



**2022**

SHANGHAI AIKO SOLAR  
ENERGY CO., LTD.  
**ESG Report**



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## About this Report

### Introduction

This is the first Environmental, social and governance (ESG) report (this "Report") issued by Shanghai Aiko Solar Energy Co., Ltd. (the "Company") to disclose and demonstrate its ESG performance to stakeholders. This report has been reviewed by the Board of Directors of the Company which is responsible for the authenticity and validity of the information contained herein.

### Period

The period covered by this Report is from January 01, 2022 to December 31, 2022 with some exceptions.

### Scope

This Report covers Shanghai Aiko Solar Energy Co., Ltd. and its subsidiaries, a scope identical to the scope of its consolidated financial statements.

### Data Sources

All information and data used in this Report are from the formal documents, internal statistics and publicly disclosed documents of the Company.

### Data Processing

All financial data referenced herein shall be subject to the annual report. All amounts are expressed in Chinese yuan unless otherwise stated. Environmental data are calculated in accordance with national or industrial standards, such as the General Principles for Calculation of Total Production Energy Consumption (GB/T 2589-2020), and the National Development and Reform Commission Guidelines for Accounting and Reporting Greenhouse Gas Emission (trial implementation). Any inconsistency between the Chinese and English versions of this Report shall be subject to the Chinese version.

### Basis

Guidelines of Shanghai Stock Exchange for the Preparation of Reports on the Fulfillment of Social Responsibilities by Companies

The Global Reporting Initiative (GRI) Sustainability Reporting Standards ("GRI Standards")

The Environmental, Social and Governance Reporting Guide of the Stock Exchange of Hong Kong Limited

Reports from the Task Force on Climate-related Financial Disclosures

### Notes on Designations

Full name	Short name
Shanghai Aiko Solar Energy Co., Ltd.	Aiko Solar, Aiko, Company, We, or Us
Guangdong Aiko Solar Energy Technology Co., Ltd	Guangdong Aiko, Foshan Base
Zhejiang Aiko Solar Energy Technology Co., Ltd.	Zhejiang Aiko, Zhejiang Base
Tianjin Aiko Solar Energy Technology Co., Ltd.	Tianjin Aiko, Tianjin Base
Zhuhai Fushan Aiko Solar Energy Technology Co., Ltd.	Zhuhai Fushan Aiko, Zhuhai Base

### Report Publication

This Report is issued electronically, which is available on <http://www.aikosolar.com/>.

### Feedback from Readers

In this Report, themes that interest different stakeholders are considered to the largest extent. You are encouraged to give your comments on this Report because your comments can help the Company enhance its level of ESG disclosures and advance its ESG management and practices. Please provide your comments and feedback by sending a completed Reader Feedback Form attached hereto to [ESG@aikosolar.com](mailto:ESG@aikosolar.com).

## Message from the Chairman



With extreme weather events frequently happening around the world, responding to climate change for the sustainable development has become a global consensus. A broad and profound reform on a systematic basis in China has been launched under the "dual carbon" goals for low-carbon transformation. Driven by the "dual carbon" goals, the course of new energy development prospered in China in 2022. As an important contributor of the PV industry, Aiko Solar strives to be a global leader in the industry and with the mission of bringing surging momentum to the zero-carbon society. It adheres to the concept of sustainable development, anchors the clean energy track, and combines refined production at scale and innovations of mass production technologies, to provide efficient solar cell products for the industry and promote the upgrading and sustainable development of the clean energy industry.

### Explore Innovation DNAs that Empower the Green Development

Guided by the sustainable development concept, Aiko Solar has always focused on the main channel of solar cell R&D and manufacturing, adhering to the innovative gene to create powerful technology, and continuously leading product and technological changes in the industry. In 2022, the Company released ABC cell-based modules and "source-grid-load-storage" photovoltaic energy overall solutions to better meet the requirements of high-end and mid-end PV scenarios. This is a part of our efforts to practice our climate actions and release the green development potential. This product not only further enhances the company's core competitiveness in technology, but also marks that Aiko Solar has brought surging momentum to the zero-carbon society with continuous breakthroughs in mass production efficiency.

### Hold Digital Opportunity that Drives the Industrial Development

As one of pioneers for digital transformation, Aiko Solar provides full process digital experience for customers and partners by helping them create the full life cycle digital management mode that ranges from design, transaction, order fulfillment and operation and maintenance and offer them with improved services. In addition, digital transformation can bring lowered costs and higher efficiency to make contribution to the world's low carbon and green development and the construction of a zero-

carbon society. Furthermore, it focuses on the construction of core solution capabilities and is open to cooperations within its ecosystem, keeping a close eye on advancements regarding innovations of product solutions, development of processes, operation of digital platforms, business model innovations and integration of industrial chain, which is expected to help move the development of clean energy industry.

### Concentrate on People Development that Helps Business Growth

The growth of employees is the permanent powerhouse for the sustainable development of a business. Aiko Solar attaches great importance to people by having created an employee development system consisting of four modules, i.e., leader management, learning development, talent assessment and qualifications. Backed further by an online knowledge management platform, the Company performs employee training of all levels including new employee onboarding, professional skills and leadership, which help employees gain growth and happiness in their work. It has created a system for identifying, fostering and rapidly develop people to speed up their growth, and to pave a foundation for the sustainable development of the Company while helping them realize their own value.

Aiko Solar will keep advocating, executing and leading the sustainable development of the clean energy field by swiftly responding to climate actions and getting hold of relevant opportunities. It will lead the innovation of photovoltaic products and technology, and accelerate the transformation from a professional cell manufacturer to a professional cell manufacturer and a provider of photovoltaic energy overall solutions, thereby helping the construction of low-carbon cities. In collaboration with all possible partners, it strives to redefine the energies we use and change our life to march toward the zero-carbon future!

——Chen Gang, Chairman of Shanghai Aiko Solar Energy Co., Ltd.

## About Aiko Solar

### Company Profile

Shanghai Aiko Solar Energy Co., Ltd. (Stock code: 600732.SH) is one of major suppliers of solar cells across the world, with industry-leading technologies for manufacturing and supplying PV cells, and its business spanning across the R&D, production, and sale of solar cells.

Setting its foot on the dual carbon goals, the Company moves along the low-carbon path and focuses on technological innovations and product innovations in particular efficient solar cells, to advance the healthy development of the PV industry. In addition, the Company creates 'source-grid-load-storage' photovoltaic energy overall solutions around the novel ABC cell technology to address the excessive energy consumption, low power generation efficiency and low returns caused by the mismatches of energy flow and information flow between the power generation end and consumer end in the energy applications. With four production bases in Foshan, Yiwu, Tianjin and Zhuhai, the Company has its products which are extensively welcomed by global producers of crystalline silicon modules sold to South Korea, Japan, India and European countries, with a total export of over 80GW, it secures a leading position in terms of the export of solar cells.

### Overview of Products

#### PERC Cells

With its industry-leading capabilities for the development, manufacturing and sale of PERC cells, Aiko Solar has realized the mass production of efficient PERC monofacial cells and bifacial cells, which makes it the first manufacturer that applies the tubular PERC technology to the mass production of these solar cells in the world. What is more, its successful development of technologies that are able to upgrade 166mm cells to 182mm cells and to make cells thinner can help with the flexible capacity shift between 182mm cells and 210mm cells.

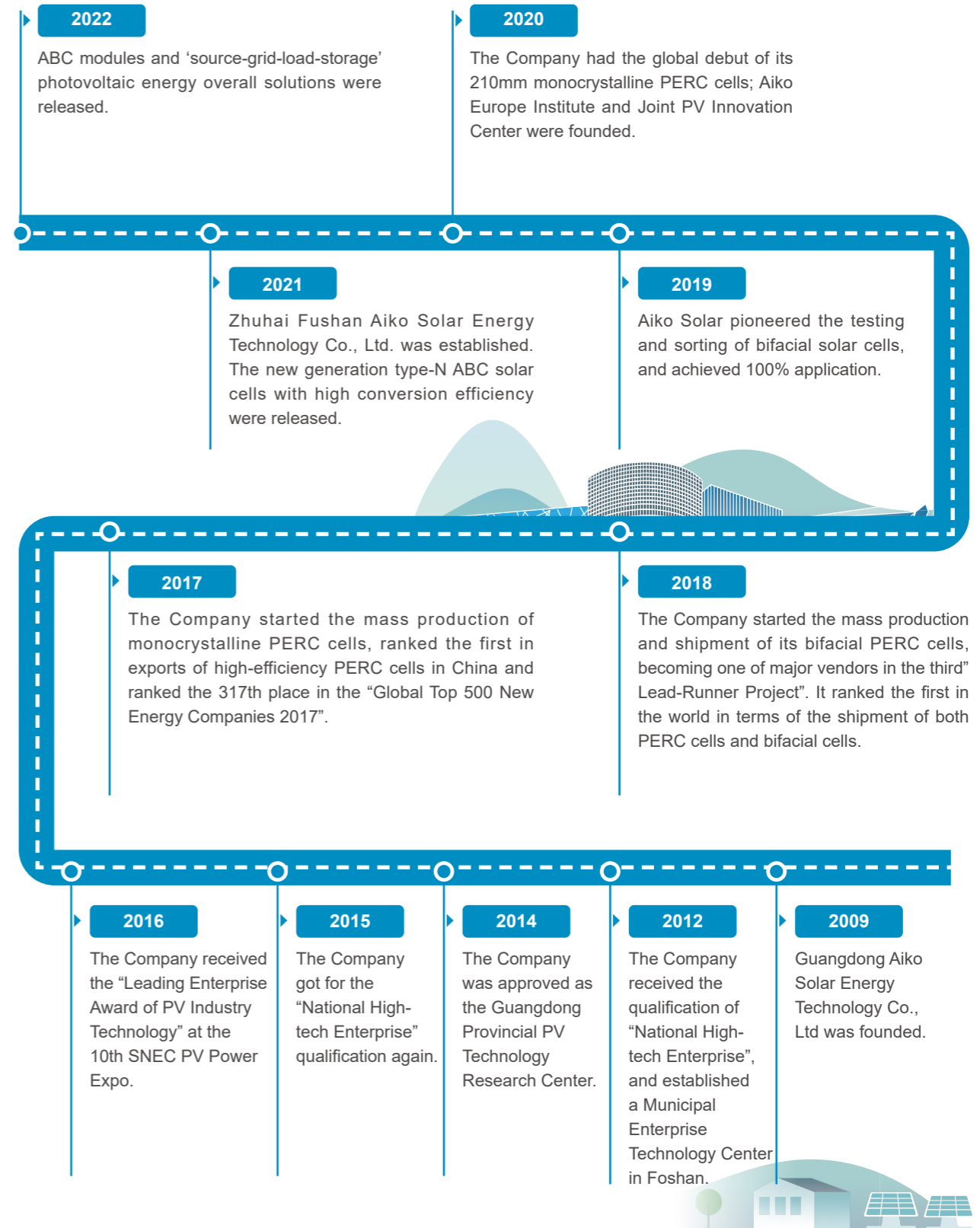
#### ABC Cells

Aiko Solar has released its newly developed type-n ABC cells where no grid line exists on the front side, which can provide enhanced conversion efficiency, low temperature coefficient, and make it easy to get thinner cells. ABC cell technology is the new generation type-n all-back contact technology solely developed and all major intellectual property rights in which are owned by the Company.

#### Solutions

Around the ABC products, Aiko Solar builds its capabilities regarding solution innovations, development of processes and systems, operation of digital platforms, business model innovations and industry chain integration, and focuses on high-end and mid-end PV market, to offer safe, smart and low-carbon photovoltaic energy overall solutions to customers.

## History



## Key Performance

Indicator	Unit	2022
<b>Operation performance</b>		
Operating revenue	In 10,000 yuan	3,507, 495.71
Net profit attributable to shareholders of the listed company	In 10,000 yuan	232,820.13
Basic earnings per share	CNY/share	1. 34
<b>Governance performance</b>		
Number of directors	Person	7
Number of independent directors	Person	3
Number of training sessions on risk control, audit and law	/	33
<b>R&amp;D performance</b>		
R&D cost	In 10,000 yuan	137, 783.62
Number of R&D employees	Person	2,145
R&D projects for mass production	/	41
Total patents authorized	/	884
<b>Employee performance</b>		
Employment		
Total employees	Person	9,137
Male to female	/	7,187/1,950
Employment contract rate	%	100
Social insurance coverage	%	100
Health and Safety		
Employee health check and health file coverage	%	100
Number of safety emergency drills		234
Development and Training		

Indicator	Unit	2022
Occupational training expense	In 10,000 yuan	2,300
Number of training sessions	/	1,567
Training duration	hour	391,101.12
Total participants	/	10,589
<b>Benefits and Care</b>		
Number of employee care activities	/	56
Number of employee associations	/	23
Number of employee activities	/	357
Employee discussions	/	442
<b>Public Interest</b>		
Number of volunteering activities	/	15
Total volunteering duration	hour	450
Total volunteers	/	200
<b>Environment performance</b>		
Reduction of water consumption intensity (per unit product)	%	33.28
Reduction of greenhouse gas emission intensity (per unit product)	%	9.00
Reduction of comprehensive energy consumption intensity (per unit product)	%	31.82



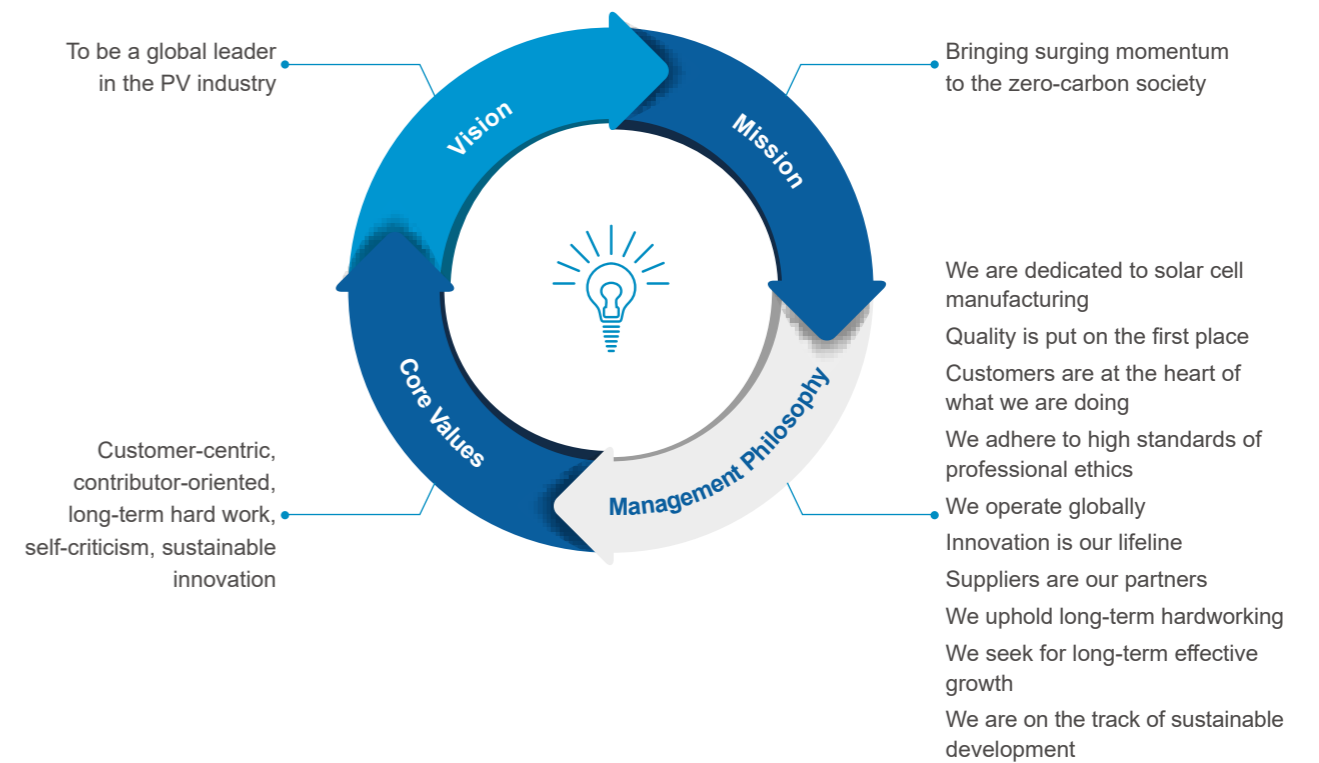
## Qualifications and Honors



## Sustainable Development System

Aiko Solar integrates its own development into the global sustainable development and gets engaged in the development and manufacturing of solar cells. While striving to advance the global new energy industry, it never stops the efforts into the improvement of its sustainable development system, regular reviews and supervisions of ESG affairs, development of the ESG management work, prompt understanding of stakeholder requests and swift responses to stakeholders, and the gradual enhancement of its sustainable development management.

