



**ASTRONERGY**



# 2022

**Astronergy Technology Co., Ltd.**

**Environmental, Social and Governance (ESG) Report**



CONTENTS

About the Report	02
Chairman's Speech	04
About Astronergy	06
Stakeholder Research	16
Analysis of Substantial Topics	18

## Corporate Governance and Sustainable Management 20

Green Sustainable Management	22
Sunshine Compliance Operation	24
Customer Rights Protection	27
Product Development and Innovation	30
Product Quality Control	33
Sustainable Supply Chain	35
Social Responsibility Practice and Exploration	38

## Climate Change & Environmental Friendliness 40

Response to Climate Change	42
Energy Resource Management	44
Water Resource Management	47
Pollution Governance	49

## Career Development and Social Welfare 54

Safeguard the Rights and Interests of Employees	56
Safeguard H&S	59
Support Employees' Development	63
Commitment to Social Welfare	67

Independent Verification Statement	70
Appendices	72

# About the Report

The 2022 Annual Environmental, Social and Governance (ESG) Report (hereinafter referred to as "the Report") of Astronergy Technology Co., Ltd. ("Astronergy", "the Company" or "We") is the first Environmental, Social and Governance (ESG) Report of the company, with the purpose of presenting economic, environmental and social sustainability-related management practices and performance of Astronergy in 2022 to stakeholders.

## Reporting Boundaries <sup>1</sup>

The scope of information disclosed in this report covers Astronergy Technology Co., Ltd. and its subsidiaries:

Company	Address
Astronergy Technology Co., Ltd.	No.1 Jisheng Road, Jianshan New Zone, Haining, Zhejiang Province
Chint Solar (Haining) Co., Ltd.	No.2 Jisheng Road, Jianshan NewZone, Haining, Zhejiang Province
Hangzhou Zhengtai Import and Export Co., Ltd	Room 723, Building 2, No. 1335 Bin'an Road, Puyan Street, Binjiang District, Hangzhou, Zhejiang Province
Hangzhou Branch of Astronergy Technology Co., Ltd.	Room 724, Building 2, No. 1335 Bin'an Road, Puyan Street, Binjiang District, Hangzhou, Zhejiang Province
Chint Solar (Yancheng) Co., Ltd.	No.1 Tonghui Road, Shanghai-Suzhou Industrial Linkage Cluster, Dafeng District, Yancheng, Jiangsu Province
Chint New Energy Technology (Yancheng) Co., Ltd.	
Chint New Energy Technology (Jiuquan) Co., Ltd.	No.15 Jingwu Road, Jiuquan Economic and Technological Development Zone, Suzhou District, Jiuquan, Gansu Province
Songyuan Astronergy Photovoltaic Technology Co.,Ltd.	Yadahong Industrial Zone, Ningjiang District, Songyuan, Jilin Province
M.L.T. Solar Energy Products Co.,Ltd.	88/1 Moo 9 Ko Khanun. Phanom Sarakham, Chachoengsao

## Reporting Period

This annual report covers the period from January 1, 2022 to December 31, 2022. Some textual information is outside this scope, which will be explained as deemed appropriate.

<sup>1</sup> Note: The operated data of Chint Solar (Haining) Co., Ltd. is recorded in Astronergy Technology Co., Ltd. and the factories under construction are not included in this report; Jilin Songyuan Manufacturing Base was put into operation on December 15, 2022, less than one year after it was officially put into operation, which is not included in the data of this report; the relevant data of Chint Solar (Jiuquan) Co., Ltd. shall be recorded in Chint New Energy Technology (Jiuquan) Co., Ltd.; The factories in Yiwu, Yueqing, Fengyang, Ningxia and Fuyang are still under construction and are not covered by this report.

## Data Sources

The data in the report originated from internal original ledgers, corporate documents and audit statements of Astronergy. Unless otherwise stated, the currencies in the report are all expressed in RMB.

This report was finally considered and approved by the Board of Directors of Astronergy held on April 24, 2023. The Board of Directors and all directors of the company warrant that the contents of the report do not contain any false statements, misleading statements or substantial omissions. Astronergy is responsible for the truthfulness, accuracy and completeness of the report contents.

## Reporting Standards

- Prepared in compliance with the requirements of 2021 edition of Global Reporting Initiative Standards(GRI Standards) on the sustainability report;
- Refers to the United Nations Sustainable Development Goals (UN SDGs) and the United Nations Global Compact 10 Principles (UNGC 10 Principles).

## External Verification

The report has been verified by the Shanghai Branch of TÜV SÜD Certification and Testing (China) Co., Ltd. and issued the 'Limited Guarantee'. The verification report is attached.

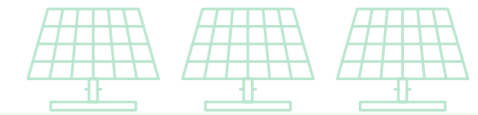
## Release of the Report

This report is published electronically in Chinese and English on the Internet. In case of discrepancies between the English and the Chinese version, the Chinese report shall prevail. Electronic copies are available for download on our website at: <https://www.astro-energy.com>

## Contact Information

Astro-energy Sustainability Management Committee, ASMC  
 Address: No.1 Jisheng Road, Jianshan NewZone, Haining, Zhejiang Province  
 Tel: +86 182 6846 9574  
 Email: [marketing.astro@Astronergy.com](mailto:marketing.astro@Astronergy.com)

# Chairman's Speech



The potential of PV industry was in the limelight across the global in the year 2022. With various unstable factors such as post-pandemic effect, climate change and wars, PV has maintained an increasing trend with 230GW of new installations for the year and a year-on-year growth of 35.3%. The world recognized the urgency of low-carbon energy transformation and the tremendous potential of PV.

The year of 2022 was extremely special for Astronergy as well. Upon entrance to the PV industry in 2006, Astronergy has been committed to its module manufacturing business for 17 consecutive years, demonstrating strong vitality and corporate resilience in the green energy sector. In 2022, Astronergy managed to step up strategic upgrading, whereby the standardization and effectiveness of corporate governance was improved, brand positioning and performance targets were clarified, and outstanding results were achieved beyond expectations thanks to joint efforts from all employees.

In 2022, Astronergy offered more international customers with green and clean electricity through PV/solar modules, and the shipment volume hit a historic high; on the product scale, we focused on promoting the construction of high-efficiency production capacity, whereby the annual production capacity reached 20GW; on the industrial chain layout, we achieved vertical integration and synergistic development, and enhanced the integrity of the whole industrial chain and corporate capacity in risk mitigation by laying out the upstream silicon wafer and silicon material enterprises through investment and shareholding. We insisted on stable and compliant operation, taking into account the expectations of shareholders, suppliers, customers, employees and other stakeholders, and achieved double business income and steady increase in profitability in

line with the established targets. More importantly, at a time when technology iterations are well under way, Astronergy has stepped smoothly into the n-type track and taken the lead in the industry to achieve mass production of n-type TOPCon Modules, providing a clear strategic direction for long-term corporate development.

In terms of sustainable development, Astronergy has never stopped practicing or exploring.

As an intelligent manufacturing enterprise focusing on PV modules, Astronergy has always taken green and sustainable development as its long-term strategic goal and continues to implement energy-saving and low-carbon actions across the industrial chain. In terms of product, we are actively promoting thinner and larger silicon wafers, prioritizing environment-friendly materials, continuously improving energy utilization and module efficiency, in order to reduce carbon emissions and energy consumption of ASTRO module products in all respects. Meanwhile, we have launched the accounting of product carbon footprint and greenhouse gas emissions in a comprehensive manner, obtained the first Carbon Labeling Certificate in the PV industry in China and the French Carbon Footprint Certification provided by Certisolis for our entire product line, and actively promoted the product carbon footprint and environmental product declaration verified by authoritative institutions. In addition, Astronergy also actively rolled out green and energy-saving smart energy supply and utilization projects in its headquarters and bases to promote sustainable development of the enterprise itself.

As a green manufacturing enterprise, Astronergy has always taken corporate social responsibility as its innate mission and has gradually built a more systematic ESG system on the basis of the existing sustainable management system. At the end of the reporting period, the ESG Committee of Astronergy was formally established to mobilize R&D, manufacturing, supply chain, product service, human resources and other departments for special subject committees covering R&D innovation, energy saving and emission reduction, sustainable procurement and employee welfare, optimize the operation and management mode, formulate corresponding ESG indexes, evaluate environment friendliness and effectively promote the emission reduction and carbon reduction plans.

The first ESG report of Astronergy represents just a new starting point for corporate sustainable development strategy. From green products to green supply chain, from low-carbon factory to zero-carbon factory, from the enterprise itself to the surrounding communities and peer partners, Astronergy never ceases to deliver the value of PV and ensure a better understanding of PV across the world. In the future, Astronergy will continue to build a better, inclusive, fair and harmonious society together with its partners.

Countries around the world are driving the progress of carbon peak and carbon neutrality. From major economies and countries to small enterprises, organizations and individuals, low-carbon sustainable concept has been recognized. There have been controversies in terms of energy security, climate change, and technology routes, but sustainable living has been a consensus of all, a common concept shared by all nations.

PV industry, boasting a nature of sustainable development, will serve as a bridge toward building a community of sustainable living. Astronergy aims to be one of the driving forces behind the change across the globe. We implement low-carbon action through every PV/solar module, practice green behavior through every employee, and guide our partners in the PV industry chain to build a sustainable ecology together. We believe, with combined efforts we can contribute to a green sustainable life in the near future.

# About Astronergy

## Company Profile

Astronergy Technology Co., Ltd., originally known as Chint New Energy Technology (Haining) Co., Ltd. back in 2006, came into being in 2022 with the adjustment of new energy business sector under the Chint Group. Astronergy is committed to becoming the most competitive photovoltaic modules supplier worldwide of PV/solar modules guided by the mission of "to create a sustainable and net-zero carbon world with solar power". The company focuses on the R&D, production and sales of high-efficient crystalline silicon solar cells and modules, and continues to launch the ASTRO series of high-efficient module products, intending to meet the needs of utility-scale power stations, industrial and commercial distributed power plants, household power plants and other full-scene application scenarios.

## Financial Performance <sup>2</sup>

In the context of our business strategy upgrading in 2022, we have been operating steadily, doubling our operating revenue and improving our profit margin. Major financial expenditures haven't involved major infrastructure investments and supporting services, and climate change has not yet had a material financial impact. During the reporting period, the direct economic value generated was RMB 20.666 billion, including RMB 19.059 billion in operating costs, RMB 759 million in staff salaries and benefits, and RMB 122 million in payments to capital providers.

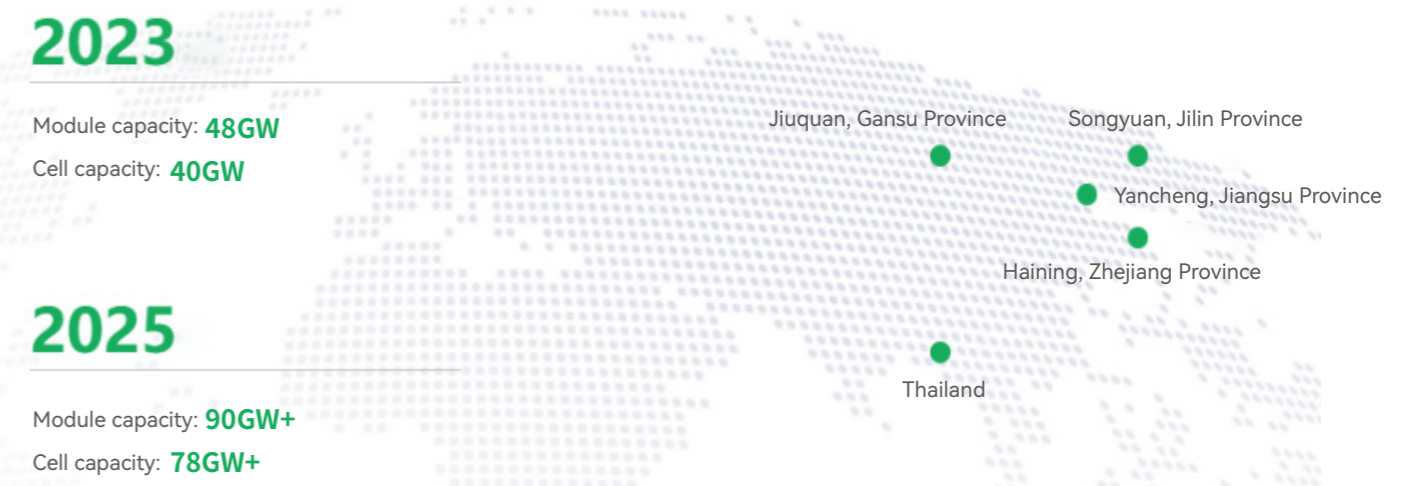
## Products

Astronergy's module portfolio covers monocrystalline bifacial and monocrystalline monofacial series, employing a number of advanced PV technologies such as large-size silicon wafers, half-cut technology, MBB, non-destructive cutting, high-density encapsulation, etc. to improve module power and efficiency, and the module index has reached the international first-class level. Meanwhile, Astronergy modules have obtained multiple certifications, including CTC national inspection, and their efficient and reliable performance has been verified and approved by many world-renowned third-party institutions such as TÜV Rheinland. Main products and application scenarios are listed as follows:

Type	Product Name	Application Scenario
ASTRO N	625W/575W/435W/425W UHP modules	ASTRO N series adopts n-type TOPCon cells, combined with high-density encapsulation, non-destructive cutting and other processes to achieve the five core advantages of high power, high efficiency, high reliability, high value, and high power generation per watt. This singular portfolio boasts a variety of products for versatile scenarios of all customers.
ASTRO 5	555W/550W HP modules	ASTRO 5 series adopts Astronergy PERC+ cell technology, 182mm large-size silicon wafers, combined with non-destructive cutting and other processes to achieve the five core advantages of high power, high efficiency, high compatibility, high quality, and low BOS & LCOE, suitable for utility-scale power stations and large-scale distributed projects.
ASTRO 5s	415W/405W HP modules	Astronergy has created ASTRO 5s featuring "lightness, efficiency, quality and beauty", an exclusive ultra-high-value portfolio tailored to the differentiated needs of residential customers, especially for the overseas customers.

## Industry layout

Astronergy operates in more than 140 countries and regions around the world. Now it has established intelligent manufacturing bases in Haining (Zhejiang Province), Yancheng (Jiangsu Province), Jiuquan (Gansu Province), Songyuan (Jilin Province) in China, and Thailand, and has set up subsidiaries and sales centers in Germany, Spain, the Netherlands, Poland, USA, Canada, Brazil, Australia, Singapore, Japan, Thailand and other countries and regions. Corporate products are embraced in Europe, North America, Latin America, Asia-Pacific and other international mainstream markets.



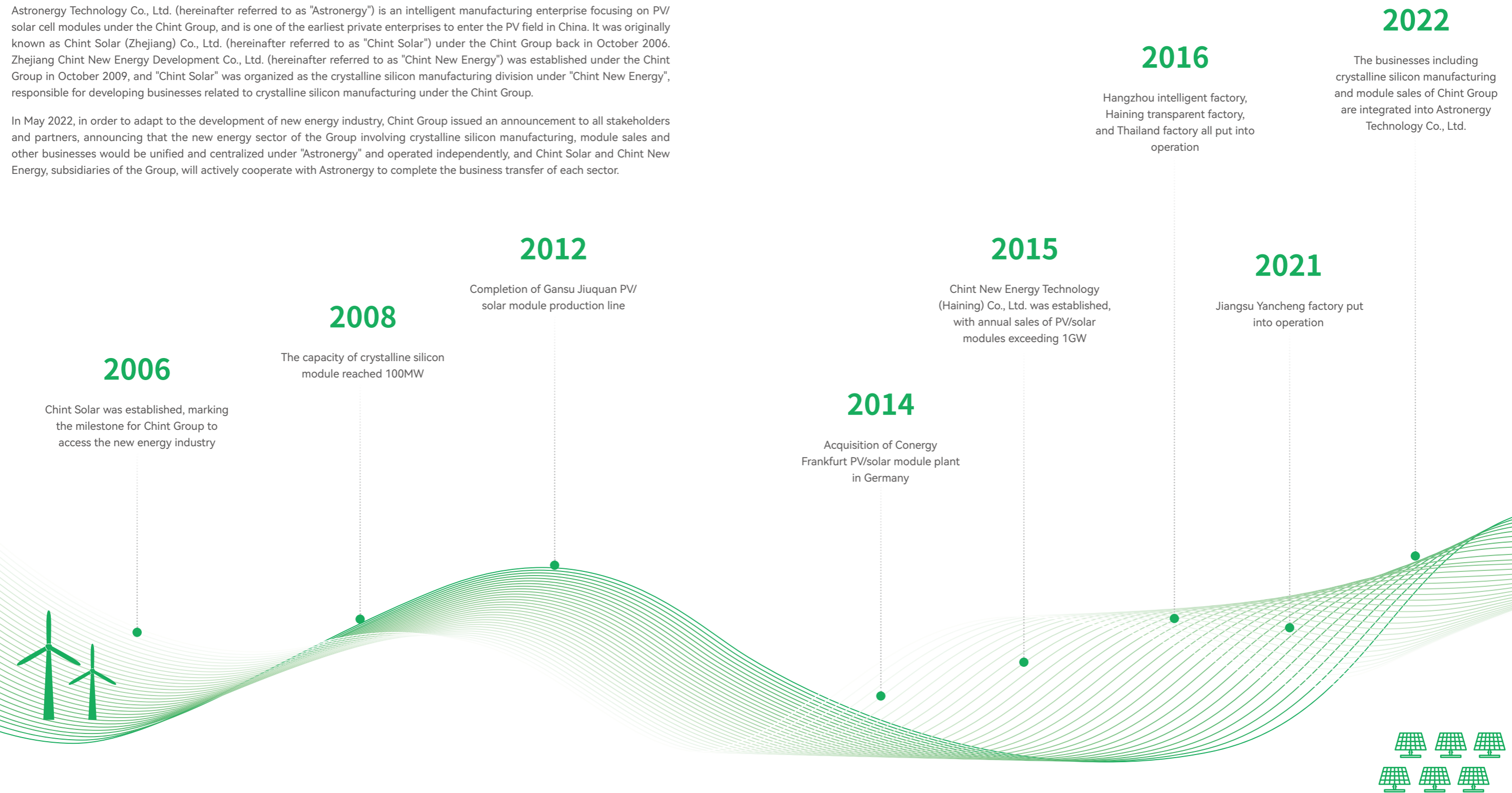
Capacity layout and planning of manufacturing bases in 2022

<sup>2</sup> Note: The financial data in the report are in RMB. In case of any discrepancy between the financial data and the annual financial report of the company, the annual report shall prevail.

# Our History

Astronergy Technology Co., Ltd. (hereinafter referred to as "Astronergy") is an intelligent manufacturing enterprise focusing on PV solar cell modules under the Chint Group, and is one of the earliest private enterprises to enter the PV field in China. It was originally known as Chint Solar (Zhejiang) Co., Ltd. (hereinafter referred to as "Chint Solar") under the Chint Group back in October 2006. Zhejiang Chint New Energy Development Co., Ltd. (hereinafter referred to as "Chint New Energy") was established under the Chint Group in October 2009, and "Chint Solar" was organized as the crystalline silicon manufacturing division under "Chint New Energy", responsible for developing businesses related to crystalline silicon manufacturing under the Chint Group.

