Circular Utilization" project of the China Green Supply Chain Alliance PV Recycling Center, and contributed to the compilation of the Technical Specifications for Environmental Pollution Prevention and Control in the Recycling of Waste PV Modules, contributing to the standardized construction of product recycling and circular utilization in the PV industry.





# Environmental Management System

Astronergy strictly complies with laws and regulations such as the Environmental Impact Assessment Law of the People's Republic of China and the Clean Production Promotion Law of the People's Republic of China, adhering to the pollution control principle of "environmental protection and conservation". Under the guidance of the EHS management policy, Astronergy systematically and institutionally promotes environmental management matters in an orderly manner, strengthens environmental training and emergency drills, enhances environmental awareness and capabilities, and ensures environmental compliance. In addition, Astronergy has formulated and strictly implemented the Interested Party EHS Management Procedure, improving the EHS management mechanism for various relevant parties within the workplace, extending EHS management requirements to suppliers, contractors, and other partners to jointly enhance the quality and effectiveness of environmental, safety, and health management.

As of the end of the reporting period, the coverage rate of ISO 14001 environmental management system certification in our main operating premises is **100%**, with no environmental incidents or violations occurring.

## EHS Management Policy

- **Safety and Health:** Safety first, people-oriented, minimize incidents (accidents): enhance risk management and control capabilities in product, activities, and service processes to ensure the safety and health of all members within Astronergy;
- **Environmental protection:** Committed to environmental protection throughout the lifecycle, energy saving and consumption reduction, and advocating a green production method that coexists harmoniously with nature;
- **Continual improvement:** Aimed to become a world-class provider of PV products and system solutions, with full participation and continuous improvement of our occupational health and safety management system, optimizing the use of green energy;
- **Responsible fulfillment:** Obtain and strictly comply with compliance obligations related to Astronergy, gather opinions from all parties (employees, shareholders, customers, suppliers, contractors, community residents, government agencies) to contribute to sustainable social development.

## Environmental Training and Drills

### Environmental Training

- Conducted World Environment Day cultural activities to enhance employees' awareness of energy saving and emissions reduction, improve employees' understanding of energy use and management, and create a good atmosphere of full participation in energy saving and emission reduction.
- Organized 195 environmental-related training sessions during the reporting period, including energy saving and consumption reduction, waste management, chemical management, etc.

### Emergency Drills

- Yueqing base conducted silane leakage fire accident emergency drill, strengthening inter-departmental collaboration, and further deepening cooperation with government departments.
- During the reporting period, 330 emergency drills were organized, including limited space, chemical leakage, fire evacuation, electric shock accidents, and heatstroke, effectively enhancing the safety awareness and emergency response capabilities of all employees.

# Resource Utilization

Astronergy attaches importance to the rational acquisition and scientific utilization of Earth's resources, taking various measures to reduce consumption of water, energy, and other resources, enhancing resource utilization efficiency, and aiming to continuously reduce the load on the environmental system.

## Energy Management

### Astronergy's Targets in Sustainability Strategy



#### Short-term Targets (by 2028)

**50%** of operation electricity is renewable energy



#### Progress in 2024

In 2024, the renewable energy power ratio of Jiuquan base reached **83.19%**



#### Medium and long-term Targets (by 2035)

**100%** operation electricity is renewable energy

Astronergy systematically carries out energy management work, formulating and implementing energy management systems such as the Energy Management Specification, Energy Measurement Management Target Setting, and Execution of Energy Measurement Management System, establishing an energy-saving working group to promote the formulation of energy targets and the implementation of policies, and regularly conducting energy monitoring to ensure the achievement of energy management goals. As of the end of the reporting period, the coverage rate of ISO 50001 energy management system certification in Astronergy's main operating premises is **100%**.

Astronergy promotes the reduction and clean transformation of energy through various means such as energy-saving technological transformations and the use of clean energy. We have self-built photovoltaic power generation facilities on the roofs of our factory areas, and have carried out energy-saving projects including the utilization of excess nitrogen from air separation nitrogen systems, heat exhaust recovery modifications, industrial hot water machine heating method transformations, and the replacement of roots blowers with air suspension blowers in wastewater treatment stations. These measures have achieved energy conservation and emission reduction while effectively enhancing the benefits of energy management. During the reporting period, the photovoltaic power generation on the roofs of Astronergy's factory areas amounted to approximately 38.45 million kWh; 184 energy-saving projects were carried out, saving a total of 122million kWh of electricity and approximately 118 million yuan in funds.



## Energy-saving and consumption reduction management of manufacturing bases



### Yancheng base

- Completed **18** energy-saving technical renovation projects in 2024, with an annual electricity saving of approximately **4.14** million kWh
- Self-built rooftop PV power generation facilities in the factory area, with an annual self-generated and self-consumed electricity of about **7.46** million kWh

### Haining base

- Completed **53** energy-saving technical renovation projects in 2024, with an annual electricity saving of approximately **37.69** million kWh
- Self-built rooftop PV power generation facilities in the factory area, with an annual self-generated and self-consumed electricity of about **5.80** million kWh

### Fengyang Base

- Completed **26** energy-saving technical renovation projects in 2024, with an annual electricity saving of approximately **33.11** million kWh
- Self-built rooftop PV power generation facilities in the factory area, with an annual self-generated and self-consumed electricity of about **3.95** million kWh

### Jiuquan Base

- Completed **30** energy-saving technical renovation projects in 2024, with an annual electricity saving of approximately **6.62** million kWh
- Self-built rooftop PV power generation facilities in the factory area, with an annual self-generated and self-consumed electricity of about **0.84** million kWh

### Yueqing Base

- Completed **26** energy-saving technical renovation projects in 2024, with an annual electricity saving of approximately **11.11** million kWh
- Self-built rooftop PV power generation facilities in the factory area, with an annual self-generated and self-consumed electricity of about **4.2** million kWh

### Songyuan Base

- Completed **3** energy-saving technical renovation projects in 2024, with an annual electricity saving of approximately **1.12** million kWh

### Yanchi Base

- Completed **7** energy-saving technical renovation projects in 2024, with an annual electricity saving of approximately **0.71** million kWh

### Yiwu Base

- Completed **21** energy-saving technical renovation projects in 2024, with an annual electricity saving of approximately **27.58** million kWh
- Self-built rooftop PV power generation facilities in the factory area, with an annual self-generated and self-consumed electricity of about **3.59** million kWh

## Performance in Energy Management

Total energy consumption

**9,658,534.12** GJ

Total renewable energy consumption

**25,848,227.00** kWh

Energy consumption intensity per unit of cell production

**6.91** tons of standard coal/MW

Energy consumption intensity per unit of module production

**1.60** tons of standard coal/MW

Reduction in electricity consumption

**1.22** Hundred Million kWh

Annual savings in standard coal

**15,074.71** tons

## Water Resource Management

### Astronergy's Targets in Sustainability Strategy



Medium to long-term Targets (by 2035)



Progress in 2024

**50%** reduction on unit product water consumption intensity (taking 2022 as the base year)

**37.67%** reduction on unit product water consumption intensity (taking 2022 as the base year)

### Unit Product Water Consumption Intensity



Astronergy strictly adheres to relevant laws and regulations in both domestic and overseas operating locations, including the Water Law of the People's Republic of China, and clearly defines water resource management policies and water resource management goals in the ESG Policy. We established the Water Resources Management Measures, conduct water resource risk assessments and water balance tests at production bases, and based on the results of these assessments and tests, adopt advanced production technologies and highly efficient water-saving equipment, as well as optimize production processes, to continuously enhance the efficiency of water resource management.

We adopt methods such as wastewater, concentrated water, and reclaimed water recycling and reuse to carry out water-saving projects like converting wastewater stations to use nitrified return liquid for defoaming, reusing RO concentrated water in exhaust gas towers, recycling RO water for air conditioning humidification, and reusing air conditioning condensate water in cooling towers, effectively reducing water consumption in the production process. Meanwhile, we implement a technical improvement review system to evaluate water-saving projects and promote those with dissemination value to all bases for implementation. During the reporting period, Astronergy undertook 17 water-saving projects, saving 2.1039 million tons of water annually and reducing costs by RMB 8.4347 million.

## Water Conservation Projects

### RO Concentrate Reused in Exhaust Tower Retrofit

- The concentrated water produced by the pure water station at the Yiwu base has a relatively low electrical conductivity. By adding a recovery device, the concentrated water can be reused in the acid and alkali exhaust gas tower for spraying and absorbing exhaust gases, thus replacing the consumption of tap water. This measure can save 400 tons of water per day.

### Using Digestion Return Liquid and RO Concentrate Instead of Tap Water for Spray Defoaming

- Chint Solar (Haining) retrofitted the aerobic pool spray defoaming system in the wastewater treatment biochemical system, using digestion return liquid plus RO concentrate instead of tap water for spray defoaming, recycling waste liquid, and reducing tap water consumption, achieving annual water savings of approximately 66,400 tons.



## Performance in Water Resource Management

Total water withdraw:  
**16,293,994** tons

Total water discharge:  
**13,647,041** tons

Total water consumption:  
**2,646,953.1** tons

Comprehensive water consumption intensity  
**34.74** tons/MW

Decrease in water consumption intensity:  
**37.67%**

Total water recycled and reused:  
**176,759,562.7** tons

Water recycling rate:  
**91.56%**

Reclaimed water purchased:  
**3,190,445** tons

Total ultra-pure water consumption:  
**8,759,090** tons

# Emissions and Waste Management

Astronergy strictly monitors emissions and waste generation by our operations, taking multiple measures to reduce wastewater, exhaust gas, and waste generation by production operations, ensuring that all types of emissions and waste are disposed of in compliance with regulations, minimizing the negative environmental impact of operations.

## Astronergy's Targets in Sustainability Strategy



**Short-term Targets (by 2028)**



**Progress in 2024**

Zero Landfill for Waste



Zero waste treated by landfill in 2024

## Emissions Management

Astronergy has formulated emission management systems such as the Water Pollution Prevention Management Procedure, clearly defining the management responsibilities of relevant departments within Astronergy, and regularly conducting monitoring of wastewater and exhaust gas to ensure compliant discharge of all types of emissions.

## Emission and Pollutant Disposal Process



- Astronergy annually updates the list of water pollution sources and the emission inventory, sorts out the waste-producing areas, pollutant names, main pollution factors, pollution control facilities, and discharge destinations, and carries out water pollution control and monitoring in accordance with national regulations and the requirements of environmental protection authorities.
- By recycling and reusing the waste acid from the alkali texturing process in the workshop for use in the cleaning room, the discharge of waste acid is reduced, thereby lessening environmental impact. At the same time, the concentrated water generated by the pure water station is recycled for use in the exhaust gas scrubbing tower and the wastewater treatment station, reducing tap water consumption.



- All exhaust gases generated during the production process in the cell and module factories are treated through filters, adsorption boxes, absorption towers, and other treatment devices before being discharged.
- Astronergy regularly organizes third-party institutions to conduct exhaust gas testing in the factory area. During the daily operation of exhaust gas treatment equipment, strict adherence to the maintenance schedule is implemented to ensure the reliable and effective operation of the exhaust gas treatment devices.

## Waste Management

Astronergy complies with national and local waste management laws and regulations, formulates the Waste Management Procedure, and reduces waste emissions and generation through optimizing production processes and technologies. Astronergy adopts safe and reliable waste treatment methods, using appropriate disposal methods according to the type of waste. Non-hazardous waste is classified and transported to general waste storage sites and handed over to general waste disposal contractors for disposal. For hazardous waste, we have developed a specialized treatment process, set up a dedicated hazardous waste storage area with clear markings, and ultimately hand it over to third-party hazardous waste disposal contractors with disposal qualifications.

We actively manage the disposal, recycling, and reuse of waste generation during the production process. For the broken silicon wafers generated during the production process, Astronergy achieved a **100%** disposal rate and a **100%** recycling rate; for the scrapped cells, we recover aluminum and silver materials from monocrystalline and polycrystalline silicon cells through acid-alkali methods, and recover the crystalline silicon in the cells through hydrofluoric acid solution reactions. During the reporting period, Astronergy achieved a **100%** disposal rate for scrapped cells, with a 90% recycling rate for aluminum materials, a 94% recycling rate for silver materials, and an 85% recycling rate for crystalline silicon.

### For broken silicon wafers generated during the production process, Astronergy has achieved:

Disposal rate of broken silicon wafers

**100%**

Regeneration and reuse rate of broken silicon wafers

**100%**

### The recycling and utilization situation of scrap cells

Disposal rate for scrapped cells

**100%**

Recycling rate for aluminum materials **90%**

Recycling rate for crystalline silicon **85%**

Recycling rate for silver materials **94%**



Performance in Waste Management

Total waste generation:

74,846.98 tons

Comprehensive waste generation intensity:

0.98 tons/MW

Total waste recycled:

71,594.84 tons

Total non-hazardous waste generation:

74,176.73 tons

Total non-hazardous waste disposal:

74,145.90 tons

Non-hazardous waste recycling rate:

96.23%

Total hazardous waste generation:

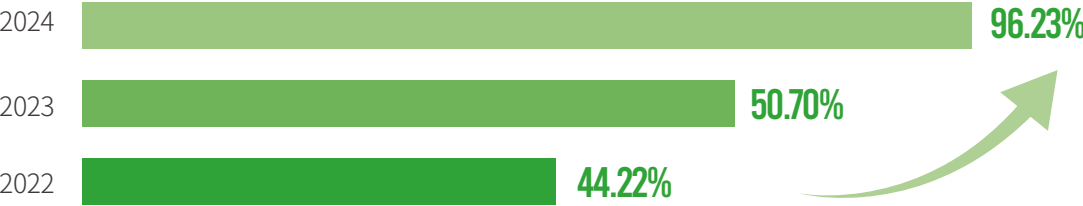
670.25 tons

Total hazardous waste disposal:

669.79 tons

Note: Due to the impact of the processing cycle, some waste is not disposed of within the reporting period. Therefore, the total amount of hazardous waste disposed of is less than the total amount of hazardous waste generated. Astronergy adheres to the principle of compliant disposal, and all hazardous waste generated in actual production and operations is 100% disposed of in compliance with regulations.

Non-hazardous Waste Recycling Rate



Biodiversity Conservation

Astronergy complies with ecological policies in our operational jurisdiction, including the Environmental Protection Law of the People's Republic of China, Wildlife Protection Law of the People's Republic of China, Forest Law of the People's Republic of China, Regulations on the Protection of Wild Plants of the People's Republic of China, and international conventions such as the United Nations Convention on Biological Diversity, integrating biodiversity conservation into our long-term sustainability plan. Neither Astronergy nor any of our operating locations are located in or near environmentally sensitive areas, and the environmental impact of production, manufacturing, and operational activities is under control.

Astronergy's Commitment to Biodiversity Conservation

- We are committed to net zero loss of biodiversity in related operation and production activities during project development or construction. If Astronergy has resulted in any negative impact on biodiversity during the development or construction of projects, it is required to take high credible biodiversity compensation measures within 2 years after the completion of the projects, and implement biodiversity conservation and restoration measures in other areas or projects to balance or offset the negative ecological impacts caused by the development activities.
- We commit that when Astronergy carries out development or construction projects, related operation and production activities will not involve any behavior of destroying forests, including deforestation, burning or clearing forests, so as to ensure the integrity and sustainability of the forest ecosystem.
- We commit not to carry out operation and production related activities in any world natural heritage site or its buffer zones.
- We commit to comply with any regulations, conventions, and legal requirements in ecological reserves and other areas designated for their biodiversity importance.