## Sustainable Development Philosophy



## Sustainable Governance System

Under the supervision of the Board of Directors, Aiko Solar has created ESG management system for which the Board Office is ultimately responsible and the EHS Department takes care of the execution work with the supports from all functions. The Company plans to form an up-bottom ESG governance system in 2023 and developing sustainable development policies. This is a part of the Company's work to improve its ESG management through the creation of a multi-level ESG management system, to drive its sustainable development.



## Stakeholder Engagement into Important Assessments

### Communications with Stakeholders

Aiko Solar gives high importance to all stakeholders including governmental and regulatory authorities, investors, customers, employees, suppliers, and communities, by creating various communication channels for timely understanding the expectations and requests of stakeholders and by giving swift responses.

Key stakeholders	Expectations and requests	Communication channels
<p>Governmental bodies and regulators</p>	<ul style="list-style-type: none"> <li>Pay taxes under laws</li> <li>Operate under laws</li> <li>Contribute to local economy</li> <li>Technological innovation capabilities</li> <li>Climate change responses</li> <li>Anti-bribery and anti-corruption</li> </ul>	<ul style="list-style-type: none"> <li>Pay taxes on time</li> <li>Receive supervision</li> <li>Work reporting</li> <li>Improve the capabilities of innovation and R&amp;D</li> <li>Special industries lead local development</li> <li>Provide stable job opportunities</li> </ul>
<p>Shareholders and Investors</p>	<ul style="list-style-type: none"> <li>Create value for shareholders</li> <li>Safeguard the interests of shareholders</li> <li>Improve company governance</li> <li>Prevent and control operational risk</li> <li>Satisfactory information disclosure</li> </ul>	<ul style="list-style-type: none"> <li>Shareholder Meeting</li> <li>Company announcements and regular reporting</li> <li>Strategy meetings and roadshows</li> <li>Onsite receptions and hot-line for investors</li> <li>Http://sns.sseinfo.com/, interactions and exchanges with the capital market</li> </ul>
<p>Employees</p>	<ul style="list-style-type: none"> <li>Safeguard the rights and interests of employees</li> <li>Provide them with a development platform</li> <li>Improve their welfare</li> <li>Focus on their occupational health</li> <li>Boost democratic communications</li> </ul>	<ul style="list-style-type: none"> <li>Employee representatives' meeting</li> <li>Discussions with front line employees</li> <li>Employee satisfaction survey</li> <li>Employee feedback</li> <li>Cultural activities and sports, and care activities</li> <li>Professional skill training opportunities</li> </ul>
<p>Customers</p>	<ul style="list-style-type: none"> <li>Protect the rights and interests of customers</li> <li>Guarantee the quality of products and services</li> <li>Integrity and fulfillment</li> <li>Value creation ability</li> </ul>	<ul style="list-style-type: none"> <li>Customer Satisfaction Survey</li> <li>Customer claims and feedback (telephone, emails and WeChat)</li> <li>Technological discussions</li> </ul>
<p>Suppliers</p>	<ul style="list-style-type: none"> <li>Fair competition</li> <li>Transparent purchase</li> <li>Stable partnership</li> </ul>	<ul style="list-style-type: none"> <li>Open bidding information</li> <li>Supplier performance assessment</li> <li>Long-term strategic cooperation</li> <li>Phone calls and emails</li> <li>Technological discussions and factory audits</li> </ul>
<p>Communities</p>	<ul style="list-style-type: none"> <li>Build harmonious communities</li> <li>Work for public interest</li> <li>Local environmental protection</li> </ul>	<ul style="list-style-type: none"> <li>Volunteers</li> <li>Donations</li> <li>Protect community environment</li> <li>Support public construction in communities</li> <li>Poverty relief through industry development and education</li> </ul>



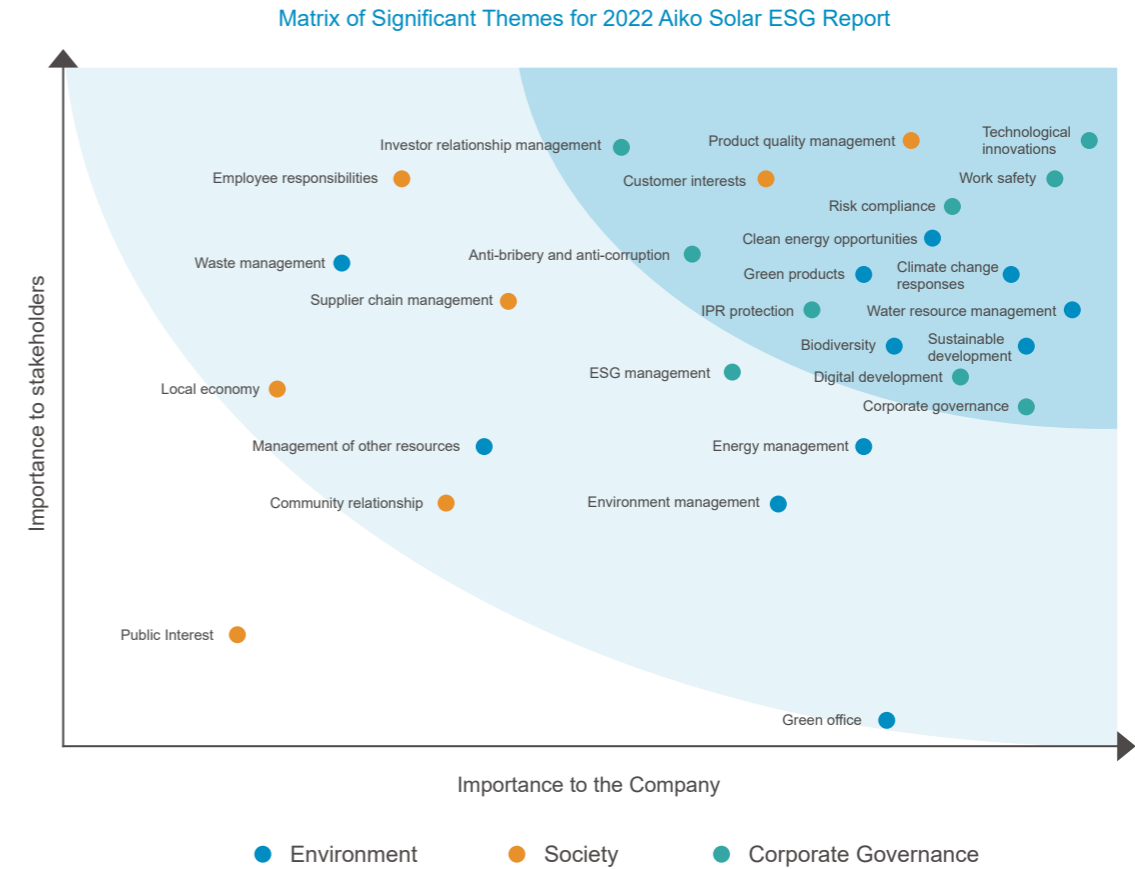
## Analysis of Significant Themes

Aiko Solar continues improving its identification and management of significant themes by collecting and understanding concerns and expectations from stakeholders for the Company through analysis of industry policies and trends, industry benchmarking and online questionnaires, prioritizing themes on the basis of the assessments from environment, economy and people (human rights) by important stakeholders, and identifying important themes that help guide the Company to put targeted efforts into its sustainable development.

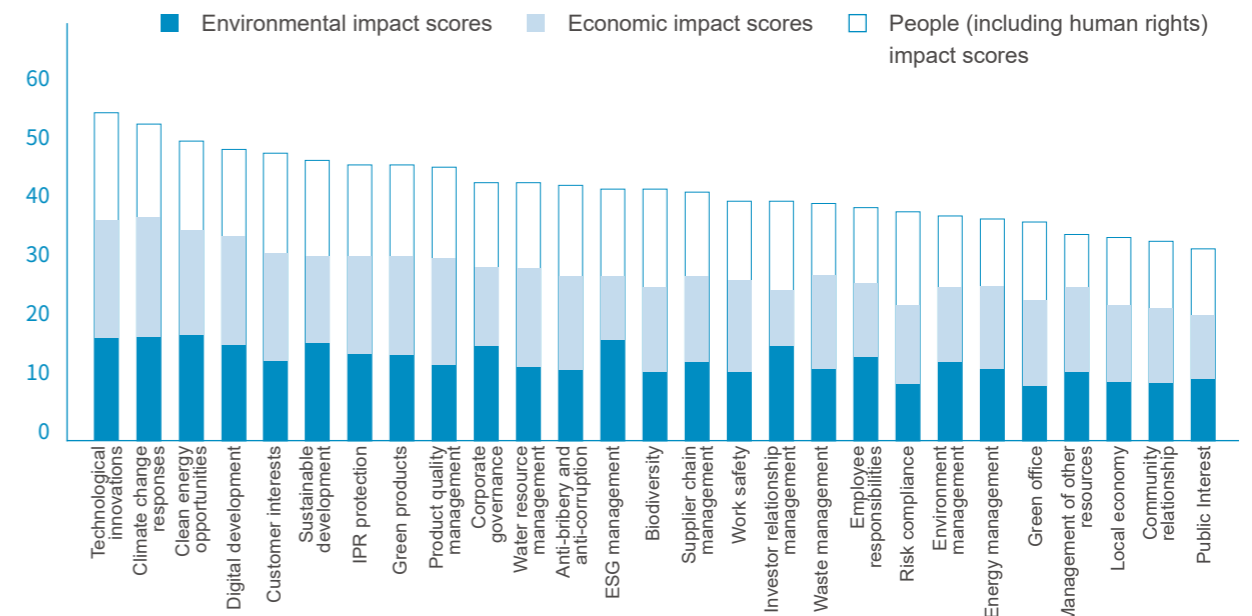
### Determination of Significant Themes

Stage	Key work
<p><b>Identify significant themes</b></p>	<p>Online questionnaires prepared with reference to national policies, on the basis of industrial benchmarking and the Company's development strategy, were used to collect the requirements of stakeholders.</p>
<p><b>Understand the importance of these themes</b></p>	<p>The Company performed a systematic quantitative analysis of these themes to understand the importance of themes on the Company's operations and its stakeholders, and produced a matrix demonstrating the importance where themes of high importance are in the up right part, themes of intermediate importance in the middle part and themes of low importance in the down left part.</p>
<p><b>Analyze the impacts of these themes</b></p>	<p>With reference to the Global Reporting Initiative (GRI) Sustainable Development Reporting Standards, the Company analyzed the real and potential impacts, both negative and positive, of corporate activities and businesses relating to the 27 themes on the environment, economy and people (human rights).</p>
<p><b>Assess the significance of the impacts</b></p>	<p>The Company invited key stakeholders to assess how significant these impacts are in the forms of group meetings and assessment rating. The resulting ratings demonstrate the significance of both positive and negative impacts at three dimensions, i.e., environment, economy and people (human rights).</p>
<p><b>Prioritize and finalize themes</b></p>	<p>Given the importance of these themes to stakeholders and the impacts at above three dimensions caused by the Company's operations under these themes, and with reference to industry trends and policies, the Company calculated the significance of these themes in a quantitative manner, and sorted them from highest to lowest significance. Then, a final list of significant themes was obtained to help determine the key points disclosed in this Report.</p>

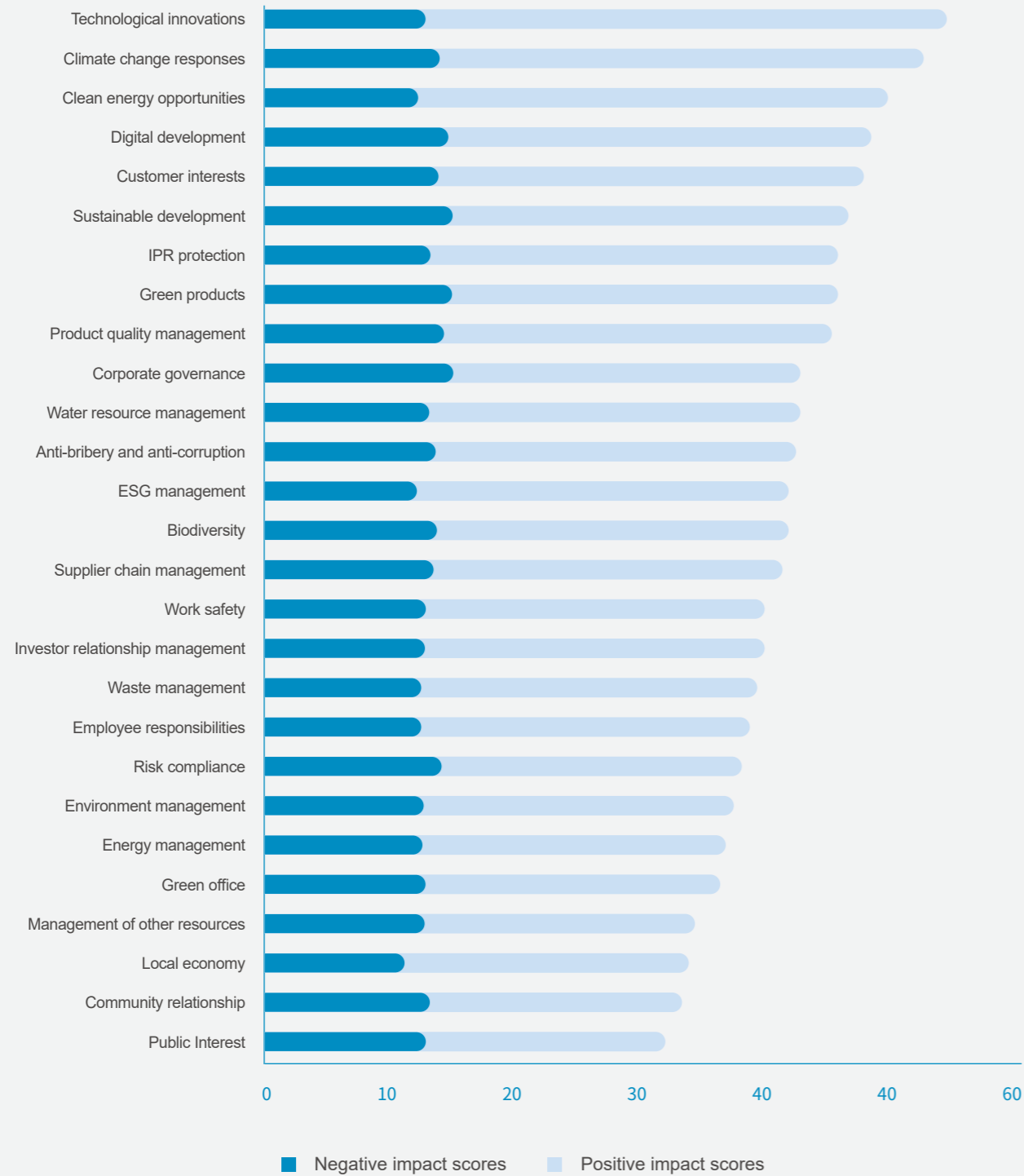
### Finalized Significant Themes



### Significant Themes for 2022 Aiko Solar ESG Report - Three Dimensions, i.e., Environment, Economy and People (Human Rights)



Significant Themes for 2022 Aiko Solar ESG Report - Positive and Negative Impacts



List of Significant Themes

Sequence	Theme
1	Technological innovations
2	Climate change responses
3	Clean energy opportunities
4	Digital development
5	Customer interests
6	Sustainable development
7	IPR protection
8	Green products
9	Product quality management
10	Corporate governance
11	Water resource management
12	Anti-bribery and anti-corruption
13	ESG management
14	Biodiversity
15	Supplier chain management
16	Work safety
17	Investor relationship management
18	Waste management
19	Employee responsibilities
20	Risk compliance
21	Environment management
22	Energy management
23	Green office
24	Management of other resources
25	Local economy
26	Community relationship
27	Public Interest

## Contribute to UN Sustainable Development Goals

With the features of its industry in mind, Aiko Solar does an active job in ESG practices around the UN Sustainable Development Goals (SDGs) for its own sustainable development.