In May 2022, in order to adapt to the development of new energy industry, Chint Group issued an announcement to all stakeholders and partners, announcing that the new energy sector of the Group involving crystalline silicon manufacturing, module sales and other businesses would be unified and centralized under "Astronergy" and operated independently, and Chint Solar and Chint New Energy, subsidiaries of the Group, will actively cooperate with Astronergy to complete the business transfer of each sector.



## Mission, Vision and Values

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 carbon world with solar power". Astronergy is committed to providing global customers with high-quality, highly reliable and stable module products in the long run with the principle of "customer focus, accountability, collaboration, high efficiency and innovation", so that the world can better understand the value of optical energy.

"Create sustainable and efficient green energy" is the product value that Astronergy has been upheld for a long time. Astronergy has been honored as a "Top Performer" in PVEL's stringent reliability tests 6 times and has been repeatedly ranked as a "Tier 1 PV/solar Module Maker" by Bloomberg New Energy Finance, a leading international research firm. Meanwhile, Astronergy has a full picture of the technology development trend and market demand changes, and lays out the R&D and application of n-type batteries in advance, becoming one of the first enterprises in mass production of n-type TOPCon modules. In addition, Astronergy's manufacturing factories boast advanced domestic intelligent manufacturing innovation and development, demonstrating promising corporate development potential.

Astronergy has always taken corporate social responsibility as an integral part of its corporate strategy and sustainable development, and has implemented a series of social responsibility projects in environmental protection, sustainable development, PV poverty alleviation, and social welfare, creating positive social values.

In 2022, Astronergy Technology Co., Ltd. announced its latest social responsibility policy, and will make continuous efforts in becoming the most socially responsible and trustworthy PV manufacturer in China. If a company wants to be successful in the long run, it must comply with laws and regulations across the globe and operate with integrity and consistency. In July 2022, Astronergy Technology Co., Ltd. released its latest Supplier Code of Conduct, calling on and driving business partners in compliance.

## Awards and Honors

At the end of the reporting period, we have received quite a number of awards from major industry media, organizations and local governments for excellent product quality and outstanding brand effect. These were acknowledgements of Astronergy's distinguished contribution to R&D, quality and after-sales service in the long run, and we will continue to improve our brand power and gain wider recognition in the future.

Type	Award Name	Awarded for	Awarded by
Industry Media	Monofacial PERC Winner of Performance Award for "Optical Energy Cup"	Product	Solarbe & China General Certification Center
	2022 Outstanding Performance Award PV/solar Module	Product	Energy Box of Malaysia
	Top 10 distributed PV module brands of China in 2022	Product	CREC
	Most Innovative Cell/Module Company in PV/solar Industry in 2022	Product	PV Industry
	China Distributed PV/solar List - China PV Innovative Enterprise Annual Award in 2022	Company	Shared Energy Network / The 4th China Distributed PV/solar Innovation Development Forum
	China Distributed PV/solar List - Cell Module Winning Brand Award in 2022	Company	Shared Energy Network / The 4th China Distributed PV/solar Innovation Development Forum
	PV/solar Industry Ultra High Efficiency - PV/solar Module Annual Award in 2022	Company	OFweek / The 13th Solar PV Industry Conference & PV/solar Industry Annual Awards in 2022
	Influential PV/solar Cell/Module Brand in 2022	Company	Polaris Solar PV/solar Awards - PV Influential Brand of 11th "Polaris Cup"
Industry Institutions	Most Influential PV/solar Module Enterprise ("Optical Energy Cup") in 2022	Company	Solarbe "Optical Energy Cup" PV industry selection in 2022
	TOPCon Innovation Award for Excellent Product in 2022	Product	China PV/solar Top-runner Innovation Forum
	PV/solar Industry Carbon Neutrality Field - Contribution Award in 2022	Company	China PV/solar Industry Annual Conference of China Photovoltaic Industry Association (CPIA) / CTC in 2022
	Special Contribution Award for the Project of Comparative Analysis of Technical and Trade Measures Related to Carbon Footprint of PV/solar Products	Company	China PV/solar Industry Annual Conference of China Photovoltaic Industry Association (CPIA) / CTC in 2022
	Carbon Neutrality Individual Outstanding Contribution Award	Individual	China PV/solar Industry Annual Conference of China Photovoltaic Industry Association (CPIA) / CTC in 2022
Local Government	EcoVadis Silver Award for CSR Achievement in 2022	Company	EcoVadis
	Bifacial PV/solar Module Outdoor Power Generation Excellence Award	Product	TÜV Rheinland
	Top Ten Distributed PV/solar Module Brands in China	Company	In the PV industry conference jointly organized by Wuxi Municipal People's Government, China Chamber of International Commerce, China Council for the Promotion of International Trade, Jiangsu Sub-council, it was awarded the top ten distributed PV/solar module brands in China in 2022
	Green and Efficient Bifacial and Double-glass Technology Award	Company	Sponsored by Xiuzhou People's Government of Jiaxing and PV Committee of China Green Supply Chain Alliance

## Join the Industry Associations

In order to timely follow the relevant policies and trends of the PV industry, promote discussion and exchange, and improve the management of the company, we have joined various industry associations both as an individual and on behalf of the company, including 23 national organizations, 11 international organizations, 6 industry associations, and 67 local associations.




Level	Type	Name	Position
National	Association	China Photovoltaic Industry Association	Vice President
	Standardization Committee	Standardization Technical Committee of China PV Industry Association	Committee Member
	Association	PV Building Professional Committee of China PV Industry Association	Deputy Director of the Committee
	Standardization Committee	BIPV Working Group of China PV Industry Association	Member
	Standardization Committee	Standardization Technical Committee for Household PV Power Generation of China Electricity Council (CEC)	Committee Member
	Alliance	PV Committee of China Green Supply Chain Alliance	Vice President Units
	Standardization Committee	Standardization Working Committee of China Society for the Promotion of Science and Technology Commercialization	Expert member
	Alliance	Zhongguancun Energy Internet Industry Technology Alliance	Member
	Association	Optoelectronic Building Application Committee of China Construction Metal Structure Association	Director
	Society	China Renewable Energy Society	Member Unit
	Association	Silicon Industry Branch of China Nonferrous Metals Industry Association	Governing Unit
	Society	China Energy Research Society	Director
	Association	Energy Investment Professional Committee of China Investment Association	Director
	Association	Renewable Energy Special Committee of China Association of Circular Economy	Member
	Association	Professional Committee of Distributed Renewable Energy of China Gas Association	Deputy Director of the Committee
	Standardization Committee	Standardization Working Committee of China Society for the Promotion of Science and Technology Commercialization	Member Units
	Standardization Committee	Standardization Technical Committee of National Solar PV Energy System	Committee Member
	Society	PV Metrology Testing Professional Technical Committee of Chinese Society for Measurement - End-User Promotion Group	Member
	Association	Committee of Experts under China Electrical Equipment Industry Association	Committee Member
	Others	China New Energy Chamber of Commerce	Changed to executive president in the new tenure
	Alliance	China Integrated Energy Service Industry Innovation Development Alliance	Member
	Others	Carbon Peak and Carbon Neutrality Committee of China Electric Power Promotion Council	Director
	Alliance	Zhongguancun Intelligent Energy Industry Alliance	Governing Unit
International	Association	Clean Energy Council	Corporate member
	Others	Member of IECRE SG453 End User Working Group	Member of group
	Others	China-Africa Business Council	Director
	Association	United Nations Global Compact (UNGC)	Member

Level	Type	Name	Position
Industrial	Association	SolarPower Europe (SPE)	Member
	Association	Solar Energy Industries Association (SEIA)	Member
	Association	Smart Energy Council (SEC)	Member
	Association	Middle East PV Industry Association (MESIA)	Member
	Association	Chilean Solar Energy Association (ACESOL)	Member
	Association	Colombian Association of Distributed PV (ACOSOL)	Member
	Association	German Solar Energy Industry Association (BSW)	Member
	Association	Asian Photovoltaic Industry Association	Standing member
	Alliance	China BIPV Alliance Industry and Technology Committee	Committee Member
	Alliance	China New Energy Overseas Development Alliance	Governing Unit
Local	Standardization Committee	Standardization Technical Committee of Energy Industry Distribution System	Committee Member
	Others	ECOPV Photovoltaic Recycling Industry Development Cooperation Center	Vice President Unit
	Others	Solar Power Branch of China Electricity Council (CEC)	Member Unit
	Association	Zhejiang Internet of Things Industry Association / Zhejiang Intelligent Manufacturing Standards Alliance	Governing Unit
	Others	Zhejiang Brand Building Federation	Governing Unit
	Standardization Committee	Zhejiang Solar PV Standardization Technical Committee	Deputy Director of the Committee
	Association	Zhejiang Solar Photovoltaic Industry Association	Chairman
	Association	Zhejiang Green Building Association	Managing director
	Association	Committee of Experts of Zhejiang Green Building and Building Energy Efficiency Industry Association	Committee Member
	Others	Zhejiang Provincial Energy Association	Vice chairman
Association	Jiangsu Province Renewable Energy Industry Association	Managing director	



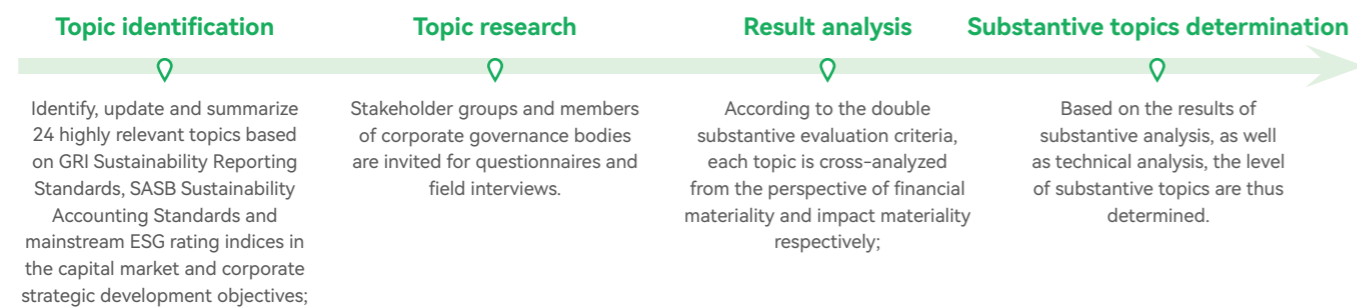
# Our 2022

Adhering to sustainability philosophy, Astronergy actively practices the 17 UN SDGs and has set and achieved milestones in the three major areas of ESG.

	SDGs	Key Performance
Corporate Governance Sustainable Management	 <ul style="list-style-type: none"> <li>Goal 8 Decent Work and Economic Growth: Actively engage in productive business activities that create job opportunities and economic growth for local communities.</li> <li>Goal 9 Industry, Innovation and Infrastructure: Build industry-leading PV/solar module.experimental line to increase technical advantage of product iteration.</li> <li>Goal 16 Peace, Justice and Strong Institutions: Standardize corporate governance, gradually improve the compliance system, and promote social construction based on rule of law.</li> </ul>	<p>Legal proceedings related to corruption and unfair competition: <b>0</b></p> <p>Complaints related to infringement of customer privacy: <b>0</b></p> <p>Customer satisfaction score: <b>92.89</b></p> <p>R&amp;D investment over than RMB: <b>250</b> million</p> <p>Conduct due diligence and environmental assessment dimension screening in terms of supplier's social impact: <b>100</b> %</p> <p>Accumulated patents: <b>230</b></p> <p>Customer complaint tracking and rectification rate: <b>100</b> %</p>
Climate Change Environment-friendly	 <ul style="list-style-type: none"> <li>Goal 6 Clean Water and Sanitation: Establishment of onsite industrial sewage treatment facilities and domestic sewage treatment facilities.</li> <li>Goal 7 Affordable and Clean Energy: Installation of PV solar panels on the roof of the field and procurement of green power.</li> <li>Goal 13 Climate Action: Arrange greenhouse gas accounting activities, develop energy-saving and emission reduction targets.</li> </ul>	<p>Scope I+II emission intensity: <b>30.49</b> tCO<sub>2</sub>e/MW</p> <p>Energy intensity: <b>0.46</b> tons of standard coal/MW</p> <p>Achieved <b>3</b> % reduction in overall energy consumption</p> <p>Environmental violations: <b>0</b></p>
Career Development Social Welfare	 <ul style="list-style-type: none"> <li>Goal 3 Good Health and Well-Being: Develop a comprehensive occupational health and safety system, focus on the health and happiness of each employee, and provide competitive compensation packages for employees.</li> <li>Goal 4 Quality Education: Set up project demonstration bases for colleges and universities to practice educational activities.</li> <li>Goal 5 Gender Equality: Build an equal and inclusive workplace and avoid discrimination against employees due to gender.</li> <li>Goal 10 Reduced Inequalities: Respect and safeguard human rights, adhere to the principles of fairness &amp; justice and equal competition, and prohibit discrimination against employees in terms of nationality, gender, age, ethnicity, religious beliefs, etc.</li> <li>Goal 11 Sustainable Cities and Communities: Get actively involved in social welfare.</li> </ul>	<p>Employee satisfaction score: <b>82.49</b> which has been on the rise for two consecutive years</p> <p>Return rate of employees after taking parental leave: <b>100</b> %</p> <p>Incidents of discrimination, harassment, forced labor or child labor: <b>0</b></p> <p>Factories awarded ISO 45001 and ISO 14001 certificates: <b>100</b> %</p> <p>A total of <b>632</b> EHS safety training sessions were provided for a total of <b>16,406</b> participants, and <b>34</b> emergency drill activities.</p>

# Stakeholder Research

Astronergy deploys a long-term and effective strategic plan to enhance its brand influence and set up industry benchmark. The support and suggestions of various stakeholders are indispensable in the process of planning and implementation. By establishing transparent and effective multi-platform and multi-directional communication channels, we can consolidate and deepen the communication and relationship with each stakeholder, enabling the company to interact with stakeholders via multifaceted channels, fully satisfying the expectations and demands of each target group, and helping the company to develop a more comprehensive corporate operational strategy. All these measures are conducive to injecting more vitality into the company in the long run. By taking into account international standards, status quo of the PV industry and the characteristics of the company itself, we have collected feedback from stakeholders in the form of a questionnaire:



A total of 1,409 responses were collected from both domestic and overseas stakeholders. The main contents include:

Stakeholders	Concerned Topics	Main Communication Channels	Expectations for the Company
Shareholders and Investors	Lead the industry development Product quality and safety Green supply chain Response to climate change Energy resource management Digital transformation Safeguard customer rights/information security	Telephone Field visits Investor relations Investment and financing interface Business exhibition platform	Steady business growth Quality product Fulfill social responsibility Promote industrial development Refined supply chain management
Customers	Full product lifecycle management Safeguard customer rights/information security Product quality and safety Customer relationship management Green supply chain Develop circular economy	Telephone Customer visit Email correspondence Dedicated contact Business sales intersections	Stable cooperation Improve product and service Steady corporate development Expand product applications Improve product quality
Employees	Occupational health and safety Talent strategy, training and development Product quality Business ethics Green supply chain	Directors exchange Internal official account Satisfaction questionnaire Corporate OA platform Department reporting	Increase performance incentives Provide development opportunities Enhance work safety Caring corporate management Good product quality

Stakeholders	Concerned Topics	Main Communication Channels	Expectations for the Company
Supplier	Product quality Business ethics Digital transformation Lead the industry development Green supply chain	Regular return visits Satisfaction survey Email correspondence Exhibition communication Business exhibition platform	Stable partnership Monthly rating of suppliers Specialized corporate services Technology innovation Business ethics and fairness
Government and regulators	Develop circular economy Business ethics Green low-carbon products Support community building	Face-to-face visits Regular visits Daily communication	Good market performance
Public community	Product quality Energy resource management Green low-carbon products Green supply chain	Satisfaction questionnaire Official account Telephone Business exhibition platform Interviews	Good product quality Stable partnership Ensure service quality Increase communication and displaying Optimize management
Surrounding residents	Business ethics Promote local employment Voluntary services Digital transformation Green supply chain	Questionnaire Official account Telephone Daily communication	Provide quality products Generate cluster effect Strengthen local employment Reduce pollution and emissions Stable partnership
Research institution	Business ethics Product quality Green low-carbon products Digital transformation Response to climate change	Scientific research cooperation School-enterprise cooperation Sales platform Technical exchanges Trade exhibition	Low-carbon green products Stable partnership Provide premium services Demonstrate advanced technology Strengthen scientific cooperation
Industry associations	Green low-carbon products Develop circular economy Energy resource management Response to climate change Water resources utilization management	Telephone Regular return visits Business exhibition platform Department contact Offline communication	Stable partnership Business ethics and fairness Green manufacturing Lead the industry in the right way Premium services
Peer companies	Business ethics Green low-carbon products Lead the industry development Response to climate change Product quality	Telephone Regular return visits Satisfaction survey Social software Communication between sector heads	Stable partnership Excellent corporate quality Serve as the role model of the industry Technical support and talent exchange

# Analysis of Substantial Topics

Astronergy's stakeholders will conduct materiality assessment of the 24 identified topics in two dimensions, namely, financial materiality and impact materiality. There are five dimensions from "significant impact" to "no impact", and the corresponding scale is from "5" to "1", with different weightings for different stakeholders. The assessment is based on a weighted average of the scores of each question of the same stakeholder, and then weighting and technical adjustment is made to get the distribution results of substantive topics.



## Financial materiality

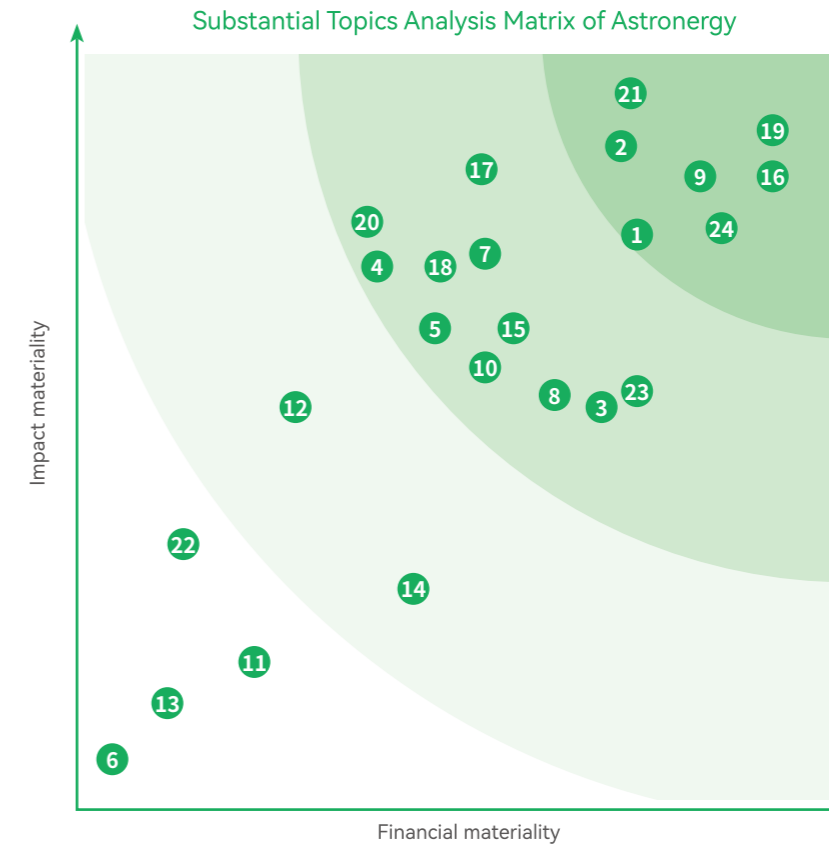
Refers to the impact of Astronergy's value creation, such as development, reputation, performance, finance, etc;



## Impact materiality

Refers to the impact of Astronergy on the external economy, environment and people, such as sustainable communities, industrial innovation and infrastructure, reduced inequalities, environmental protection, etc.