Astronergy is committed to continuously expanding the "PV+" application solutions, integrating efficient photovoltaic solutions with agriculture, animal husbandry, fisheries, and desertification control, minimizing the adverse impacts of business operations on biodiversity and ecosystems, expanding positive influences, and promoting harmonious coexistence with nature. At the same time, we suggest and encourage upstream and downstream partners to comply with biodiversity conservation regulations and practice biodiversity conservation, conveying Astronergy's ecological protection philosophy to all levels of the value chain.





## Astronergy "PV+" Ecological Project Cases

### Agrivoltaics

Astronergy has developed a 25 MW agrivoltaics project in the Netherlands, providing 28,100 MWh of clean electricity annually. The project fully utilizes local idle land resources, with the shadows cast by PV panels creating an optimal environment for cultivating mushrooms and grazing sheep, establishing an integrated ecological project combining energy, agriculture, and employment, achieving both ecological protection and economic benefits.



### Pasture-PV Complementation

The 400 MW Qinghai Tongren Integrated PV-Pasture-Storage Project innovatively adopts a "pasture-PV complementation + energy storage" model, achieving harmonious coexistence of PV power generation and animal husbandry. The project provides 770 million kWh of clean electricity annually to Tongren City and surrounding areas, significantly contributing to improving regional air quality and promoting ecological civilization construction.



## Astronergy "PV+" Ecological Project Cases

### Aquaculture-PV Complementation

Astronergy assisted in building a 120 MW aquaculture-PV complementation project in Lanxi, Hunan province, providing approximately 126 million kWh of green electricity annually. The PV modules are fixed at a 19° angle, providing segmented shading for the fish ponds, which can lower water temperatures by about 2°C in summer, effectively mitigating the impact of strong light and high temperatures on fish life. In winter, the shading also forms a temperature buffer zone with the water surface, maintaining a relatively constant water temperature, aiding fish survival, and achieving "aquaculture-PV complementation" in three-dimensional space.



### Desert-PV Complementation

Astronergy has supplied 500MW ASTRO 5 modules for the Alaer 2GW PV base project, which is located north of the Taklimakan Desert. After grid connection, it can generate 1.22 billion kWh of clean electricity annually. The local government has formulated a grassland vegetation restoration plan in conjunction with the PV project, leveraging the shading effect of PV panels to reduce water evaporation by 20%-30%, thereby promoting the growth of native preserved plants and supplementary seeding grasses, and aiding ecological restoration in desertified areas.







# Value Sharing

Astronergy widely recruits diverse talents, effectively safeguarding employee rights and interests, and is dedicated to building an inclusive and diverse work environment, empowering the development of human resources. We also focus on creating social value, actively carry out public welfare activities, promote the development of local communities, and give back to society through practical actions.

## Astronergy's Social Responsibility Management Policy

People-oriented, Serving Society, Health and Safety, Everyone is Responsible

## Key ESG Topics

- Protection of Labor and Human Rights
- Occupational Health and Safety
- Equality and Diversity
- Community Construction & Charity and Public Welfares
- Human Capital Development





# Protection of Labor and Human Rights

We value and effectively safeguard the basic rights and interests of employees, providing them with competitive compensation and a diverse benefits system, committed to enhancing employee satisfaction and building a healthy and harmonious labor relationship.

## Astronergy's Targets in Sustainability Strategy



### Short-term Targets (by 2028)



### Progress in 2024

Employee satisfaction score $\geq$ <b>85</b> points	→	Employee satisfaction score: <b>83.93</b> points
Technical talent turnover rate per year maintains <b>15%</b> or lower	→	Technical talent turnover rate: <b>8.23%</b>

## Compliance in Employment and Rights Protection

We respect the legitimate rights and interests of all laborers in the value chain, strictly comply with relevant labor laws and regulations such as the Labor Law of the People's Republic of China and the Labor Contract Law of the People's Republic of China. We acknowledge and implement international labor conventions and initiatives in high standards, including the Universal Declaration of Human Rights and the core conventions of the International Labour Organization. We implement the labor contract system for all employees and fulfill obligations in accordance with the law. We have established a comprehensive labor rights management mechanism, formulated labor rights protection systems such as the Social Responsibility Management System Manual, Anti-Discrimination, Anti-Harassment, Anti-Forced Management Procedures, Regulations on the Prohibition of Child Labor, and Labor Protection Management System for Female Employees and Juvenile Workers, to standardize workplace behavior, prevent illegal and unethical practices such as discrimination, harassment, forced labor, and child labor, ensure reasonable working hours for employees, and effectively safeguard their basic rights. As of the end of the reporting period, six of Astronergy's main operating sites have obtained SA8000 social responsibility management system certification, with a coverage rate of 60%.



**0** incidents of discrimination or harassment

**60%** coverage rate of the SA8000 social responsibility management system certification at main operating sites

**0** incidents of child labor or forced labor

**100%** coverage of human rights training for employees (including security personnel)

**100%** signing rate for company collective contracts

## Employee Rights Protection Mechanism

### Anti-discrimination, harassment, and abuse

We prohibit any discrimination or harassment based on race, country of origin, religion, disability, gender, sexual orientation, union membership, political stance, or age in any human resources related practices such as employment, promotion, salary determination, or work arrangements, and oppose any form of physical punishment, mental or verbal abuse. If such incidents occur, Astronergy will take disciplinary actions such as suspension or dismissal against the violators. During the reporting period, Astronergy had no incidents of harassment, discrimination, or abuse.

### Preventing child labor and forced labor

We strictly verify the identity information of applicants during recruitment and conduct checks on employees' age and identity information at least 2 times annually to ensure no child labor incidents occur; any intentional or unintentional employment of child labor, once discovered, will be immediately stopped, with health checks arranged and legal guardians contacted. For children still in compulsory education, we will assist their return to school to continue their education. We sign labor contracts with all employees, strictly regulate working hours and overtime approval processes, prohibit restrictions on employees' freedom of movement, and ban any form of forced labor such as deposit collection and document withholding. Additionally, we require suppliers or subcontractors to sign agreements prohibiting forced labor, and we will immediately terminate cooperation if any violations are found. During the reporting period, Astronergy had no incidents of child labor or forced labor.

### Freedom of association and collective bargaining

We respect employees' rights of freedom of association and bargaining, formulate policies such as the Employee Freedom of Association and Collective Bargaining Rights Management System and Trade Union Management System, and provide facilitative conditions for establishing worker representative congresses, trade unions, or other forms of democratic management organizations. Astronergy convenes a Workers' Congress at least once annually to safeguard employees' freedom to exercise democratic powers; unions at each production base negotiate and sign written agreements with Astronergy, fully protecting employees' basic rights such as occupational health and safety, working conditions, vocational skills training, anti-discrimination and harassment, equality, and diversity. As of the end of the reporting period, Astronergy's collective contract signing rate of employees was **100%**.

To ensure the effective protection of employees' rights and interests, we regularly carry out social responsibility risk assessments and reviews, including human rights risks, and continuously improve relevant policies and management processes based on the review results. We establish reporting channels to encourage employees, suppliers, contractors, and other stakeholders to report suspected human rights violations. If such incidents happened in the future, we will thoroughly investigate potential human rights incidents based on the tips received and implement remedial measures upon confirmation to minimize harm. Astronergy regularly organizes human rights-related policy training, including anti-discrimination and anti-harassment content, to ensure that management requirements are effectively communicated. During the reporting period, the coverage rate of human rights training for employees (including security personnel) was **100%**.

## Compensation and Benefits

We establish a fair and scientific compensation system, formulate the Compensation and Benefits Management, adhere to the principle of "equal pay for equal work", and ensure that wages in all operating regions meet the basic living needs of local employees. Based on annual changes in internal and external market environments, we continuously optimize Astronergy's compensation structure and benefits to provide employees with competitive compensation. Additionally, we establish and continuously improve an employee benefits system that aligns with Astronergy's development, offering various non-monetary benefits and regularly organizing employee activities to enhance employees' sense of belonging and satisfaction.



## Employee Welfare System

### Statutory benefits

We provide pension insurance, medical insurance, and other social insurance, as well as housing provident fund; statutory holidays and paid annual leave, marriage leave, bereavement leave, maternity leave, etc.

### Insurance coverage

We purchase social pooling insurance for all contractual employees, and employer's liability insurance for relevant employees; We also fully cover the critical illness insurance for employees in Haining area.

### Equity incentive

We establish a long-term and effective equity incentive mechanism, where in-service employees can indirectly hold company shares through the employee shareholding platform, adhering to the principle of voluntary participation. Participants bear their own profits and losses and risks, enjoy equal rights with other investors, fully attracting and retaining outstanding management talents and business backbones, and enhancing the cohesion of employees and Astronergy's competitiveness.

### Commendation and rewards

We annually evaluate outstanding employees and issue bonuses and set up individual awards to reward employees who make contributions in proposing reasonable suggestions, publishing research papers, and obtaining patents, as well as issuing souvenirs to long-serving employees.

### Various subsidies

We provide welfare subsidies such as meal allowances, communication fees, housing and transportation, high-temperature subsidies; we also issue allowances based on employees' length of service, position, working hours, and job skills.

### Health care

We provide welfare physical examination and launch a psychological counseling platform to offer psychological counseling and mental health training.

### Additional leave

We provide set additional company seniority leave, parental companionship leave, breastfeeding time leave, parental childcare leave, and adjustment leave.

### Employee activities

We organize sports events, holiday activities, team-building activities, etc.; we also hold summer camps and other family care activities.

### Other benefits

We provide flexible working arrangements such as irregular working hours for some employees; we also distribute birthday gifts, traditional holiday gifts, etc.



## Employee Communication

We value employee voices and have established smooth communication channels for employees. We collect feedback through various channels such as quarterly employee interviews, General Manager's mailbox, Astronergy Feishu online complaint and helpdesk, and local complaint and help hotlines, listening to employee opinions from multiple angles. We have set up a multi-channel grievance platform where employees can internally lodge complaints related to labor rights issues such as child labor, forced labor, working conditions, harassment, and discrimination. Upon receiving complaints, we assign specific handlers for different issues and provide corresponding solutions, achieving a **100%** resolution rate within the reporting period.

Annually, we conduct employee engagement and satisfaction surveys through interviews and online questionnaires, gathering suggestions on company performance feedback, development and training, recognition and incentives, and leadership effectiveness. We take appropriate improvement measures to continuously enhance team cohesion and optimize management efficiency and the working environment. In 2024, Astronergy's employee satisfaction score was 83.93 points, marking a continuous upward trend for four consecutive years. Additionally, to foster a positive atmosphere for all employees to collectively plan for Astronergy's long-term development, we organize an annual rationalization proposal award selection, encouraging employees to propose suggestions beneficial to our sustained and healthy growth. Cash rewards are given to teams and individuals who submit a significant number of effective suggestions. During the reporting period, we received 1,451 rationalization proposals and distributed a total of RMB 7,500 in rewards.

### 2022-2024 Employee satisfaction score





# Human Capital Development

We widely attract diverse talents and are committed to creating an equal and inclusive workplace culture. At the same time, we provide a broad career development stage for every employee, smooth the channels for employee development, and comprehensively empower employees to grow and succeed, laying a solid foundation for Astronergy's long-term development.

## Astronergy's Targets in Sustainability Strategy



### Medium and Long-term Targets (by 2035)



### Progress in 2024

<b>1,000</b> employees get supports for continuing education and improving academic qualifications cumulatively (taking 2022 as the base year)	→	<b>196</b> employees got supports for continuing education and improving academic qualifications cumulatively
Proportion of female employees to reach <b>40%</b>	→	Female employee proportion: <b>27.56%</b>
Proportion of female employees in management to reach <b>30%</b>	→	Female management proportion: <b>16.52%</b>
Proportion of female employees in technical talent to reach <b>30%</b>	→	Female technical staff proportion: <b>26.33%</b>



### Internal referral

- We encourage employees to recommend outstanding talents around them, with successful referrers receiving corresponding rewards. We aim to attract talents with high cultural fit to Astronergy, while shortening the recruitment cycle and reducing recruitment costs.



### Headhunting cooperation

- For high-end and scarce positions, we cooperate with professional headhunting companies, leveraging their extensive human resources network to precisely hunt for elite talents in the industry.



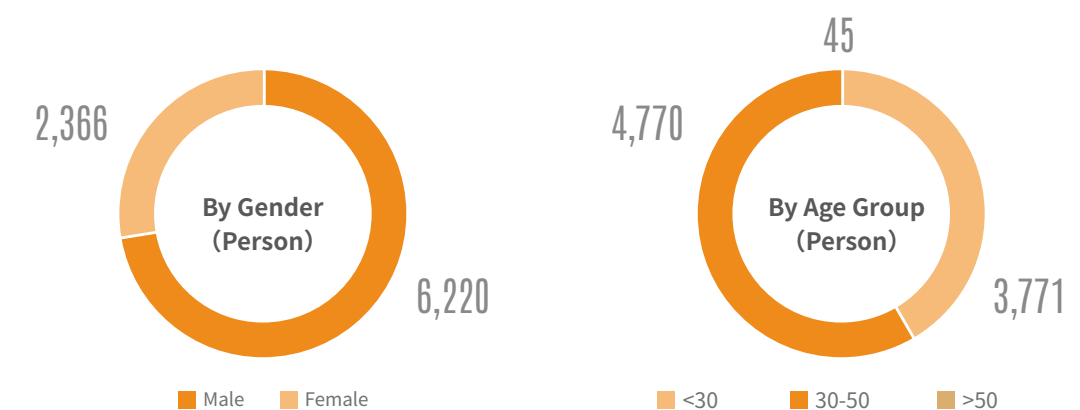
### Campus recruitment

- We actively participate in campus recruitment activities and establish long-term cooperative relationships with multiple universities.

## Jointly build a postgraduate practice base with Zhejiang University of Technology

On January 2, 2025, Astronergy and the Science and Education Integration College of Energy and Carbon Neutrality at Zhejiang University of Technology officially announced the joint establishment of a postgraduate practice base, planning to carry out all-around collaboration in areas such as talent cultivation, scientific research innovation, and technical breakthroughs. This base will provide a comprehensive practical platform for postgraduates of Zhejiang University of Technology to integrate theoretical knowledge with actual production, offering them opportunities to engage with cutting-edge technologies in the photovoltaic field, helping students closely align with industrial practice, and also cultivating and reserving high-quality photovoltaic technical talents with innovative capabilities and practical experience for Astronergy.

As of the end of the reporting period, Astronergy had a total of 8,586 employees, all of whom were full-time, with female employees accounting for 27.56%, and 2,372 new employees.



## Talent Attraction

We adhere to the principles of diversity and equality, under the guidance of our global strategy, we explore various recruitment channels to receive outstanding talents from different countries and regions, further optimizing the professional structure of our employees to meet the talent needs of global operations and various types of positions, creating a rich and high-quality talent pool, and providing sufficient talent momentum for Astronergy's sustainable development.

## Diverse recruitment channels



### Online recruitment

- Through comprehensive recruitment websites, we widely publish job information and attract a large number of job seekers from various industries, providing convenient job search channels for job seekers while quickly matching the required talents for Astronergy.