Sustainable Development Goal	Description	SDG Response
	Ensure healthy lives and promote well-being for all at all ages.	<ul style="list-style-type: none"> <li>Emphasize on occupational health management and safety training</li> <li>Establish employee associations and hold team building and cultural and sport activities</li> </ul>
	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	<ul style="list-style-type: none"> <li>Emphasize on employee training opportunities for all.</li> </ul>
	Achieve gender equality and empower all women and girls.	<ul style="list-style-type: none"> <li>Care female employees</li> </ul>
	Ensure availability and sustainable management of water and sanitation for all.	<ul style="list-style-type: none"> <li>Reduce water consumption</li> <li>Reuse the water used for production and enhance water efficiency</li> </ul>
	Ensure access to affordable, reliable, sustainable and modern energy for all.	<ul style="list-style-type: none"> <li>Provide high-quality solar cell products for higher efficiency of the use of solar energy</li> <li>Provide comprehensive energy services</li> </ul>
	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	<ul style="list-style-type: none"> <li>Employ under laws to expand job opportunities</li> </ul>
	Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.	<ul style="list-style-type: none"> <li>Strengthen technological innovations</li> <li>Implement intelligent transformation</li> <li>Build green factories</li> </ul>
	Reduce income inequality within and among countries.	<ul style="list-style-type: none"> <li>Prohibit discrimination in any form</li> </ul>

Sustainable Development Goal	Description	SDG Response
	Make cities and human settlements inclusive, safe, resilient, and sustainable.	<ul style="list-style-type: none"> <li>Develop and produce efficient solar cell products for the broader use of clean energy and the sustainable development of cities</li> <li>Contribute to pandemic prevention and control by making more donations</li> </ul>
	Ensure sustainable consumption and production patterns.	<ul style="list-style-type: none"> <li>Accountability in emissions and discharges management</li> <li>Management of efficient use of resources</li> <li>Clean production management</li> </ul>
	Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy.	<ul style="list-style-type: none"> <li>Get hold of clean energy opportunities</li> <li>Reduce greenhouse gas emission</li> </ul>
	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	<ul style="list-style-type: none"> <li>Increase green coverage in factories</li> <li>Protect land and water environment in factories</li> </ul>
	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	<ul style="list-style-type: none"> <li>Improve company governance</li> <li>Listen to employees via multiple channels</li> </ul>
	Strengthen the means of implementation and revitalize the global partnership for sustainable development.	<ul style="list-style-type: none"> <li>Create channels for communications with stakeholders</li> <li>Attach importance to supply chain management and hold technological exchanges and training sessions with suppliers</li> <li>Be open to cooperation within the ecosystem to drive the industrial chain development</li> <li>Build platforms for improved external cooperations</li> </ul>

**Annual Topic**

# Get Hold of Clean Energy Opportunities Driven by Green Innovations

Attaching high importance to R&D and innovation, Aiko Solar actively gets hold of the clean energy opportunities in the context of China's carbon peak and carbon neutrality goals by sparing no effort to advance the green upgrading of PV cell technologies, launching efficient PV cell products and providing safe, smart and photovoltaic energy overall solutions that have low carbon emissions, as its contribution to the use of clean energy.

**Responses to UN SGDs**



## Make Strategic Planning

Upholding the green concept and closely following the clean energy trend, Aiko Solar has made a strategic plan based on which it intends to build product, supply and service capabilities along with system solutions that are globally competitive, develop an industry-leading lean production system that meets increasingly higher requirements in technologies, quality and cost efficiency, and advance the planning, construction and operation of global manufacturing bases for solar modules.

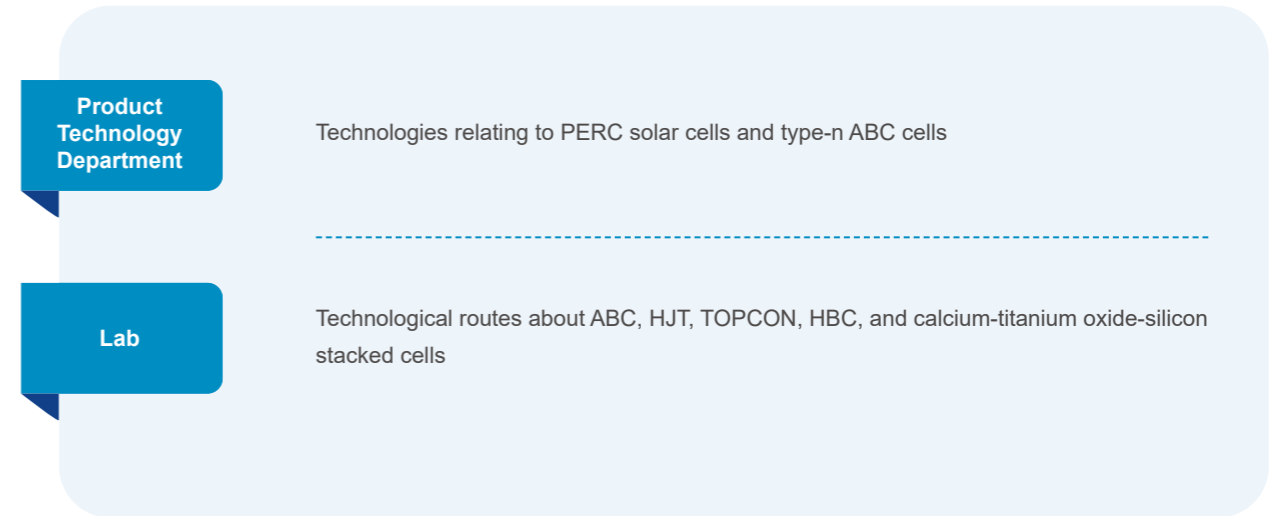
## Build an Industry-Chain Wide R&D and Production system

Starting with green technological innovations, Aiko Solar has put into action an innovation-driven development strategy to improve its R&D system across the full industry chain so that to extend the R&D mode that only covers cells to a full industry chain mode that covers silicon wafers, solar cells, modules and systems.



## Organizational Development

Aiko Solar improves its organizational structure for R&D management, having created a novel R&D system consisting of Proust Technology Department dedicated to mass production technologies, and Labs responsible for developing novel and frontier cell technologies, across all production bases for synergistic and digital management.



## Policies and Procedures

Aiko Solar has created policies and procedures including Procedures for Management of New Product Development Process to standardize the management of R&D projects. It also refined the rules on R&D project management, accounting of R&D costs, R&D staff performance review and incentives.

## Strategies and Processes

From the perspective of efficiency and cost, Aiko Solar has laid down a raft of guidelines for improving efficiency and reducing cost, innovated the strategies for product design and development. Optimization of team organization, product management, project management and team building has improved its operation efficiency.

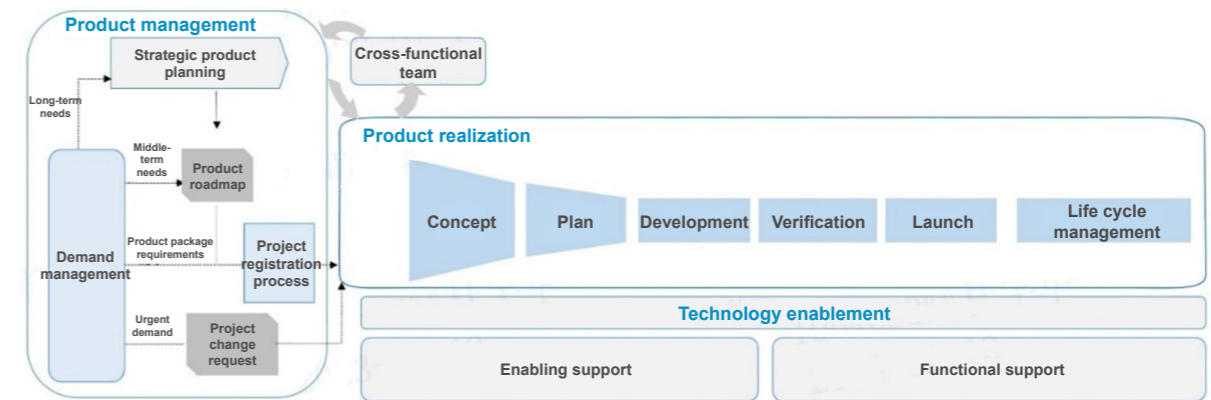
**Aiko Solar R&D Strategies**



In 2022, Aiko Solar completed the blueprint of its integrated product development (IPD) system and the framework of relevant processes within the system, with the objectives, strategies/ideas and owners of each stage defined for smooth progress of the development work.

Time	Objective	Strategies/Ideas	Owner(s)
Q1	Define the process framework and set up a team	<ul style="list-style-type: none"> <li>Define the overall idea and objective for IPD system development;</li> <li>Determine the process framework of each functional module;</li> <li>Set up an IPD development team and relevant function teams with the duties of all departments defined;</li> <li>Work out the implementation plan and produce the Company-level IT platform planning;</li> <li>Identify the main process for IPD system (to get through all processes that spans from ends to ends) and the IT implementation plan;</li> </ul>	R&D Management Department/Other Departments
Q2	Discuss and draft the basic processes of all business modules	<ul style="list-style-type: none"> <li>Understand the requirements for organizational development and platform-based IT development, implement and carry on the development of the main IPD processes (platform);</li> <li>Identify specific functions to be provided by all function modules and documentation/processes to be created;</li> <li>Sort out, make additions and revisions, provide department training regarding existing documents/processes, to synchronize the construction and improvement of IT-based processes;</li> </ul>	IPD Development Committee/All Departments
Q3	Define department KPIs	<ul style="list-style-type: none"> <li>Work out the synergistic indicators for all departments; define specific KPIs that are broken down to each supporting department;</li> <li>Advance the implementation and optimization of the main process, and improve all function;</li> <li>Review executed documents/processes through measurement and analysis for improvements, train staff again and track the work execution;</li> <li>Company-level IPD system starts its trial use;</li> </ul>	IPD Development Committee/All Departments
Q4	Improve the development and implementation of basic processes	<ul style="list-style-type: none"> <li>Finalize new documents/processes and put them under control, review them after one-month execution; at the same time start the development of IT-based processes and the improvement of the main process, as well as the continuous measurement, analysis and improvement of function modules, to deliver well-established IT-based processes;</li> <li>Processes are recognized by and applied to cortical business departments and the IT development is furthered;</li> <li>Continuous improvement of IPD.</li> </ul>	IPD Development Committee/All Departments

Aiko Solar IPD System

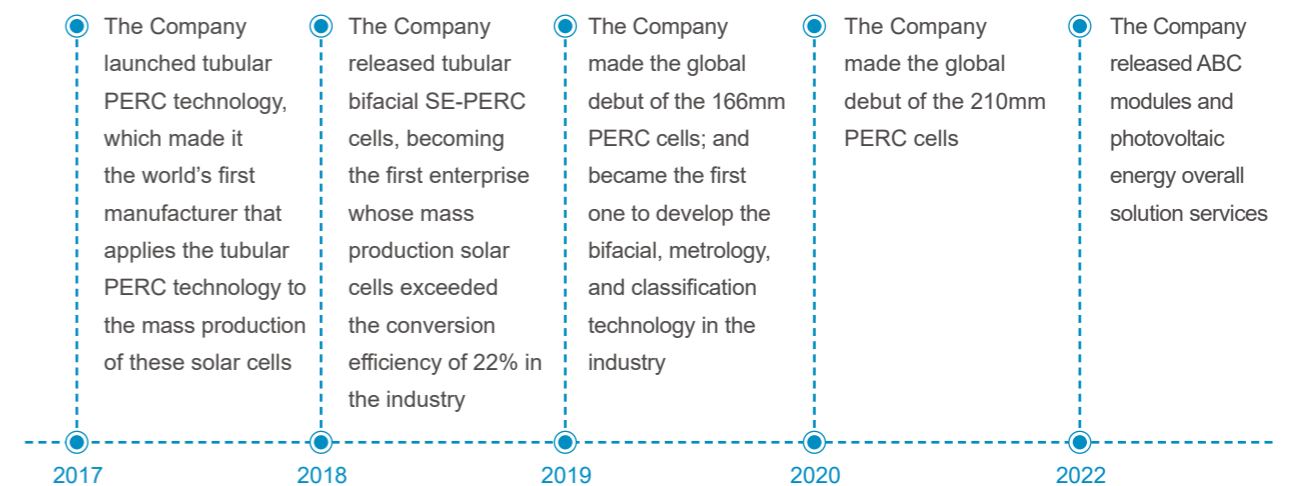


Aiko Solar Processes in the IPD System

### Technology Path

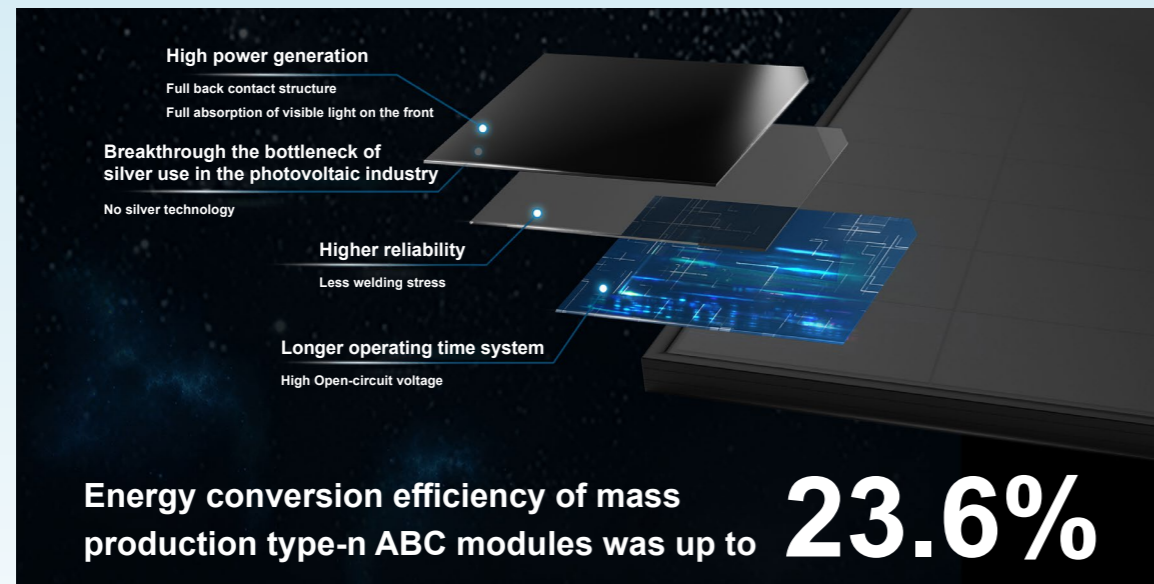
With its on-going deep efforts into the field of solar cell technologies, Aiko Solar takes a leadership in product and technology reforms, which helps reduce photovoltaic electricity costs. While maintaining its leading position in PERC cell technologies in terms of photoelectric conversion efficiency, passivation film density and uniformity, anti-degradation performance, and reliability, it opens up future growth space for ABC cells and continues to provide high-quality, reliable, and efficient clean energy products for downstream enterprises. In 2022, Aiko Solar put great efforts into the development of solar cells modules and systems around cell technologies for the type N technology path, which has removed the “excessive silver consumption” that hindered the large-scale development of the PV industry and provided technological supports for the low-cost and large-scale development of type-n technology path.