Determine the matrix of substantive topics of Astronergy via scoring statistics and technical adjustment of the questionnaire for stakeholders:



In order to respond to the concerns of different stakeholders on substantive topics, Astronergy have added texts in relevant chapters, the relationship thereof is listed below:

No.	Topic
1	Energy management
2	Response to climate change
3	Water resources utilization management
4	Waste management
5	Material circulation
6	Biodiversity
7	Develop circular economy
8	Green low-carbon products
9	Digital transformation
10	Controversial procurement
11	Lead the industry development
12	Support community building

No.	Topic
13	Voluntary services
14	Promote local employment
15	Green supply chain
16	Business ethics
17	Human rights
18	Occupational health and safety
19	Product quality control
20	Diversity and equal opportunities
21	Talent strategy, training and development
22	Freedom of association and collective bargaining
23	Anti-corruption
24	Safeguard customer rights/information security

Classification	Topic	Corresponding chapter
High substantive topics	Energy resource management	7.2
	Response to climate change	7.1
	Digital transformation	6.4
	Product quality control	6.5
	Business ethics	6.2
	Talent strategy, training and development	6.4/8.3
	Safeguard customer rights/information security	6.3
	Water stewardship	7.3
Medium substantive topics	Waste management	7.4
	Material circulation	7.2
	Develop circular economy	6.7
	Green low-carbon products	6.7

Classification	Topic	Corresponding chapter
Medium substantive topics	Controversial procurement	6.7
	Green supply chain	6.6
	Human rights	8.1
	Occupational health and safety	8.2
	Diversity and equal opportunities	8.1
	Anti-corruption	6.2
Low substantive topics	Biodiversity	6.7
	Lead the industry development	3.3
	Support community building	8.4
	Promote local employment	8.4
	Voluntary services	8.4
Freedom of association and collective bargaining	8.3	

# Corporate Governance and Sustainable Management

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. An advanced governance structure is the guarantee of sustainable corporate operation, continuously enhancing overall corporate power and demonstrating outstanding market competitiveness.

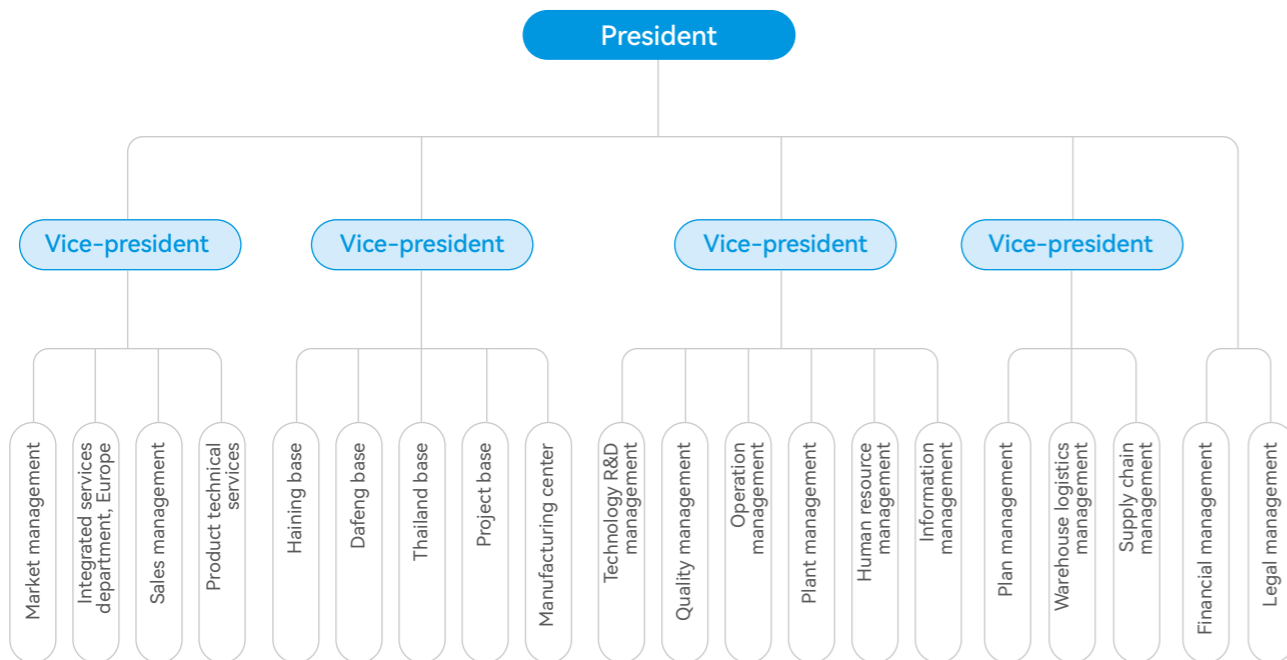
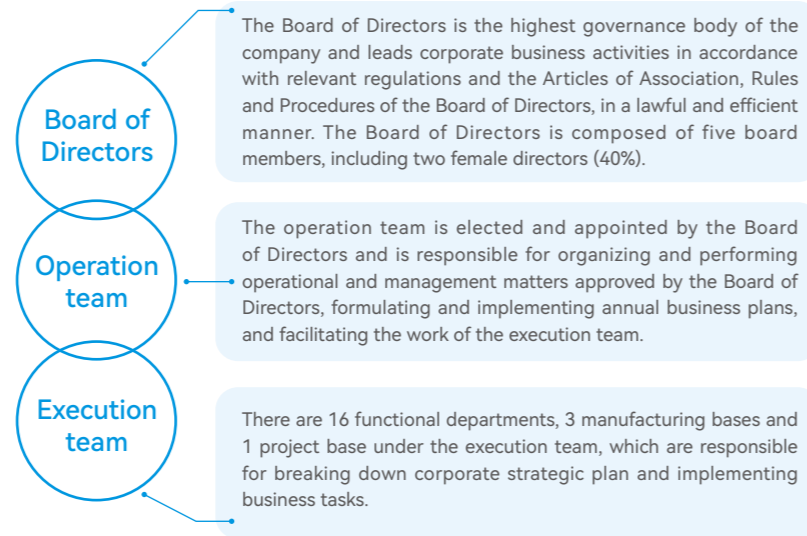
Green Sustainable Management	22
Sunshine Compliance Operation	24
Customer Rights Protection	27
Product Development and Innovation	30
Product Quality Control	33
Sustainable Supply Chain	35
Social Responsibility Practice and Exploration	38



# Green Sustainable Management

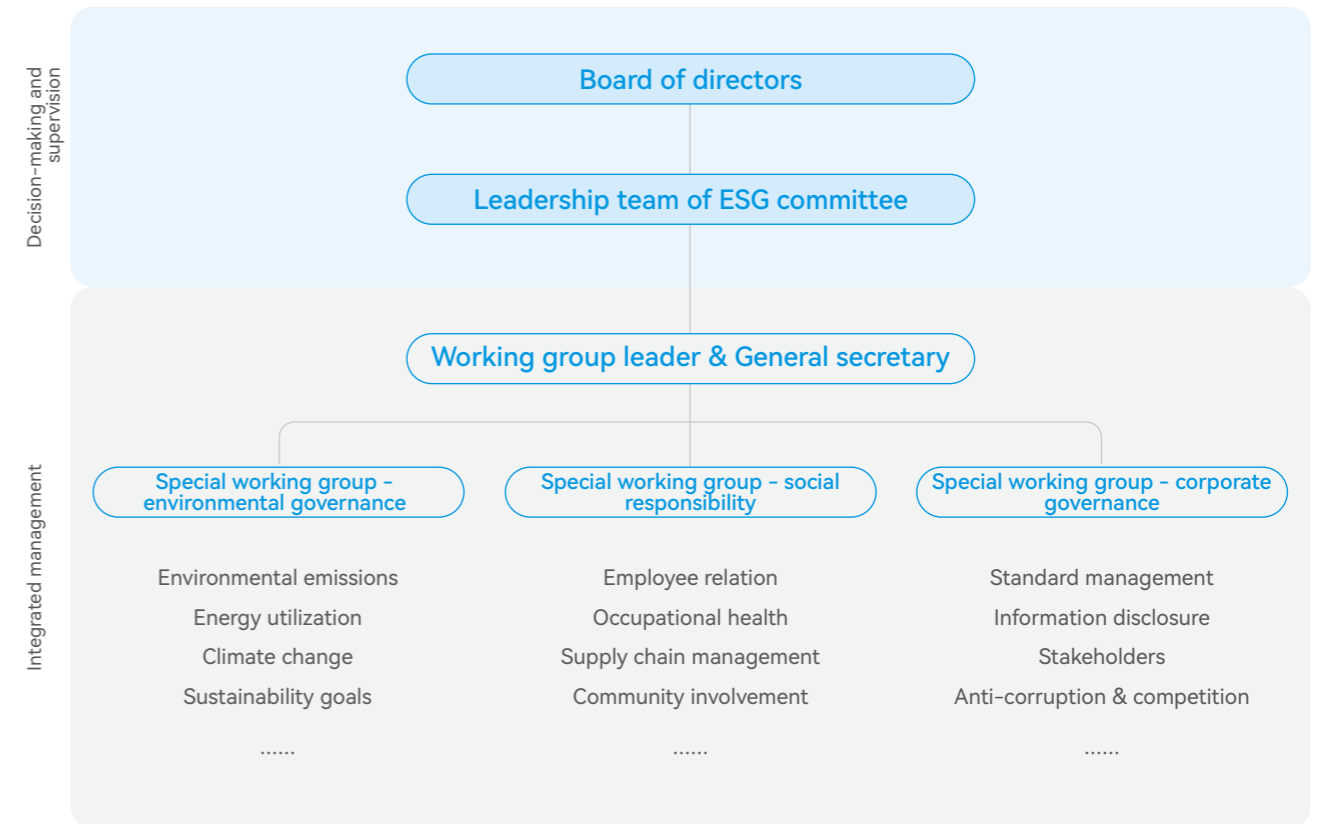


Astronergy strictly follows the requirements of the Company Law of the People's Republic of China and other relevant laws and regulations, and continuously improves the corporate governance system based on the reality. The company has established the Articles of Association and other rules and regulations as company governance structure consisting of the Board of Directors, operation team and execution team to create an internal governance environment for steady corporate operation. The company has clearly clarified in the Compensation and Benefit Management and Performance Management for compensation and appraisal of executives, which will be submitted to the Group for filing.



Governance and Organization Chart of Astronergy

Astronergy is committed to sustainable development in the long run. In order to further respond to the risks and opportunities caused by climate, environment and market policy changes, and to enhance corporate contribution in terms of environmental and social responsibility and corporate governance, we have set up ESG Committee as the leading organization, which governs three special working groups on environmental governance, social responsibility and corporate governance in an effort to build new green, efficient, low-carbon and sustainable competitive advantages and bring more green economic benefits for the society as a whole.



Organization Chart of ESG Committee

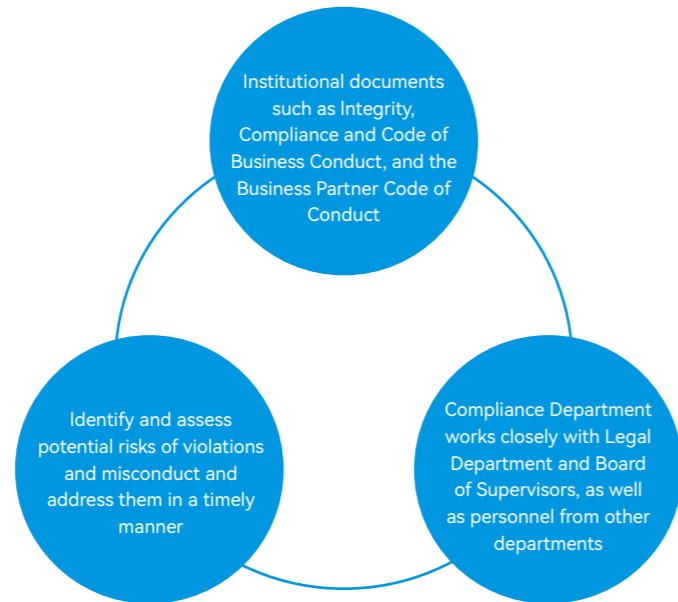
The decision-making and supervision team is responsible for leading corporate sustainable development, promoting the development of sustainability systems such as strategic planning, management structures, processes and systems, deliberating and supervising the implementation of sustainable development issues such as social responsibility, green layout, energy saving and consumption reduction, and ensuring continuous implementation of sustainable projects. ESG working group is responsible for developing a management plan for each potential ESG risk through regular communication with the board of directors, with key functions as follows:

- Continuously identify and analyze major issues of each corporate ESG aspect and make recommendations on risk control;
- Formulate ESG management plans, strategies and overall objectives, develop and implement specific working plans for each ESG aspect, and report regularly to the ESG leadership team on the achievement of objectives and the status of risk management;
- Prepare annual ESG report of the company and submit it to the leadership team for approval of disclosure;
- Communicate with internal and external stakeholders, and promote corporate social responsibility together with related parties to enhance competitive sustainability;
- Perform other duties as assigned by the leadership team for other ESG related matters.

# Sunshine Compliance Operation



Integrity and compliance are the cornerstones of corporate sustainability. If any compliance problem occurs, the company will not only face potential regulatory and legal penalties, but also lose the trust of business partners and customers, which will disrupt normal corporate operation. The company is well aware of the importance of compliance. In accordance with the Group's Business Code of Conduct of Integrity and Compliance, it has incorporated the requirements of integrity and compliance into the entire process of decision-making, operation, prevention and supervision, gradually established the compliance management system, strictly adhered to business ethics, prohibited all commercial bribery, money laundering and unfair competition, and delivered the concept of integrity to every employee and business partner. During the reporting period, the company was not involved in any legal proceedings related to corruption or unfair competition.



Integrity and Compliance Management System



Integrity development helps the Group to obtain the honorary title of "China's Top 100 Private Enterprises in Credit" and "China's Top 500 Enterprises in Credit" for 2 consecutive years

## Anti-corruption

The company is firmly opposed to corruption and takes "zero tolerance" attitude towards any form of corruption whatsoever. By adhering to the value of integrity and honesty, the company is committed to creating clean and honest working atmosphere and continuously improving an anti-corruption work mechanism which is characterized by internal integrity and fairness.

Anti-corruption management system	The company strictly complies with relevant laws and regulations at each operation site, monitors each link that may involve corruption, requires all employees to strictly comply with the anti-corruption system of the company, and advances Compliance Department to contribute to anti-corruption.
Anti-corruption organizational system	The Compliance Department is responsible for anti-corruption management, and Corporate Discipline Inspection Committee participates in the investigation and handling of corruption-related matters of CPC members and actively cooperates with the Group's disciplinary investigation.
Anti-corruption system	The company gradually improves the anti-corruption system based on the Anti-Corruption Regulations, and Anti-Commercial Bribery Regulations, Gift Acceptance Regulations, Donation and Sponsorship System, Interest Conflict Avoidance Regulations, and Regulations on Prior Supervision of Asset Procurement and Disposal Matters into effect.
Anti-corruption actions and measures	<ul style="list-style-type: none"> <li>The company has established a whistle-blowing system to encourage stakeholders to report corruption behaviors.</li> <li>The company requires all managers to declare their personal information and investment to avoid potential risk of non-compliance, and arranges job rotations for key positions on a regular basis.</li> <li>The company regulates and guides employees in gift acceptance and procurement activities.</li> <li>All employees and business partners are required to sign the Letter of Integrity Commitment.</li> </ul>

The company opts for reliable business partners and works in joint efforts to maintain healthy and transparent business environment. We guide our business partners to conduct responsible business in accordance with our internal Business Partner Management System and Astronergy Business Partner Integrity Code of Conduct. When we sign a contract, a business ethics clause will be incorporated into the contract to ensure that our suppliers are aware of business ethics and anti-corruption requirements. In the course of cooperation, we strictly monitor the behaviors of business partners, conduct risk assessments and debarment investigations, and continuously avoid potential integrity and compliance risks. In case of violations against relevant corporate integrity rules, we will impose corrective measures to take corruption risks under control; otherwise, the partnership will be terminated.

In terms of employees, the company strictly reviews the information of applicants for high-risk positions before recruitment according to position nature, and provide regular reviews for the high-risk positions. We attach equal importance to the integrity practice education, constantly enhance anti-corruption awareness of all employees, build anti-corruption capacity in internal development, and strive to create a clean and healthy workplace in the company. During the reporting period, the company conducted 14 anti-corruption training sessions.

### Case Promotion Conference on "Stay True to Integrity in Mind and Action"



## Complaints and Reporting

The company has established a public reporting channel, anyone is welcome to report corruption behaviors, and reported clues will be handled according to Complaint and Reporting Regulations of the company. The system prioritizes whistleblowers' rights and interests, and will never disclose information about whistleblowers for potential retaliation. Meanwhile, we strictly investigate the contents of each report, and strictly prohibit malicious complaints.

### Complaint reporting channel:

Tel: +86 13806606591  
 Email: cwm@chint.com  
 Mailing address: Board of Supervisors of Chint Group, No.1335 Binan Road, Binjiang District, Hangzhou, Zhejiang Province

## Public Policy

We have clarified our stance on political contributions in Donation and Sponsorship Policy, which prohibits political contributions within China. For political donations outside of China where the company operates, we must ensure compliance with local laws, regulations and prescribed disclosure and communication requirements. During the reporting period, we arranged no political donation activities at the corporate level.

## Paying taxes according to the law

The tax policy of Astronergy Technology Co., Ltd. is consistent with corporate strategy and in compliance with business activities and value creation, so as to contribute to social and economic development and achieve corporate sustainability.

Tax Policy	Content
Pay tax according to the law	We comply with relevant tax laws, corporate management systems and operational norms of the countries or regions in which we operate, pay taxes in a timely manner with full amount in accordance with the law, strongly support national and local finances, promote community development of the corporate site, and fulfill our social responsibility accordingly.
Fair taxation	We support the fairness and consistency of the tax system in the international community, follow the arm's length principle, never erode the tax base or shift profits, and establish fair, open and transparent communication channels with the tax authorities of the countries or regions in which we operate.
Compliance with evidence	We fulfill the code of business ethics, comply with the law, operate in good faith, support the improvement of tax transparency, employ true and complete tax-related information as support, and meet the regulatory requirements of tax authorities.
Controllable risks	We manage and control tax risks by improving effective internal control system and workflow, and make professional judgment based on adequate communication with tax authorities.

# Customer Rights Protection



Astronergy provides customers with standardized services throughout the entire life cycle. We prepare and issue Customer Satisfaction Questionnaires, tracking statistical feedback in five aspects: product quality, sales service quality, logistics and transportation service quality, marketing and brand image. We follow up on statistical feedback by project and distribution channels to identify service weaknesses and continuously improve service quality.

In 2022, the PV supply market is mainly influenced by the dual effect of COVID-19 and the fluctuating prices of auxiliary materials. Astronergy managed to maximize customer supply in this critical situation by scientifically deploying production lines and transportation capacity, which highly recognized and appreciated by customers. In general, the satisfaction scores of project customers are higher than those of distribution customers.

2021 Customer satisfaction score

92.35

2022 Customer satisfaction score

92.89

Based on the practice of customer satisfaction improvement, we upgraded operational efficiency by establishing a paperless office on the one hand: In 2022, we upgraded the traditional offline paper-based approval and invoicing method to online systematic operation mode, shortening the average time for approval from 2-5 days to 1-3 days, of which over 95% of orders were approved within one working day, and the timeliness and accuracy of order confirmation were greatly improved, with higher customer satisfaction score.