## Equality and Diversity

Astronergy is committed to promoting a diverse, equal, and inclusive workplace culture, actively promoting fair employment, firmly avoiding employment discrimination based on gender, ethnicity, region, religion, etc., and encouraging employees with different backgrounds and experiences to unleash their creativity at work, bringing new thinking and solutions to Astronergy. We have also formulated a series of internal policies and systems to provide equal opportunities for all employees in recruitment, promotion, compensation, and benefits, integrating the awareness of diversity and equality throughout the entire employment management process. During the reporting period, we officially became a global signatory member of the United Nations Women's Empowerment Principles (WEPs), committed to unrelenting efforts to promote gender equality and women's empowerment in the workplace, market competition, and community life.

To promote collaboration and integration within diverse teams, we continuously carry out the "Homing Activities", inviting overseas employees to China for systematic professional training, engaging in in-depth communication with colleagues from various local departments, effectively deepening overseas employees' sense of identity with Astronergy.



We pay attention to and support the career development of female employees, formulating Labor Protection Management System for the Protection of Female Workers and Juvenile Workers, ensuring basic rights such as leave, health, and safety for female employees, and providing them with comprehensive welfare benefits and equal career development opportunities, creating a fair and caring work environment, enhancing the happiness and sense of belonging of female employees.

## Workplace Convenience for Female Employees

- Equal opportunities**

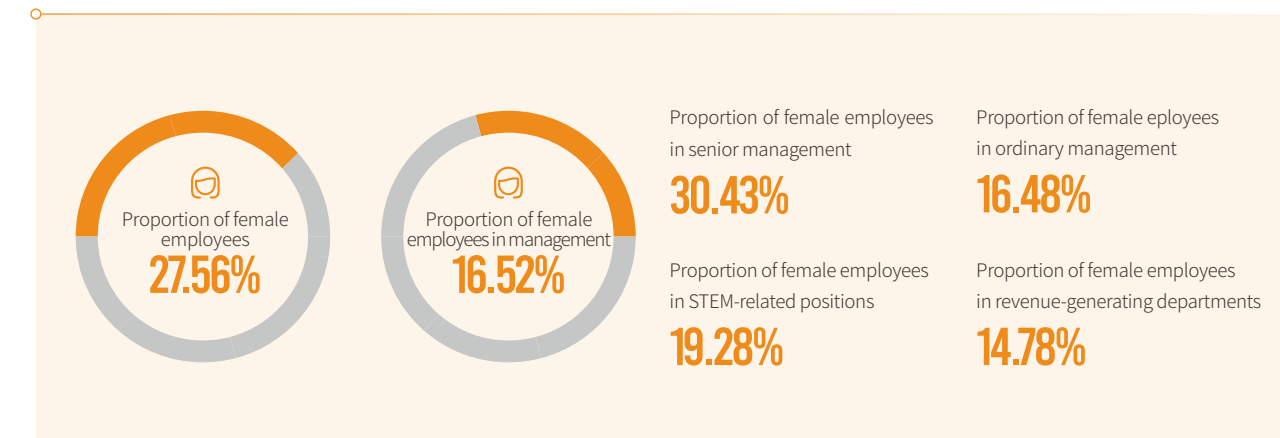
We highly value the professional growth of women and are committed to ensuring that female employees enjoy absolute equal opportunities in recruitment, promotion, and training processes, resolutely eliminating any form of gender discrimination, and supporting female employees in achieving outstanding performance in the workplace; in addition, we provide equal continuous learning opportunities for female employees, and as of the end of the reporting period, a cumulative total of 49 female employees have obtained degree certificates through academic advancement.
- Health support**

We pay attention to the physical and mental health of female employees, providing all female employees with regular gynecological examinations, breast and cervical cancer screenings, free psychological counseling platforms, and irregular health lectures.
- Convenient facilities**

To facilitate female employees during breastfeeding, we have set up facilities such as mother and baby care rooms, providing additional care in work arrangements and work intensity, ensuring time for parenting.
- Parent-child activities**

We organize activities such as summer camps and parent-child hiking every year to better help employees balance work and family.

## Performance in Equality and Diversity



We actively establish cooperative relationships with regional disabled persons' federations, special education institutions, and disabled employment service centers to promote the employment of people with disabilities. We formulate the Regulations on the Management of Disabled Employment, accurately assessing suitable positions for disabled job seekers, and ensuring they enjoy equal treatment in recruitment, employment, regularization, promotion, labor remuneration, welfare, and labor insurance. To further facilitate the daily work of disabled employees, we set up various facilities in the workplace according to their specific needs, such as providing good lighting and tactile signs for visually impaired employees, ensuring barrier-free access in the workplace, and setting up barrier-free restrooms. As of the end of the reporting period, Astronergy employed a total of 193 disabled employees.



Talent Development

We are talent development-oriented, creating a diverse and multi-level talent cultivation system and offering various training courses and capability enhancement programs, to comprehensively improve employees' professional skills and overall quality, and enhance Astronergy's core competitiveness.

Astronergy Talent Cultivation System

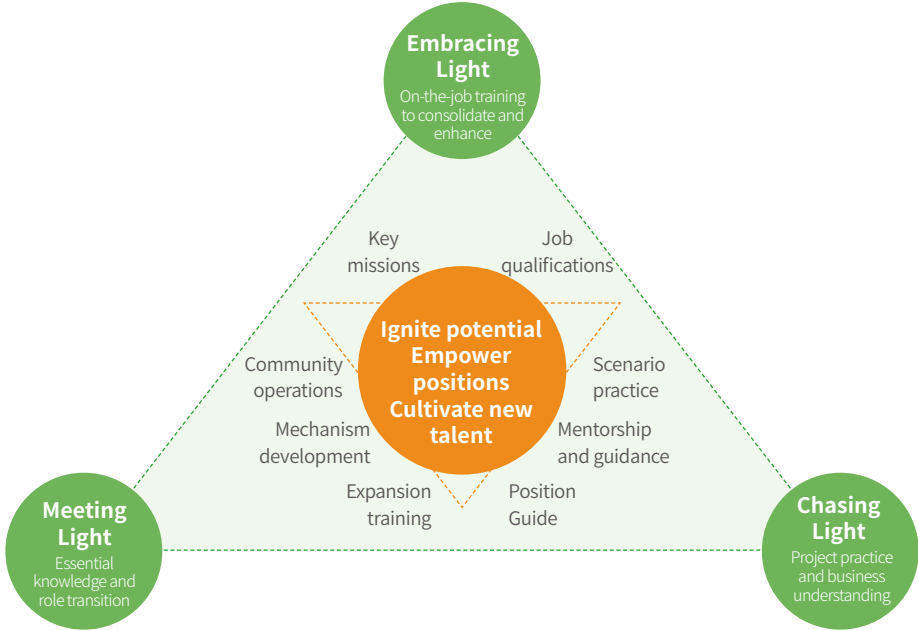
Targeted personnel	Type	Education objective	Project name
Managers	Leadership improvement	Leadership advancement for middle and senior managers	Carbon Explorers    NEW Employees
		Competency development of reserve managers	New-Star Special Training Camp
Professionals (Supply chain, R&D, quality, marketing, etc.)	Further professional training	Vertical development of professional competencies and qualifications	HERO Program
		Professional training    Project management	Knowledge-Prone Class    Barrier Removers
Skilled operators	On-site operation	Differentiate training based on professional categories	Ignition Program    NEW · PV Program
		On-site management for frontline employees    Operational skills upgrade	Shift Leader in Action    Skilled Workers
New employees	Entry-level compulsory program	Career transfer, cultural integration, and basic skills	PV Youngsters    Four Party-Enabled
Digital and International Talent	Specialist Reservation	Enhance digital thinking and digital technology	Super Ignition Program
		Match overseas production capacity layout	

Leadership programs provided by external parties, in-house professional programs, and multiple learning channels



Fresh Graduate Training - PV Youngsters

To help fresh graduates identify with Astronergy culture and quickly integrate into the organization, we have designed the PV Youngsters Program based on their development path, encompassing three stages: "Meeting Light, Chasing Light, Embracing Light". Through a series of training activities such as centralized training, project experience, and evaluations, we aim to facilitate the transition of fresh graduates from campus to workplace and cultivate their basic professional skills.





## Performance in Employee Training

Total investment in employee training:

RMB **9.811** million

Total investment in employee training:

RMB **1,142.67**

Total training hours for employees:

**306,070** hours

Average training hours per employee

2024 **35.65** hours

2023 **31.25** hours

Percentage of employees who have received vocational or skill-related training:

**100%**

We encourage employees to continue learning, constantly improving their personal qualities and professional skills. Since 2019, we have partnered with Chunhua Education to establish an academic education platform, setting different subsidy standards based on various educational levels to support employees in enhancing their academic qualifications and pursuing further education. During the reporting period, we provided a total of RMB 172,000 in academic education subsidies to 118 employees who were improving their educational qualifications while on the job. Additionally, we developed the provincial industry standard "Photovoltaic Module Manufacturing Worker L" and obtained the qualification for independent assessment of skilled talents. During the reporting period, we assisted 386 employees in obtaining vocational skill level certifications, guiding them to advance towards multi-process and multi-skill directions.



## Career Development

We have smoothed the career development channels for employees, providing all staff with dual-path career development routes in management and professional fields, formulating the Job Qualification Management and the Cadre Management System, establishing and continuously improving the promotion system and mechanisms to ensure that the employee promotion process is transparent, fair, and reasonable. To stimulate the vitality of internal talent development, we respect the diverse development needs of employees, encourage multi-dimensional development, and allow employees to apply for sequence changes according to their personal development plans, moving to positions that better suit them. For management position employees and management trainees, we have formulated the Management of Job Rotation Management to help them fully understand business operations and continuously strengthen the construction of a talent team with a holistic perspective.

Management channel		Professional channel		
Management series	Professional series	Marketing series	Marketing series	Skills and operation series
General Manager				Expert level
Director				Senior level
Manager				Premium
Executive				Intermediate
/				Primary
/				Assistant level

To ensure that employees' work performance receives objective and fair feedback, we have established the Performance Management system, creating a performance appraisal mechanism that covers all employees, adhering to the principles of "fairness, justice, and openness", and regularly evaluating individual capabilities and workplace performance. During the appraisal process, we communicate with employees' multiple times and develop targeted personal development plans based on the appraisal results, assisting employees in planning their careers and achieving their professional goals. During the reporting period, the coverage rate of company performance appraisals and career development regular assessments for employees was **100%**.

## Occupational Health and Safety

We always prioritize the health and safety of our employees, continuously improving the occupational health and safety management system, firmly establishing the concept of safe development, and creating a safe, healthy, and clean production and working environment for employees.

### Occupational Health and Safety Targets



2024 Target



Progress in 2024

Accident rate of minor injuries per thousand persons

≤ **1.8‰**

Conduct **4** EHS cultural events annually

Accident rate of minor injuries per thousand persons

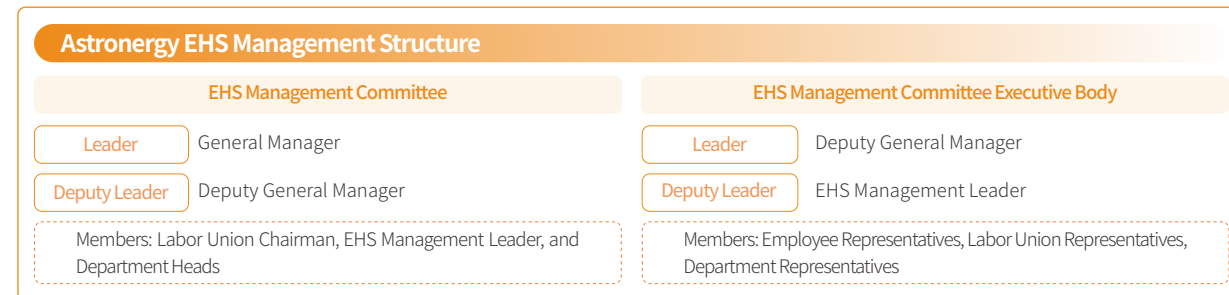
**0.70‰**, far below the 2024 target value

Conduct **5** EHS cultural events in total



## Management System

We establish the EHS policy of "Safety and Health, Environmental Protection and Conservation, Continual Improvement, and Dutiful Fulfillment of Responsibilities", creating an occupational health and safety management system that covers all employees and complies with ISO 45001 standards. Astronergy has set up an EHS Management Committee and its executive body, and established a comprehensive safety management network to oversee the health and safety assurance work of Astronergy and our various production bases.



Astronergy adheres to relevant laws and regulations such as the People's Republic of China Work Safety Law and the People's Republic of China Occupational Disease Prevention Law, and has formulated policies and institutional norms including the EHS Management Manual, EHS Management Committee Procedure, EHS Accident Investigation Management Procedure, and Occupational Health Management Procedure to provide a strong institutional guarantee for Astronergy's occupational health and safety management. To ensure the implementation of health and safety management at all levels, we annually set and publish EHS targets and safety production responsibility systems, and all production bases have achieved their goals during the reporting period. As of the end of the reporting period, the coverage rate of Astronergy's occupational health and safety management system for employees reached **100%**, and the coverage rate of ISO 45001 occupational health and safety management system certification of main operating premises reached **100%**.

## Production Safety

We normalize safety risk control work, formulate the Hazard Identification and Risk Control Management Procedure, and conduct hazard identification, updating, assessment, grading response, and management at least once a year to reduce safety production risks. When there are significant changes in Astronergy's operational activities or relevant laws and regulations, we will also re-identify and update the hazard list. We ensure smooth internal channels for reporting safety hazards, carry out the Safety Whistleblower campaign, encourage employees to promptly report safety production hazards discovered during work, and motivate employees to strive to be the owners of safety production.

We continuously improve our risk prevention and hidden danger investigation mechanisms to promote the transformation of safety management towards proactive prevention, thereby reducing the occurrence of accidents. To enhance our emergency response capabilities for safety incidents, we have developed and implemented multiple emergency plans, including the Special Emergency Plan for Occupational Disease Hazard and Accidents, providing standardized guidance for the response and resolution of health and safety incidents. We have established an emergency command structure, equipped with on-site first aid supplies and equipment, striving for efficient response in the event of urgent occupational health and safety incidents. After an incident, we will, in accordance with the EHS Accident Investigation Management Procedure, form an accident investigation team to ascertain the incident's process and causes, take preventive measures to prevent recurrence, and supervise the implementation of corrective actions to achieve closed-loop management.

## Occupational Health Protection

We prioritize the occupational health of our employees, implementing various occupational health protection measures for positions with occupational health and safety risks, continuously strengthening employees' safety production protection capabilities to ensure their health and safety.