### Aiko Solar's Technology Path



Case New ABC solar products launched

In 2022, we released ABC modules and 'source-grid-load-storage' photovoltaic energy overall solutions. As of February 2023, the energy conversion efficiency of mass production type-n ABC modules was up to 23.6%. Under the same scenario, efficient ABC modules can produce more power than the mainstream type-P PERC modules by over 15% per unit area over the full life cycle.



Introduction of Type-n ABC Products

IPR Management

Aiko Solar has set up a sound IPR protection system supported by policies and procedures like Patent Management Policy, Patent Project Management Policy, Patent Application Procedures and Patent Reward Management Policy, with ongoing efforts into developing its IPR system, in order to fully protect its advanced technologies in a timely manner and create a patent barrier. In 2022, Guangdong Aiko and Zhejiang Aiko had their IPR management systems certified.

Aiko Solar IPR Management System Certification

Certification name	Standards	Company name	Certificate registration number	Expiry date
IPR Management System Certification	GB/T29490-2013	Guangdong Aiko	18121IP0637R1M	2024.12.18
		Zhejiang Aiko	ZJLH20IP0281R0L	2023.11.23



Certificate of Zhejiang Aiko IPR Management System

Aiko Solar attaches high importance to IPR protection, and observes the IPR protection and ethics standards by reinforcing its own management of IPR.

As of the end of the 2022,



IPR Achievements of Aiko Solar

Patent type	Applications in 2022	Total applications as of the end of 2022
Invention	160	721
Utility model	129	623
Industrial design	14	219
<b>Total</b>	<b>303</b>	<b>1,563</b>

In addition, Aiko Solar puts active efforts into IPR training which is expected to enhance the standardization of its IPR management on a systematic manner, and to increase employee awareness on the importance of patent application and protection. In 2022, the Company had 200 persons participate in IPR training programs.



## Increase Presence through Manufacturing Bases of Efficient Solar Cells

Supported by its Foshan Base, Zhejiang Base, Tianjin Base and Zhuhai Base, Aiko Solar expands its production lines of new solar cells including the 6.5GW mass production project for ABC cells in Zhuhai, to deliver more green products at a faster pace.

### Foshan Base

As the first silicon solar cell manufacture at scale in Guangdong, Foshan Base is specialized in the research, manufacturing, sale and after-sale services for silicon solar cells. Equipped with a powerful R&D team, the Base stands in the frontier area when it comes to advanced technologies and product innovations.



Foshan Base of Aiko Solar

### Zhejiang Base

Supported by the first-class production equipment imported from foreign countries, Zhejiang Base tries to create an intelligent solar cell production line based on the Industry 4.0 intended for increased production capacity for efficient PERC cells. The completion of the project is expected to deliver a R&D and production base, occupying an area of 1000 MU and having 10,000 employees, for advanced solar cells whose annual capacity is 50GW and annual output is CNY 40 billion yuan.



Zhejiang Base of Aiko Solar

### Zhuhai Base

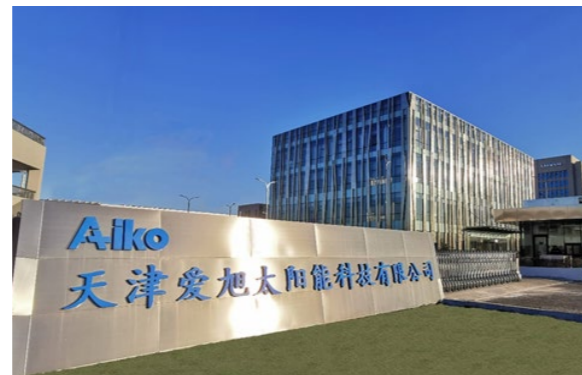
Zhuhai Base is designed to produce efficient type-n solar cells with an expected annual capacity of 26GW. It is expected to be completed and put into production in 2025. With a full capacity running, the Base is supposed to output CNY 31.2 billion yuan each year.



Rendering of Zhuhai Base of Aiko Solar Figure

### Tianjin Base

Established in 2018 in Beichen District, Tianjin Base is specialized in the development of solar cell technologies, and manufacturing and sale of solar cells.



Tianjin Base of Aiko Solar

## Innovate “Source-Grid-Load-Storage” photovoltaic energy overall solution

As an active response to the carbon peak and carbon neutrality goals, Aiko Solar has founded Shenzhen Solar-Grids Digital Power Technologies Co., Ltd. which leverages technological innovations to provide photovoltaic energy overall solutions and services that cover project development, solutions, financial services, EPC and operation and maintenance, and build a full-life cycle digital management mode spanning from design, transaction, order fulfillment and operation and maintenance, to help with the development of zero-carbon cities.

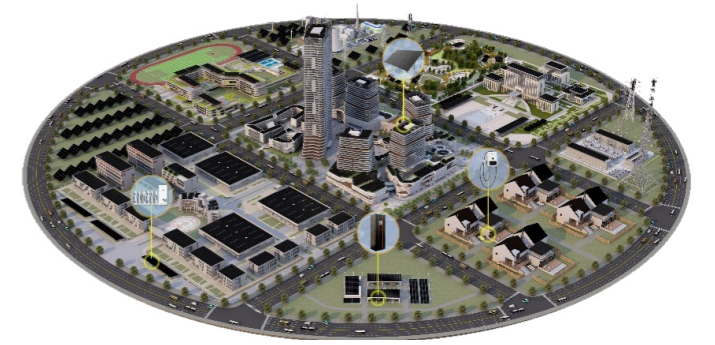
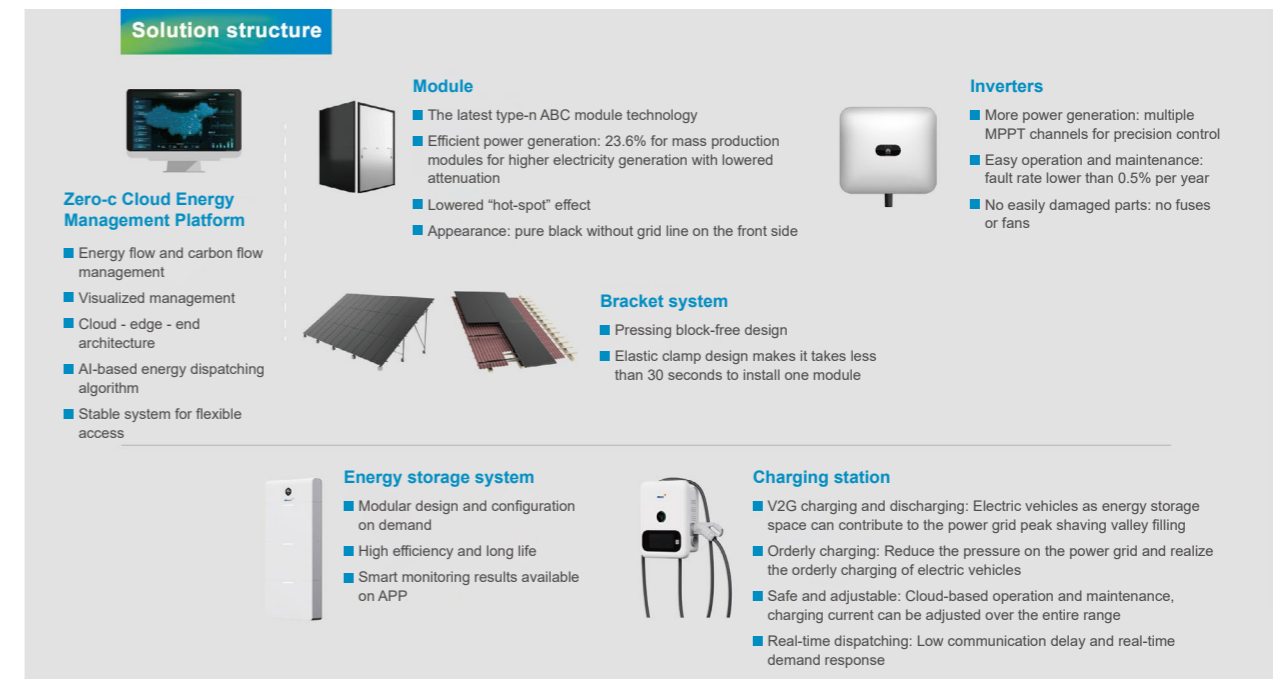


Diagram of A Zero-Carbon City

### Overall Solutions for Household Scenarios

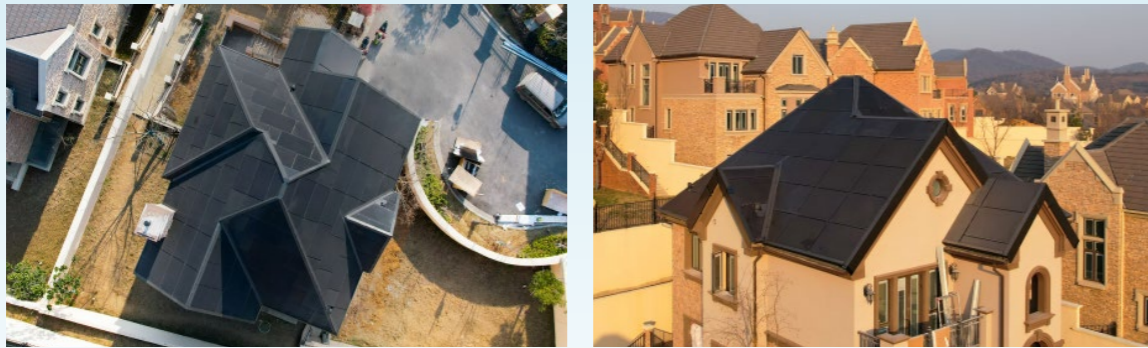
In 2022, Aiko Solar released photovoltaic energy overall solutions around the type-N ABC solar modules. The use of digital technologies such as 3D efficient modeling and AI algorithms helps with the management of solar modules, storage batteries and charging stations. This demonstrates the green development of Solar-Grids and means more green options for customers.



Overall Solutions for Household Scenarios

**Case** Building materials upgraded to generate "green power", a new integrated mode for PV buildings

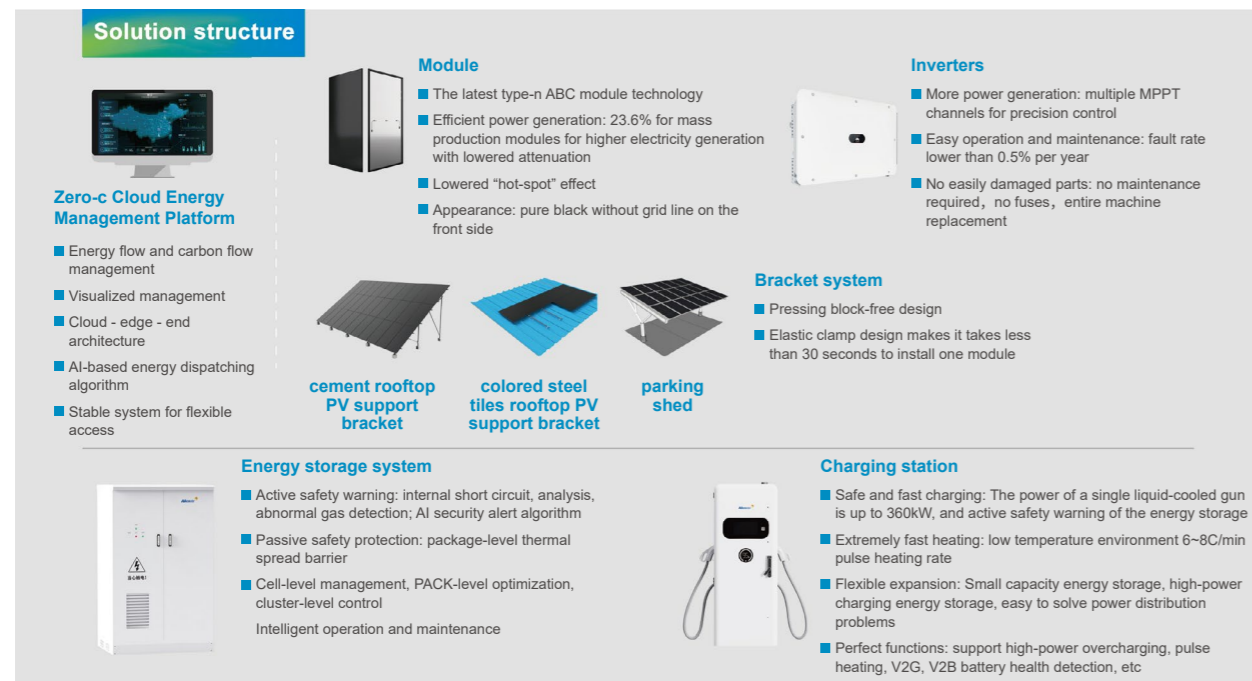
In 2022, Aiko Solar constructed a PV generation project on rooftops of single-family homes in Jurong, Jiangsu. With an installed capacity of 23.22KW and expected annual power generation of 24,400 kWh (calculated with 360 working days per year on a rooftop of 150 square meters), the project generates electricity used for these homes, and can reduce carbon mission of about 24.30 tons carbon dioxide equivalent per year (assuming that one kilowatt electricity produced by PV panels is equal to reduction of 0.997 kgs carbon dioxide equivalent).