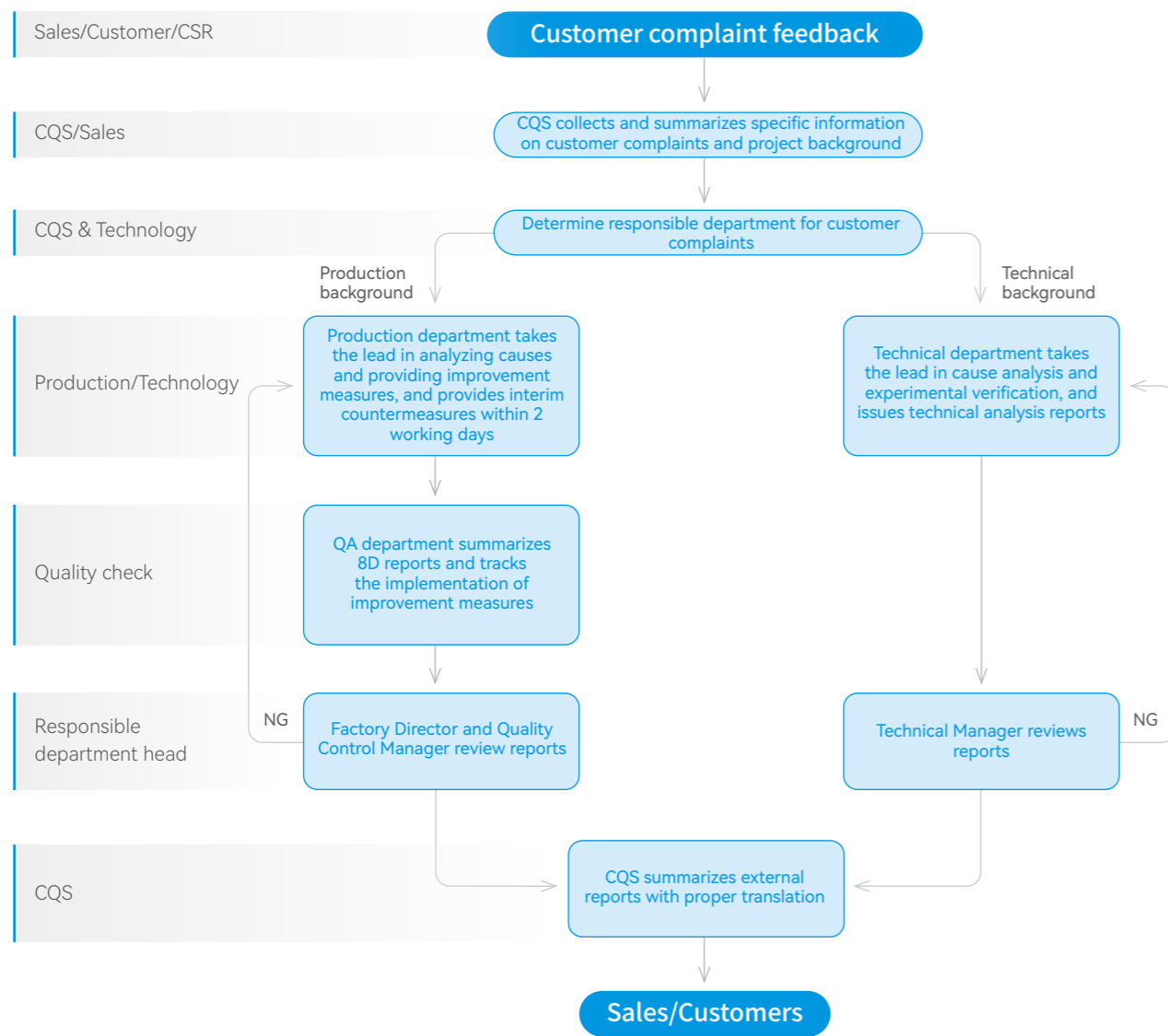
On the other hand, we constantly optimized warning and alarm mechanism. Externally, in the face of the international logistics disruption due to the pandemic, sales management department, in cooperation with logistics department, collated and summarized international logistics information briefings in the form of weekly/monthly reports, provided effective early warning tips on shipping risks, and communicated with customers on various potential risks and solutions in a timely manner. Internally, sales management department followed up on the supply chain and production line in real time, informed customers of order production progress in a timely manner, and followed up and forecasted potential production delays due to rising silicon wafer prices and supply restrictions of raw and auxiliary materials.

In response to the complaints and feedback received during the survey period, we reflected on potential oversights in the production and operation process, and highlighted the appearance of components and logistics services with great concern as the focus of our next step in improvement. The customer complaint tracking and correction rate reached 100% during the reporting period.

Upgrade topics	Cause analysis	Improvement	Responsible department
Module appearance	Insufficient supervision of production lines and negligence of production process details.	<ul style="list-style-type: none"> <li>Final inspection synchronized with strict control;</li> <li>Strengthen training for production personnel and operate in strict accordance with workshop specifications.</li> </ul>	Production and final inspection
Logistics services	Due to the outbreak of COVID-19, freight rates of global carriers rose sharply, many routes were short of slots and containers, and on-time berth ratio declined significantly.	<ul style="list-style-type: none"> <li>Early-warning system Synchronized updates on industry trends to CSR department and sales force to enable timely response strategies;</li> <li>Shipment control: Reduce freight rates and secure shipping efficiency by signing long-term contracts, bidding for larger shipments and comparing quotes for smaller shipments, employing more suppliers and booking in advance;</li> <li>Cost control: Combine various shipping models and strictly control additional costs.</li> </ul>	Logistics and sales management

In 2022, Astronergy formulated Customer Complaint and Feedback Management for Quality Problems of Crystalline Silicon Modules so as to actively respond to customer complaints and feedback on quality problems. The document specified management requirements and methods for the acceptance, response, customer complaint level and feedback mechanism, cause analysis and problem improvement, experience summary and dissemination, as well as data archiving and other related matters of product complaints and feedback on Astronergy's crystalline silicon modules.

The document specified demarcation of responsibilities across departments during the entire process. According to the nature of customer complaints, the significance and scope of the impact and other factors, customer complaints were divided into three levels: key customer complaints, major customer complaints, and general customer complaints. Customers' feedback and complaints will be incorporated into the management process in the form of Information Collection Form of Abnormal Feedback from Customers. We deal with, track and summarize each abnormal feedback from customers through initial matching, classification, internal processing, external processing, closed-loop verification, data archiving, etc.



We uphold the management mechanism that is characterized by customer focus and customer demand-oriented principle, and are committed to further enhancing customer satisfaction and maximizing business value for our customers in the future.

Case Customers visited Haining headquarters for intelligent manufacturing



On September 28, 2022, Astronergy hosted a customer open day with the theme of "Together with Optical Energy and Astronergy", whereby over 40 customers visited Astronergy headquarters to experience the charm of intelligent manufacturing. In recent years, favorable national policies have created large space for the development of distributed PV. As an intelligent manufacturing enterprise focusing on PV/solar cell modules under the Chint Group, Astronergy looks forward to building a win-win partnership with its business partners and jointly promoting the clean energy revolution.

With the detailed explanation of process management and production management personnel, customers visited the intelligent and automated production workshop of Astronergy, and had a direct understanding of the production process. In terms of product technology, we are one of the first companies that entered the n-type TOPCon track, and our TOPCon component development and mass production are leading the industry. Astronergy demonstrated significant manufacturing advantages to the customers. This exchange activity was also highly recognized by customers, with numerous customers signing contracts with us.



Customers Visited the Intelligent Manufacturing Workshop

Intelligent manufacturing lights up the city of Jiaxing, Astronergy empowers the power of green energy. On the way to a brighter future, Astronergy will promote the clean energy revolution together with all partners with open mindset and best services, and contribute to the achievement of carbon peaking and carbon neutrality goal.



Photos from Customer Open Day

## Information Security

Personal data are collected and utilized in the course of corporate operation, and it is our responsibilities and obligations to protect the privacy of individuals. The company ensures collection and utilization of information in accordance with Personal Data Secrecy and Protection System, and promises to protect it. Meanwhile, management responsibilities of Data Protection Officer have been specified to be responsible for performing management and control of data collection and protection duties. Each employee is also taken individually accountable for protecting personal privacy, and required to sign off Information Security Commitment so as to ensure that responsibilities of privacy protection for all employees are clarified and information security protection is taken as an innate obligation of the company as a whole. We protect the rights of information subjects in accordance with the law. The company did not receive any complaints related to infringement of customer privacy during the reporting period.



# Product Development and Innovation

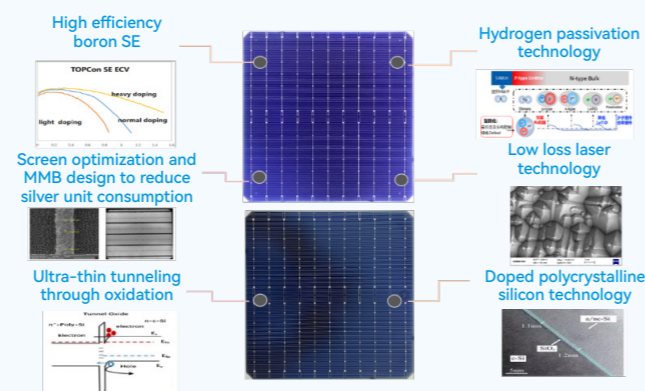


We understand that R&D is the key to corporate sustainability, and competitive leading products decide whether a company is able to survive and prosper, whereby leading products are based on core technology of the company. As the R&D base of the company, Haining factory boasts an independent R&D center, a whole experimental line of PV/solar cells and PV/solar modules, and the ability to develop a variety of high-efficiency cell modules. It has been awarded the titles of National High-tech Enterprise, Provincial Enterprise Research Institute of Zhejiang Province, High-tech Enterprise Research and Development Center of Zhejiang Province, and Enterprise Technology Center of Jiaxing City. In order to improve corporate industry standard in the field of technology development and testing of PV/solar cell modules, the company invested in a new cell R&D line, module R&D line and PV testing center, expanding the technical talent team as a whole and increasing R&D funding to step up the technical advantage of product iteration. The annual R&D investment in the past three years amounted to about RMB 200 million.

In the five-year plan of New Energy Strategy of the company, we plan to focus on the development of TOPCon, TBC, HJT and PSC/c-Si stacking technologies, and classify them in the categories of mass production, mass production-ready and R&D stage starting from 2022 to improve technical efficiency year by year, so as to achieve the scientific research goal of industry-leading mass production efficiency of TOPCon, promote technical R&D toward the first tier of the industry, and finally improve product market competitiveness.

## Case TOPCon Technology innovation and silver paste thinning

Astronergy's TOPCon cell products are in the category of mass production, which adopt LP intrinsic Poly+ post-diffusion process route, with mass production efficiency around 25.1%~25.3%. By developing quartz tube coating technology, LP double insertion technology and PE-Poly, we have reduced some manufacturing cost; we optimized the frontal boron SE technology to improve the conversion efficiency of the cell; we have applied laser doping, thin poly and metallization technology to improve the cell efficiency; and reduced the consumption of silver paste by designing the number of cell grid lines and wire frames. The R&D team has reserved SE technology upgrades in the mass production line, enabling process leadership of the products. We have achieved a combined cost reduction of RMB 20 million per year by introducing thin-film silicon wafers.



## Industry-University-Research Cooperation

The scientific and technological innovation based on industry-university-research cooperation requires the company to integrate the advantages of different social divisions of labor such as research, education, association and production in function and resource advantages, which is the coupling of technological innovations before, during and after the whole process. We take PV technology as the key point, strengthen technical cooperation with various provincial and municipal key projects of the government, get involved in the compilation of a number of technical standards, cooperate with Shanghai Jiao Tong University, Zhejiang University and other higher education institutions in terms of industrial, educational and research projects, emphasize the industrialization of scientific and technological achievements, and upgrade the R&D structure. At the end of the reporting period, the company declared 5 provincial and municipal key scientific research projects, obtained 2 provincial R&D platform qualifications, launched 12 provincial new products and 4 provincial new industrial products, and registered 6 provincial scientific and technological R&D achievements. We were also involved in the preparation of two national standards, namely, *Lightweight Crystalline Silicon Photovoltaic (PV) Laminated Glass GB/T 37896-2019*, *Specification of Centralized Operation and Maintenance for Distributed Photovoltaic Power System GB/T 38946-2020*, 1 international technical industry standard and 4 group standards.



Students from Zhejiang University participated in a solar cell module social practice

## Intellectual Property

Nowadays, with the rapid development of science technology, protecting intellectual property is the key to success. A well-founded patent management system can expand relevant financial value, highlight intangible brand value, and avoid infringement disputes. We manage the entire life cycle of intellectual property rights, including index development, application, maintenance, utilization, intellectual property information management, patent evaluation and risk control, intellectual property dispute handling, and patent remuneration and assessment, based on five internal policies, such as Knowledge Management, Patent Management, and Intellectual Property Information Management. By the end of 2022, the company has obtained a total of 287 patents, including 214 utility model patent, 69 authorized inventions (including 3 foreign authorized inventions) and 4 design patents.

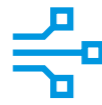
## Digital Transformation

In order to promote corporate agility and efficiency in terms of management, production and service, we have built a digital system to facilitate the digital transformation of business at the operation and sales level, and promote the interconnection and comprehensive integration of information systems by addressing data silos or unconnectedness at the operation level and integrating multiple resources. The purpose is to explore the new value of intelligent organization, management and service:



### Operation end

The company analyzes status quo of specific business processes, combing and reengineering weaker processes and improving expansion capabilities based on organization and performance guarantee;



### Manufacturing end

The company undergoes digital transformation of processes, narrowing production wiring cycles and saving labor costs, avoiding potential work safety risks, contributing to refined production and better product accuracy;



### Sales end

The company streamlines the decision-making chain, improves efficiency and quality of sales decisions, standardizes global sales operations, which helps lay the foundation for comprehensive digital transformation through a transparent sales data platform (CRM management system).

### Case Automated Guided Vehicle (AVG) trolley

The AGVs deployed in C3 workshop of Haining manufacturing base consists of 3 dispensers, 31 cachers, 1 logistics packaging line and 176 AGV trolleys, including 4 double-layer cassette AGV trolleys, 159 double-layer flower basket AGV trolleys and 13 test cassette AGV trolleys. After four months of testing, the overall AVG load factor has been stable at about 98.0%, which can meet the operational requirements of production line, and the whole project can save about RMB 22.27 million in labor costs annually.



# Product Quality Control



As one of the earlier manufacturing enterprises in PV field, Astronergy has always attached great importance to the building of corporate quality culture, continuously innovating and improving material, behavior, system and corporate spirits related to quality, and fully integrating quality management into the strategic development plan of the company. Based on 10 quality management systems, including internal Quality Manual, Quality and Safety Risk Investigation and Handling Management and Nonconforming Product Management, we have set the standards for external performance of products and services, promoted and educated our employees about quality management and other cultural highlights, streamlined and strengthened the quality audit and control process, and enhanced group awareness as well. At the end of the reporting period, all the manufacturing bases in Haining, Yancheng, Jiuquan and Thailand obtained ISO 9001:2015 quality management system certification; the Haining base and Yancheng base also passed IEC 62941:2019, the only quality system management standard in the PV industry.



ISO 9001: 2015 Standard Certificate (Master Certificate of Astronergy)



ISO 9001: 2015 Standard Certificate (Sub-certificate of Haining Chint Solar)



ISO 9001: 2015 Standard Certificate (Jiuquan Base)



ISO 9001: 2015 Standard Certificate (Sub-Certificate of Yancheng Chint New Energy)



ISO 9001: 2015 Standard Certificate (Thailand Base)



IEC 62941: 2019 Standard Certificate (Astronergy)



IEC 62941: 2019 Standard Certificate (Yancheng Chint New Energy)

Product quality is the key to a manufacturing enterprise. Astronergy's quality management department regularly performs internal audits on products from major bases, defines assessment standards in terms of module yield rate, cell efficiency, cell yield rate, loss of RMB 10,000 yuan, primary inspection pass rate, quality and safety, customer satisfaction, etc., and prepares and publishes performance audit forms as deemed appropriate. In terms of product quality improvement, we apply artificial intelligence inspection technology by developing PV/solar module algorithms, integrating product yield determination signals while analyzing data in sync, and forwarding the preliminary sorted No Good (NG) images for centralized determination.

**Case** Product quality improvement - AI intelligent detection technology for modules appearance

Quality improvement performance advantages include:

- AI defect detection ratio is 5.4% higher than manual inspection, effectively intercepting defective modules in the front channel and reducing cost;
- Mandatory automatic NG of defective modules is applied in the final inspection, effectively intercepting over 1,000 defecting pieces annually, and reducing potential customer complaints due to exposure of defective modules;
- The company has developed one-person multi-machine system, saving 18 headcounts, and applied paperless rework, contributing to cost reduction of RMB 1.8 million annually. With further factory expansions in the future, labor costs can be further reduced as well.

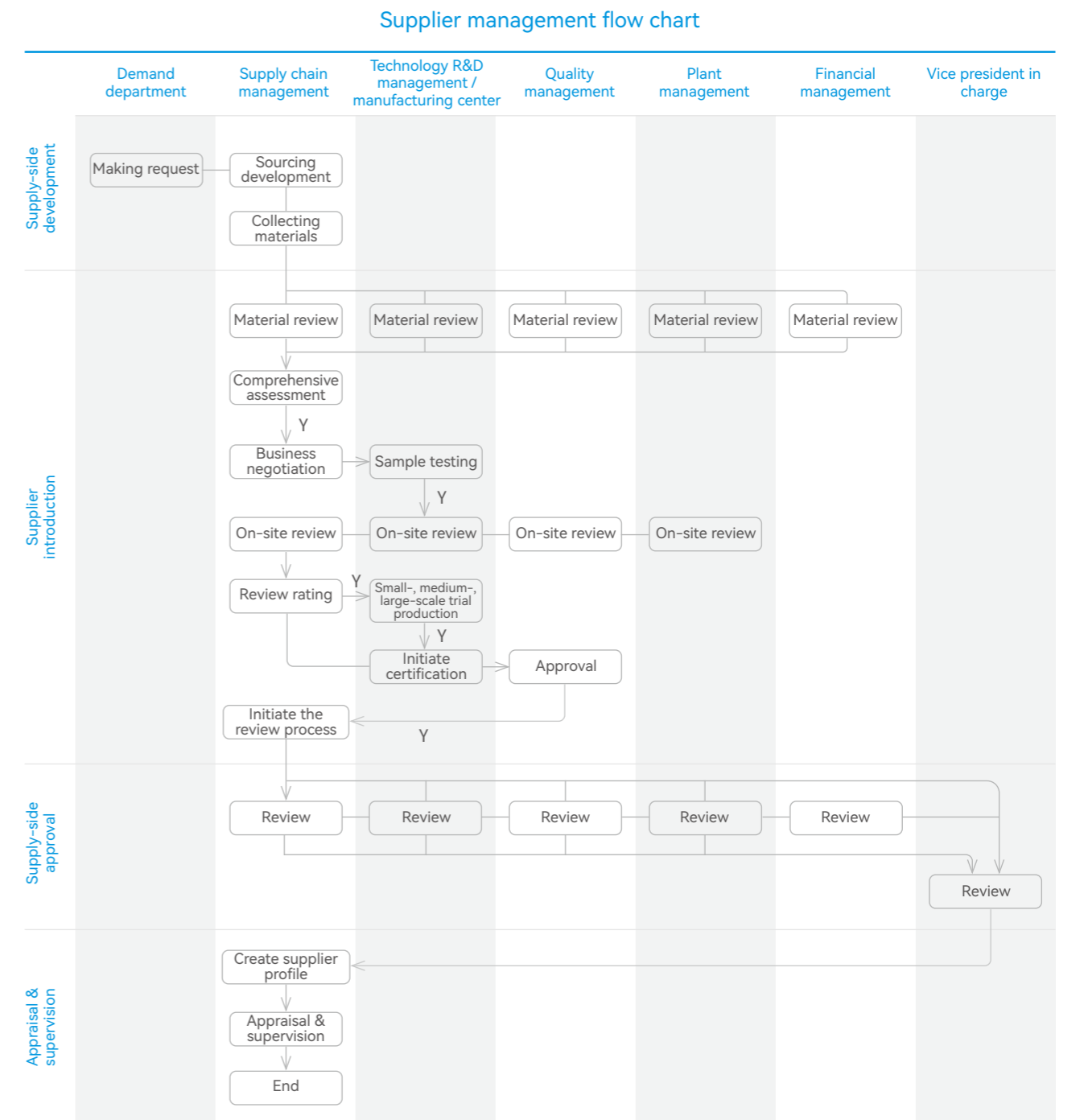
After product delivery, we have prepared installation manuals for single and double-glass/dual-glass modules respectively according to different types of PV/solar modules, standardizing operation procedures for installation, maintenance and electrical connection of the products and providing detailed instructions for utilization as well as safety precautions. In addition, irregular exhibitions, customer communication, customer technical training and other activities have been arranged to build in-depth trust and long-term relationships with customers while eliminating potential concerns at the same time.