### Core Measures for Occupational Health Protection

#### Provide protective equipment

Distribute appropriate personal protective equipment (PPE) to employees based on job-specific risks, in line with local occupational health and safety requirements

#### Ensure equipment safety

Install safety detection systems, ventilation systems, and other safety devices at workstations with occupational health risks; regularly inspect and maintain equipment to reduce safety hazard risks; instruct and require employees to use safety equipment and conduct production work according to operational specifications

#### Organize health check-ups

Conduct pre-employment, during employment, and pre-departure occupational health check-ups for positions with occupational hazards

#### Prevent repetitive strain injuries

Conduct training to prevent repetitive strain injuries, avoiding occupational injuries caused by such strains

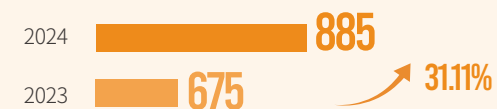
#### Focus on physical and mental health

Conduct training to prevent repetitive strain injuries, avoiding occupational injuries caused by such strains

We actively foster a safety culture, formulate the EHS Training Management Procedure, establish and continuously improve the EHS training system. During the reporting period, we conducted multiple EHS specialized training sessions, including prevention of repetitive strain injuries, safety management of warning signs, safety of chemicals that are easily used to produce drugs and explosives, and summer high-temperature safety. These efforts enable employees to master the necessary EHS knowledge and practical skills for their positions, enhancing their safety awareness. Additionally, to enhance employees' self-rescue capabilities and their ability to respond to emergencies, we developed an emergency drill plan. By simulating potential accidents such as fire and explosion, and hazardous chemical leaks that could occur during production, we organized relevant departments to participate in emergency drill activities.

#### EHS safety training

Number of Training sessions

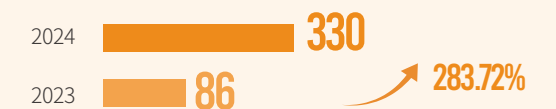


The cumulative number of participants



#### Emergency drill activities

Number of activity sessions



The cumulative number of participants



## Stakeholder Safety Management

As an important part of Astronergy's safety management, we also pay attention to the health and safety of key stakeholders such as contractors. During the reporting period, we optimized the Interested Party EHS Management Procedure and the Construction Contractor Management System, further raising the EHS management standards for our partners. We require contractors or construction units to commit to complying with Astronergy's various regulations and sign the Contractor EHS Agreement. All construction personnel must participate in Astronergy's EHS department training and pass assessments. Only with relevant licenses and corresponding safety operation skills can they start work, thereby preventing safety accidents.

## Community Construction & Charity and Public Welfare

Astronergy deeply integrate social responsibility into our corporate development strategy, fully leveraging our technical expertise and resource advantages in the photovoltaic field. By innovating public welfare models, we will build a community development support platform, dedicated to empowering global community development through sustainable practices.

### Astronergy's Targets in Sustainability Strategy



#### Medium to Long-term Targets (by 2035)

Support the construction of **100** ecological power station projects accumulatively, including desert PV, Agrivoltaics, tidal PV, and Aquaculture- PV complementary projects, etc. (taking 2022 as the base year)



#### Progress in 2024

Support a total of **30** ecological power station projects

On June 12, 2024, we officially launched the "Solar The Future" green energy community public welfare plan. We will support a series of public welfare projects including biodiversity, youth and children's education, and empowering women through donations from the sales of PV modules and public welfare donations from a series of green activities such as the Astronergy World Tour. In addition to direct financial investment, we also hope to use the "Solar The Future" public welfare plan as a link, connecting internal employees, distributors, production supply chains, public welfare organizations, etc., to establish a co-creative and co-operative public welfare ecosystem.



### "Green and Low Carbon, Walking Hand in Hand with Children" public welfare activity

To convey the concept of low-carbon environmental protection to young students and plant the seeds of sustainability, Astronergy has built an eco-friendly public education center, actively exploring the innovative model of "PV+ public education", and is committed to providing global youth with public education and research content centered on "PV+climate transformation, dual carbon goals, and clean energy", promoting the joint construction of schools and enterprises, and achieving high-quality harmonious development. As an important part of building an eco-friendly public education center, we initiated the "Green and Low Carbon, Walking Hand in Hand with Children" public welfare activity. In 2024, a total of 7 activities were successively carried out in Haining, Hangzhou, Yancheng, Yiwu, Jiuquan and other places, targeting students in schools for public science education. As of the end of the reporting period, more than 3,000 students from eight schools have been covered. Through the method of combining education with entertainment and knowledge with action, we lead young people to understand the mysteries of solar energy and guide them to actively participate in the global energy transformation with practical actions, building a low-carbon community of shared future.



### Child Welfare Facility Care Programs

By the end of 2024, Astronergy, with a heart full of gratitude, adheres to the core concept of "giving back to society and spreading warmth". In collaboration with the Haining City Child Welfare Facility and in conjunction with volunteer teams from various streets and caring enterprises across the city, we jointly plan a New Year's Day public welfare activity to convey the joy and happiness of the festival to the children in the welfare institute. Astronergy has prepared a New Year's gift package for each child at the scene, including a photovoltaic toy car, and has carried out a series of fun activities aimed at stimulating children's curiosity and creativity, accompanying them to grow up healthily, leading the journey of exploration with the light of technology, and making learning and fun go hand in hand.





### Chongyang Festival Nursing Home Care Activity

Astronergy's Labor Union Committee regularly organizes employees to visit the Huangwan Elderly Service Center to carry out the "caring for the elderly and conveying warmth" volunteer service activities. In addition to delivering daily necessities and holiday gifts to the elderly, employees perform shows for them, chat with them, celebrate birthdays, cut hair, take photos, and make photo frames, expressing their care and blessings to the elderly through practical actions.



As a leader in the renewable energy industry, we aim to fully utilize our expertise, pay attention to the economic development needs of rural areas, leverage local resource advantages, and help rural revitalization through innovative photovoltaic technology solutions, empowering local development.

### Supporting the Grid Connection and Power Generation of the Weining Million Kilowatt New Energy Base

Weining is located in the northwest of Guizhou, boasting excellent solar and wind energy resources. However, as the largest county in Guizhou Province in terms of area, the highest in altitude, and the most populous multi-ethnic region, as well as a key county for national rural revitalization support, there is an urgent need to accelerate development. To help Weining improve its energy structure and alleviate the contradiction between power supply and demand, Astronergy supplied 504MW ASTRO series high-efficiency PV modules to the local million-kilowatt new energy base and assisted in integrating PV modules with agricultural facilities and planting. After the full capacity of the project is put into operation, the average annual power generation is about 550 million kWh, equivalent to an annual average saving of about 160,000 tons of standard coal and a reduction of about 500,000 tons of carbon dioxide emissions. This not only helps the green energy development of the Weining region but also contributes to sustainable economic growth and the advancement of the rural revitalization strategy.

### Public Welfare Assistance for the Disabled

To celebrate the 33rd International Day of Persons with Disabilities, further create a strong atmosphere of care and support for the disabled in the whole society, and reflect the social responsibility of the enterprise, on December 3, 2024, Astronergy's Yancheng Base actively responded to the call of Dafeng District Disabled Persons' Federation, participated in the charity purchase and voluntary buying activity to enhance the confidence of disabled literary and art workers in integrating into society and convey social care and warmth.



### Supporting the grid-connected operation of the Hanjiang Xinghua Bay 100MW Fishery PV Complementary Project

As a region with relatively developed modern fisheries, Xinghua Bay in Hanjiang District, Putian, Fujian, seeks to achieve a win-win situation in economic, social, and ecological benefits while ensuring efficient fish farming. To maximize the comprehensive utilization of natural resources such as sunlight and water bodies, Astronergy supplied ASTRO N5 series modules to the Hanjiang Xinghua Bay 100MW Fishery PV Complementary Power Station project, achieving "fish farming underwater and power generation on the water surface". The project is committed to creating an integrated fishery PV complementary demonstration project that includes photovoltaic power generation, modern efficient fish farming, and eco-tourism, effectively promoting the integration of rural revitalization and low-carbon development.







# Superior Innovation

Astronergy continues to achieve outstanding development through technological innovation and quality management. We consistently increase R&D investment, optimize quality control processes, enhance customer service capabilities, practice sustainable procurement, and promote global energy transformation through responsible and competitive photovoltaic products and services, creating greater environmental and social benefits. Astronergy continues to achieve outstanding development through technological innovation and quality management. We consistently increase R&D investment, optimize quality control processes, enhance customer service capabilities, practice sustainable procurement, and promote global energy transformation through responsible and competitive photovoltaic products and services, creating greater environmental and social benefits.

## Key ESG Topics

- Sci-tech Innovation
- Opportunities in Clean Tech
- Product Quality and Safety
- Customer Relationship Management
- Sustainable Supply Chain





# Sci-tech Innovation

Astronergy adheres to the philosophy of "one-generation mass production, one-generation reserve, and one-generation research and development", continuously improving the technological innovation mechanism, strengthening talent introduction and cultivation, increasing investment in scientific research and innovation, and constantly driving product iteration acceleration and technological advantage construction.

## Research and Development Innovation

Astronergy has formulated research and development management systems such as the Design, Development, and Introduction Management of New Green Building Photovoltaic Module Products and the Technical Management Specifications for Module R&D After-Sales Service, continuously optimizing the management functions and responsibility matrix of the R&D, dividing the research and development innovation management into seven modules: cell research and development, module research and development, cutting-edge technology, technological strategy, product engineering, scientific and technological planning, and intellectual property, clarifying the responsibilities of each module, and standardizing the product research and development management process.

We continuously optimize and innovate configurations, creating a specialized single-point technological innovation advantage in key links of the industrial chain, cultivating high-level innovative talents, focusing on key technical challenges and forward-looking technology research in the industry, constantly enhancing the core competitiveness and industry influence of the enterprise. Astronergy's research institute, laboratory, technology innovation center, manufacturing innovation center, and industrial innovation center, among other innovation platforms, collaborate in synergy, actively engaging in scientific and technological cooperation and exchanges with international and domestic universities and research institutions such as Shanghai Jiao Tong University, Zhejiang University, Zhejiang University of Technology, Hangzhou Dianzi University, University of New South Wales, and Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, exploring the integration model of "industry-academia-research", and promoting enterprise R&D innovation and talent cultivation. During the reporting period, Astronergy was approved to establish a postdoctoral workstation, gathering a total of 454 R&D and technical personnel, including 1 national-level talent, 1 provincial-level talent, and 9 senior engineers, with 68.7% of the personnel holding a bachelor's degree or above.

### Technology and R&D Training

In 2024, Astronergy launched 24 technology and R&D training courses for engineers in the technical research institute. The course types include management, skills, and knowledge, covering various contents, such as R&D process management, module technology routes, and product technology. A total of 1,248 employees participated in the training, which effectively stimulated team creativity and promoted the transformation of innovative achievements.



Astronergy is committed to becoming the world's most competitive supplier of PV modules, focusing on the research, development, production, and sales of high-efficiency crystalline silicon solar cells and modules. We have positioned TOPCon cells as our main mass production technology and R&D strategic direction, while also developing and reserving xBC and xBC-Pro products, and conducting long-term research and development reserves of perovskite/Si tandem technology. Astronergy fully ensures the investment in R&D resources and facilities, establishing a cell technology center, a module technology center, and a photovoltaic testing center, providing researchers with a high-quality working environment and advanced experimental facilities. During the reporting period, Astronergy cumulatively initiated 50 R&D projects, driving the conversion rate of R&D achievements to 89%.

### Key Products

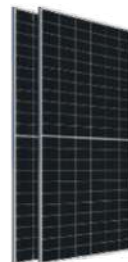
#### ASTRO N8 portfolio

The ASTRO N8 720W Ultra-High Power PV Module employs Astronergy's self-developed n-type TOPCon 4.0 cell technology and 210mm large-size silicon wafer, combined with SMBB technology. With light redirecting film and dual-layer coated glass, further enhancing power generation. Low Voc design significantly reduce BOS cost and LCOE.



#### ASTRO N7 portfolio

The ASTRO N7 630W Ultra-High Power PV Module adopts Astronergy's self-developed latest n-type TOPCon 4.0 cell technology and rectangular silicon wafer, combined with SMBB/ZBB technology. Coupled with light redirecting film and dual-layer coated glass, the product series achieves high power, high efficiency, high reliability, high per-watt energy generation, and low BOS and LCOE cost, with the performance at the internationally advanced level.



#### ASTRO N7s portfolio

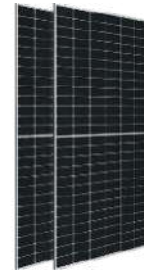
ASTRO N7s 515W/465W/460W High Power Modules adopt Astronergy's newly upgraded TOPCon 4.0 cell technology, utilizing rectangular silicon wafer and innovative ZBB technology, the power of the 48-cell all-black module achieves 460W, and the efficiency exceeds 23.0%. Due to no busbar, no harpoon-like finger, no PAD point in the module front, combined with the black interconnect ribbon and black frame, the aesthetic value is enhanced obviously. Meanwhile, with the module structure design of single dimension <2 m<sup>2</sup> and weight <23 kg, it is easy for a single person to install and handle. It is suitable for the application of household buildings, with the unique advantage of lightweight, efficient, high-quality and aesthetic.





### ASTRO N5 portfolio

ASTRO N5 650W/605W/600W Ultra-High Power PV Modules employ Astronergy's self-developed latest n-type TOPCon 4.0 cell technology and M10 large-size silicon wafer, combined with SMBB technology. With high-density encapsulation, non-destructive cutting, and other advanced technologies, the product has excellent power generation performance and reliability to meet customers' various-scenario application requirement.



### BIPV portfolio

In the area of PV and construction integration, Astronergy actively engages in technological innovation and product development, and has successively launched BIPV 2.0, BIPV 3.0, and other BIPV series products, which perfectly blend PV power generation with buildings. While expanding the application scenarios of PV power generation, Astronergy actively transforms buildings from traditional high-energy-consuming types to green and low-carbon nature, and offer the technical path to carbon neutrality construction.



## Key R&D Projects

### TOPCon 4.0 technology

Through systematic integration of core technologies such as Laser-Induced Sintering (LIF) technology, high-resistance dense grid structure, surface passivation optimization, and narrow-line printing, Astronergy have officially entered TOPCon 4.0 technology mass production era. In 2024, the mass production average efficiency of TOPCon cell exceeded 26.4%, Meanwhile, the efficiency increased by 0.8% in the R&D line, where the small batch trial production efficiency exceeded 26.97%, and the highest efficiency reached 27.17%.

### TOPCon 4.0 post-laser LIF technology development

The post-laser LIF project adopts advanced laser-enhanced contact technology to achieve fine control of the internal microstructure of the cells, significantly improving the electrical performance. Astronergy's cell R&D team, in collaboration with module R&D, quality department, and other departments, completed the entire process from technical research to mass production, achieving the cell mass production efficiency increased by 0.35% in Haining, Yiwu, Fengyang, etc., leading PV industry to break through the efficiency barrier of 26%, which established the technical advantage in the area of TOPCon cells.

### n-type micro-rectangular cell module technology development

We have developed N-type TOPCon micro-rectangular cells, with an ultra-thin tunneling oxide layer and doped polysilicon in the cell back, significantly reducing recombination in the metal contact area and ensuring good contact performance. We applied half-cell 16-busbar technology combined with solder wire shaping technology and internal light reflection technology to enhance module reliability, reduce series resistance loss, bringing great improvement of cell efficiency.

### Perovskite cells

Astronergy newly built a perovskite pilot line, introducing 17 key pieces of equipment including slot coating equipment and laser scribing equipment, which will mainly be used for experiments such as the preparation of perovskite layers, hole transport layers, and electron transport layers, preparation of perovskite modules, preparation of transparent conductive layers, and performance testing, effectively supporting the R&D of perovskite cell technology.