PV Generation Project on Rooftops of Single-Family Homes

**Overall Solutions for Industrial and Business Scenarios**

In 2022, Aiko Solar continued expanding the scenarios to which photovoltaic energy overall solutions are applicable by developing new approaches including car parking sheds with solar panels, cement rooftop frames made from solar panels, and rooftops made of colored steel tiles and solar panels, to provide green technological supports for industrial and business companies.



Overall Solutions for Industrial and Business Scenarios

**Case** Green concept empowered the construction of solar panel car parking sheds integrated with energy storage and car charging

In 2022, Aiko Solar completed the construction of its PV car parking shed system. Type-N ABC solar modules used for the car parking shed can provide a capacity of 290kwp and generate 277,300 kWh electricity per year for about 25 years, thereby increasing the utilization of land and providing clean energy at the same time.

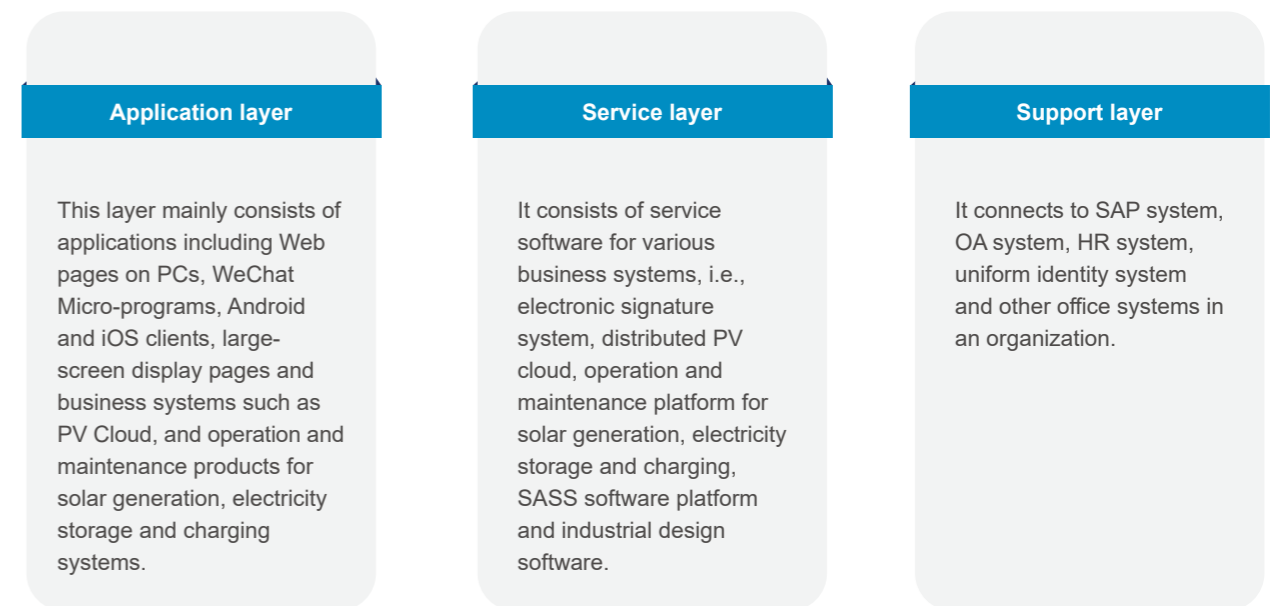


PV Car Parking Shed

Charging Station

**"Digital and Smart" Energy Management Platform**

By embedding energy technologies and digital technologies, Aiko Solar has released the Zero-C Cloud platform based on the cloud-native architecture and thing model for energy management, to create cloud-edge-end photovoltaic energy overall solutions.





Management of energy flows



Operation of virtual power plant



Synergistic control of micro-grid community



Vehicle to Grid (V2G)



Demand response

Management of carbon flows



Carbon emission records



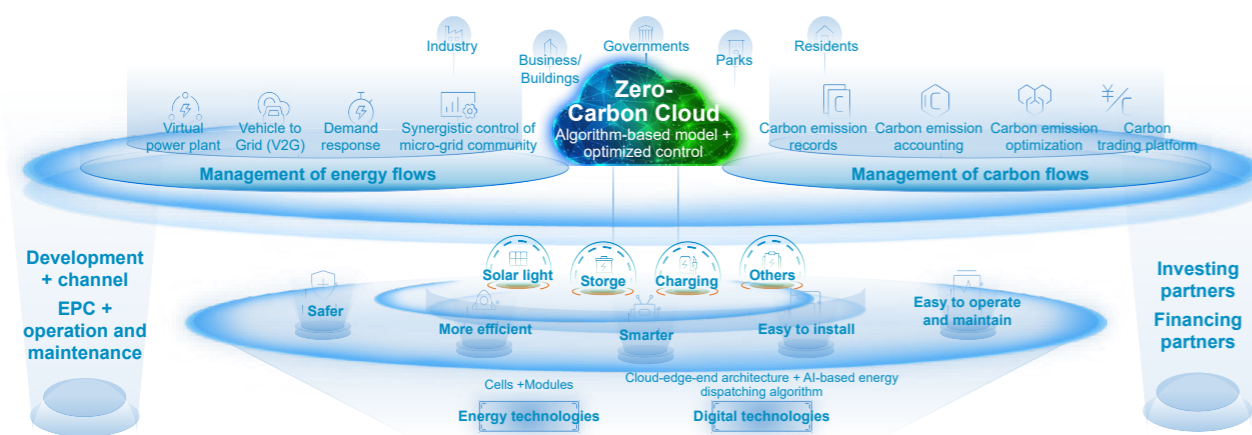
Carbon emission accounting



Carbon emission optimization



Carbon trading platform



## Build Cooperation and Exchange Platforms for Innovations of Green Technologies

### Create Advanced R&D Platforms

Continuing improving its capabilities of independent research and development, Aiko Solar actively builds R&D platforms and exchange platforms, and adheres to innovation-driven development. As of the end of 2022, Zhejiang Aiko Solar built a Provincial R&D Center at High-tech Enterprise in Zhejiang, the Aiko Solar Cell Enterprise Institute in Zhejiang, a Provincial Enterprise Technology Center, and Key Enterprise Research Institute in Zhejiang, and Post-doctoral Program Station in Zhejiang; and Guangdong Aiko Solar created an Enterprise Technology Center in Guangdong, a Key Lab for Silicon Solar Cell Technologies and Applications in Guangdong, and a Research Center for PV Engineering Technologies in Guangdong.

What is more, Aiko Solar puts additional efforts into the construction of its test centers and the all-around improvement of its labs with respect to the governance system, environment, staff and equipment. In November 2021, Zhejiang Aiko Test Center was qualified as TMP onlooking test lab by TÜV Rheinland. In February 2023, Aiko Solar and TÜV Rheinland signed a strategic agreement for cooperation in development of standards for highly capacitive ABC modules.

### Case Aikosolar Testing Center qualified as TMP onlooking test lab by TÜV Rheinland

Aikosolar Testing Center includes a solar cell test room, a trial production line for solar modules, and a reliability lab where a complete range of PV module production and testing equipment is available. It provides a great environment for the trial production and testing of all kinds of solar modules. In November 2021, the Test Center received the qualification of TMP onlooking test lab granted by the third-party body TÜV Rheinland.



Test Center

### IUR Cooperation

Aiko Solar is dedicated to facilitating the high-quality and sustainable development of the solar cell industry, for which, it exerts great efforts into the research and development of solar cell technologies. In addition to turning itself into a stronger business, the Company advances the communications and cooperations with universities in and beyond China in order to drive IUR (Industry-University-Research) integration which can give full play to universities and enterprises, a way to accelerate the commercialization of frontier technologies.

The Aiko Solar European Research Institute is committed to the development of theories and technologies about solar cells. The deep partnership with PV research institutions in the Europe helps the Research Institute effectively combine the innovative technologies from Europe with the mass production technologies from China, thereby converting research achievements into mass production products, and further driving the technological reform in the industry.

Aiko Solar has invested into the construction of Global Joint PV Innovation Center which connects leading enterprises in the global industry chain, with well-known universities and research institutes across the globe to facilitate their theoretic innovations and engineering technology cooperations in the PV industry. As of the end of 2022, the Joint PV Innovation Center reached cooperations with over ten leading enterprises in the PV industry chain, and managed to set up joint innovation spaces for manufacturing processes, equipment, materials, and tests.

In 2022, the Technology Advisory Committee was formed in Aiko Solar for further facilitating the cooperation with universities and research institutes. It invited expert teams consisting of professors from universities and research institutes well-known in the industry to conduct periodical technological exchanges, share the latest industry updates on technologies, and provide special training courses on critical themes. As of the end of 2022, Aiko Solar had established IUR partnerships with many universities and research institutes.

### Case Aiko Solar signed cooperation agreement with Netherlands Organization for Applied Scientific Research

Aiko Solar has signed a cooperation agreement with Netherlands Organization for Applied Scientific Research (TNO), the largest organization applied sciences in Netherlands, to build a joint R&D lab for deep collaborations in novel solar cells.



TNO





## Improve Company Governance with Compliance

Standing on a governance structure where duties and authorities are clearly defined for checks and balances, Aiko Solar continues optimizing its governance framework and advancing its compliance management to safeguard the interests of all stakeholders and ensure the compliance of its operation.

### Responses to UN SDGs



## Maintain Investor Relations through Effective Governance

In strict accordance with applicable laws and regulations such as the Company Law of the People's Republic of China, the Securities Law of the People's Republic of China, Code of Corporate Governance for Listed Companies and Listing Rules of Shanghai Stock Exchange, Aiko Solar keeps optimizing its governance structure to ensure the stable and health development.

## Organizational Structure

The organizational structure of Aiko Solar consists of the Shareholder Meeting, the Board of Directors, the Supervisory Committee and the Management. Under the Board of Directors are four committees: Strategy Committee, Audit Committee, Nomination Committee, and Compensation and Review Committee.

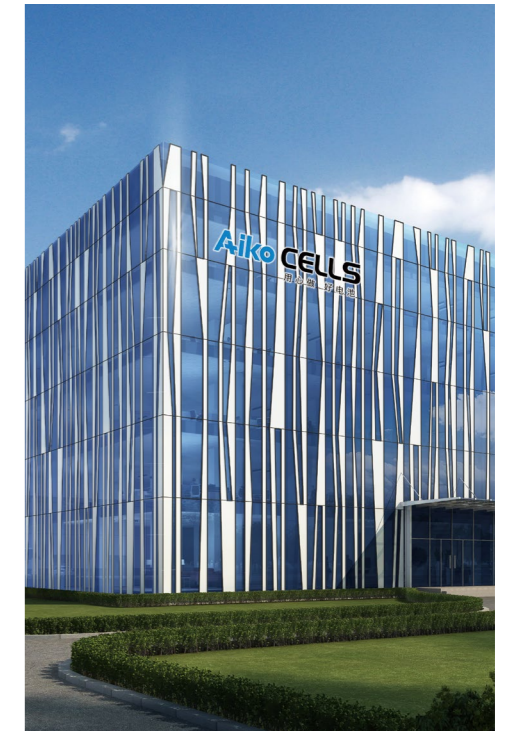
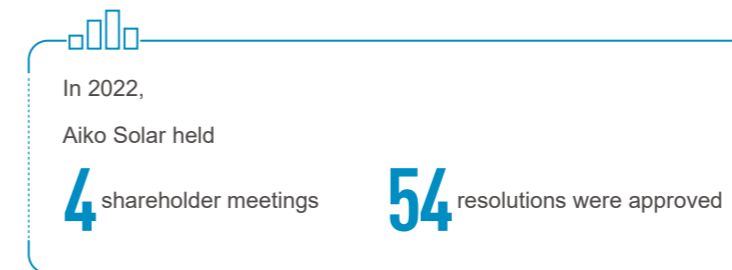
Aiko Solar Organizational Structure



## Shareholder Meeting, Board of Directors and Supervisory Committee

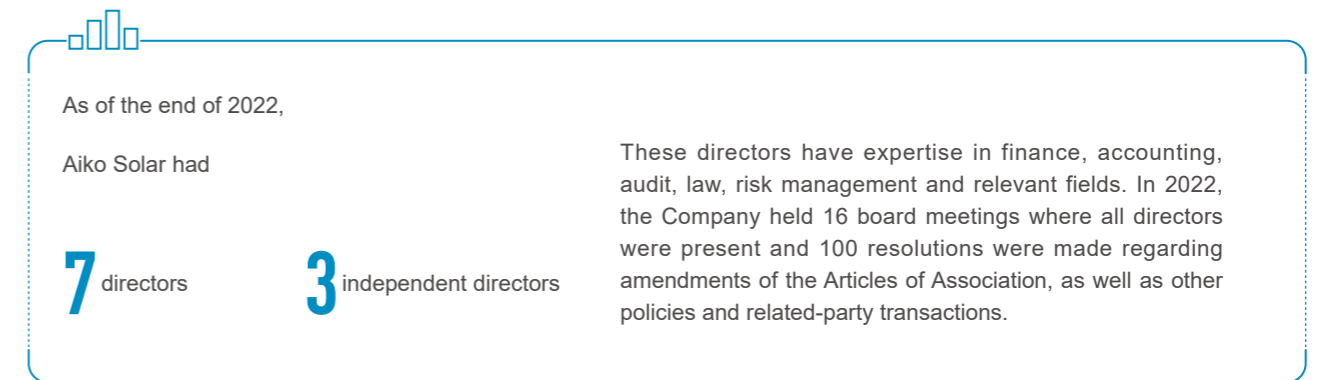
### Shareholder Meeting

The Shareholders Meeting is the highest body of power which makes decisions about important operation matters.



### Board of Directors

As the decision-making body of the Company, the Board of Directors is responsible for the Shareholders Meeting.



General Information of Directors

Name	Title	Age	Gender	Education background
Chen Gang	Chair	55	Male	Bachelor
Liang Qijie	Director	50	Male	Three-year college
Shen Yu	Director	44	Male	Master
Lu Haojie	Director	49	Male	Master
Xu Liping	Independent director	49	Female	Doctor
Shen Honglie	Independent director	65	Male	Doctor
Zhong Ruiqing	Independent director	52	Male	Doctor

## Supervisory Committee

As the supervision body, the Supervisory Committee oversees and examines the Company's financial activities and the official conducts. As of the end of 2022,



General Information of Supervisors

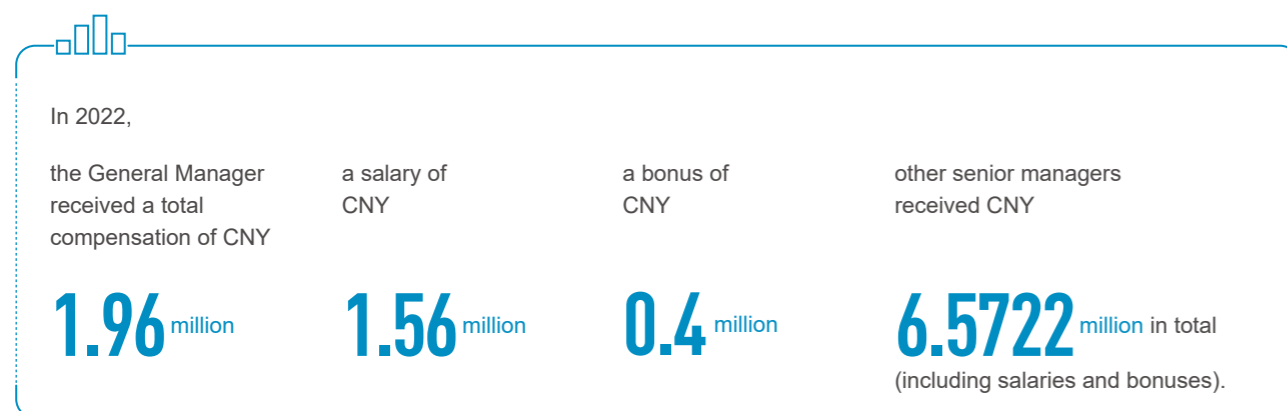
Name	Title	Age	Gender	Education background
Huang Jinguang	Chair	69	Male	Bachelor
Fei Ting	Supervisor	31	Female	Master
Ren Mingqi	Employee supervisor	35	Female	Bachelor

In 2022, the Company held 15 Supervisory Committee meetings where all supervisors were present and 58 resolutions were made regarding related-party transactions and private placements.