Astronergy introduces products to customers at the International Solar Utilization Conference

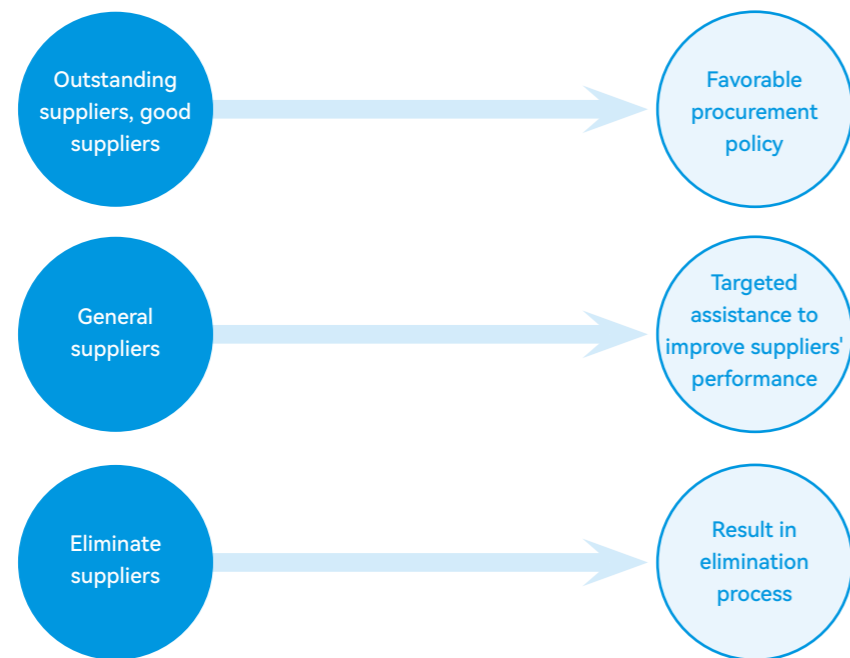
# Sustainable Supply Chain

As a partner sharing social responsibilities, Astronergy insists on working closely with suppliers, strives to improve social responsibility performance across the industry chain, and promotes sustainable development of business and supply chain. We require all suppliers to strictly comply with the laws, regulations and industry standards of local countries and regions, and have developed corporate standards such as Supplier Management and Supply Chain Social Responsibility Management System to specify the management requirements and methods for social responsibility in the process of supplier development, introduction, evaluation and elimination.



During the supplier sourcing and introduction phase, we investigate the social responsibility background of suppliers in accordance with the Supply Chain Social Responsibility Due Diligence Form, and make the best of platforms such as Tianyancha.com and the National Enterprise Credit Information Publicity System to investigate potential business risks, judicial risks, and any violations of laws and regulations of relevant suppliers. In terms of supplier qualification, material suppliers are required to provide Restriction of Hazardous Substances Directive (RoHS), Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Material Safety Data Sheet (MSDS), and other environmental and safety qualification references. In terms of supplier selection, local suppliers are preferred under equal conditions for regional advantages.

Non-conforming products are handled according to Non-conforming Product Management and feedback was forwarded to relevant suppliers for rectification. Supplier management department formulates audit plans for qualified suppliers for the next year at the end of the previous year, and implements audit plans accordingly. Social responsibility items are incorporated into the audit plan, whereby suppliers are required to rectify the non-conformity in time, and assistance is available if needed. Supplier performance appraisal is conducted on a quarterly and annual/project basis as deemed appropriate. CSR red line has been set and any violation in this regard will result in elimination procedure.



In 2022, Astronergy applied strict control and took multiple measures to strengthen supplier management from three aspects: online review, multiple supervision and field inspection. The quality department is responsible for daily control of incoming materials and feedback on abnormalities. During the reporting period, 12 new suppliers were contracted after conducting social impact due diligence without exception, and all of them were screened through environmental evaluation dimensions to comply with access threshold. During the reporting period, environmental impact assessments were conducted on 17 companies, of which 10 were found to have significant impact or potential negative impact, and all of them agreed to take rectification actions thereafter. Astronergy is willing to grow with suppliers and moving forward to meet sustainable development with joint efforts. Given its outstanding green supply chain management experience, the company was recognized as one of the third best practice batch of green supply chain management by the Ministry of Industry and Information Technology, and enlisted as one of the 6 Green Supply Chain Model Enterprises, together with P&G China and Danone.

The company follows the highest standards of business ethics and strives for fairness, integrity and sustainability in its business activities, as well as supplier management. After reaching cooperation intentions with the supplier, we will ask the supplier to sign off Supplier Code of Conduct together with the Procurement Framework Contract. These requirements focus on corporate social responsibility from multiple perspectives.

Guideline provision	Major commitments
Child labour	The suppliers shall comply with the laws and regulations regarding the minimum working age.
Compensation	The suppliers shall pay wages and provide benefits for all employees in a fair manner as required by applicable law.
Equal and fair treatment	All employees shall be treated with respect and dignity.
Anti-discrimination principles	Working terms shall be determined based on the individual's ability instead of personal traits or beliefs.
Legal immigration.	The suppliers shall only employ employees who are legally eligible.
Freedom of trade union	The suppliers shall respect the right of employees to form and join trade unions and industrial organizations and to negotiate in a collective, peaceful and lawful manner in accordance with the law.
Health and safety	The suppliers shall comply with all laws relating to health and safety in the workplace and provide training for employees on the safe operation.
Voluntary employment	The suppliers shall employ employees on a voluntary basis. No prison labor or slave labor shall be employed. And no forced labor of any form shall be imposed on employees that might result in physical harm.
Working hour	The suppliers shall comply with all applicable laws relating to regular working hours, overtime hours and benefits.
Environment	The suppliers shall comply with relevant environmental laws.
Business ethics	The suppliers shall operate in accordance with the supplier management system, procurement system and financial system formulated by the company, and shall not foster financial relationships that are not regarded as business with the company.
Management system	The suppliers shall develop and continuously improve a specific management system to ensure compliance with relevant laws and regulations and the requirements of this Code.
Conflict minerals	The suppliers shall not procure or use conflict minerals, and sub-contracted suppliers shall abide by this rule as well.
Compliance	The suppliers shall comply with regulatory requirements and industry standards under all applicable laws and, to the extent permitted by law, maintain documented records of compliance in this regard.

In addition, the framework contract comes with Confidentiality Agreement, Supplier Integrity Undertaking, Safety Supply Commitment and Environmental Protection Prohibited Substances Commitment. We are committed to meeting consumer expectations and needs, selecting sustainable raw materials and suppliers, and minimizing the negative impact on the environment by providing environment-friendly products for a better future of all mankind.

# Social Responsibility Practice and Exploration

In the past 39 years since its established, Chint Group, the parent company of Astronergy, has been upholding and deeply practicing the business philosophy of "Value Sharing", actively leading green and sustainable development, comprehensively promoting rural revitalization, and practicing common prosperity of high-quality development. These efforts help the company build an ever improving corporate social responsibility management system. Astronergy, focusing on the PV manufacturing of Chint Group, has been making the best of its industrial advantages to innovate the "photovoltaic+" model, launching ecological projects such as desert photovoltaic, agricultural photovoltaic, and sea-coast transformation/fishery-solar hybrid complementary projects based on the local conditions, integrated ecological concepts of sand control, forest protection, slope protection, and water control, so as to ensure win-win for both ecological and economic benefits.

Project name	Average annual power generation	Saving standard coal	Reducing carbon emissions
550MW fishery-solar hybrid photovoltaic power generation project at Wenzhou Development Zone	650 million kWh	235,000 tons	648,000 tons
150MW "agriculture and light complementary" power station project covering 4,500 mu of mudflat saline land at Yueqing	180 million kWh	52,000 tons	134,000 tons

After the group's crystalline silicon division transformed into an independent company, Astronergy continues to implement the carbon peak and carbon neutrality strategy, adheres to the development of smart energy, assists in the building of a green and low-carbon society, and helps to enrich people's life with PV and boost farmers' income. In addition, Astronergy actively takes the public welfare vision of the Chint Group by the means of learning from domestic and international governance concepts in environmental protection, green and low-carbon, conflict minerals, biodiversity, etc., and fulfilling its social responsibility without hesitation.

## Green Low-carbon Products and Circular Economy

Against the backdrop of the carbon peak and carbon neutrality strategy, by performing product life cycle assessment (LCA), we have advanced the review of emerging green standards at home and abroad, and evaluated the environmental impact of products and their value chains from the procurement of raw and auxiliary materials, production, utilization, to disposal and recycling at the end. The purpose is to evaluate relevant factors in a more objective way, and compare the environmental impact of products and related costs, paving the road for green improvement. In the overseas market, a total of 8 modules, including CHSM72M-HC(M6) and CHSM72M-HC(M10), have obtained French Product Carbon Footprint Certification; in the domestic market, we have obtained the first Solar PV/solar Module Carbon Footprint Certificate of the industry and Carbon Labeling Certificate.

The end-of-life panels of PV products contain heavy metals such as lead and tin, which can cause serious pollution and environmental problems if improperly disposed, while other materials such as copper, silver and silicon have recycling value and can be reused in PV products, saving rare resources and promoting economic value cycles. We have signed an agreement with PV Cycle organization in Europe, so that end-of-life PV/solar modules will be professionally processed by hundreds of recycling organizations distributed in Europe, including Italy, France, Germany, UK, Poland and Spain, providing customers with comprehensive collection and recycling services, and we will continue to extend our outreach for better recycling development in the future.



Product Carbon Footprint Certificate



Product Carbon Labeling Certificate



PV Cycle Agreement

## Disputed Procurement

Silicon is mainly used to make high-purity semiconductors, optical fiber communication materials, etc. and is widely applied in electrical & electronics, energy, chemical and other sectors. Due to the high technology threshold, huge investment in production lines, high development demand and geographical location of origin across the industry, silicon procurement boasts strategic significance. As a material category accounting for nearly 60% of total procurement volume, we have adopted vertical procurement management, and strategic material procurement department is responsible for the procurement of silicon materials in the supply chain of Astronergy, ensuring traceability to to be a Tier 1 supplier. We take legal and regulatory requirements of the project location as the red line of corporate supply chain management according to standardized frames, including Procurement Framework Contract. In addition, in order to cope with overall material related risks including international silicon stock and volatile procurement situations, we have developed a strategic procurement plan in the first place, and invested in two silicon material manufacturers as well to enhance the mechanism of internal circulation of high-quality silicon materials.

Responsibilities of Strategic Material Procurement Department	
Complete process management	Supplier selection, evaluation, negotiation, data maintenance, and collaboration with core strategic suppliers
Value chain research	Research and analysis of upstream and downstream supply markets for strategic materials such as silicon wafers, cells, silicon materials, etc.
Indicators and innovation	Innovation of procurement strategy and model; responsible for guaranteed silicon material supply and delivery cycle, cost, quality, payment terms and other key indicators
Precise supply chain	Establish a green and transparent supply chain
Refined procurement	Refined procurement and outsourcing of modules

## Biodiversity

The company and all its operation sites are not located in or adjacent to environmental sensitive areas, the environmental impact during production and operation is well under control, and the impact on biodiversity is negligible.

# Climate Change & Environmental Friendliness

As an important part of the natural environment for human beings, climate change, even in the smallest scale, can have comprehensive, multi-dimension and multi-level impact on natural ecosystems as well as socio-economic systems. The Paris Agreement represents a critical milestone in international collaboration, and mainstream consensus on green low-carbon development has been achieved globally. Astronergy practices the new development concept, implements active climate change response strategies, reduces pollution and carbon emission, improves its efficiency, enhances the control of greenhouse gas emissions, puts forward the concept of "PV+" new energy, and firmly follows the road of sustainable development.

Response to Climate Change	42
Energy Resource Management	44
Water Resource Management	47
Pollution Governance	49



# Response to Climate Change



Astronergy has actively engaged in addressing climate change. At the early planning stage, we have taken GHG emission data as the basis, referred to international and domestic standards such as *Specification With Guidance At the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals(ISO14064-1:2018)*, *General Guideline of the Greenhouse Gas Emissions Accounting and Reporting for Industrial Enterprises (GB/T 32150-2015)*, *Greenhouse Gas Protocol of World Business Council for Sustainable Development (WBCSD)*, etc., and developed GHG Emission Source Identification, Data Collection and Quality Management System to standardize the requirements and methods of GHG emissions, data collection, calculation and report preparation of the company.

The company has clarified the responsibilities of GHG emissions management, and EHS management department shall coordinate the establishment, maintenance and report preparation of GHG emission inventory, continuously promote the quantification and reporting of GHG emission, while other related departments shall assist EHS department in data collection, and attend relevant training on GHG emission sessions, so as to enhance the overall awareness of GHG-related issues across the company.

Astronergy's internal greenhouse management system involves technical aspects such as emission boundary, base year, emission source identification, selection of quantification method, active data collection, calculation of emission factors and volume, inventory establishment, uncertainty assessment, etc., on the basis of corporate production and operation characteristics for setting indicator standards. The company has picked 2021 as the base year to incorporate the quantification methods of stationary combustion sources, mobile combustion sources and fugitive emissions related to the company in Scope 1 direct GHG emissions into the system, so as to unify the data collection caliber and guarantee data quality from the very start. In addition, by reviewing safety classification, environmental friendliness and control of common refrigerants in production activities, we intend to adopt safe and environment-friendly refrigerants to meet production needs, reduce emission intensity, and take more corporate social responsibility against climate change.

In 2022, the company purchased 15.22 million KWH of green electricity, providing 5.97MW of electricity generated from current PV installations for rooftops installed in 2016. During the reporting period, the total amount of GHG emission was 373487.64 tons of carbon dioxide equivalent in scope I and II as shown in the following table:

Category	Unit	2021	2022
Scope I	tCO <sub>2</sub> e	16079.43	43809.03
Scope II	tCO <sub>2</sub> e	204518.60	329678.61
Scope I + II Emission intensity <sup>3</sup> (Based on corporate module capacity)	tCO <sub>2</sub> e/MW	42.12	30.49

<sup>3</sup> Note: The above data is quantified by Astronergy itself and has not been verified by a third party. Organizational boundary includes Astronergy Technology Co., Ltd. and Chint Solar (Haining) Co., Ltd. at Haining base, Yancheng manufacturing base, Jiuquan manufacturing base and Thailand manufacturing base.

## Case Warehouse forklift (powered by electricity instead of diesel)



The project converted the power of forklifts from traditional diesel to electricity, involving a total of 8 x 5-ton electric forklifts and 37 x 3.5-ton electric forklifts, which help increase the proportion of clean energy.



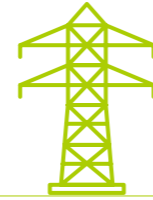
## Case From container trucks to barges



The company employed barges to replace container trucks, whereby a total of 1,825 containers were transported by barges instead of trucks, reducing the travelling duration of container trucks and improving the efficiency of energy consumption.



# Energy Resource Management



Astronergy maintains the momentum to actively promote energy conservation and emission reduction. The company is committed to improving energy consumption, continuously improving energy efficiency, identifying and implementing energy-saving projects, and optimizing energy consumption. At the end of the reporting period, Haining and Yancheng bases have both passed ISO 50001: 2018 Energy Management System Certification.



ISO 50001: 2018 Standard Certificate (Astronergy)



ISO 50001: 2018 Standard Certificate (Yancheng Chint New Energy)

According to internal management documents such as Energy Management Measures, Energy Metering Management Objectives and Energy Metering Management System, we have set up an energy-saving leading group to promote and implement national guidelines, policies, laws and regulations on energy, preside over the formulation of corporate energy-saving policy, energy-saving development plan and energy-saving targets, address and solve major problems in relevant departments, and arrange and coordinate energy-saving tasks accordingly. According to statistics, the energy data<sup>4</sup> of the company in recent three years are as follows:

Type of Energy	Unit	2020	2021	2022
Gasoline	L	179412	23181	31028
	KJ	618983820	799756230	1070478420
Diesel	L	100048	97283	101193
	KJ	3301590600	3210359460	3339380550
Gas	m <sup>3</sup>	149185	351162	287515
	KJ	5325904500	12536483400	10264285500
Solar power	KJ	18283347360	18365085360	19511551440
Electricity consumption	KWH	287456688	351178833	456245282
	KJ	1034844077160	1264243799520	1642483015920
Total	KJ	1025807208720	1262425313250	1637645608950
Energy intensity	KJ/MW	278487849	241024355	133705657
	Tons of standard coal/MW	0.95	0.82	0.46

<sup>4</sup> Note: Thermal value of tons of standard coal is taken as 2.9270\*10<sup>7</sup> KJ. Green electricity has been deducted from electricity consumption. Organizational boundary includes Astronergy Technology Co., Ltd. and Chint Solar (Haining) Co., Ltd. at Haining manufacturing base, Yancheng manufacturing base, Jiuquan manufacturing base and Thailand manufacturing base.

By unbundling performance tasks, domestic bases set a target of a 3% reduction in combined energy consumption over 2021. In 2022, all bases managed to reach this goal. At the end of the reporting period, we implemented a total of 8 energy saving and emission reduction projects, with an estimated cost reduction of RMB 1,227,200, an investment of RMB 1,450,000, and an actual cost reduction of RMB 449,500.

Project name	Item description	Expected result
Replacement of atomization sheet for atomization plate of ultrasonic humidifier at Module Workshop I & II	In order to avoid rust stains within humidifier pipes, atomization plate has been replaced by atomization sheet.	It is expected to save RMB 17,700 every year.
Discontinued use of PAC agents at the wastewater station of the old factory	PAC coagulant was originally used to refine and crush sludge and complete the settling treatment process. According to corporate production characteristics, PAC agent has been discontinued in use and PAM is employed for the same treatment effect.	It is expected to save RMB 171,300 every year.
Hydrogen peroxide remover replacing sodium bisulfite at wastewater station of Workshop III	Promote the use of hydrogen peroxide remover at Workshop III to replace sodium bisulfite.	It is expected to save RMB 396,600 every year.
Sensor switches and travel switches added to lighting at power room	Sensor switches and travel switches have been added on power equipment rooms and distribution rooms of the factory so that the lights can be turned off when rooms are vacant for less power consumption.	The total reduction amounted to 71,280 kWh of electricity, i.e. RMB 48,200 for the whole year.