## Innovative Application Scenarios

### High-strength weather-resistant modules suitable for marine environments

Astronergy actively develops marine photovoltaic module products, leads and publishes the group standard Technical Specifications for Marine Photovoltaic Module Testing, which guides the material assessment and selection such as glass, frame, and junction box for marine photovoltaic module, and has developed low-cost marine PV module with high economic benefits and competitiveness. According to different application scenarios, Astronergy has formulated environmental adaptation strategies, and supplied the marine PV module of over 1.3 GW during the reported period.

### High-efficiency and high-aesthetic household modules

Based on the higher aesthetic requirements in household PV scenario, Astronergy has launched high-efficiency and high-aesthetic household module development projects, including black aesthetic cell design, aesthetic glass development, high-reflective black backsheet development, household frame structure development, and U-shaped packaging development, to reduce product color difference and enhance product appearance performance. During the reported period, the total shipment volume of household modules reached 796 MW.

### Smart shutdown module products

To avoid the DC high-voltage risk when repairing PV systems faults, as well as responding the requirements of installing module-level rapid shutdown devices in PV power stations in many countries, Astronergy has carried out projects such as integrated shutdown junction box development, test tooling development, and switch life assessment scheme development, and has launched the Astronergy RSD module-level rapid shutdown product, which has obtained the world's first smart module certification from TÜV Rheinland based on the excellent safety and reliability.



## Scientific Research Honors



**Cultivation Enterprise for Single Champion in Manufacturing**

Zhejiang Provincial Department of Industry and Information Technology

**High-efficiency n-type ZBB Low-stress Interconnected Photovoltaic Module System Equipment Recognized as "First Set of Complete Equipment in the Province"**

Zhejiang Provincial Department of Industry and Information Technology

**Zhejiang Province High-tech Enterprise "High-growth Top 100"**

Zhejiang Industry High-Tech Enterprise Association

**Sixth PV Golden Leopard Award "Technological Excellence Award"**

PV Golden Leopard Award Organizing Committee

**ASTRO N7 Series Products Levelized Cost of Electricity (LCOE) Certification**

TÜV NORD

**Jiaxing City National High-tech Enterprise "Innovation Capability Top 100"**

Jiaxing Municipal High-Tech Enterprises Association

**Sixth PV Golden Leopard Award "Golden Module Award"**

PV Golden Leopard Award Organizing Committee

## Intellectual Property Management

Astronergy adheres to innovation leadership, with the theme of "High-Quality Development of Intellectual Property", carrying out intellectual property management and protection, establishing a comprehensive intellectual property management system, and maximizing innovation benefits. We are dedicated to mastering core independent intellectual property rights, gradually integrating intellectual property management into all aspects of business operations, and promoting the adjustment of Astronergy's industrial structure and strategic upgrading.

Astronergy has formulated management systems such as the Intellectual Property Management Manual, Confidentiality Management, Patent and Copyright Management, and Technological Paper Management, established an Intellectual Property Department and professional teams, and cooperates with Chint Group's Intellectual Property Department to carry out intellectual property management work. The Intellectual Property Department is responsible for steadily carrying out intellectual property patent mining and control for various technologies of Astronergy, and implementing full-chain intellectual property management to steadily improve Astronergy's intellectual property management level. Astronergy has completed patent layouts for TOPCon cells, xBC cells, stacked cells, and ZBB modules, ensuring that patents precede product sales, and all core technologies of the products are supported by intellectual property rights. During the reporting period, Astronergy successfully passed the annual audit of the intellectual property management system conducted by a third-party external organization.

## Performance in Intellectual Property Management

Total patents obtained during the year	137 pcs	Invention patents obtained during the year	26 pcs	Utility model patents obtained during the year	106 pcs	Design patents obtained during the year	5 pcs
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## Standard Development

Astronergy actively participates in the formulation and revision of various international, national, industry, and group standards, committed to improving the stability and efficiency of photovoltaic products and materials. During the reporting period, Astronergy has cumulatively led or participated in the formulation of 3 international industrial technical standards, 13 national standards, 14 industry standards, and 81 group standards. Among them, the national standard Physical Method for Recycling and Treatment of Crystalline Silicon Photovoltaic Modules, the industry standard Photovoltaic Direct-driven Air-source Heat Pump Units, and the group standard Technical Specifications for Environmental Pollution Prevention and Control in the Recycling and Utilization of Waste Photovoltaic Modules have been officially released.

During the reporting period, Astronergy's participation in standard development		
Standard Type	Published	In preparation
International standards	2	1
National standards	3	10
Industry standards	3	11
Group standards	40	41

## Industry Cooperation

Astronergy deeply understands the value of open collaboration. While joining multiple industry associations, we actively carry out industry collaboration projects, participates in industry technology exchanges, works hand in hand with industry partners to overcome technical challenges, constructs an open and collaborative industry cooperation atmosphere, and promotes the PV industry towards a greener and more efficient future.

List of industry associations	
Association Name	Membership Tier
United Nations Global Compact (UNGC)	Participants
SolarPower Europe (SPE)	Premium
Solar Stewardship Initiative (SSI)	Manufacturer Member



Association Name	Membership Tier
Spanish Photovoltaic Association (UNEF)	Member
Italia Solare	Business Member
Solar Energy Industries Association (SEIA)	Kilowatt Member
Asociacion Colombiana de Energia Solar (ACOSOL)	Member
Brazilian PV Solar Energy Association (ABSOLAR)	Member
Middle East PV Industry Association (MESIA)	Partner Member
Africa Solar Industry Association (AFSIA)	Partner Member
South African Photovoltaic Industry Association (SAPVIA)	Premium
The Union of the Electricity Industry (Eurelectric)	Business Associate Membership
Malaysia Photovoltaic Industry Association (MPiA)	Honorary Membership
Dii Desert Energy	Honorary Membership(Associated Partners)
German Solar Association	Member
Irish Solar Energy Association	Premium Member
Bangladesh Solar and Renewable Energy Association	General Membership
Japan Photovoltaic Energy Association	Member
Hungarian Photovoltaic Association	VIP member
Polish Photovoltaic Association	Extended General Supporting Member
Dubai Photovoltaic Association	Member
Australian Photovoltaic Association	Gold Member
SEMI SCC & ECOPV Cooperation Alliance	Core Member
Jiangsu Province Renewable Energy Industry Association	Governing Unit
China Resources Recycling Association	Governing Unit
Jiangsu Photovoltaic Industry Association	Member
Hebei Photovoltaic New Energy Industry Association	Member
Jiaxing Photovoltaic Industry Association	Executive Vice Chairman Unit
Guangdong Solar Energy Association	Member
China Photovoltaic Industry Association (CPIA)	Member
PV Committee of China Green Supply Chain Alliance	Deputy Director
PV Committee of China Green Supply Chain Alliance Recycle Industry Development Center	Deputy Chairman

Key Cooperation Project in 2024		
Project	Partner	Cooperation platform
Development and application verification of high-speed, high-contrast perspective imaging sensitive elements and sensors	iRay Group	National Key Research and Development Plan
Key technologies and equipment for green recycling and resource utilization of decommissioned crystalline silicon photovoltaic modules	ZJMI Environmental Energy Co., Ltd.	Zhejiang Provincial Science and Technology Department "Sharp Soldier Leading Goose + X" Science and Technology Plan
Research on ultra-lightweight photovoltaic module integration technology and its application in facility agriculture	Zhejiang Bofay Electric Co., Ltd., Zhejiang Sancti Titanium Technology Co., Ltd., Haining Municipal Product Quality Inspection and Testing Institute	Haining Municipal Collaborative Innovation Project
Development and industrialization of x-ray equipment technology for photovoltaic module detection	iRay Group	Haining Municipal Collaborative Innovation Project

The 7th global perovskite and tandem cell (yangtze river delta) industrialization forum

In December 2024, the 7th Global Perovskite and Tandem cell (Yangtze River Delta) Industrialization Forum, guided by the China International Science and Technology Promotion Association Perovskite Industry Branch and hosted by the Photovoltaic Leader Innovation Forum, was successfully held in Yangzhou, Jiangsu Province. As a pioneer in industry technological innovation, Astronergy was invited to attend and was honored with the "Top 10 Leading Enterprise Award in the Perovskite Industry" for its outstanding R&D strength and industry influence in the field of perovskite crystalline silicon tandem.



During the forum, Astronergy's Director of Advanced Technology Research was invited to give a special report on Key Issues and Research Progress in Efficiency Improvement of Perovskite/TOPCon Tandem Cells, sharing the revolutionary breakthrough role of perovskite tandem technology in overcoming traditional photovoltaic efficiency bottlenecks, setting a new benchmark for cost reduction and efficiency enhancement in the photovoltaic industry. Astronergy has laid out multiple perovskite/crystalline silicon tandem technology routes. As of the end of the reporting period, Astronergy's perovskite/HJT tandem device efficiency has exceeded 33%, and the perovskite/TOPCon tandem device efficiency has exceeded 31%, continuously refreshing industry efficiency records and establishing our position as a global leader in technological innovation.

### ASTRO N7 5A debuts at the RE+ International Solar Photovoltaic Exhibition in the United States

In September 2024, the 2024 RE+ International Solar Photovoltaic Exhibition was grandly held at the Anaheim Convention Center in California, USA. Astronergy participated with ASTRO N series photovoltaic module solutions. The ASTRO N7 5A module, upgraded to meet the needs of regions severely affected by hailstorms globally, achieved comprehensive enhancements in anti-hail, static load, fire resistance, and wind load performance, effectively addressing extreme weather conditions while creating greater value for customers, attracting the attention of numerous overseas participants and industry insiders.



## Product Quality and Safety

Astronergy regards quality management as the lifeline for the survival and development of the enterprise, fully integrating product quality management into our strategic development plan, continuously building and strengthening quality culture, to ensure stable and excellent product quality.

### Astronergy's Quality Management Targets



#### Targets



#### Progress in 2024

**100%** product supervision and sampling inspection pass rate



**100%**

**100%** pass rate in external audits



**100%**

**0** major quality and safety incidents



**0**

## Quality Management System

We have formulated quality management systems such as the Quality Manual, QCC Activity Management, Module Manufacturing Process Quality Management, and Non-conforming Product Management. Through the Quality Management Department, we carry out full lifecycle modular management of product quality, set quality management performance targets and track their achievement, strictly ensuring product quality. As of the end of the reporting period, Astronergy's headquarters and all production bases have passed the audit by third-party external institutions and obtained ISO 9001 quality management system certification. Astronergy's ASTRO N Series 2000V high-voltage modules have obtained the world's first 2000V high-voltage module products certification issued by TÜV Rheinland. This milestone signifies that our several series of products possess efficient and reliable performance and have received high-level international recognition for the R&D and manufacturing technology.

### Quality Management Sectors

#### Quality process management

Responsible for the formulation of quality process management rules, test planning, monitoring, risk identification, quality loss analysis, intelligent detection construction, quality evaluation, OEM quality management, special project work, and accident rectification, etc.

#### Quality assurance

Responsible for sales support, identification and communication of quality requirements, risk control, customer complaint handling, project delivery services, new product testing and certification, and market entry requirement analysis.

#### Quality System management

Responsible for centralized management of the quality management system, coordinating customer audits, managing quality assessments, promoting quality culture and enhancing overall quality awareness among all employees, as well as consolidating quality indicator information.

#### Quality Inspection management

Responsible for ensuring the effective operation of the laboratory management system, laboratory capability verification and expansion, establishment and operation of the measurement management system, and quality benchmark setting and comparison.

#### Quality planning

Responsible for leading quality planning and review, following up on the quality level of new products and change projects, coordinating change management systems, establishing a lifecycle management system for raw material suppliers, and conducting quality improvement work based on supplier performance.

#### Traceability management

Responsible for formulating traceability systems and processes, managing and maintaining traceability chains, training and guiding traceability knowledge and skills, assessing and responding to traceability-related risks, continuous improvement and optimization, and identifying traceability needs and customer audits.



Astronergy establishes a lifecycle quality risk prevention mechanism for products, sorts out and optimizes existing business processes, and carries out quality risk prevention and control from four aspects: new product quality, supplier quality, process quality, and delivery quality, following the Plan-Do-Check-Act (PDCA) cycle. We regularly conduct internal audit management and system maturity evaluation to identify business improvement points and optimize them to achieve a closed-loop quality management. Meanwhile, we continuously enhance the digitalization level of quality management, build a quality management system to fully digitize quality management processes, achieve AI inspection equipment data collection and online monitoring through intelligent inspection, and use the GCQS after-sales service platform to improve after-sales service quality, realizing online management and control of the entire quality process.

We have established a multi-dimensional internal and external quality audit mechanism based on the quality management system. During the reporting period, Astronergy conducted and passed 25 third-party audits of the ISO 9001 and IEC 62941 quality management systems covering the headquarters and all production bases, 71 quality management-related customer audits involving pre-production audits, annual audits, supplier onboarding audits, etc., and 1 centralized internal audit of the quality management system.



The World's First 2000V High-Voltage Module Product Certificate issued by TÜV Rheinland

## Quality Culture

We emphasize the dissemination of quality culture, conducting a series of quality-related training courses to strengthen employees' awareness of our quality requirements, and organizing annual quality awareness training for all new employees to continuously enhance the overall quality awareness and quality control skills of all employees. During the reporting period, Astronergy conducted 40 quality training courses covering quality skills, basic quality, five major tools, and system knowledge, involving 6,680 participants from quality inspection departments at various bases and company functional departments, with a comprehensive course satisfaction rating of 4.96 (out of 5).

## Customer Relationship Management

Astronergy always prioritizes customer needs, continuously optimizing the customer service management mechanism, improving the customer service system, and enhancing the quality of customer service.

## Customer Service Management

Astronergy has established management systems such as the After-Sales Service Management Specifications and the Module Customer Complaints and Feedback Management Specifications, clearly defining the division of responsibilities and handling mechanisms in the customer complaint acceptance and processing process. We ensure timely and effective response to and handling of customer complaints and feedback, and promote continuous improvement in customer service management to meet customer needs. We have established a global after-sales service platform, through which customers can submit product feedback or complaints via the official website's quality, safety, and health contact number, after-sales service email, or mini-program. Astronergy will respond within 24 hours and handle it according to the system specifications, ensuring that customer requests receive accurate responses. During the reporting period, Astronergy achieved a **100%** response rate to customer feedback, with all contacted customers receiving tailored solutions, and ensured **100%** closed-loop resolution of all feedback cases through standardized protocols.

### Customer Service Management

#### After-sales service engineer training

Conduct customer service trainings for after-sales service engineers every quarter based on job requirements, covering customer service skills and quality management knowledge to comprehensively enhance the customer service capabilities of after-sales personnel.

#### After-sales service system

Developed and launched the GCQS after-sales service system, through which customers can check the progress of their feedback and complaints after submitting via the official website contact address or mini-program.

## Product Recall

Astronergy strictly adheres to relevant domestic and international regulations, standardizing the recall of products to ensure that customer interests are not harmed due to product quality issues. Astronergy has formulated the Management Specifications for Customer Complaints and Feedback on Modules and the Global Module Manufacturing Product Recall Management Specifications, establishing corresponding measures for customer feedback, defining the process, responsibility allocation, information dissemination, and disposal mechanism for product recalls, and building a sound emergency mechanism for potential product defects or safety incidents. During the reporting period, Astronergy did not experience any product recall incidents due to quality and safety reasons.