## Senior Managers

They are responsible for the production, operation and management of the Company and report to the Board of Directors. As of the end of 2022, the Company had 5 senior managers who are experienced in finance, audit, risk management, accounting and other relevant fields.

From 2022 on, the Company launched the "gain sharing" incentive approach under which salaries, bonuses and performance reviews of senior managers are governed by Compensation Incentive Policy and Performance Management Rules, and their bonuses are linked to Company performance, department performance and individual performance.



## Investor Relations

Aiko Solar values the investor relationship management: it has formulated Investor Relationship Management Policy for procedure-based management of investor relations; shows its operation to investors in a timely manner by following the Accuracy, Completeness and Fairness principle, to strengthen effective communications with investors and fully protect their rights to information through proper information disclosures; keeps expanding open and convenient communication channels to maintain sound information exchange, and protect the rights of shareholders, in particular small and middle ones, by <http://sns.sseinfo.com>, the investor hotline, shareholder meetings and other means.

## Regulate Information Disclosure

In strict accordance with provisions of the Securities Law of the People's Republic of China, Administrative Measures on Information Disclosure of Listed Companies, Listing Rules of Shanghai Stock Exchange and its Articles of Association, Aiko Solar has developed the Information Disclosure Management Policy to ensure the authenticity, accuracy, completeness, and timeliness of information it discloses. It has also developed the Insider Registration Management Policy and an Insider Register to regulate the inside information management.

## Smoothen Communication Channels

Aiko takes every effort to create and keep good relations with investors through online and off-line two-way communications with investors, understanding of and timely responses to their key concerns and effective guarantee of their rights and interests.

Communication form	Communication channels
Written	Regular reports, and interim announcements
Telephone	Telephone survey
Meeting	Strategy meeting, exchanges with the capital market, roadshow and reverse roadshow
Face to face	Onsite reception
Online	<a href="http://sns.sseinfo.com/">http://sns.sseinfo.com/</a>

## Safeguard the Interests of Shareholders

Aiko Solar puts great emphasis on investor return with continuous measures that ensure the stability, continuity and reasonableness of dividend distribution policies. As a part of this work, it has released the Three-Year (2021-2023) Plan on Shareholder Return of Shanghai Aiko Solar Energy Co., Ltd.

## Improve Risk Management

Aiko Solar puts processes into the center of risk management, and coordinates the advancement of its risk management system that ranges from internal controls, internal audit, and risk management, and makes continuous efforts into work mechanisms and management policies to effectively help improve the Company's risk management.

### Risk Management

Aiko Solar actively propels the risk management by identifying, analyzing and assessing risks in accordance with the Discussion on Methodology for Legal Risk Assessment in Aiko Solar. In 2022, Aiko Solar put identified risks into its risk chart for uniform management.



### Internal Controls

Aiko Solar has internal controls in place with the Internal Control Handbook of Shanghai Aiko Solar Energy Co., Ltd. being the basis for development, execution, assessment and inspection of its internal controls, and ensures the orderly progress of all kinds of work for an increased level of operation and management.

### Internal Audit

With a two-tier audit management system consisting of the Audit Committee and the Audit Department in place, Aiko Solar has established a sound project management and internal review system and has developed the Internal Audit Policy and Audit Management Procedures for internal audit management that covers internal audit, internal control audit, operation audit, capital expenditure audit, IT system audit, and anti-bribery and anti-corruption audit, by following the principles of risk control and cost efficiency.

In 2022, with continued efforts into supervision of key areas, Aiko Solar performed 4 types of audits that spanned from raised funds, work order management, related party transactions, and examinations. For related-party transactions, the Company put a lot of resources into regulating the review, discussion, decision-making, disclosure and pricing processes and had related-party registered.

## Adhere to Business Ethics

Aiko Solar abides by the code of ethics in business with firm efforts into anti-bribery and anti-corruption to create and maintain its good image.

The Company continues developing a clean workplace where no bribery or corruption is tolerated, having laid down Anti-Fraud Code, Employee Discipline Management Procedures, Complaints and Speak Up Management Procedures, Accountability Management Procedures and other policies and procedures, and set up a complete structure to eradicate internal bribery, corruption and frauds.

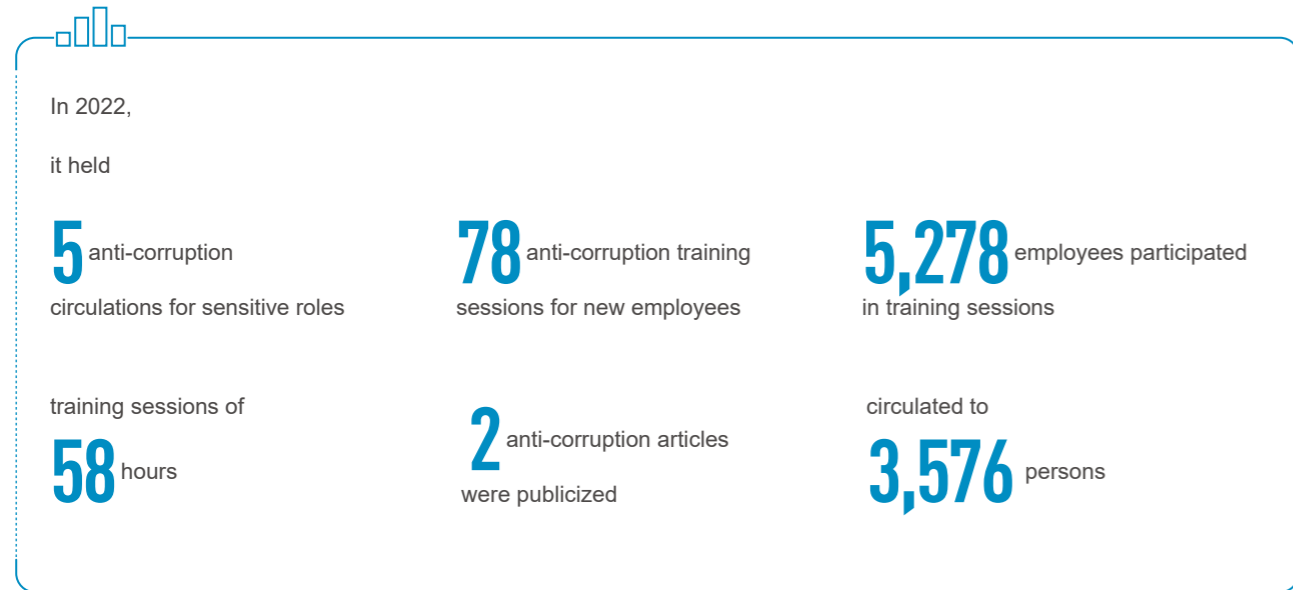
Management	Create, improve, and implement internal controls that prevent and control frauds, and perform assessments on a regular basis or when necessary Advocate the integrity culture and create a clean workplace where no frauds and bribes are tolerated.
Audit Department	As the Company's body for fraud supervision, it oversees the communication and implementation of Anti-Fraud Code, as well as the behaviors of all people leaders and employees, receives the reports and complaints concerning frauds, investigates suspicious activities, and report suspected crimes to the public security or procuratorial authorities; give recommendations and comments to HR Department and other relevant departments when it comes to promotions and awards.
All people leaders	They are supposed to assist the Audit Department in anti-fraud work and cause their direct reports to comply with relevant anti-fraud rules and under laws.
All employees	They are expected to abide by national laws, regulations, policies and the Company's rules, and report to the Audit Department as soon as possible if they find or get aware of any violation.

All employees are required to sign Employee Convention on Anti-bribery and Anti-corruption and suppliers to sign Anti-Bribery and Anti-Corruption Agreement, as a way to eradicate internal and external bribes, corruptions and frauds.

Anti-bribery, Anti-corruption and Anti-Fraud Structure in Aiko Solar

Smoothen speak up channels	Protect reporters from being retaliated
Establish multiple channels including face-to-face, email address, WeChat account, audit supervision mail box, complaint and speaking up hotline.	Encourage employees to submit proposals and complaints with their real names, and keep their identifies confidential, and process each proposal and complaint and provide feedback for each report; persons who retaliates against reporters will be subject to severe punishments under Complaints and Speaking Up Management Procedures.

What is more, Aiko Solar provided relevant training sessions, circulated articles, held examinations, and performed a questionnaire-based survey to raise employee awareness on anti-corruption. In 2022, it held 5 anti-corruption circulations for sensitive roles, and 78 anti-corruption training sessions for new employees. A total of 5,278 employees participated in training sessions of 58 hours; 2 anti-corruption articles were publicized and circulated to 3,576 persons.



**Case** Yiwu Bureau of Public Security invited to Aiko Solar for legal awareness training

In November 2022, the economic crime investigation team from Yiwu Bureau of Publicity Security was invited to Aiko Solar to guide the Company for anti-corruption management, which helped raised employee awareness on anti-corruption and compliance.



Presentation about the prevention of abuse of authority crimes in Aiko Solar

## Deepen Digital Transformation

Given its macro-analysis and industrial analysis, as well as its global business pattern and the fact that its operations span many products and factories, Aiko Solar has made “digital and smart transformation” an important initiative during the Company’s “14th Five Year Plan” in order to have its businesses empowered by digital and intelligent technologies.

## Digital and Smart Projects

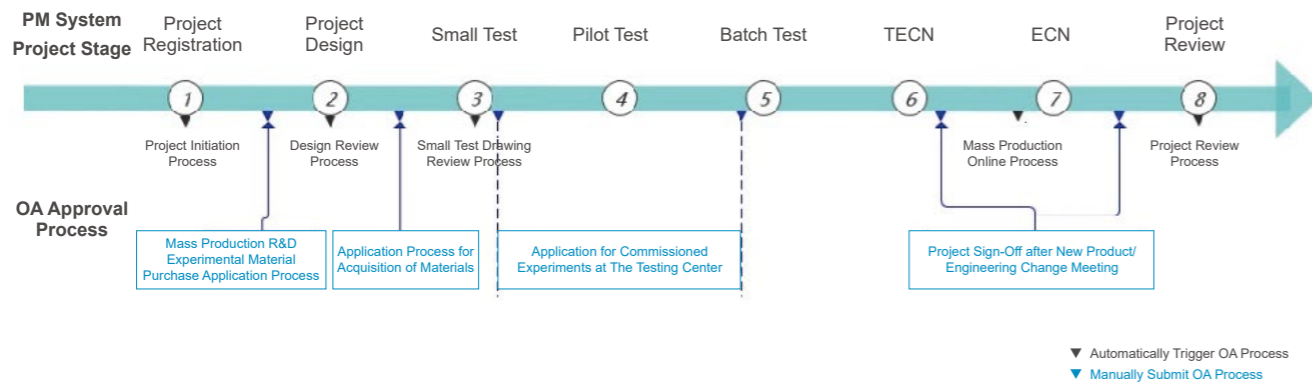
By practicing its digital and smart strategy, Aiko Solar has continued advancing the development of a digital platform, digital workshops and data centers, with an aim of lowering the communication cost and production cost within the Company.

Digital project	Description	Benefits
Digital platform	Develop a one-stop digital office platform	Efficiently support business changes, advance the It-oriented development of business processes, connect applications on and off the cloud, and provide a one-stop integrated cloud platform
Digital workshop	Construct an IT platform where data are the foundation of decision-making	Deliver intelligent and automatic capabilities for production control and management analysis
Data centers	Modular design and construction of three data centers on two sites in accordance with Class B data center standards	Strict construction standards and the “three data centers on two sites” planning helps match with the Company’s data demand necessary for its long-term development



## Digital and Smart Empowerment

On the basis of its achievements on digital and smart development, Aiko Solar has gradually introduced data intelligence and vision intelligence to further boost its It-oriented business processes. In 2022, the management of R&D for mass production in Aiko Solar was fully digitalized.



Architecture of PMS Application for R&D and Mass Production Projects in Aiko Solar

Aiko Solar will leverage big data and decision-making support platform coupled with accumulated customer and business data to deliver intelligent marketing analysis, forecast and decision-making. Furthermore, Aiko Solar will spare no effort to implement the integrated business plan (IBP) which will make the integrated supply chain a profit center and boost the smooth connection, IT coverage and digital coverage from end to end. This will help lower the supply risk, ensure supply chain continuity and reinforce the safety and reliability of the supply chain.