## Case Greenhouse gas emission reduction

The waste heat of refrigerators and air compressors is utilized to reduce the consumption of natural gas for hot water heating of air conditioning, reducing the use of natural gas by about 6,480,000m<sup>3</sup> every year.





## Material Recycle

PV/solar modules, cells and other products boast the feature of high precision, so the waste generated during the production process is not worth recycling within the site, but handed over to professional recyclers for disposal and utilization like end-of-life products. General wastes generated from industrial operations, such as packaging trimmings, used cardboard, foam, etc., are sorted by the generating department according to four documents, including internal Waste Disposal Application Form and Waste Material Recycling Form, transferred to the temporary storage room for waste materials, and outsourced for disposal after reaching certain quantity. In addition, we have developed depreciation programs within the site based on usage patterns for specific obsolete materials, such as sintering belt depreciation for oven belts, test probe depreciation, pallet recycling, etc.

### Case Test probe sharpening

The average service life of cell test sorting probes is about 25 days, and they have to be replaced when below metrology dynamic test standards in order to ensure constant accuracy. Although the replaced probes cannot meet the cell test sorting requirements, they can still be used in the el (offline electroluminescence tester) testing, since the offline el tester imposes no requirements on electrical performance, but imaging only. A total of around 100 kg was recovered in 2022, saving over RMB 250,000 at market value.

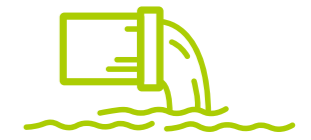


### Case Recycling of wooden pallets, iron pallets and project pallets

Logistics within and between production factories require a large number of pallets, and the cumulative production cost savings from the PC pallet recycling project in 2022 exceeded RMB 4 million. In addition, we have gradually replaced wooden pallets that are prone to wear and tear with iron pallets or glass pallets to ensure longer service duration. The combined savings of procurement costs and wear and tear costs contributed to cost reduction and sustainable development of the project as a whole.



# Water Resource Management



Water is the primary resource to maintain ecological environmental sustainability on the Earth. It is also the essential element in stabilizing the ecological environment. Although China is a vast country, water resources are unevenly distributed from north to south, and the weight of strategic economic resources varies greatly across the regions. We believe that scientific management of water resources plays a decisive role in sustainable development. Whether it is a factory in the Yangtze River Delta region with abundant water resources or in the arid northwest, water shall be utilized efficiently for better water resource planning and management, so that a 3% reduction can be achieved in overall energy consumption per product unit.

Astronergy's water resource is mainly from municipal water supply, and water is mainly consumed in cell production, cleaning and domestic use. We have developed corresponding water management standards at each manufacturing base to avoid water waste during production and private life. In addition, we have improved water resources management mechanisms and management methods by improving processes, realizing new initiatives and performing water-saving engineering alterations. During the reporting period, the total amount of municipal water withdrawal was 1,852,559 tons.

Category	2020	2021	2022
Total water withdrawal (tons)	2217938	2015822	1852559
Total water discharge (tons)	1797297	1513988	1476211
Total water consumption (tons)	420641	501834	376348

- **Sodium bisulfite dosing water at wastewater station has been changed to defluoridation diazoic tank water:** The water used for sodium bisulfite dosing at the wastewater station is about 15 tons a day, and the use of the fluoride removal secondary sedimentation tank effluent can save about 450 tons of tap water per month;
- **Recycling pure water backwash water for make-up water at the cooling tower:** The pure water ultrafiltration backwashing water in the C2 and M2 workshops of Haining Base is recycled as cooling tower make-up water. Through testing, the water conductivity of ultrafiltration backwashing water is lower than that of tap water, which can be used for cooling tower make-up water. After the transformation, 300 tons of water can be saved every day.
- **Re-concentration and reuse system of concentrated water:** The ROR process is a re-concentration and reuse system of the primary RO concentrated water. ROR water goes directly to the ultrafiltration tank of the pure water station for recycling, and the concentrated water of ROR is discharged. In 2022, the ROR system recycled a total of about 216,000 m<sup>3</sup> of water.

### Case Re-concentration and reuse system of concentrated water



Case

Recycling and reuse of discharged water from water quality testing circulation pond at the water purification station



Discharged water from water quality testing circulation pond at the water purification station goes directly into the gutter. After transformation, discharged water will go back to the primary tank for reuse

Before:

Discharged water from the circulation pond is wasted and goes directly to the gutter



After:

Discharged water from all circulation ponds on site (9 constant pressure with normal flow, 14 drainage during operation and provide low pressure drainage when not in operation) will be diverted to the tank of the primary system for recycling through a gas pipe



Besides process water conservation, we also perform regular pipeline inspections and assessment of water supply loads to ensure the functional water supply system. Water conservation awareness training is arranged for employees regularly, including water conservation methods, water conservation techniques, and regulations studies, etc. Employees are encouraged to put forward constructive suggestions and are rewarded timely to enhance overall water conservation awareness. During the reporting period, there is no water resource violation case at Astronergy.

Case

Water conservation awareness training and regulation studies



# Pollution Governance



With the rapid economic development of enterprises, a large amount of resources will be consumed. If various production and construction activities are not properly controlled, pollution emissions will cause serious environmental problems. We take "environmental protection and energy conservation" as our pollution control policy, and devote ourselves to environmental protection, energy conservation and consumption reduction in the whole life cycle, and advocate a green production mode of harmonious coexistence with nature. We regulate the sewage system and promote integrated development of production and resources & environment based on EHS Management Manual and internal environmental management system of Astronergy. At the end of the reporting period, the manufacturing bases in Haining, Yancheng, Jiuquan and Thailand all passed ISO 14001:2015 Environmental Management System Certification.



ISO 14001:2015 Standard Certificate (Master Certificate of Astronergy)



ISO 14001:2015 Standard Certificate (Sub-Certificate of Yancheng Chint New Energy)



ISO 14001: 2015 Standard Certificate (Jiuquan Base)



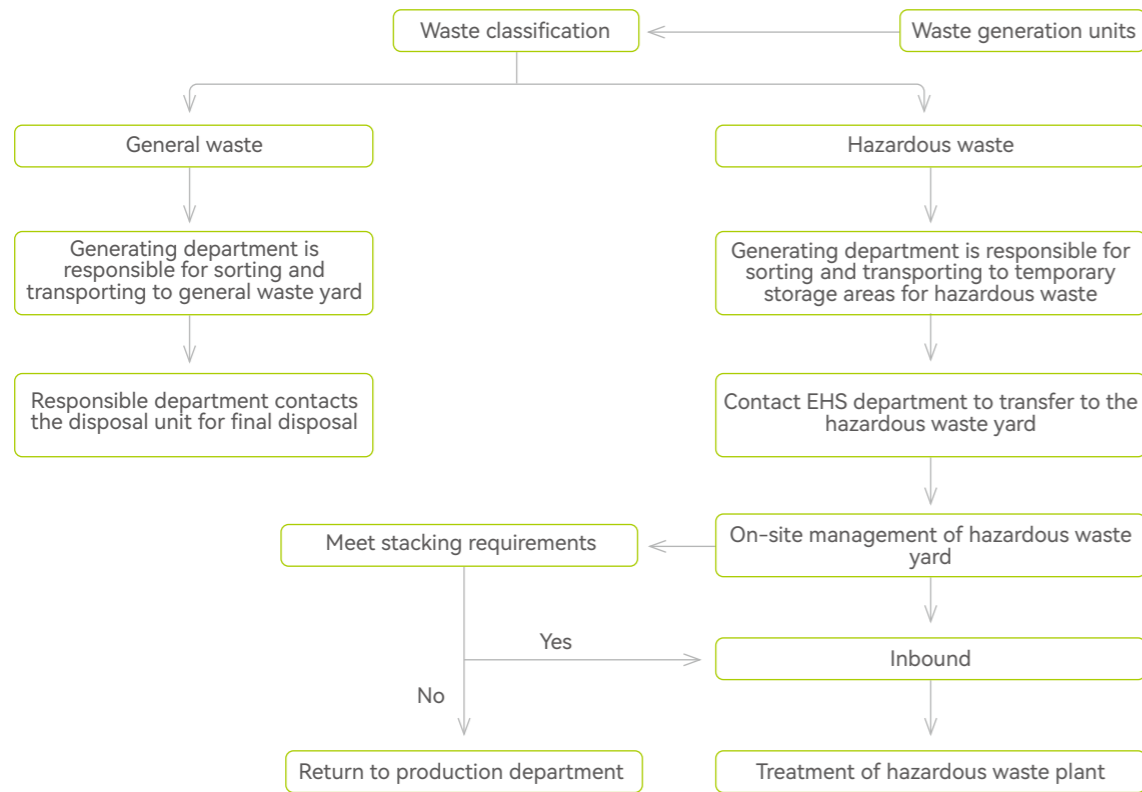
ISO 14001: 2015 Standard Certificate (Thailand Base)

Since different production lines boast different production processes, consume different raw and auxiliary materials, and employ different sewage methods, we have set up EHS management committee by factory area, and the team leader is responsible for the planning, arrangement and inspection of all kinds of environmental protection, promoting the establishment of environmental protection system and improving management level, while team members are responsible for implementing environmental protection projects. All operating bases carry out relevant projects in compliance with local requirements, and there was no environmental violation case during the reporting period.

## Solid Waste

General waste generated from the factory is mainly cartons, pallets, plastic products and other general packaging, while hazardous waste includes waste mineral oil, chemical contamination, chemical waste, etc. We have standardized the classification, collection, temporary storage, transport, disposal and ledger management of various wastes according to the internal Waste Management System, and clarified the responsibilities of collaborating departments such as supply chain management, warehousing and logistics, administrative outreach, etc., and improved the inspection, promotion and training efforts to ensure proper sorting, labeling and recording of various types of waste in line with national regulations.

Waste <sup>5</sup>	2020	2021	2022
Total waste (tons)	13576.69	13970.75	13745.87
Hazardous waste (tons)	158.52	73.66	81.90
Non-hazardous waste (tons)	13418.17	13897.09	13663.97



Waste management flow chart

<sup>5</sup> Note: Hazardous waste is disposed through incineration with no energy recycling; after off-site sorting of non-hazardous waste, those without recycling value is disposed through incineration, while those worth recycling is arranged accordingly

## Wastewater

We have defined the responsibilities of each relevant department according to the internal Management System for Prevention and Control of Water Pollution, standardized the management contents and methods of water pollution identification, control, monitoring and abnormal disposal, invited third-party companies for regular monitoring and evaluation to ensure environmental compliance of each pollution-producing node. The high concentration industrial wastewater produced during the process of texturing, etching, acid washing, etc. is discharged into self-built industrial wastewater treatment facilities at the factory, with the help of processes such as defluoridation and denitrification as well as the addition of chemicals to meet the municipal wastewater acceptance standards. The characteristic pollutants, discharge requirements, and monitoring data contained in the effluent from the Haining manufacturing base in 2022 are listed below:

Discharge outlet number	Types of pollutants	Monitoring facilities	Permitted concentration (mg/L)	Quantity of effective monitoring data (Daily average)	Concentration test results (Daily average, mg/L)		
					Minimum value	Maximum value	Average value
DW001 (Total discharge outlet)	Chemical oxygen demand	Automatic	150.00	1	10.00	30.00	20.00
	pH	Automatic	6~9	1	6.50	8.50	7.30
	Biochemical oxygen demand for 5 days	Manual	150.00	1	3.00	10.00	7.00
	Suspended solids	Manual	140.00	1	8.00	22.00	14.00
	Total phosphorus	Manual	2.00	1	0.21	1.15	0.43
	Ammonia nitrogen	Automatic	30.00	1	0.10	19.20	1.85



On-site sewage treatment station at Haining base

## Exhaust Gas

If various kinds of organized and unorganized exhaust gases produced during industrial processes are not managed properly, they can spread with the airflow and cause great harm to the environment and human health. In accordance with the requirements of Management System for Prevention and Control of Atmospheric Pollution, relevant laws and regulations, and internal Management System for Prevention and Control of Atmospheric Pollution, we have deployed various types of air collection hoods, spray towers, activated carbon and other disposal devices to ensure proper disposal of exhaust gases. EHS department updates the list of air pollution sources once a year and performs regular compliance assessments of pollution sources to minimize pollutant emissions and environmental impact. During the reporting period, the atmospheric monitoring data of Haining base and EIA emission requirements are as follows:

Exhaust gas type	Pollutant	Total accounting (t/a)	Total environment impact assessment (t/a)
Organized emission	Total non-methane hydrocarbon	2.97	12.95
	NOx	25.31	29.68
	Fluorides	0.09	0.25
	CL2	0.16	0.20
	NH3	0.19	9.33
	Particulate matter	0.23	0.54
	SO2	0	2.84



Exhaust gas treatment facility at Haining base



# Career Development and Social Good

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 are actively engaged in public welfare activities to promote the development of local communities and serve the society with concrete actions.

Safeguard the Rights and Interests of Employees	56
Safeguard H&S	59
Support Employees' Development	63
Commitment to Social Welfare	67



# Safeguard the Rights and Interests of Employees

Protecting the rights and interests of employees is not only a legal requirement, but also the basis for maintaining good labor-management relations, conducive to long-term sustainable development of the company. Astronergy fully respects the legitimate rights and interests of employees, follows the employment principles of fairness, justice and openness, develops a market-competitive salary and welfare system, and opens up democratic communication channels to create an equal, diversified and harmonious workplace.

Category	2020	2021	2022
Total employees	1996	2804	4157
Male employees	1385	2092	2825
Female employees	611	712	1332
Employees aged under 30	1024	1308	1910
Employees aged between 30 to 50	967	1485	2224
Employees aged above 50	5	11	23
Han employees	1615	2583	3466
Ethnic minority employees <sup>6</sup>	381	221	691
Senior management staff	2	2	11
Middle management staff	4	7	27
General managers	79	123	218
General staff	1911	2672	3901

## Equal Employment

We respect and protect human rights, strictly abide by the Labor Law of the People's Republic of China, the Labor Contract Law of the People's Republic of China and other local labor laws and regulations where the company operates, adhere to the principles of fairness and equality, fight against discrimination against employees on the basis of nationality, gender, age, ethnicity, religious beliefs, etc. Manufacturing bases and sales companies at home and abroad all acknowledge and maintain internationally recognized human rights. Meanwhile, we have formulated Social Responsibility Policy of Astronergy Technology Co., Ltd, Personnel Employment Management Regulations and other systems based on the reality of the company, to regulate the management of the employment process, and firmly oppose all discrimination, workplace harassment, forced labor, employment of child labor and other abusing behaviors of human rights. In order to enhance awareness of human rights of all employees, we have arranged social responsibility training for all employees. During the reporting period, there were no incidents of discrimination, harassment, forced labor or employment of child labor, and collective agreement signing rate reached 100% without exception within the country.

<sup>6</sup> Note: Foreign workers in Thailand factory are counted as ethnic minorities.

Year	2020	2021	2022
Percentage of employees trained in human rights policies or procedures in China	8.28%	7.53%	18.87%
Percentage of employees trained in human rights policies or procedures overseas	9.90%	12.15%	9.85%
Total percentage of employees trained in human rights policies or procedures	8.37%	7.70%	18.43%



SA8000: 2014 Social Accountability Standard Certificate



Mid-Autumn Festival Activities for Ethnic Minority Employees

We attach great importance to protecting the rights and interests of female employees, implementing the Law of the People's Republic of China on the Protection of Women's Rights and Interests and other relevant laws and regulations, and providing maternity leave, parental leave and other leaves to ensure proper protection of legitimate rights and interests of working mothers. In addition, we have also set up baby-care rooms and breastfeeding time-off to satisfy female employees' special needs. The company has set up women's union and women workers' committee, organized training for women workers in business and other aspects, improved women workers' business ability, and catered for women workers' needs for work and life to bring the best welfare for our female employees. During the reporting period, the return rate of employees on parental leave was 100%, the retention rate of female employees after parental leave was 86.99%, and the retention rate of male employees after parental leave was 84.68%.



Held activities on the international Women's Day



Baby-care room at Haining base

## Compensation and Benefits

We have formulated Compensation and Benefits Management System, continuously improve the compensation and benefit packages of employees every year according to internal and external changes, provide competitive salaries for employees, and grant bonuses based on performance appraisal results to encourage their initiatives. We regulate employment management, reward every hard-working employee, and provide a number of welfare benefits to alleviate employees from any potential concerns. We care about our employees, and organize sports events and team-building events during leisure time to ensure work-life balance.

Insurance coverage	The company purchases social pooling insurance for all contract employees. According to the local community policy, the company fully covers the serious illness insurance for employees in Haining, and provide annual physical examination for employees.
Recognition & reward	We organize evaluation of outstanding employees and grant bonuses every year. We reward employees who make reasonable suggestions, publish papers and obtain patents.
Various subsidies	We provide living subsidies in terms of meal, communication, accommodation and transportation, high temperature. Subsidies are paid to employees based on the length of service, working hours, job skills, etc.
Holiday benefits	Additional leave for long-service employees, and leave to accompany parents, etc. Festival benefits.

## Democratic Communication

We listen to every employee's voice and encourage them to reasonably express their demands and suggestions. We continuously improve relevant management system, establish the workers' congress, and hold at least one staff representative assembly every year to guarantee employees' democratic rights; we arrange quarterly staff interviews, and collect feedback from them through various channels to improve communication. Employees can offer feedback through the General Manager's mailbox, official website and other channels. We investigate employees' satisfaction through interviews and questionnaires to understand their thoughts and demands of the company. In 2022, employee satisfaction scored at 82.49, maintaining an upward trend for two consecutive years.

Category	2020	2021	2022
Employee engagement	80.3	81.55	82.49

# Safeguard H&S



Put safety first. We prioritize occupational health and safety, safeguard the lives of employees, and lay a solid foundation for normal production and operation. Astronergy puts health and safety of its employees high on the agenda in factory management, and strives to create healthy and safe working environment for them. We set H&S targets each year, and during the reporting period, there was no violation of relevant occupational health and safety-related laws and regulations, and corporate EHS (environment, health and safety) performance targets were successfully accomplished. No serious injuries or above, no occupational diseases, 8 minor work injuries and 3 safety incidents.

No.	Target value	Completion in 2022	Target value for 2023
1	≤ 20 accidents causing minor injuries	≤ 16 accidents causing minor injuries	Accident rate of minor injuries ≤2.3‰
2	0 environmental pollution accidents	100%	100%
3	Wastewater, exhaust gas, noise all met emission standards	100%	100%
4	100% harmless treatment of hazardous waste	100%	100%
5	4 EHS culture events every year	100%	100%

## Occupational Health and Safety Management

In accordance with the Law of the People's Republic of China on Production Safety, the Law of the People's Republic of China on the Prevention and Control of Occupational Diseases and other relevant laws and regulations, we have formulated EHS Management Manual, EHS Management Committee System, EHS Accident Investigation Management System, Occupational Health Management System and other regulatory documents, which are applicable to the company and all its subsidiaries. We have developed the EHS policy of "Safety and Health, Environmental Protection and Conservation, Continuous Improvement, and Due Diligence", and established an occupational health and safety management system that covers all employees and conforms to the international standard of ISO 45001. We have set up a security committee, headed by employees at a director position or above, a comprehensive EHS management network, an EHS executive committee and an EHS management network team. We have designated safety officers in each department to act as a EHS contact person, and strive to improve safe production environment and continuously meet the health and safety needs of our employees, contractors and subcontractors. At the end of the reporting period, all operating factories of Astronergy obtained ISO 45001: 2018 Occupational Health and Safety Management System Certificate.