### Installation guidance

Compiled the Astronergy Photovoltaic Module Installation Manual, providing detailed instructions and important safety precautions for the installation, electrical connection, and maintenance of our crystalline silicon photovoltaic modules, enhancing product usage safety.

We deeply understand the importance of customer opinions and suggestions to Astronergy's operations and always pay attention to communication with customers, regularly conducting customer satisfaction surveys to collect feedback.

## Result of 2024 Customer Satisfaction Survey



### Survey Result

Customer satisfaction score of **97+** points, showing an upward trend for four consecutive years

## Responsible Marketing

Astronergy strictly complies with the Advertising Law of People's Republic of China, the Law of the People's Republic of China on the Protection of Consumers' Rights and Interests, and responsible marketing-related laws and regulations in each operating location, prohibiting all types of false advertising and illegal marketing practices, and maintaining an honest and responsible marketing environment. During the reporting period, Astronergy did not experience any violations related to product and service information and labeling, nor any violations related to marketing communications, with a **100%** coverage rate for product information and labeling.



# Sustainable Supply Chain

Astronergy actively collaborates with supply chain partners to fulfill social responsibilities, enhances the social responsibility performance of the industrial chain, integrates sustainability principles into corporate procurement decisions, and promotes the sustainable development of business and the supply chain.

### Astronergy's Targets in Sustainability Strategy



#### Short-term Targets (by 2028)



#### Progress in 2024

**100%** core suppliers accept due diligence audit and assessment in social and environmental standards



**100%** core suppliers accept due diligence audit and assessment in social and environmental standards

**100%** non-involvement in conflict minerals procurement and use



**100%** non-involvement in conflict minerals procurement and use



#### Medium and long-term Targets (by 2035)



#### Progress in 2024

**100%** core suppliers obtained ISO 45001 certification



**100%** core suppliers obtained ISO 45001 certification

**100%** core suppliers obtained ISO 14001 certification



**100%** core suppliers obtained ISO 14001 certification

## Supplier Management

Astronergy has formulated management systems such as Supplier Management and Supplier Management Methods, establishing a comprehensive supplier management system that covers core management aspects including supplier qualification, evaluation, ongoing management, and exit strategies. This standardizes the lifecycle management of suppliers, continuously enhancing the level of supply chain management.

### Lifecycle Management of Suppliers

#### Qualification management

Develop the Supplier Entry Management system, specifying the supplier access process, including supplier registration and qualification review, sample testing, on-site audit, certification, trial production, and approval of qualified suppliers, standardizing the access criteria from potential, trial to qualified status, achieving full-process management of supplier access.



### ☛ Tiered management

Develop the Supplier Tiered Management system, specifying the supplier tiered management process, based on the importance of categories, formulating cooperation and management strategies for different types of suppliers, improving the efficiency of supplier management, and achieving differentiated graded management of suppliers.

### ☛ Performance evaluation

Develop the Supplier Performance Management system, standardizing the supplier performance assessment process, clarifying supplier performance assessment criteria, promoting continuous improvement of suppliers through periodic comprehensive assessment of supplier supply service levels.

### ☛ Exit Management

Establish the Supplier Exit Management, stipulate the supplier exit management process, and address issues related to supplier daily performance, performance results, and rectification status. Based on established rules, it triggers requests for freezing, unfreezing, and blacklisting suppliers, with management making decisions on whether to take action, thereby enhancing the overall performance of the supplier resource pool.

During the reporting period, Astronergy formulated the Supplier Audit Management system, conducting comprehensive evaluations of suppliers from dimensions such as business, technology, quality, and EHS through on-site audits, ensuring that the products and services provided by suppliers can continuously meet our requirements. During the reporting period, Astronergy conducted on-site audits for 177 suppliers, covering 100% of the main raw material suppliers.

Astronergy established the Supplier Risk Management system, identifying, assessing, controlling, and monitoring risks from dimensions including quality, technology, occupational health and safety, environmental compliance, financial status, contract signing, and ESG, reducing the impact of various risks on our operations and development, and ensuring stable and sustainable development. During the reporting period, the annual risk assessment achieved **100%** coverage of core suppliers, including 4 new suppliers; the assessment results showed that the number with high risk or extremely high-risk suppliers was 0.

Performance in Supplier Management	
Indicators	2024
Total number of main raw material suppliers	177
Percentage of target suppliers who have signed sustainable procurement charter/supplier code of conduct (%)	100

2.Astronergy's target suppliers are the main raw material suppliers.

## Sustainable Procurement

Astronergy has formulated the Chint Business Partner Code of Conduct and established sustainable procurement policies, as detailed on the official website under ESG Policy. By engaging in localized procurement, requiring suppliers to sign the Business Partner Integrity and Compliance Undertakings, conducting Corporate Social Responsibility (CSR) assessments, and environmental impact assessments, Astronergy integrates sustainable procurement management requirements into our operational management and the entire lifecycle management of suppliers.

### Sustainable Supply Chain Management Initiatives

#### Chint Business Partner Integrity and Compliance Code of Conduct

Suppliers must simultaneously sign the Chint Business Partner Code of Conduct and the Business Partner Integrity and Compliance Undertakings when signing framework contracts, comply with provisions related to integrity and compliance, business ethics, health and safety, labor and human rights, conflict minerals, and environmental protection, and commit to fulfilling social responsibilities. As of the end of the reporting period, **100%** of Astronergy's target suppliers have signed the Chint Business Partner Code of Conduct.

#### Supplier Qualification Review

According to the Supplier Entry Management regulations, we conduct qualification reviews of suppliers using the Supplier Entry Audit Score Sheet, including factors such as environmental protection, occupational health and safety, and social responsibility, covering **100%** of new suppliers.

#### Supplier ESG On-site Audit

According to the Supplier Audit Management regulations, regular on-site audits of key raw material suppliers are conducted, including environmental impact assessments and corporate social responsibility (CSR) assessments. As of the end of the reporting period, the percentage of key raw material suppliers that have undergone CSR assessments was **100%**, and the percentage of key raw material suppliers that have undergone environmental impact assessments was **100%**.

#### Sustainability Empowerment for Purchasers

Astronergy incorporates sustainable procurement indicators into the performance evaluation of purchasers and regularly conducts sustainable procurement training for purchasing personnel to help relevant personnel understand the concept and connotation of sustainable procurement and introduce the impact of sustainable procurement on the environment, society, and company operations. During the reporting period, the percentage of purchasers in all operating locations of Astronergy that have undergone sustainable procurement training was **100%**.

Performance in Sustainable Procurement	
Indicators	2024
Percentage of new suppliers screened using environmental and social evaluation dimensions (%)	100
Percentage of suppliers undergoing environmental compliance inspections (%)	100
Percentage of suppliers conducting environmental impact assessments (%)	100
Percentage of suppliers conducting social impact assessments (%)	100
Percentage of suppliers signing contracts including environmental, labor, and human rights requirements (%)	100
Percentage of suppliers committed to freedom of association and collective bargaining (%)	100
Percentage of target suppliers that have undergone CSR assessments (%)	100
Percentage of target suppliers that have undergone CSR on-site audits (%)	100
Number of suppliers obtaining national-level green factory qualifications	32

## Transparent Supply Chain

Astronergy attaches great importance to product traceability management, committed to building a scientific, efficient, and comprehensive traceability system to ensure product quality and safety, enhancing customer trust. Astronergy has formulated the Traceability Management procedure, covering key aspects such as the allocation of traceability management responsibilities, management content and methods, and the traceability process, ensuring that traceability work is well-documented, rigorous, and efficient.

The Quality Management Department, Supply Chain Management Department, and other departments plan, implement, and supervise traceability work to ensure the orderly advancement of traceability management. Meanwhile, Astronergy adopts advanced digital systems such as MES manufacturing execution system, SAP data processing system, and WMS warehouse management system to assist in product traceability audit work, significantly improving data validation efficiency and providing strong technical support for traceability management. The mechanism realizes Astronergy's ability to build a full-chain traceability capability from modules to Quartz. We establish long-term and stable cooperative relationships with high-quality suppliers that possess traceability capabilities and comply with traceability regulations, controlling the quality and traceability of raw materials from the source to provide a solid guarantee for product quality. Astronergy actively cooperates with authoritative certification bodies at home and abroad to ensure that the traceability system meets international standards and regulations and has become the first photovoltaic module supplier using domestically produced silicon materials in China to pass the full traceability review by the U.S. Customs and Border Protection (CBP).

## Conflict Minerals Management

Astronergy has formulated systems such as the Conflict Minerals Control Management Specification and has included relevant provisions on conflict minerals management in the Chint Business Partner Code of Conduct and the ESG Policy, committing not to purchase or use conflict minerals, and to comply with international conventions and industry initiatives such as the United Nations Global Compact(UNGC), the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, and the Responsible Minerals Initiative (RMI). Astronergy regularly conducts responsible mineral surveys to ensure non-involvement in controversial procurement.

### Conflict Minerals Management Mechanism



#### Identification

In the process of new product development, the specifications and related requirements of the required materials are communicated to the Supply Chain Management Department, which identifies and sorts out whether the materials involve potential conflict minerals risks.



#### Investigation

According to the Business Partner Due Diligence Questionnaire, new suppliers are investigated, covering the requirement of not using conflict minerals. Based on the attributes of raw materials, Astronergy lists PV ribbon suppliers as key monitor targets, requiring all PV ribbon suppliers to fill out the Conflict Minerals Report (CMRT Conflict Minerals Report Template) during the qualification period for investigation and sign the Non-Use of Conflict Minerals Commitment Letter and keep records of mineral sources, origins, and upstream supply chains.



#### Assessment

Based on the Conflict Minerals Report and Non-Use of Conflict Minerals Commitment Letter provided by suppliers, we determine whether the materials meet the requirement of not using conflict minerals.



#### Result Report

We regularly update the conflict minerals investigation report on the official website. New suppliers confirmed not to use conflict minerals through the survey are integrated into the normal onboarding process, while suppliers found to be involved in conflict minerals are immediately suspended from onboarding and collaboration. During the reporting period, responsible minerals due diligence was conducted for all PV ribbon suppliers, and 7 PV ribbon suppliers have filled out the Conflict Minerals Report, signed the Non-Use of Conflict Minerals Commitment Letter, and after strict review, it was confirmed that the PV ribbon provided to Astronergy did not involve the use of conflict minerals.

## Supplier Communication

Astronergy places emphasis on communication and collaboration with suppliers, establishing a mutually beneficial and win-win partnership. We have built diverse channels for supplier communication, exchange, and technical cooperation, continuously driving the industrial chain towards a future of higher standards and greater sustainability.

### 2024 Supplier Conference

In December 2024, Astronergy held our annual supplier conference with the theme of "Integration and Innovation, Collaborative Development". Together with our supply chain partners, Astronergy discussed paths for technological innovation, green low-carbon practices, and intelligent development. We shared our strategic roadmap, business growth points, and cooperation opportunities, embarking on a journey towards a higher stage of development with their supply chain partners.





# Appendix 1: Key Performance Indicators

Indicator	Unit	2024	2023	2022
<b>Corporate Governance</b>				
Total number of directors	person	9	9	5
Number of female directors	person	2	2	2
Proportion of female directors	%	22.22	22.22	40
Number of executive directors	person	3	3	-
Number of non-executive directors	person	6	3	-
Number of independent directors	person	3	3	-
Proportion of independent directors	%	33.33	33.33	-
Average attendance rate of annual board meetings	%	100	100	-
<b>Business Ethics</b>				
Number of reports generated by whistleblowing procedures	/	0	0	-
Number of confirmed corruption incidents	/	0	0	0
Percentage of employees trained on business ethics issues	%	100	100	100
Percentage of risky trading partners covered by corruption due diligence process	%	100	100	-
Percentage of all premises that have undergone internal assessment or review for specific business ethics issues	%	30	16.67	-
Percentage of premises certified with ISO 37001 Anti-bribery Management System	%	30	33.33	-
Number of confirmed conflicts of interest violations	/	0	-	-
Number of confirmed money laundering or insider trading violations	/	0	-	-
Percentage of employee performance evaluation system incorporating compliance/code of conduct	%	100	-	-
<b>Information Security and Privacy Protection</b>				
Number of confirmed information security and customer privacy breaches	/	0	0	0
Percentage of key raw material suppliers covered by information security due diligence process	%	100	100	-
Percentage of premises certified with ISO 27001 Information Security Management System	%	100	-	-

Indicator	Unit	2024	2023	2022
Total number of verified complaints related to customer privacy breaches (from external sources and confirmed by Astronergy + from regulatory bodies)	/	0	-	-
Total number of confirmed leaks, thefts, or losses of customer data	/	0	-	-
<b>Sci-tech Innovation</b>				
Total number of R&D/technical personnel	person	454	367	440
New authorized patents	/	137	49	287
Total patents obtained in the year	/	137	49	287
Invention patents obtained in the year	/	26	5	69
Utility model patents obtained in the year	/	106	37	214
Design patents obtained in the year	/	5	7	4
<b>Products and Services</b>				
Percentage of premises certified with ISO 9001 Quality Management System	%	100	100	-
Number of product lines recalled due to quality issues	/	0	-	-
Costs incurred due to product recalls	ten thousand RMB	0	-	-
Number of complaints related to major quality and safety risks	/	0	0	-
Major quality and safety incidents	/	0	0	-
Number of quality-specific improvement projects released	/	120	88	-
Product supervision and sampling inspection pass rate	%	100	100	-
Total number of module categories undergoing life cycle assessment	/	38	-	-
Percentage of products undergoing life cycle assessment	%	100	-	-
Total amount of raw materials <sup>3</sup> saved through design optimization	tons	6,789.19	1,770.21	-
Total amount of silver paste saved	tons	24.80	0.01	-
Total amount of flux saved	tons	80.39	0.20	-
Total amount of aluminum material saved	tons	2,122	600	-
Total amount of adhesive film saved	tons	4,435	1,170	-
Customer satisfaction rate	points	97.37	92.90	92.89
Number of incidents violating product and service information and labeling regulations or voluntary codes	/	0	-	-
Number of incidents violating marketing (advertising, marketing, sponsorship) regulations or voluntary codes	/	0	-	-

<sup>3</sup> Including silver paste, flux, aluminum materials, adhesive film, etc.