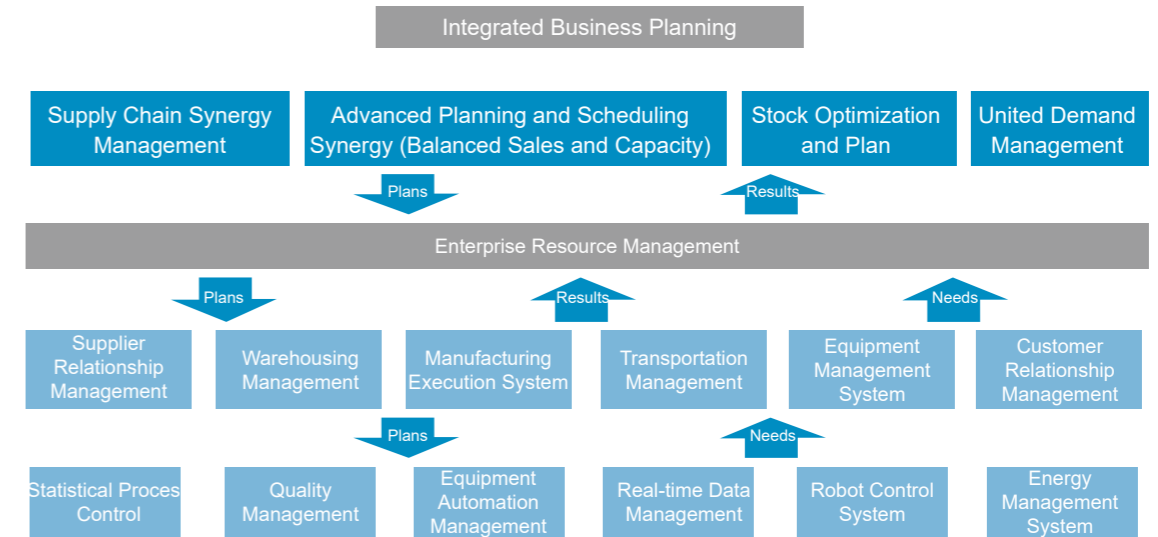
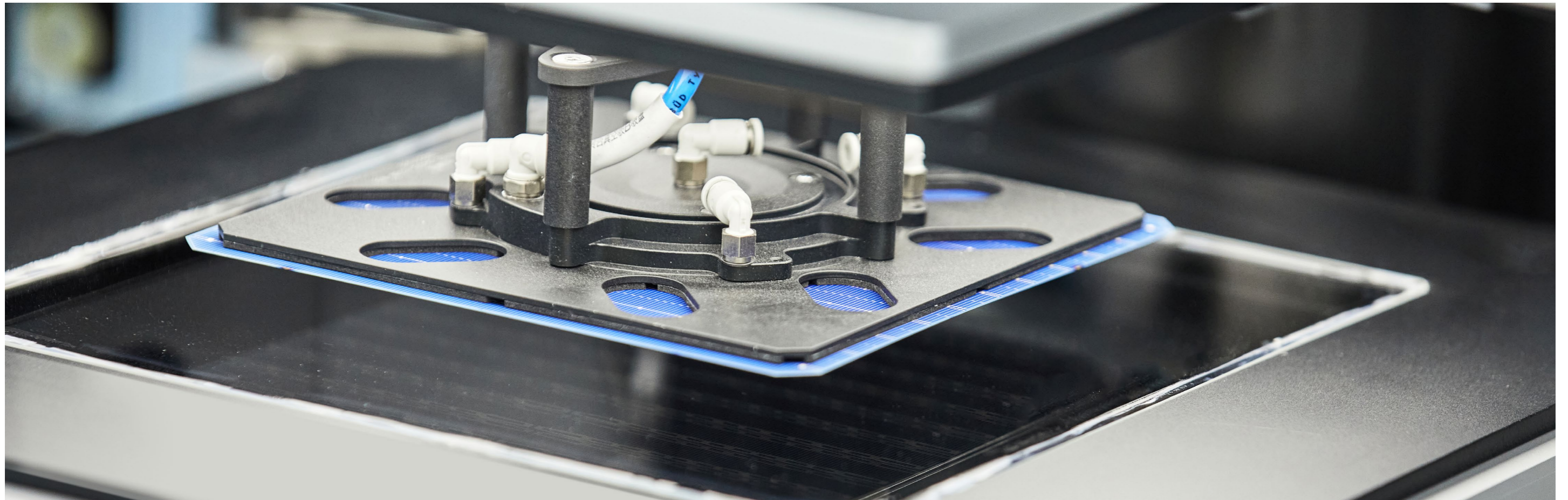


Illustration of Aiko Solar Integrated Business Plan (IBP)







## Protect Ecology and Environment with Green Escort

Placing the environment management concept into product full life cycle, Aiko Solar strives to build a green enterprise that provides green power for sustainable development through on-going efforts into energy saving and emission reduction, ecological protection, and clean work.

### Responses to UN SGDs



## Optimize Environment Management

### Policies

Aiko Solar has laid down internal documents including Environmental Protection Management Policy and Operational Control Procedures which help embed environmental protection into the ordinary course of production and operation, and clearly define environmental objectives, environmental protection measures, organizational structure, duties and authorities, risk control, and supervision and testing, for the purpose of a full-process management.

### Management Structure

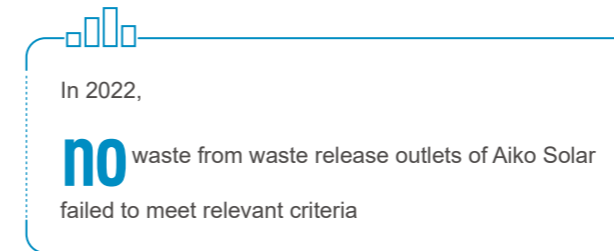
In Aiko Solar, a horizontal management system that covers the General Manager, EHS Department, Department of Factory Affairs, Administration Department, Supply Chain Management Department and other functions, and a vertical accountability system and procedure that ranges across the Company, departments and production teams have been established to ensure the smooth progress of environment management in the Company.

Management level	Function
General Manager	Responsible for providing resources needed for operation controls to ensure effective operation controls within the environment management system; Lead the Company's operational controls including the management of energy efficiency, carbon emission reduction, and environmental protection.
EHS Department	Responsible for overseeing everyday environmental protection (including waste gas, wastewater and noise treatment) and conservation of resources and energies, and report to the Management about operational controls and the outcomes of relevant actions.
Department of Factory Affairs	Responsible for everyday management and monitoring of waste gas, wastewater, sludge, absorbents and noise; Responsible for processing exceptional alarms sent from online environmental monitoring platform; Be responsible for the comprehensive management of the Company's use of water, electricity and gas.
Administration Department	Be responsible for centralized collection and sorting of domestic solid wastes which are then entrusted to professional recycling operations.
Plan and Material Control Department	Be responsible for collection and sorting of production waste and hazardous waste wastes which are then entrusted to professional recycling operations.
Supplier Chain Management Department	Be responsible for engaging and contacting waste recycling suppliers to ensure these suppliers recycle and treat solid waste periodically or when the Company needs.
All functional departments	Take part in the operational controls and energy and resource saving activities initiated in the Company and their departments.

## Environment Supervision

Aiko Solar arranges its production in compliance with the requirements in environmental protection laws and regulations, and environmental impact assessment approvals. Activities relating to environmental protection and resource saving in new, renovated or expanded construction projects are conducted in accordance with the Environmental Impact Assessment Report where the Company has played a role. Aiko Solar pays waste release charges on time, obtains waste release permits and completes waste release registration as required by local regulators.

### Environment Monitoring



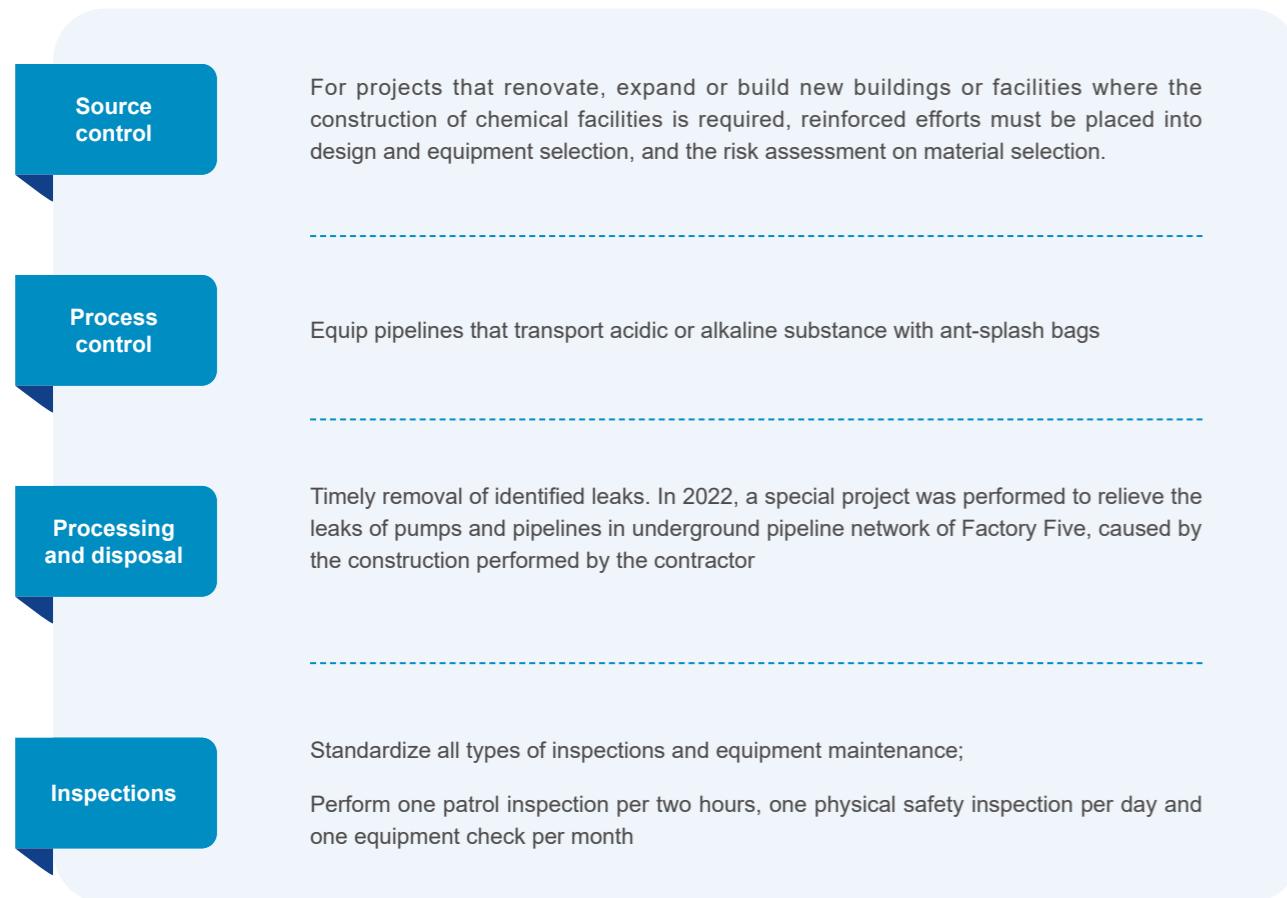
With its Monitoring and Measurement Control Procedures, Aiko Solar performs online monitoring, internal warnings, real-time views and data export on critical pollutants on the basis of the MES system, and uploads the real-time data to local environment authorities. In 2022, no waste from waste release outlets of Aiko Solar failed to meet relevant criteria.



## Risk Control

### Identification of Environmental Risks and Hazards

Aiko Solar places a high premium on the prevention and control of environmental risks and hazards by identifying such risks and hazards on a regular basis (annual and quarterly) and from time to time, to find problems at their early stage and protect the environmental safety. In 2022, Aiko Solar held a dedicated environmental campaign to remove all possible waste leaks to eradicate the possibility of environmental risks.



### Management of Significant Sources of Risk

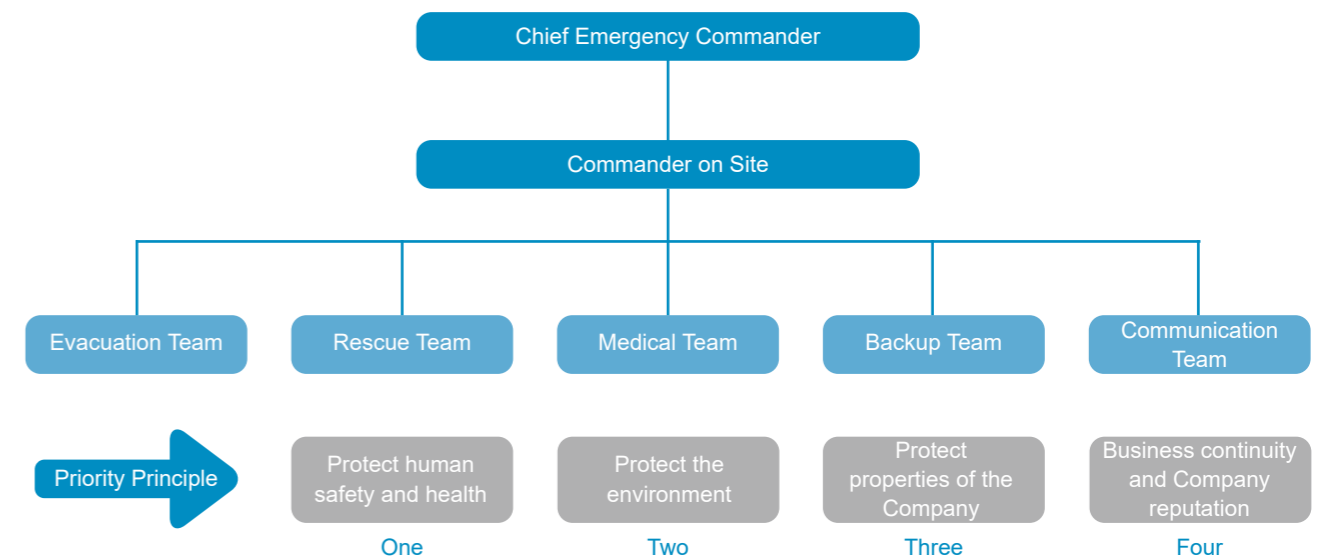
Aiko Solar has laid down work safety policies and operating procedures with respect to significant sources of risk, worked out a hazard management scheme consisting of main owners, technological owners and site owners. Significant sources of risk are assessed on a regular basis and these sources are registered.

### Environmental Emergency Management

The Environmental Emergency Response Plan worked out by Aiko Solar regulates the Company's environmental emergency management. The Company's all critical waste release units have laid down their own comprehensive and special response plans for environmental emergencies, such as Special Response Plan for Significant Sources of Hazard from Hazardous Chemicals, Special Response Plan for Leaks of Hazardous Chemicals, and Special Response Plan for Environmental Facility Incidents, and had these plans registered with local ecologic and environmental authorities.

What is more, to improve its organizational structure for emergency management, Aiko Solar set up an Emergency Command Center consisting of 10 emergency teams which arrange and coordinate field emergency groups for evacuation, rescue, medical service, flexible backup and communication.

Aiko Solar Organizational Structure for Emergency Management

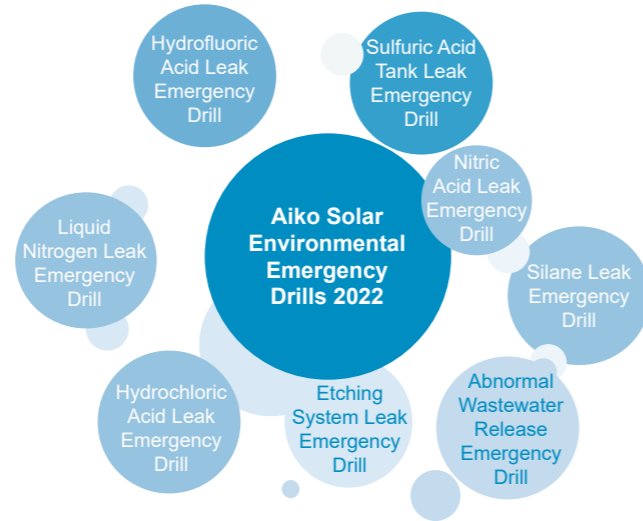


In 2022, Aiko Solar held

**15** environmental emergency drills

covered

**262** participants to enhance the Company's capability of emergency response



**Case** Hydrofluoric acid leak emergency drill

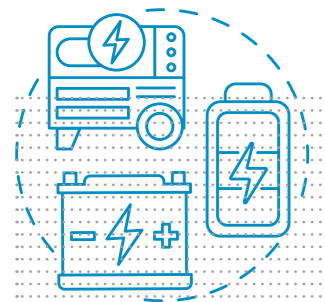
In November 2022, Aiko Solar and the Comprehensive Emergency Rescue Team in Suxi Town held a Hydrofluoric Acid Leak Emergency Drill which helped employees gain a deeper understanding on how to properly wear PPEs, how to use tools for containing leaks of hazardous substances, and how to interconnect with the fire brigade and enterprises around the Company, and helped increase employee's ability of emergency response.