ISO 45001: 2018 Standard Certificate (Astronergy Master Certificate)



ISO 45001: 2018 Standard Certificate (Yancheng Chint New Energy Sub-Certificate)



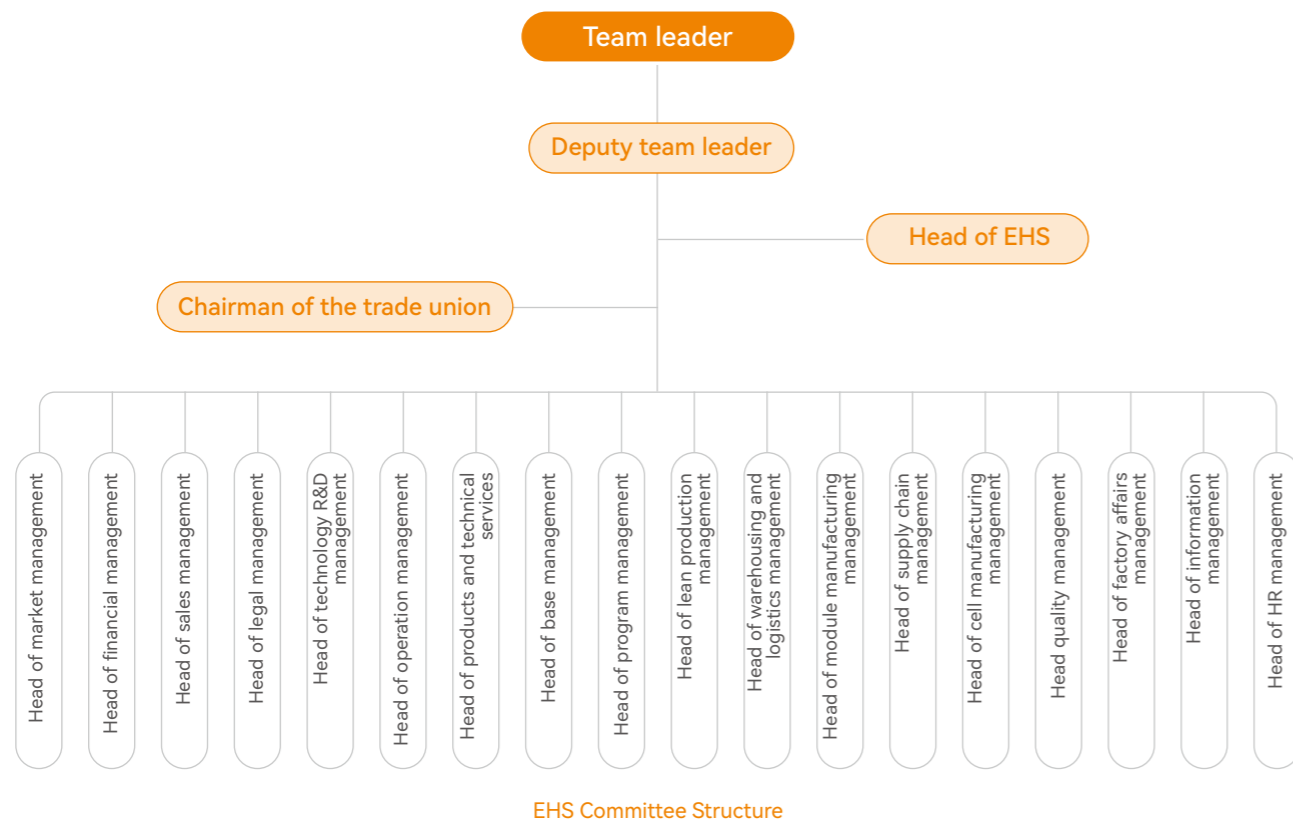
ISO 45001: 2018 Standard Certificate (Jiuquan Chint New Energy)



ISO 45001: 2018 Standard Certificate (Thailand base)



Work Safety Standardization Level 2 Enterprise



## Occupational Health Prevention and Protection

We actively create safe production environment for our employees to protect their personal safety and property. In order to identify hazards and mitigate safety risks in a more comprehensive and effective way, we have formulated the Hazard Identification and Risk Control Management System, consolidated the List of Key Hazards, and ensured annual evaluation and updating. We rate identified hazards into various grades, and implement appropriate control measures according to risk nature so as to mitigate potential production safety risks. We will also re-identify and update the list of hazards when significant changes take place in corporate operational activities or related laws and regulations.

For positions prone to job health and safety risks, we provide labor protective equipment for relevant employees, install safety testing systems, ventilation systems and other safety devices, inspect and maintain equipment on regular basis to mitigate potential risks and hazards, instruct and require employees to utilize safety equipment and operate equipment in accordance with operational specifications. We organize regular medical examinations and provide employees with occupational health checks before, during and after taking the job to ensure their health throughout the working cycle. Meanwhile, we provide employees with workplace injury insurance and group accident insurance to ensure medical and health protection is available just in case.

We have formulated and implemented a number of emergency plans such as the Special Emergency Plan for Occupational Disease Hazards and Accidents, and established an emergency command structure to ensure that on-site first aid supplies and equipment are available, striving to respond in an orderly and calm manner in the event of an emergency occupational health and safety accident; after the accident, we will establish an accident investigation team based on the internally formulated Accident Investigation Management System to identify its root cause, take preventive measures to avoid the same accident, and supervise the implementation of corrective measures.



Safety production facilities



Utilize safety and protective equipment

### 职业病危害告知卡

作业场所使用氨（氨气、液氨），对人体有损害，请注意防护

氨（氨气、液氨） Ammonia	健康危害	理化特性
 当心中毒	可经呼吸道进入人体。主要损害呼吸系统。表现为流泪、流涕、咳嗽、胸闷。重者呼吸困难、咳粉红色泡沫样痰。液氨可致呼吸道、皮肤、眼睛灼伤。	无色气体，有强烈刺激性及腐蚀性。易溶于水，与空气混合后遇明火可发生爆炸。与氟、氯等发生剧烈反应。
	<b>应急处理</b> 抢救人员穿戴防护用品，速将患者移至空气新鲜处，保持呼吸道通畅，去除污染衣物；注意保暖、安静；皮肤污染或溅入眼内用流动清水冲洗各至少20min；呼吸困难者给氧，必要时用合适的呼吸器进行人工呼吸；立即与医疗急救单位联系抢救。	
	<b>注意事项</b> 工作场所空气中时间加权平均容许浓度(PC-TWA) 不超过20mg/m <sup>3</sup> ，短时间接触容许浓度(PC-STEL) 不超过30mg/m <sup>3</sup> ，IDLH浓度300mg/m <sup>3</sup> 。避免直接接触液氨。密闭、局部排风、呼吸防护。禁止明火、火花，使用防爆电器设备，钢瓶液氨时将液氨口朝上，防止液氨气体逸出。工作场所禁止饮食、吸烟。	

急救电话：120 消防电话：119 应急电话：18867668119

Notification card of occupational disease hazards



Safety warning sign

## Building Safety Culture

Safety education serves as an important protection for employee H&S. We have established and improved the EHS training system, completed several training materials and organized many training activities to improve safety skills and awareness of all employees. We are equally concerned about the health and safety of external parties and conduct irregular EHS training sessions for contractors' personnel. In order to enhance safety awareness of employees and improve self-rescue capabilities and response to emergencies, we have drafted EHS emergency drill plans according to the characteristics of production activities, simulated accidents such as electric shock and falling from height during the production process, and relevant departments have attended emergency drill activities. During the reporting period, we provided a total of 632 EHS safety training sessions with a total of 16,406 participants; and 34 emergency drill activities were rolled out as well.





Safety training



First-aid drill

# Support Employees' Development



We actively organize staff training sessions to help staff improve their professional ability, continuously injecting vitality into corporate development for more benefits. Astronergy provides a wide career development stage for its employees and helps them growth by developing diversified training programs and opening up dual career development channels.

## Employee Training

We attach great importance to the cultivation and development of talents. In view of our business and job characteristics, we have developed differentiated training programs and actively organized various training programs for employees to meet their professional needs, career development aspirations, and improve their overall capacity.

### Case National production safety month activities: I am the safety whistle blower

During national production safety month in 2022, we hosted the activities of "I am a safety whistle blower" to open up the various channels for participation such as QR code, telephone and email, encouraging all employees to serve as "whistle blower" and actively participate in the inspection of safety hazards. We also addressed potential safety hazards reported by employees and awarded prizes for outstanding proposals to enhance safety awareness of all employees.



We provide three-level (company, department, position) safety education for every new employee, and the safety training hours shall not be less than 24 hours to ensure that each new employee is familiar with job safety operation, emergency response and other knowledge and skills, and safety assessment shall be passed before reporting duty.

OHS training for skilled workers can be divided into two main categories:

#### Special training for safety production

Each department is required to provide special training according to the production characteristics of relevant positions, and one employee shall attend several training sessions to master the knowledge and skills required by relevant positions. Training covers hazardous chemical safety, fire safety, and knowledge of hazardous operation safety.

#### Emergency rescue training

We designate special responsible persons in each department to form emergency response team (ERT), organize theoretical and practical training on emergency knowledge on a regular basis, and assess and evaluate training results to improve emergency response capabilities.



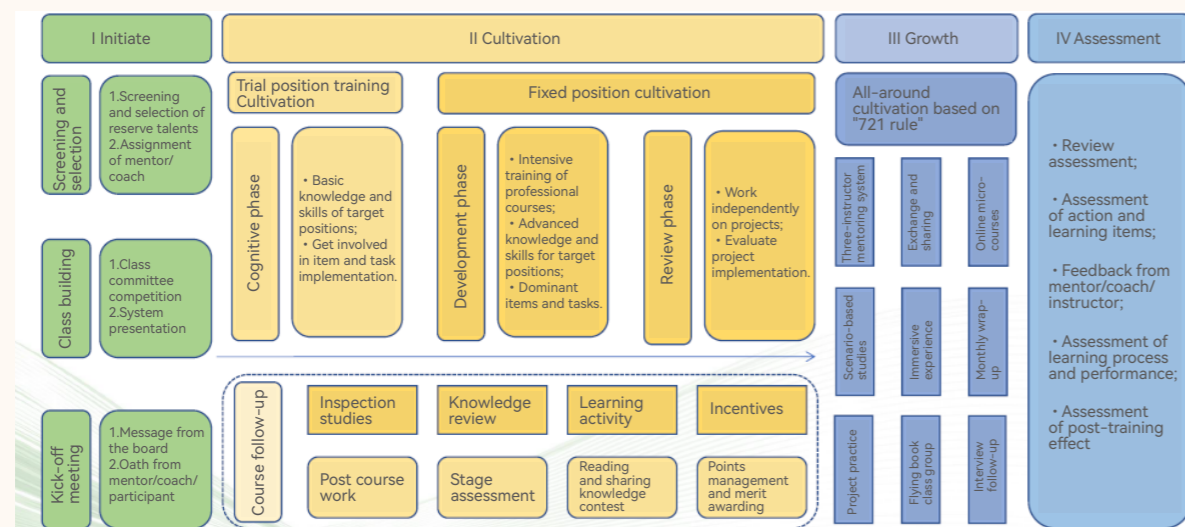
Category		2020	2021	2022
Senior executives	Total training duration	2	12	44
	Average training hours	1	6	4
Middle managers	Total training duration	16	35	135
	Average training hours	4	5	5
General managers	Total training duration	237	738	872
	Average training hours	3	6	4
General employees	Total training duration	24843	21376	31208
	Average training hours	13	8	8

We regularly evaluate the performance of our employees in line with the principle of "fairness, justice and openness", evaluate the personal ability of employees, and communicate with them frequently to ensure mutual contribution to the process. After obtaining assessment results, we will formulate individual development plans to assist employees in planning their careers, and provide a solid basis for training course planning.

**Case "New-Star" special training camp for better staff development**



We attach great importance to developing employees' leadership skills. In September 2022, we launched a 6-month "New-Star" special training camp for potential leaders in core positions of each department, arranging mentors for them to cultivate professional and grassroots management talents. The training plan was divided into two stages: trial position training and fixed position cultivation, whereby various training methods were deployed to equip participants with knowledge and ensure professional growth. Up to now, we have hosted "Coaching Leadership" and "Structured Communication and Debriefing Upskilling Workshop", highly recognized by our participants.

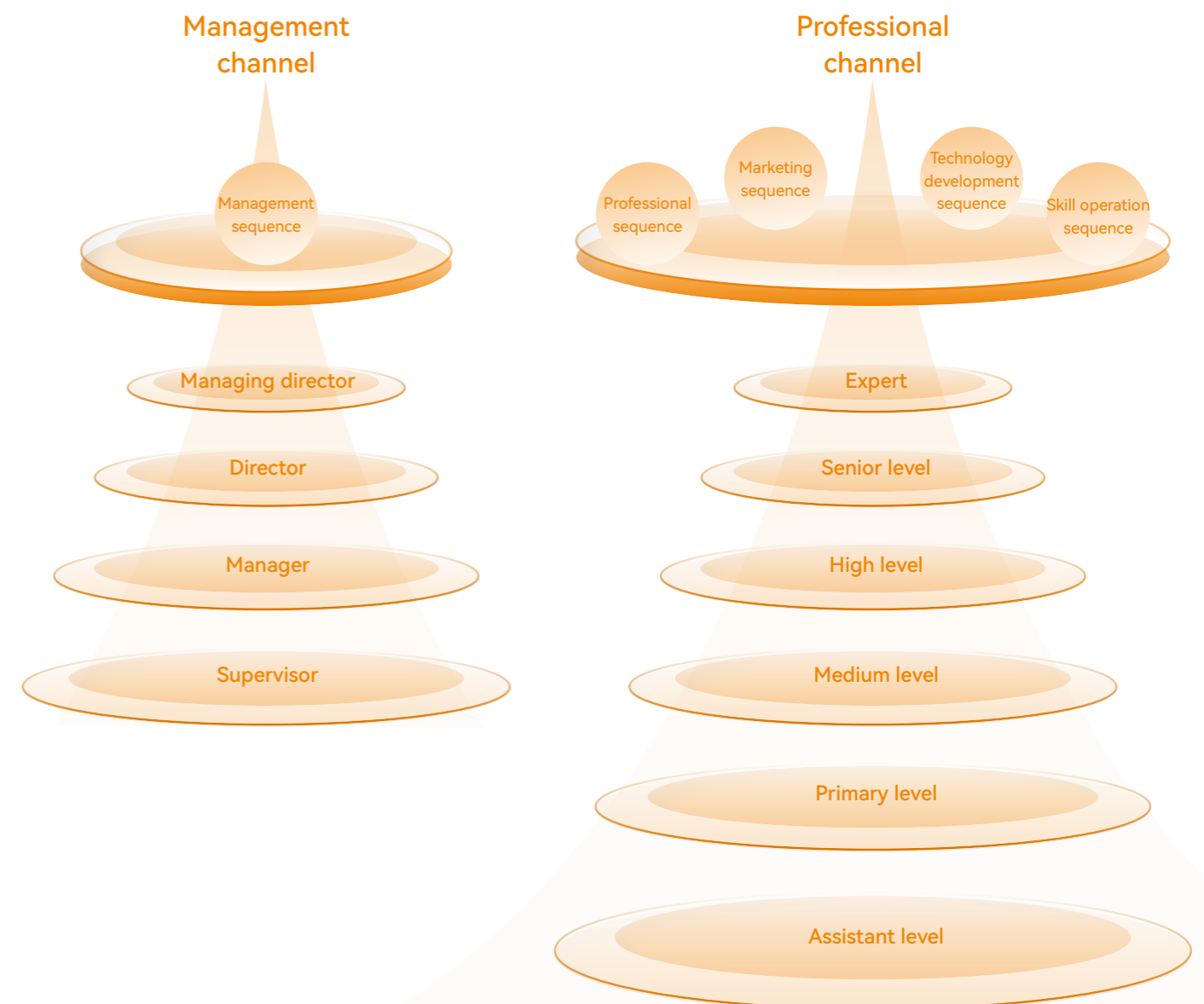


Panoramic view of "New-Star" special training camp

## Employee Promotion

We have adopted Job Qualification Management system to clarify the evaluation requirements of each job grade, providing a transparent, clear and definite dual channel for career development and ensuring fair promotion opportunities for all. The results of each promotion will be fed back to employees to help them timely adjust the direction of career planning; If the employee disagrees with the result, he/she can make a complaint in time. In addition, we respect the diversified development needs of our employees and encourage multi-dimensional development. Employees can apply to change sequence according to their own development plan and move to a more suitable position to develop their career.

### Promotion channel

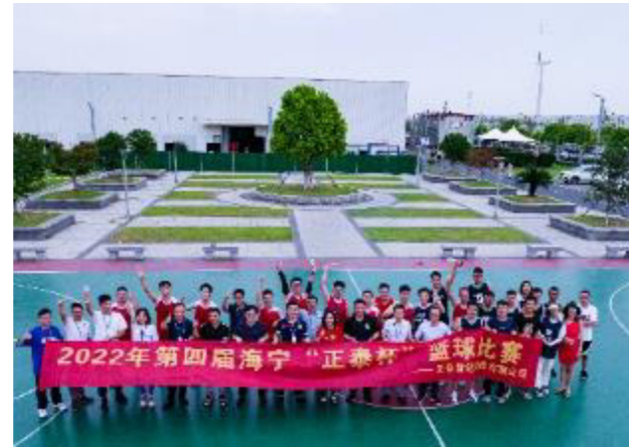


## Employee Care

While helping employees grow in the professional channel, we also care about their private lives and strive to create warm and comfortable working atmosphere. We have actively hosted employee care activities, such as recreational activities, sports events and team-building activities, so that employees can relieve stress, maintain work-life balance, and enhance their sense of belonging. As of the end of the reporting period, Astronergy has been awarded the fifth batch of provincial-level key cultivation units on ethnic unity and progress and the third batch of Jiaxing demonstration units on national unity and progress.



Choral competition



Basketball match



Tug-of-war



A resilient journey for thousand people

We care about workers in difficulties, and corporate labor union is specifically responsible for providing assistance in this regard, and ensuring that assistance is available in the form of personal care, collective aid, and paring up; we have set up a special fund for hardship subsidies for employees in need. Since 2019, we have arranged donations for 7 employees in need, raising over RMB 120,000 in total.

# Commitment to Social Welfare



We actively participate in public welfare and fulfill social responsibilities, which helps the company establish a good public social image. The Chint Public Welfare Foundation, initiated and established by Chint Group, focuses on food safety, environmental protection and other public welfare activities closely related to people's livelihood. By organizing a series of public welfare activities such as low-carbon offices, green travel and donations to schools, the Foundation encourages a low-carbon lifestyle of energy conservation, emission reduction and environmental protection, and promotes the technical development and standardization of the industry. Over the years, the foundation has donated more than 450 million yuan in funds and goods to various public welfare activities. It has been awarded the "China Charity Award" twice by the Ministry of Civil Affairs, the "China Red Ribbon Star of Great Love" by the China Red Ribbon Foundation and the "Outstanding Contribution to Charity Award" by the Zhejiang Charity Federation.

Astronergy actively supports the operation of the Group's foundation and helps it to contribute to environmental protection, industry promotion, culture and education, and disaster relief. At the same time, we actively practice our mission as a new energy company by donating photovoltaic panels many times and sending clean energy throughout the world, in order to create more social value while increasing commercial value.