Indicator	Unit	2024	2023	2022
Environmental Management				
Percentage of employees who have received environmental-related training	%	100	100	-
Percentage of all operational premises that have undergone environmental risk assessment	%	100	66.67	-
Percentage of premises certified with ISO 14001 Environmental Management System	%	100	100	-
Percentage of premises certified with ISO 50001 Energy Management System	%	100	100	-
Number of zero-carbon factory certifications	/	1	1	-
Number of environmental-related violation incidents	/	0	0	0
Total fines due to environmental violations	RMB	0	0	0
Capital expenditures related to environmental management or protection	RMB	9,521,000.00	-	-
Operating expenditures related to environmental management or protection	RMB	46,760,786.74	-	-
Total expenditures related to environmental management or protection	RMB	56,281,786.74	-	-
Costs avoided and saved from total investment in environmental management or protection	RMB	164,864,000.00	-	-
GHG Emissions				
Total Scope 1 GHG emissions	tCO <sub>2</sub> e	9,478.07	7,537.55	46,673.38
Total Scope 2 GHG emissions	tCO <sub>2</sub> e	1,519,499.10	446,536.48	326,541.15
Total Scope 3 GHG emissions <sup>4</sup>	tCO <sub>2</sub> e	19,769,212.87	-	-
Total Scope 3 upstream GHG emissions	tCO <sub>2</sub> e	18,905,724.33	-	-
Total Scope 3 downstream GHG emissions	tCO <sub>2</sub> e	863,488.54	-	-
Scope 3-1: Purchased goods and services	tCO <sub>2</sub> e	18,658,101.51	-	-
Scope 3-2: Capital goods	tCO <sub>2</sub> e	6,646.59	-	-
Scope 3-3: Fuel and energy activities	tCO <sub>2</sub> e	53,589.97	-	-
Scope 3-4: Upstream transportation and distribution	tCO <sub>2</sub> e	168,590.87	-	-
Scope 3-5: Waste disposal	tCO <sub>2</sub> e	11,966.00	-	-
Scope 3-6: Business travel	tCO <sub>2</sub> e	2,316.42	-	-
Scope 3-7: Employee commuting	tCO <sub>2</sub> e	2,698.83	-	-
Scope 3-8: Upstream leased assets	tCO <sub>2</sub> e	1,814.15	-	-
Scope 3-9: Downstream transportation and distribution	tCO <sub>2</sub> e	345,509.52	-	-
Scope 3-12: End-of-life treatment of sold products	tCO <sub>2</sub> e	517,979.02	-	-

<sup>4</sup> The Company's greenhouse gas emissions cover Categories 1-9 and Category 12. Other categories are not involved in relevant emissions or have minimal emission volumes, and thus are not included in the accounting scope.

Indicator	Unit	2024	2023	2022
Ozone Depleting Substances (ODS) emissions	tCO <sub>2</sub> e	9.02	-	-
GHG emissions intensity per unit cell production (Scope 1 + Scope 2)	tCO <sub>2</sub> e /MW	34.92	36.08	33.47
GHG emissions intensity per unit module production (Scope 1 + Scope 2)	tCO <sub>2</sub> e /MW	6.47	8.65	10.09
Energy Management				
Total energy consumption	GJ	9,658,534.12	3,034,321.29	2,130,657.57
-Gasoline	liters	66,110.46	66,089.20	38,313.26
-Diesel	liters	421,920.26	128,857.33	299,251.05
-Natural gas	m <sup>3</sup>	1,050,162.95	936,691.80	298,939.00
-Electricity consumption	kWh	2,692,587,789.10	812,078,381.31	579,185,690.00
-Purchased electricity (non-renewable energy)	kWh	2,666,739,562.10	-	-
-Self-generated and self-used solar energy	kWh	25,848,227.00	-	-
Total renewable energy consumption	kWh	25,848,227.00	19,685,237.60	6,588,852.80
Percentage of renewable energy in total energy consumption	%	5	2.34	-
Electricity consumption savings	100 million kWh	1.22	0.16	-
Energy consumption intensity per unit cell production	tons of standard coal/ MW	6.91	7.61	6.65
Energy consumption intensity per unit module production	tons of standard coal/ MW	1.60	1.78	1.88
Annual standard coal savings	tons of standard coal	15,074.71	2,708.47	-
Water Resource Management				
Total water withdrawal	tons	16,293,994	6,847,488.64	1,852,559.00
-Municipal water supply	m <sup>3</sup>	13,225,738	-	-
-Rainwater collected and stored directly by Astronergy	m <sup>3</sup>	875	-	-
-Wastewater from other enterprises or organizations	m <sup>3</sup>	3,204,729	-	-
Total water discharge	tons	13,647,040.90	5,745,698.00	1,476,211.00
Total water consumption	tons	2,646,953.10	1,101,790.64	376,348.00
Comprehensive water consumption intensity	tons/MW	34.74	41.56	55.73
Year-on-year decrease ratio of water consumption intensity (taking 2022 as the base year)	%	37.67	25.43	-
Purchased reclaimed water	tons	3,190,445	-	-
Total amount of recycled and reused water	tons	176,759,562.70	-	-
Water resource recycling rate	%	91.56	-	-
Total ultra-pure water usage	tons	8,759,090.00	-	-



Indicator	Unit	2024	2023	2022
<b>Emission and Waste Management</b>				
Total waste generation	tons	74,846.98	36,813.96	13,745.87
Total hazardous waste generation	tons	670.25	143.43	81.90
Total hazardous waste disposal <sup>5</sup>	tons	669.79	-	-
-Hazardous waste disposal: Incineration (no energy recovery)	tons	454.30	-	-
-Hazardous waste disposal: Recycling	tons	215.49	-	-
Percentage decrease in chemicals usage	%	33	-	-
Total general waste generation	tons	74,176.73	36,670.53	13,663.97
Total non-hazardous waste disposal	tons	74,145.90	-	-
Non-hazardous waste disposal (sludge)	tons	43,516.65	-	-
Non-hazardous waste disposal (domestic waste)	tons	2,399.99	-	-
Non-hazardous waste disposal (kitchen waste)	tons	1,098.43	-	-
Non-hazardous waste disposal (crushed silicon chips)	tons	482.87	-	-
Non-hazardous waste disposal (wooden pallets, paper products, scrap iron, plastic, other scrap materials)	tons	26,647.96	-	-
Non-hazardous waste disposal: landfill	tons	0.00	-	-
Waste generation intensity	tons/MW	0.98	0.93	
Non-hazardous waste disposal: incineration (no energy recovery)	tons	2,766.55	-	-
-Non-hazardous waste disposal: recycling	tons	71,379.35	18,593.58	6,042.09
-Non-hazardous waste disposal: other disposal methods	tons	0	-	-
-Increase in non-hazardous waste recycling rate	%	45.53	14.65	16.09
Total waste recycled	tons	71,594.84	-	-
Non-hazardous waste recycling rate	%	96.23	50.70	44.22
<b>Supply Chain Management</b>				
Percentage of new suppliers screened using environmental and social evaluation dimensions	%	100	100	100
Total number of main raw material suppliers	/	177	-	-
Percentage of suppliers undergoing environmental compliance inspections	%	100	-	-
Number of suppliers conducting environmental impact assessments	/	177	-	-
-Number of suppliers identified as having significant actual and potential negative environmental impacts	/	0	-	-

<sup>5</sup> Due to the impact of the treatment cycle, some waste is not centrally disposed of within the reporting period, so the total amount of hazardous waste disposed of is less than the total amount generated. The Company adheres to the principle of compliant disposal, and all hazardous waste generated in actual production and operations is 100% disposed of in compliance with regulations.

Indicator	Unit	2024	2023	2022
Percentage of suppliers from whom conflict minerals information has been obtained	%	100	100	-
Percentage of target suppliers who have signed sustainable procurement charters/supplier codes of conduct	%	100	100	-
Percentage of suppliers with contracts including environmental, labor, and human rights requirements	%	100	100	-
Percentage of target suppliers who have undergone corporate social responsibility (CSR) assessments	%	100	100	-
Percentage of target suppliers who have undergone corporate social responsibility (CSR) on-site audits	%	100	100	-
Percentage of purchasers in all regions who have received sustainable procurement training	%	100	100	-
Total number of suppliers implementing environmental or social issue corrective measures	/	19	-	-
Number of suppliers conducting social impact assessments	/	177	-	-
Proportion of core suppliers certified with ISO 45001	%	100	100	-
Proportion of core suppliers certified with ISO 14001	%	100	81.80	-
Number of suppliers with national-level green factory qualifications	/	32	9	-
Total number of tier-1 suppliers	/	177	-	-
Total number of significant tier-1 suppliers	/	78	-	-
Percentage of total expenditure on significant tier-1 suppliers	%	74.95	-	-
Total number of significant suppliers (tier-1 and non-tier-1)	/	177	-	-
<b>Employment Management</b>				
Total number of employees	person	8,586	7,553	4,157
Total number of new employees	person	2,372	6,244	3,046
Percentage of male in new hires	%	71.29	-	-
Percentage of female in new hires	%	28.71	-	-
Percentage of new hires under 30 years old	%	52.70	-	-
Percentage of new hires aged 30-50	%	47.30	-	-
Percentage of new hires over 50 years old	%	0	-	-
Percentage of new hires from China mainland	%	99.96	-	-
Percentage of new hires who are general employees	%	96.84	-	-
Percentage of new hires who are ordinary management	%	2.23	-	-
Percentage of new hires who are middle management	%	0.84	-	-
Percentage of new hires who are senior management	%	0.08	-	-

Indicator	Unit	2024	2023	2022
Percentage of employees filling vacant positions through internal competition	%	19.14	-	-
Average recruitment cost per new employee	RMB	1,829.34	-	-
Number of male employees	person	6,220	5,114	2,825
Number of female employees	person	2,366	2,439	1,332
Percentage of female employees	%	27.56	-	-
Number of employees under 30 years old	person	3,771	3,767	1,910
Number of employees aged 30-50	person	4,770	3,748	2,224
Number of employees over 50 years old	person	45	38	23
Number of employees with Han ethnicity	person	7,992	5,996	3,466
Number of employees from mainland China	person	8,582	6,488	3,621
Number of employees from outside mainland China (including Hong Kong, Macau, and Taiwan)	person	4	1,065	536
Number of full-time employees	person	8,586	7,553	4,157
Percentage of female employees in management	%	16.52	-	-
Total number of senior management	person	23	25	11
Number of localized senior management	person	8	-	-
Number of female employees in senior management	person	7	8	1
Percentage of female employees in senior management	%	30.43	32.00	9.09
Total number of middle management	person	211	153	27
Total number of female employees in middle management	person	32	31	4
Percentage of female employees in middle management	%	15.17	20.26	14.81
Total number of ordinary management	person	704	459	218
Total number of female employees in ordinary management	person	116	94	10
Percentage of female employees in ordinary management	%	16.48	20.78	4.59
Total number of general employees	person	7,648	6,916	3,901
Total number of female employees in general employees	person	2,211	-	-
Percentage of female employees in management of revenue-generating departments	%	14.78	-	-
Percentage of female employees in STEM-related positions	%	19.28	-	-
Percentage of female employees in technical staff	%	26.33	30.00	-
Total number of disabled employees	person	193	29	-

Indicator	Unit	2024	2023	2022
Percentage of employees from minority and/or vulnerable groups in total workforce	%	9.17	21.40	-
Percentage of minority and/or vulnerable group employees in senior management	%	0	-	-
Percentage of employees who have received diversity, discrimination, and/or harassment training	%	100	100	-
Number of technical talents employed at the end of the period	person	357	-	-
Turnover rate of technical talents	%	8.23	6.85	-
Compensation and Benefits				
Total weeks of paid parental leave provided to most female employees	weeks	135.86	-	-
Total weeks of paid parental leave provided to most male employees (non-primary caregivers)	weeks	326.71	-	-
Return-to-work rate for male employees after parental leave	%	100	100	100
Return-to-work rate for female employees after parental leave	%	100	93.97	100
Unadjusted average gender pay gap ratio	%	21	22.48	-
Percentage of direct employees covered by living wage benchmark analysis	%	100	-	-
Number of direct employees included in living wage benchmark analysis	person	8,586	-	-
Total number of direct employees	person	8,586	-	-
Number of employees earning below the living wage	person	0	-	-
Percentage of direct employees earning below the living wage	%	0	-	-
Percentage of all employees earning below the living wage	%	0	-	-
Employee Rights Protection				
Employee satisfaction	points	83.93	83.78	82.49
Coverage rate of corporate social responsibility training	%	100	100	-
Number of discrimination and harassment incidents	/	0	0	-
Number of forced labor and child labor employment incidents	/	0	0	-
Percentage of security personnel who have received human rights training	%	100	100	-
Percentage of all operational sites that have undergone human rights review or impact assessment	%	100	100	-
Total number of employees who have received training on human rights-related policies or procedures during the reporting period	person	8,586	-	-



Indicator	Unit	2024	2023	2022
Percentage of employees who have received training on human rights-related policies or procedures during the reporting period	%	100	-	-
Percentage of operational sites with SA8000 certification	%	60	20	-
Percentage of employees at all company premises covered by formal collective agreements on working conditions	%	100	100	-
Percentage of employees who have signed women's protection agreements	%	100	100	-
Percentage of employees at all company premises covered by officially elected employee representatives	%	100	100	-
<b>Employee Training</b>				
Average training hours for male senior management	hours	78.13	69.6	4
Average training hours for female senior management	hours	76.00	69.6	4
Average training hours for male middle management	hours	32.41	22	5
Average training hours for female middle management	hours	35.69	22	5
Average training hours for male ordinary management	hours	60.83	75	4
Average training hours for female ordinary management	hours	66.10	75	4
Average training hours for male general employees	hours	31.98	28.41	8
Average training hours for female general employees	hours	36.19	28.41	8
Average training hours for male employees	hours	34.84	-	-
Average training hours for female employees	hours	37.77	-	-
Total training hours for employees	hours	306,070.00	-	-
Average training hours per employee	hours	35.65	31.25	-
Percentage of employees receiving vocational or skill-related training	%	100	67.13	-
Total training investment	RMB	9,811,000.00	-	-
Average training investment per employee	RMB	1,142.67	-	-
Percentage of employees receiving regular performance and career development assessments	%	100	100	-
Total expenses related to employees	ten thousand RMB	164,514.10	-	-
Number of employees supported to complete continuing education and upgrade academic qualifications (taking 2022 as the base year)	Person	196	158	-
<b>Occupational Health and Safety</b>				
Percentage of premises obtaining ISO 45001 Occupational Health and Safety Management System certification	%	100	-	-

Indicator	Unit	2024	2023	2022
Percentage of employees covered by the occupational health and safety management system	%	100	-	-
Percentage of employees covered by the occupational health and safety management system audited internally	%	100	-	-
Percentage of employees covered by the occupational health and safety management system audited externally	%	100	-	-
Number of employees who died due to work-related injuries	person	0	-	-
Injury and fatality rate due to employee work-related accidents	%	0	0	0
Injury and fatality rate due to non-employee work-related accidents	%	0	0	0
Number of employees with serious consequences from work-related injuries	person	0	-	-
Serious consequence work-related injury rate for employees (excluding deaths)	%	0	0	0
Accident rate of minor injuries per thousand people	‰	0.70	1.23	1.05
Number of employees who died due to occupational diseases	person	0	0	-
Number of incidents related to occupational health issues	/	0	0	0
Number of days lost due to work-related injuries, deaths, and poor health conditions	/	1,087	666	207
Number of work-related accidents	/	7	11	-
Percentage of operational premises covered by employee health and safety hazard identification and risk assessment	%	100	66.67	-
Absence rate	%	2.59	-	-
Number of EHS safety training sessions	sessions	885	675	632
Cumulative number of participants in EHS safety training	participants	92,071	18,666	16,406
Number of emergency drill activities conducted	sessions	330	86	34
Cumulative number of participants in emergency drill activities	participants	8,586	3,790	-
<b>Community Welfare</b>				
Percentage of operational premises with local community involvement, impact assessment, and/or development plans	%	100	100	-

# Appendix 2: GRI Content Index

Statement of use	Chint New Energy Technology Co., Ltd. reported information referenced in this GRI content index during the period from January 1, 2024, to December 31, 2024, in accordance with GRI standards.
GRI used	GRI 1: Foundation 2021
Applicable GRI industry standards	None