## Support of Community Construction

We regard the community as one of our key stakeholders and insist on growing with the community in diversified forms to help them benefit from corporate business activities. We actively support infrastructure construction by local communities to improve livelihood conditions; meanwhile, we provide vocational skills training for local communities to help local people improve their working skills and contribute to local economic development and well-being.

### Support the construction of PV power generation for the benefits of teachers and students in mountainous areas



#### Case

Ala Central Primary School of Luqu County, Gannan Prefecture, Gansu Province, is located deep in the harsh mountains and life is hard there. We actively responded to the call of rural revitalization by donating a 50.49KW PV power generation project for the school and executed project construction with our own efforts. At the moment, PV power generation station project of Ala Center Primary School has been successfully completed, relieving the heating safety hazards of coals in winter, and improving the learning and living environment of teachers and students. It is expected to save on average RMB 30,000 in electricity on annual basis, reducing operational expenditure of the school.



**Case** Project donation to empower practical activities at universities



We donated and built a demonstration project for Leshan Vocational and Technical College to facilitate teaching practices. In addition, we hosted "Chint Classes", whereby corporate employees delivered courses to students, and provided internship opportunities to help students get well prepared for working skills and future careers.



**Case** Open day at power station for environmental education



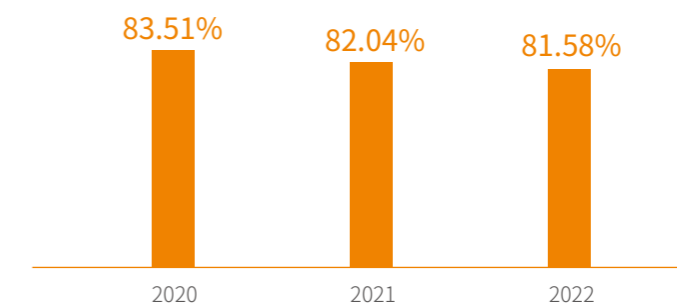
In 2021, we hosted an Open Day for the Dutch project - Markelo PV power generation station so that local elementary school pupils could have a tour around our base. During the open day, project development leader introduced the operation of solar energy and PV power generation station, discussed the relationship between PV utilities and animal protection, and encouraged kids to care for natural environment and climate change to build environmental protection awareness.



## Promotion of Local Employment

We encourage and support local residents to find jobs and promote local employment. We prioritize hiring local residents in our operating locations to improve local employment rates. In addition, we support local enterprises with local procurement, injecting vitality into local economy and providing more career and employment opportunities for local residents.

Employment rate of local employees in Thailand manufacturing base





# Independent Verification Statement

To the management and stakeholders of Astronergy,

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch (hereinafter referred to as "TÜV SÜD") has been engaged by Astronergy Technology Co., Ltd. (hereinafter referred to as "Astronergy" or "the Company") to perform an independent third-party verification on Astronergy Technology Co., Ltd. 2022 Environmental, Social and Governance (ESG) Report (hereinafter referred to as "the Report"). During this verification, TÜV SÜD's verification team strictly abided by the contract signed with Astronergy and provided verification regarding the Report in accordance with the provisions agreed by both parties and within the authorized scope stipulated in the contract.

This Independent Verification Statement is based on the data and information collected by Astronergy and provided to TÜV SÜD. The scope of verification is limited to the given information. Astronergy shall be held accountable for authenticity and completeness of the provided data and information.

## Scope of Verification

Time frame of this verification:

- The Report contains the data disclosed by Astronergy during the reporting period from January 1<sup>st</sup>, 2022 to December 31<sup>st</sup>, 2022, including economic, environmental and social information and data, methods for management of material issues, actions/measures and the Company's sustainability performance during the reporting period.

Physical boundary of this verification:

- The on-the-spot verification took place at below listed location:  
No.1 Jisheng Road, Jianshan New Zone, Haining, Zhejiang Province, P.R. China.

Scope of data and information for the verification:

- The scope of verification is limited to the data and information of Astronergy and production sites under its operational control covered by the Report.

The following information and data are beyond the scope of this verification:

- Any information and contents beyond the reporting period of this Report; and
- The data and information of Astronergy's suppliers, partners and other third parties; and
- The financial data and information disclosed in this Report that have been audited by an independent third party are not verified again herein.

## Limitations

- The verification process is conducted in the above scope and places. Sampling and verification are adopted for the data and information in the Report by TÜV SÜD, and only the stakeholders within the Company are interviewed; and
- The Company's standpoint, opinions, forward-looking statements and predictive information as well as the historical data and information before January 1<sup>st</sup>, 2022 are beyond the scope of this verification.

## Basis for the Verification

This verification process was conducted by TÜV SÜD's expert team with extensive experience in the economic, environmental, social and other relevant areas and drew the conclusions thereof. The verification is in line with the following standards:

- International Standard on Assurance Engagements ISAE3000(Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information, Limited Assurance
- TÜV SÜD Procedure of Verification on Sustainability Report

In order to perform adequate verification in accordance with the contract and provide reasonable verification for the conclusions, the verification team conducted the following activities:

- Preliminary investigation of the relevant information before the verification;
- Confirmation of the presence of the topics with high level of materiality and performance in the Report;
- On-site review of all supporting documents, data and other information provided by Astronergy; tracing and verification of key performance information;
- Special interview with the representative of Astronergy's management; interviews with the employees related to collection, compilation and reporting of the disclosed information; and
- Other procedures deemed necessary by the verification team.



## Verification Conclusions

According to the verification, we believe the Report prepared by Astronergy is objective and true, without systemic problems, and can be used by stakeholders. The verification team has drawn the following conclusions on this Report:

Inclusivity	Astronergy has identified the internal and external stakeholders such as employees, shareholders and investors, customers, suppliers, government and regulatory agencies, public communities, surrounding residents, research institutions, industry associations and companies in the same industry, and established a stakeholder communication mechanism to collect the demands of stakeholders on a regular basis.
Materiality	Astronergy has established the prioritization process of material topics determination, identified and assessed the priority of the sustainability topics which are highly related to the industry, the Company disclosed the strategy, management approach as well as sustainability performance in corporate operation, therefore the Report's adherence to materiality principle is guaranteed.
Responsiveness	Astronergy has disclosed the management approach of key issues that stakeholders concern, such as climate change, energy resource management, digital transformation, product quality control, business ethics, personnel training and development, and protecting customer rights/information security, and has established a grievance mechanism, to fully respond to the demands and expectations of stakeholders.
Impact	Astronergy has set up a sustainable development committee at the level of the board of directors, which governs three special working groups on environmental governance, social responsibility and corporate governance, to further respond to the risks and opportunities caused by climate, environment and market policy changes, and to enhance corporate contribution in terms of environmental and social responsibility and corporate governance. Meanwhile, the Company integrates the United Nations SDGs into the concept of sustainable development, and continues to contribute to the cause of global sustainable development.

## Recommendations on Continuous Improvement

- It is recommended that the Company, based on the existing ESG management system, formulates an overall sustainable development plan, covering climate change objectives, and establishes a corresponding risk management system.

## Statement on Independence and Verification Capability

TÜV SÜD is a trusted partner of choice for safety, security and sustainability solutions. It specialises in testing, certification, auditing and advisory services. Since 1866, TÜV SÜD has remained committed to its purpose of enabling progress by protecting people, the environment and assets from technology-related risks. Today, TÜV SÜD is present in over 1,000 locations worldwide with its headquarters in Munich, Germany. TÜV SÜD has been committed to sustainable development and actively promotes environmental protection related projects. Over the years, TÜV SÜD has been actively expanding its performance in energy management, renewable resources, and electric automobiles, etc., helping its customers meet sustainable development needs.

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch is one of TÜV SÜD's global branches and has an expert team whose members have professional background and rich industrial experiences.

TÜV SÜD and Astronergy are two entities independent of each other and both TÜV SÜD and Astronergy and their branches or stakeholders have no conflict of interest. No member of the verification team has business relationship with the Company. The verification is completely neutral.

Signature:  
On Behalf of TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch

Zhu Wenjun  
TÜV SÜD Sustainability Authorized Signatory Officer  
April 28<sup>th</sup>, 2023  
Shanghai, China

Note: In case of any inconsistency or discrepancy, the simplified Chinese version of this verification statement shall prevail, while the English translation is used for reference only.

# Appendices

## GRI Sustainability Reporting Standards (GRI Standards) Content Index

Instructions	Astronergy has reported in accordance with the GRI Standards for the period from January 1, 2022 to December 31, 2022
GRI 1 used	GRI 1: Foundation 2021

GRI Standards	Disclosures	Page number	Reason for omission
Organization and Its Reporting Practices	GRI 2-1 Organizational details	06-13	
	GRI 2-2 Entities included in the organization's sustainability reporting	02	
	GRI 2-3 Reporting period, frequency and contact point	02-03	
	GRI 2-4 Restatements of information	-	Lack of information: This report is the first ESG report of Astronergy and does not involve restatement of information.
	GRI 2-5 External assurance	70-71	
Activities and Workers	GRI 2-6 Activities, value chain and other business relationships	06-10	
	GRI 2-7 Employees	56	
	GRI 2-8 Workers who are not employees	59-61,66	
Governance	GRI 2-9 Governance structure and composition	22	
	GRI 2-10 Nomination and selection of the highest governance body	22	
	GRI 2-11 Chair of the highest governance body	22	
	GRI 2-12 Role of the highest governance body in overseeing the management of impacts	23	
	GRI 2-13 Delegation of responsibility for managing Impact	23	
	GRI 2-14 Role of top governance body in sustainability reporting	03,23	
	GRI 2-15 Conflicts of interest	25	
	GRI 2-16 Communication of critical concerns	23	
	GRI 2-17 Collective knowledge of the highest governance body	23	
	GRI 2-18 Evaluation of the performance of the highest governance body	22	
	GRI 2-19 Remuneration policies	22	
GRI 2-20 Procedures to determine compensation	-	Lack of information: Confidentiality restrictions	
GRI 2-21 Annual total compensation ratio	-	Lack of information: Confidentiality restrictions	

GRI Standards	Disclosures	Page number	Reason for omission
Strategy, Policies and Practices	GRI 2-22 Statement on sustainable development strategy	04-05,23	
	GRI 2-23 Policy commitment	-	Lack of information: Refer to the official website
	GRI 2-24 Embedding policy commitment	-	Lack of information: Refer to the official website
	GRI 2-25 Processes to remediate negative impacts	28	
	GRI 2-26 Mechanisms for seeking advice and raising concerns	23	
	GRI 2-27 Compliance with laws and regulations	15,24	
	GRI 2-28 Membership association	11-13	
Stakeholder Engagement	GRI 2-29 Approach to stakeholder engagement	16-17	
	GRI 2-30 Collective bargaining agreement	56	
Substantive Topics 2021	GRI 3-1 Process to determine substantive topics	18-19	
	GRI 3-2 List of substantive topics	18-19	
Economic Performance 2016	GRI 3-3 Management of material topics	06	
	GRI 201-1 Direct economic value generated and distributed	06	See details in the annual report
	GRI 201-2 Financial implications and other risks and opportunities due to climate change	06	
	GRI 201-3 Defined benefit plan obligations and other retirement plans	58	
	GRI 201-4 Financial assistance received from government	-	See details in the annual report
Market Performance 2016	GRI 3-3 Management of material topics	56	
	GRI 202-1 Ratio of standard entry level wage by gender compared to local minimum wage	-	Lack of information: Confidentiality restrictions
	GRI 202-2 Proportion of senior management hired from the local community	69	
Indirect Economic Impact 2016	GRI 3-3 Management of material topics	67	
	GRI 203-1 Infrastructure investments and services supported	67	
	GRI 203-2 Significant indirect economic impact	67	
Procurement Practices 2016	GRI 3-3 Management of material topics	35-37	
	GRI 204-1 Proportion of spending on local suppliers	-	Lack of information: Confidentiality restrictions
Anti-corruption 2016	GRI 3-3 Management of material topics	24-26	
	GRI 205-1 Operations assessed for risks related to corruption	-	Lack of information: Corruption risk assessment not conducted
	GRI 205-2 Communication and training on anti-corruption policies and procedures	24-26	
	GRI 205-3 Confirmed incidents of corruption and actions taken	24-26	
Anti-competitive Behavior 2016	GRI 3-3 Management of material topics	24-26	
	GRI 206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	24-26	

GRI Standards	Disclosures	Page number	Reason for omission
Tax 2019	GRI 3-3 Management of material topics	26	
	GRI 207-1 Approach to tax	26	
	GRI 207-2 Tax governance, control and risk management	26	
	GRI 207-3 Stakeholder engagement and management of concerns related to tax	26	
	GRI 207-4 Country-by-country reporting	26	
Material 2016	GRI 3-3 Management of material topics	46	
	GRI 301-1 Materials used by weight or volume	-	Lack of information: Confidentiality restrictions
	GRI 301-2 Recycled input materials used	46	
Energy 2016	GRI 3-3 Management of material topics	44-45	
	GRI 302-1 Energy consumption within the organization	44	
	GRI 302-2 Energy consumption outside the organization	44	
	GRI 302-3 Energy intensity	44	
	GRI 302-4 Reduce energy consumption	45	
Water and Effluents 2018	GRI 3-3 Management of material topics	47-48	
	GRI 303-1 Interactions with water as a shared resource	47	
	GRI 303-2 Management of water discharge- related impacts	47-48	
	GRI 303-3 Water withdrawal	47	
	GRI 303-4 Water discharge	47	
Biodiversity 2016	GRI 3-3 Management of material topics	39	
	GRI 304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	39	
	GRI 304-2 Significant impacts of activities, products and services on biodiversity	39	
	GRI 304-3 Habitats protected or restored	39	
	GRI 304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	39	
Emission 2016	GRI 3-3 Management of material topics	42-43	
	GRI 305-1 Direct (Scope I) GHG emissions	42	
	GRI 305-2 Energy indirect (Scope II) GHG emissions	42	
	GRI 305-3 Other indirect (Scope 3) GHG emissions	42	
	GRI 305-4 GHG emissions intensity	42	
	GRI 305-5 Reduction of GHG emissions	42	
	GRI 305-6 Emissions of ozone depleting substances (ODS)	-	N/A: discharge do not involve

GRI Standards	Disclosures	Page number	Reason for omission
	GRI 305-7 Nitrogen oxides (NOx), sulfur oxides (SOx) and other significant gas emissions	-	N/A: discharge do not involve
Waste 2020	GRI 3-3 Management of material topics	49-53	
	GRI 306-1 Waste generation and significant waste-related Impacts	49-53	
	GRI 306-2 Management of significant waste-related impacts	49-53	
	GRI 306-3 Waste generated	50	
	GRI 306-4 Waste diverted from disposal	50	
Supplier Environmental Assessment 2016	GRI 3-3 Management of material topics	35-37	
	GRI 308-1 New suppliers that were screened using environmental criteria	36-37	
	GRI 308-2 Negative environmental impacts in the supply chain and actions taken	35	
Employment 2016	GRI 3-3 Management of material topics	56,58	
	GRI 401-1 New employee hires and employee turnover	-	N/A: Confidentiality requirements
	GRI 401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	58	
	GRI 401-3 Parental leave	58	
Labor/ Management Relations 2016	GRI 3-3 Management of material topics	56,58	
	GRI 402-1 Minimum notice periods regarding operational changes	-	N/A: No major plant site changes
Occupational Health and Safety 2018	GRI 3-3 Management of material topics	59-62	
	GRI 403-1 Occupational health and safety management system	59-60	
	GRI 403-2 Hazard identification, risk assessment and incident investigation	60-61	
	GRI 403-3 Occupational health services	62	
	GRI 403-4 Worker participation, consultation, and communication on occupational health and safety	61-62	
	GRI 403-5 Worker training on occupational health and safety s	61-62	
	GRI 403-6 Promote worker health	58, 61-62	
	GRI 403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	61	
	GRI 403-8 Workers covered by an occupational health and safety management system	59	
	GRI 403-9 Work-related injury	59	
Employment practices 2016	GRI 3-3 Management of material topics	63-64	
	GRI 404-1 Average hours of training per year per employee	63	
	GRI 404-2 Programs for upgrading employee skills and transition assistance programs	63	
	GRI 404-3 Percentage of employees receiving regular performance and career development reviews	64	
Diversity and Equal Opportunity 2016	GRI 3-3 Management of material topics	56-57	
	GRI 405-1 Diversity of governance bodies and employees	56	
	GRI 405-2 Ratio of basic salary and remuneration of women to men	58	

GRI Standards	Disclosures	Page number	Reason for omission
Non-discrimination 2016	GRI 3-3 Management of material topics	56-58	
	GRI 406-1 Incidents of discrimination and corrective actions taken	56	
Freedom of Association and Collective Bargaining 2016	GRI 3-3 Management of material topics	56	
	GRI 407-1 Operating locations and suppliers where freedom of association and collective bargaining rights may be at risk	37,56	
Child Labor 2016	GRI 3-3 Management of material topics	56	
	GRI 408-1 Operations and suppliers at significant risk for incidents of child labor	37,56	
Forced or Compulsory Labor 2016	GRI 3-3 Management of material topics	56	
	GRI 409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	37,56	
Security Practice 2016	GRI 3-3 Management of material topics	56-57	
	GRI 410-1 Security personnel trained in human rights policies or procedures	57	
Rights of Indigenous Peoples 2016	GRI 3-3 Management of material topics	-	N/A: Operating activities do not violate indigenous rights
	GRI 411-1 Incidents of violations involving rights of indigenous peoples	-	N/A: Operating activities do not violate indigenous rights
Local Community 2016	GRI 3-3 Management of material topics	67-69	
	GRI 413-1 Operating sites with local community engagement, impact assessments and development plans	67-69	
	GRI 413-2 Operating sites with actual or potentially significant negative impacts on local community	-	Lack of information: No impact assessed
Supplier Social Assessment 2016	GRI 3-3 Management of material topics	35-37	
	GRI 414-1 New suppliers screened based on social criteria	36-37	
	GRI 414-2 Negative social impacts in the supply chain and actions taken	35	
Public Policy 2016	GRI 3-3 Management of material topics	26	
	GRI 415-1 Political contributions	26	
Customer Health and Safety 2016	GRI 3-3 Management of material topics	27-29	
	GRI 416-1 Assessment of the health and safety impacts of product and service categories	28	
	GRI 416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	-	Lack of information: Confidentiality requirements
Marketing and Labeling 2016	GRI 3-3 Management of material topics	27	
	GRI 417-1 Requirements for product and service information and labeling	27	
	GRI 417-2 Incidents of non-compliance concerning product and service information and labeling	27	
	GRI 417-3 Incidents of non-compliance concerning marketing communications	27	
Customer Privacy 2016	GRI 3-3 Management of material topics	29	
	GRI 418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	29	

## UNGC Ten Principles Index Table

Ten Principles of the United Nations Global Compact (UNGC)	Page
Businesses should support and respect the protection of internationally proclaimed human rights	37,56-57
Businesses shall make sure that they are not complicit in human rights abuses.	37,56-57
Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	37,56
Businesses should uphold the elimination of all forms of forced and compulsory labour.	37,56
Businesses shall ensure abolition of child labour	37,56
Businesses should uphold the elimination of discrimination in respect of employment and occupation.	37,56
Businesses should support a precautionary approach to environmental challenges.	42-53
Businesses should undertake initiatives to promote greater environmental responsibility.	42-53
Businesses should encourage the development and diffusion of environmentally friendly technologies.	42-53
Businesses should work against corruption in all its forms, including extortion and bribery.	24-26





**ASTRONERGY**



LinkedIn



FACEBOOK