Disclosure issue/item	Disclosure	Chapter index
<b>GRI 2: General Disclosures 2021</b>		
2-1	Organizational details	Corporate Overview
2-2	Entities included in the organization's sustainability reporting	About This Report
2-3	Reporting period, frequency and contact point	About This Report
2-4	Restatements of information	Explained In The Corresponding Sections Of The Report
2-5	External assurance	Verification Statement
2-6	Activities, value chain, and other business relationships	About Astronergy Sustainable Supply Chain
2-7	Employees	Human Capital Development
2-8	Workers who are not employees	Occupational Health and Safety
2-9	Governance structure and composition	Corporate Governance
2-10	Nomination and selection of the highest governance body	Corporate Governance
2-11	Chair of the highest governance body	Corporate Governance
2-12	Role of the highest governance body in overseeing the management of impacts	Corporate Governance
2-13	Delegation of responsibility for managing impacts	Corporate Governance
2-14	Role of the highest governance body in sustainability reporting	Sustainability Management
2-15	Conflict of interest	Corporate Governance
2-16	Communication of critical concerns	Sustainability Management Corporate Governance
2-17	Collective knowledge of the highest governance body	Sustainability Management Corporate Governance
2-18	Evaluation of the performance of the highest governance body	Corporate Governance Protection of Labor and Human Rights

Disclosure issue/item	Disclosure	Chapter index
2-19	Remuneration policies	Protection of Labor and Human Rights
2-20	Process to determine remuneration	Protection of Labor and Human Rights
2-21	Annual total compensation ratio	Protection of Labor and Human Rights
2-22	Statement on sustainable development strategy	Sustainability Management
2-23	Policy commitments	Sustainability Management Response to Climate Change Business Ethics
2-24	Embedding policy commitments	Sustainability Management
2-25	Processes to remediate negative impacts	Sustainability Management
2-26	Mechanism for seeking advice and raising concerns	Corporate Governance Protection of Labor and Human Rights
2-27	Compliance with laws and regulations	No violations of laws or regulations occurred during the reporting period.
2-28	Membership associations	Product Lifecycle Management
2-29	Approach to stakeholder engagement	Sustainability Management
2-30	Collective bargaining agreements	Protection of Labor and Human Rights
<b>GRI 3: Material Topics</b>		
3-1	Process to determine material topics	Sustainability Management
3-2	List of material topics	Sustainability Management
3-3	Management of material topics	Sustainability Management
<b>GRI 201 Economic Performance</b>		
201-1	Direct economic value generated and distributed	Sustainability Management
201-2	Financial implications and other risks and opportunities due to climate change	Response to Climate Change
201-3	Defined benefit plan obligations and other retirement plans	Protection of Labor and Human Rights
<b>GRI 202 Market Presence</b>		
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	Due to a lack of information, Astronergy's confidential details will not be disclosed at this time.
202-2	Proportion of senior management hired from the local community	Due to a lack of information, Astronergy's confidential details will not be disclosed at this time.
<b>GRI 203 Indirect Economic Impacts</b>		
203-1	Infrastructure investments and services supported	Community Construction & Charity and Public Welfare



Disclosure issue/item	Disclosure	Chapter index
203-2	Significant indirect economic impacts	Community Construction & Charity and Public Welfare
<b>GRI 204: Procurement Practices</b>		
204-1	Proportion of spending on local suppliers	Sustainable Supply Chain
<b>GRI 205 Anti-Corruption</b>		
205-1	Operations assessed for risks related to corruption	Business Ethics
205-2	Communication and training about anti-corruption policies and procedures	Business Ethics
205-3	Confirmed incidents of corruption and actions taken	No such incidents occurred during the reporting period.
<b>GRI 206 Anti-Competitive Behavior</b>		
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Business Ethics
<b>GRI 207 Tax</b>		
207-1	Approach to tax	Compliance and Risk Management
207-1	Tax Governance, Control, And Risk Management	Compliance and Risk Management
207-3	Stakeholder engagement and management of concerns related to tax	Compliance and Risk Management
<b>GRI 301: Materials</b>		
301-2	Recycled input materials used	Product Lifecycle Management Emissions and Waste Management
301-3	Reclaimed products and their packaging materials	Product Lifecycle Management Emissions and Waste Management
<b>GRI 302 Energy</b>		
302-1	Energy Consumption within the Organization	Resource Utilization
302-3	Energy Intensity	Resource Utilization
302-4	Reduction of energy consumption	Resource Utilization
302-5	Reductions in energy requirements of products and services	Resource Utilization
<b>GRI 303 Water and Effluents</b>		
303-1	Interactions with water as a shared resource	Resource Utilization Emissions and Waste Management
303-2	Management of water discharge-related impacts	Emissions and Waste Management
303-3	Water Withdrawal	Resource Utilization
303-4	Water discharge	Emissions and Waste Management
303-5	Water Consumption	Resource Utilization




Disclosure issue/item	Disclosure	Chapter index
<b>GRI 304 Biodiversity</b>		
304-2	Significant Impacts of Activities, Products, and Services on Biodiversity	Biodiversity Conservation
304-3	Habitats protected or restored	Biodiversity Conservation
<b>GRI 305 Emissions</b>		
305-1	Direct (Scope 1) GHG Emissions	Response to Climate Change
305-2	Energy Indirect (Scope 2) GHG Emissions	Response to Climate Change
305-3	Other Indirect (Scope 3) GHG Emissions	Response to Climate Change
305-4	GHG Emission Intensity	Response to Climate Change
305-5	Reduction on GHG Emissions	Response to Climate Change
305-6	Emissions of Ozone-Depleting Substances (ODS)	Response to Climate Change
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Emissions and Waste Management
<b>GRI 306 Waste</b>		
306-1	GHG emissions intensity	Emissions and Waste Management
306-2	Management of significant waste-related impacts	Emissions and Waste Management
306-3	waste generation	Emissions and Waste Management
306-4	Waste diverted from disposal	Emissions and Waste Management
306-5	Waste directed to disposal	Emissions and Waste Management
<b>GRI 308 Supplier Environmental Assessment</b>		
308-1	New suppliers screened using environmental criteria	Sustainable Supply Chain
308-2	Negative environmental impacts in the supply chain and actions taken	Sustainable Supply Chain
<b>RI 401 Employment</b>		
401-1	New employee hires and employee turnover	Protection of Labor and Human Rights Human Capital Development
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Protection of Labor and Human Rights
401-3	Parental leave	Protection of Labor and Human Rights
<b>GRI 402 Labor Relations</b>		
402-1	Minimum notice periods regarding operational changes	Protection of Labor and Human Rights
<b>GRI 403 Occupational Health and Safety</b>		
403-1	Occupational Health and Safety Management System	Occupational Health and Safety

Disclosure issue/item	Disclosure	Chapter index
403-2	Hazard identification, risk assessment, and incident investigation	Occupational Health and Safety
403-3	Occupational health services	Occupational Health and Safety
403-4	Worker participation, consultation, and communication on occupational health and safety	Occupational Health and Safety
403-5	Worker training on occupational health and safety	Occupational Health and Safety
403-6	Promoting of Worker Health	Occupational Health and Safety
403-7	Prevention and Mitigation of Occupational Health and Safety Impacts Directly linked by business relationships	Occupational Health and Safety
403-8	Workers covered by an occupational health and safety management system	Occupational Health and Safety
403-9	Work-related Injuries	Occupational Health and Safety
403-10	Work-related ill health	Occupational Health and Safety
<b>GRI 404 Training and Education</b>		
404-1	Average Hours of Training per Employee per Year	Human Capital Development
404-2	Programs for upgrading employee skills and transition assistance programs	Human Capital Development
404-3	Percentage of employees receiving regular performance and career development reviews	Human Capital Development
<b>GRI 405 Diversity and Equal Opportunity</b>		
405-1	Diversity of Governance Bodies and Employees	Corporate Governance Protection of Labor
<b>GRI 406 Anti-Discrimination</b>		
406-1	Incidents of discrimination and corrective actions taken	Protection of Labor and Human Rights
<b>GRI 408 Child Labor</b>		
408-1	Operations and suppliers at significant risk for incidents of child labor	Protection of Labor and Human Rights
<b>GRI 409 Forced or Compulsory Labor</b>		
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Protection of Labor and Human Rights
<b>GRI 410 Security Practices</b>		
410-1	Security personnel trained in human rights policies or procedures	Protection of Labor and Human Rights
<b>GRI 411 Indigenous Peoples' Rights</b>		
411-1	Incidents of violations involving rights of indigenous peoples	Not applicable, operational activities do not involve violations of indigenous peoples' rights

Disclosure issue/item	Disclosure	Chapter index
<b>GRI 413 Local Communities</b>		
413-1	Operations with local community engagement, impact assessments, and development programs	Community Construction & Charity and Public Welfare
413-2	Operations with significant actual and potential negative impacts on local communities	After assessment, Astronergy does not have operation premises with actual or potential significant negative impacts on local communities
<b>GRI 414 Supplier Social Assessment</b>		
414-1	New suppliers screened using social criteria	Sustainable Supply Chain
414-2	Negative social impacts in the supply chain and actions taken	No such incidents occurred during the reporting period
<b>GRI 415 Public Policy</b>		
415-1	Political contributions	Not Applicable
<b>GRI 416 Customer Health and Safety</b>		
416-1	Assessment of health and safety impacts on product and service categories	Product Quality and Safety
416-2	Incidents of non-compliance with health and safety impacts related to products and services	No such incidents occurred during the reporting period
<b>GRI 417 Marketing and Labeling</b>		
417-1	Requirements for product and service information and labeling	Product Quality and Safety
417-2	Violations related to product and service information and labeling	No such incidents occurred during the reporting period
417-3	Violations related to marketing	No such incidents occurred during the reporting period
<b>GRI 418 Customer Privacy</b>		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	No such incidents occurred during the reporting period



# Verification Statement



**INDEPENDENT ASSURANCE OPINION STATEMENT**

**Statement No: SRA824359**

**Chint New Energy Technology Co., Ltd.**  
**2024 Sustainability Report**

The British Standards Institution is independent of Chint New Energy Technology Co., Ltd. (including its subsidiaries, hereinafter referred to as "Astronergy"), and its subsidiaries (hereafter referred to as "Astronergy" collectively in this statement), and has no financial interest in the operation of Chint New Energy Technology Co., Ltd. other than for the assessment and assurance of Astronergy's **2024 Sustainability Report** (the "Sustainability Report").

This independent assurance opinion statement is prepared on the basis of review by the British Standards Institution of 2024 "ESG Report" presented by "Astronergy". The review does not extend beyond such information and is solely based on it. In performing such review, the British Standards Institution has assumed that all such information is complete and adequate.

**Scope & Criteria**

The scope of engagement agreed upon with "Astronergy" includes the following:

1. The assurance scope is consistent with the description of Chint New Energy Technology Co., Ltd. 2024 "ESG Report".
2. This report was prepared in accordance with the "Global Reporting Initiative (GRI) Sustainability Reporting Standards "(2021 Edition).
3. Type 1 Moderate Assurance Level

In line with the AccountAbility Sustainability Assurance Standard (AA1000AS), this assessment examines the nature and extent to which "Astronergy" adheres to the four principles of accountability: Inclusivity, Materiality, Responsiveness, and Impact. It does not involve an assurance on the reliability of specific sustainability performance data.

**Opinion Statement**


We conclude that Astronergy's 2024 ESG Report objectively and fairly presents the organization's environmental, social, and governance (ESG) performance during the reporting period.

Based on the assurance procedures described in this report, we have not identified:

- Any materiality misrepresentation or omission in the ESG data and information provided by "Astronergy".
- Any unresolved issues related to the AccountAbility AA1000AS principles of Inclusivity, Materiality, Responsiveness, and Impact.

This assurance engagement has been conducted by a team of qualified sustainability assurance professionals in accordance with the AccountAbility AA1000AS (2021). Through review of documentation and data collected during planning and fieldwork, we confirm that Astronergy's claim of compliance with: the Global Reporting Initiative (GRI) Sustainability Reporting Standards (2021 Edition) is a fair and accurate representation.

For and behalf of BSI:



Michael Lam, Senior Vice President, APAC Assurance

...making excellence a habit.™

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Issue Date: 2025-04-06

Effective Date: 2025-04-06

The British Standards Institution is independent to the above named client and has no financial interest in the above named client. This Opinion Statement has been prepared for the above named client only for the purposes of verifying its statements relating to its ESG more particularly described in the scope. It was not prepared for any other purpose. The British Standards Institution will not, in providing this Opinion Statement, accept or assume responsibility (legal or otherwise) or accept liability for or in connection with any other purpose for which it may be used or to any person by whom the Opinion Statement may be read. This Opinion Statement is prepared on the basis of review by The British Standards Institution of information presented to it by the above named client. The review does not extend beyond such information and is solely based on it. In performing such review, The British Standards Institution has assumed that all such information is complete and accurate. Any queries that may arise by virtue of this Opinion Statement or matters relating to it should be addressed to the above named client only.

Statement No: SRA824359

- Methodology**
- Our work was designed to gather evidence on which to base our conclusion. We undertook the following activities:
- Conducted interviews with Astronergy's senior management to validate the appropriateness of materiality topics in the ESG Report, particularly those raised by external stakeholders regarding Astronergy's sustainability performance.
  - Discussed with Astronergy's senior management the methods for stakeholder engagement (note: no direct contact with external stakeholders was made as part of this assurance).
  - Interview with staff involved in sustainability management, report preparation and provision of report information.
  - Review of key organizational developments.
  - Review of supporting evidence for claims made in the Report.
  - An assessment of the Astronergy' reporting and management processes concerning reporting against the principles of Inclusivity, Materiality, Responsiveness and Impact as described in the AA1000 Assurance Standard.

**Conclusions**

We have conducted the review of the AA1000AS v3 standards for the verification of sustainability reports regarding the principles of inclusiveness, substance, responsiveness and impact, as well as the verification of the Global Reporting Initiative (GRI) Sustainability Reporting Standards (2021 Edition) as follows:

Based on the verification results, we have not identified:

- Any materiality misrepresentation or omission in the ESG data and information provided by "Astronergy";
- Any unresolved issues related to the AccountAbility AA1000AS principles of Inclusivity, Materiality, Responsiveness, and Impact.

We confirm that the contents related to social responsibility and sustainable development in the "ESG Report" are disclosed in accordance with the requirements of the Global Reporting Initiative (GRI) Sustainability Reporting Standards (2021 Edition).

From our professional perspective, this "ESG Report" includes the social responsibility and sustainable development affairs of "Astronergy". The suggestions for improvement of the report have been adopted by "Astronergy" before issuing this statement of improvement opinions.

**Assurance Level**

The Type 1 Moderate Level of Assurance provided in our review is defined by the scope and methodology described in this statement.

**Responsibilities**

It is the responsibility of Astronergy' senior management to ensure that the information being presented in the Report is accurate. Our responsibility is to provide an independent assurance opinion statement to stakeholders giving our professional opinion based on the scope and methodology described.

**Ability and Independence**

The assurance team was composed of Lead Assurer and Assurer, who are experienced in the industrial sector, and trained in a range of sustainability, environmental and social standards including GRI Series Standards, AA1000, ISO14064, ISO20400, ISO 14001, ISO45001, ISO 9001, etc. British Standards Institution is a leading global standards and assessment body founded in 1901. The assurance is carried out in line with the BSI Fair Trading Code of Practice.

Issue Date: 2025-04-06

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