Hydrofluoric Acid Leak Emergency Drill

**System Certification**

Aiko Solar never stops its efforts into improving its environment management system. In 2022, Production Bases passed the ISO 14001 environmental management system certifications.



Certificate of Zhejiang Base's Environment Management System

**Cope with Climate Change**

Aiko Solar has been playing an important role in advancing the global development of the new energy industry by responding to UN SDGs, dealing with global climate change and contributing to the dual carbon goals. With clearly defined emission reduction objectives in mind, the Company puts every possible effort including renovating manufacturing processes, saving energy, using clean energy, and calculating product carbon footprint to reduce its carbon emission as much as possible and to keep it on the low-carbon track.

**Strategic Planning**

As an active response to the National Climate Change Adaptation Strategy, Aiko Solar has identified its carbon peak and carbon neutrality goals given its advantages in the clean energy industry, and tries to explore feasible paths for the successful low-carbon transformation.

**Emission Management**

Aiko Solar cares about the impacts of climate change, and strives to reduce greenhouse gas emission by improving processes, using clean energy and calculating carbon footprint in order to achieve the emission reduction objectives.

**Greenhouse Gas Management Performance**

Aiko Solar keeps optimizing the boundaries of its greenhouse gas emissions calculation. In 2022, the greenhouse gas emitted by Aiko Solar totaled 22.936 tons carbon dioxide equivalent per megawatt, a reduction of 9.00% year on year.

Aiko Solar Greenhouse Gas Emission Performance<sup>1</sup>

Indicator	Unit	2022	2021	2020
Total carbon emissions (scope 2 emissions)	Ton carbon dioxide equivalent	735,366.32	455,525.04	303,502.16
Emission intensity (per unit product)	Ton carbon dioxide equivalent/megawatt	22.936	25.204	26.763

<sup>1</sup>Note: Data covering Tianjin Base and Zhejiang Base. The total number is increased because new constructions happened in 2021 and 2022 to production bases.

## Green Factories

In order to achieve its emission reduction objectives, Aiko Solar focuses on green factory construction with on-going efforts into its green operation and green development. In 2022, Zhejiang Base was included into the List of Green and Low Carbon Factories in Jinhua 2022 and Tianjin Base applied for the qualification of Green and Low Carbon Factory.

## Product Carbon Footprint Accounting

Aiko Solar has measured and calculated the full life cycle carbon footprint of its solar cells to support the reform for low-carbon technologies and the calculation of carbon reduction performance. According to measurements and calculations, 1MW ABC solar cells can reduce 27,000 tons carbon dioxide equivalent (similar to the result of planting 1.46 million trees) over their full life cycle (25 years).

## Carbon Fixation Management

Aiko Solar increases the green space in its factories to give full play to the carbon fixation benefit. In 2022, Aiko Solar fully renovated damaged green space



so to deliver a green space of  
**20,800** square meters  
that can fix

about  
**416** tons carbon dioxide  
equivalent each year<sup>2</sup>



Renovated Green Space in Aiko Solar Factories

<sup>2</sup>Note: Assume that one square meters of grass and trees can fix 20 kg carbon dioxide equivalent.

## Wastewater, Waste Gas and Solid Waste Management

Aiko Solar focuses on renovation of production equipment, put more efforts into pollutant management, does a robust job in removal of solid waste, wastewater and waste gas, and vigorously controls pollutant release in production activities.

## Wastewater Control

The major sources of wastewater in Aiko Solar are production workshops, technical processes (acidic wastewater, alkaline wastewater, and high-concentration acidic wastewater from post-washing process), wastewater from waste gas treatment systems, other production wastewater (wastewater from cooling towers and rejected water for producing pure water), and domestic wastewater. The Company has laid down internal policies and procedures including Wastewater Operation Control Procedures, Wastewater Pollution Prevention and Control Policy, Wastewater Station Operation Management Policy, and Wastewater Processing Station Operating Procedures where control indicators for technological processes and internal release criteria that are stricter than national standards are defined, and imposed an incentive and punishment scheme on wastewater discharge, to boost the wastewater control and ensure the discharge of qualified wastewater. In 2022, the wastewater discharged by the Company was lower than the limits laid down in Emission Standard of Pollutants for Battery Industry (GB30484-2013) and Discharge Standard of Pollutants for Municipal Wastewater Treatment Plant (DB33/2169-2018).

Other measures have taken by Aiko Solar including the construction of waste water treatment station, improvement of technological processes and strict separation of production wastewater, domestic wastewater and rainwater to reduce wastewater and increase the treatment efficiency. In 2022, Aiko Solar discharged 239.326 tons wastewater per megawatt, a reduction of 28.65% year-on-year.



In 2022,  
Aiko Solar discharged

**239.326** tons

wastewater per megawatt

a reduction of

**28.65%** ↓

year-on-year



Aiko Solar Wastewater Treatment Station

Aiko Solar Performance on Wastewater Discharge<sup>3</sup>

Indicator	Unit	2022	2021	2020
Total wastewater discharge	Ton	8,064,525	6,539,231	3,595,367
Wastewater discharge intensity (per unit product)	Ton/MW	239.326	335.440	270.366
COD	Ton	321.640	299.063	148.498
Ammonia Nitrogen	Ton	12.796	18.798	17.044

<sup>3</sup>Note: Data covering Tianjin Base, Zhejiang Base and Foshan Base. The total number is increased because new constructions happened in 2021 and 2022 to production bases.

## Waste Gas Control

Aiko Solar sets technical parameters and arranges specific technical processes against pollutants in strict accordance with Waste Gas Pollution Prevention and Control Policy to ensure qualified waste gas emissions. These technical processes include for example the one stage alkali spraying, three-stage silane combustion + pulse jet bag filtering+ water spraying + acid spraying, condensing unit (built in the equipment) + combustion unit (built in the equipment) + activated carbon treatment, acid and alkali spraying, four stage redox spraying, condensate-recycling + activated carbon treatment.



Waste Gas Treatment Facilities



## Solid Waste Disposal

Aiko Solar actively advances the work of reducing solid waste and the proper treatment of solid waste with strict execution of its Solid Waste Management Procedures and Solid Waste Management Policy, and through comprehensive utilization and full reuse of its solid waste, and sorted collection of solid waste that cannot be recycled.

For hazardous waste, Aiko Solar uses special bags or intermediate bulk containers, arranges special storage facilities where fences help separate different types of hazardous waste, and sends the classified waste to qualified third-parties for proper treatment. For general waste, the Company performs classified collection and storage, and engages qualified third-parties for proper treatment and recycling, for example, producing bricks or mineralizers from the waste, to make the most out of resources.



Aiko Solar Hazardous Waste Storage Facility

Aiko Solar Performance on Hazardous Waste<sup>4</sup>

Indicator	Unit	2022	2021
Hazardous waste produced	Ton	170.23	133.53
Hazardous waste production intensity (per unit product)	Ton/MW	0.005	0.007
Hazardous waste disposed	Ton	179.37	136.02

<sup>4</sup>Note: Data covering Tianjin Base, Zhejiang Base and Foshan Base. The total number is increased because new constructions happened in 2021 and 2022 to production bases.

Aiko Solar Performance on General Waste<sup>5</sup>

Indicator	Unit	2022	2021
General waste (sludge) produced	Ton	59,742.37	48,517.14
General waste production intensity (per unit product)	Ton/MW	1.773	2.489
General waste (sludge) disposed	Ton	59,696.37	48,453.82

<sup>5</sup>Note: Data covering Tianjin Base, Zhejiang Base and Foshan Base. The total number is increased because new constructions happened in 2021 and 2022 to production bases.

## Noise Management

Aiko Solar has laid down its Noise Management Policy with reference to the Law of the People's Republic of China on Prevention and Control of Environmental Noise Pollution, takes effective measures such as soundproofing, sound deadening and vibration proofing, against sources of noise, and measures noise values quarterly and monthly. In 2022, the noise from Aiko Solar was lower than the limits set forth in relevant national standards.

## Promote Circular Economy

### Energy Management



The comprehensive energy consumption intensity was

**4.284** tons standard coal equivalent per megawatt

a reduction of

**31.82%** ↓

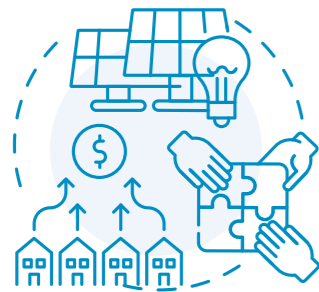
year-on-year

Continuous efforts into development of internal energy management in Aiko Solar has delivered the Energy and Resources Saving Management Policy which specifies about duties and authorities, optimization of technical processes, and equipment operation at a cost-effective manner, for a full-process energy management.

Aiko Solar's energy consumption is basically attributed to direct and indirect production equipment. In 2022, a range of actions including use of clean energy, elimination of top users of electricity, adoption of equipment that consumes less equipment and energy efficiency renovation of technological processes, coupled with the further upgraded energy structure, helped increase the energy efficiency and reduce the consumption of fossil energy in Aiko Solar. Zhejiang Base and Tianjin Base obtained the ISO 50001 energy management system certification. In 2022, the comprehensive energy consumption intensity of Aiko Solar was 4.284 tons standard coal equivalent per megawatt, a reduction of 31.82% year-on-year.



Certificate of Energy Management System



#### Aiko Solar Energy Saving Projects 2022

Nitrogen generator afterheat recovery project Saved  
**4,215,700 kWh**  
in a year approximately

Centrifugal air compressor heat recovery project Saved  
**17,260,000 kWh**  
in a year approximately

Low PUE value (for modular server rooms) project  
PUE value was about **1.4**

Aiko Solar Energy Consumption Performance<sup>6</sup>

Indicator	Unit	2022	2021	2020
Comprehensive energy consumption	Ton (standard coal equivalent)	144,357.92	122,490.36	75,921.58
Comprehensive energy consumption intensity (per unit product)	Ton standard coal equivalent/ MW	4.284	6.283	5.709
Electricity consumption	kWh	1,263,302,784	995,099,496	616,284,004
Natural gas consumption	m <sup>3</sup>	3,986,949	3,262,467	3,053,239

<sup>6</sup>Note: Data covering Tianjin Base, Zhejiang Base and Foshan Base. The total number is increased because new constructions happened in 2021 and 2022 to production bases.

#### Case Renovated manufacturing processes for higher energy efficiency

Zhejiang Base newly adopted a heat exchanger that recycles and stores the compression heat from centrifugal air compressors, and uses the heat in surface texturing machine to lower the temperature of electric heaters, which could save energy up to 43%.



Heat Transport Pipelines

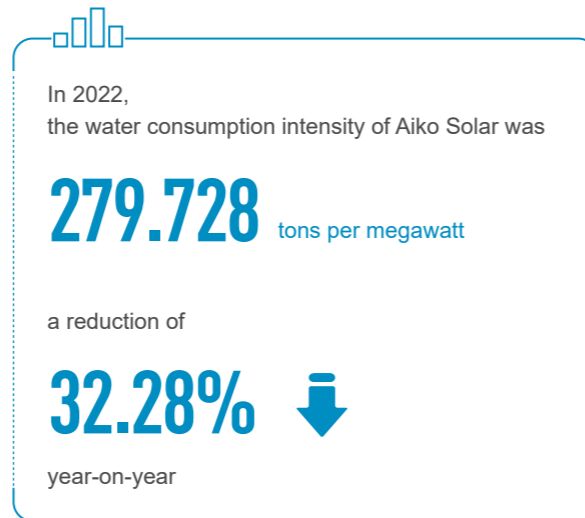
## Water Resource Management

### Goal Setting

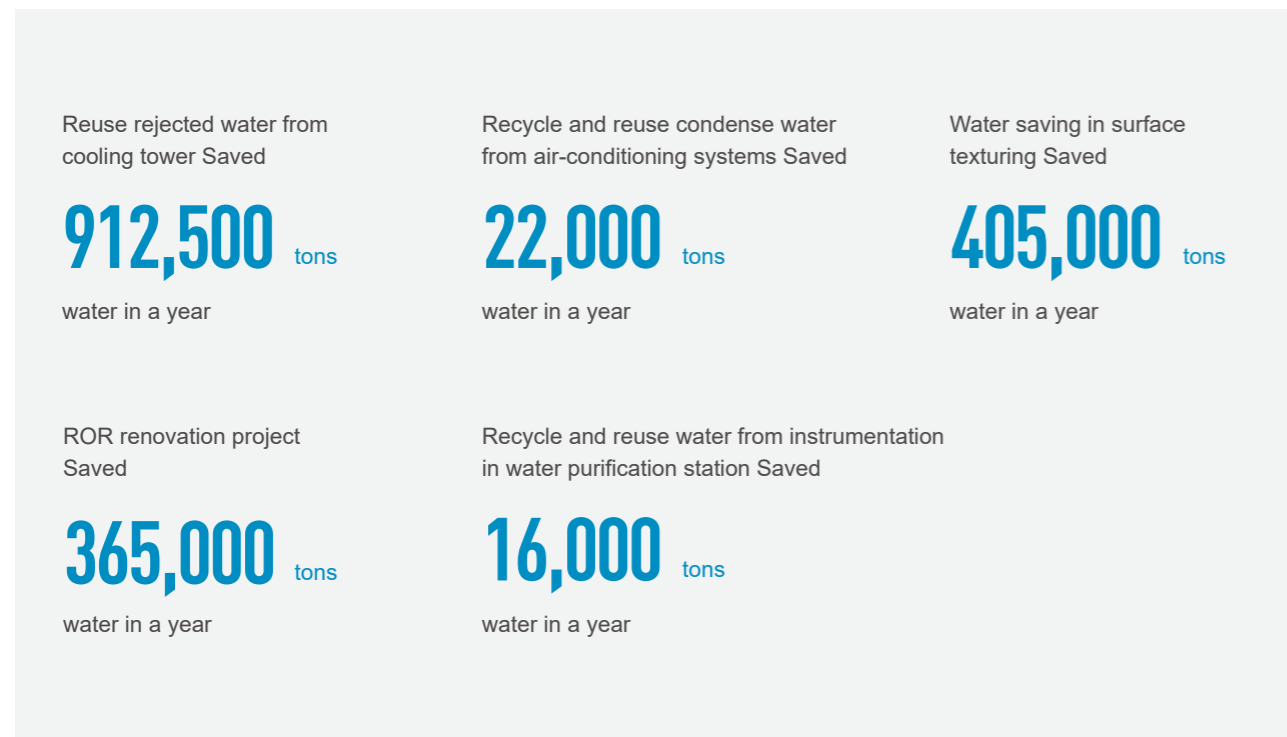
Aiko Solar manages water resource in detail with strict monitoring of water consumption at each step, and sets water saving goal given its own conditions, and puts water saving result into performance review.

### Water Use Management

The domestic water and production water used by Aiko Solar are essentially from municipal water supply system. It tries to reduce water consumption and increase water efficiency by laying down Water Saving Energy Policy, using the same water for different purposes, recycling rejected water, and recycling condensate water. In 2022, the water consumption intensity of Aiko Solar was 279.728 tons per megawatt, a reduction of 33.28% year-on-year.



#### Water Saving Projects at Zhejiang Base 2022



Aiko Solar Water Saving Performance<sup>7</sup>

Indicator	Unit	2022	2021	2020
Water consumption	Ton	9,425,962	8,172,808	5,408,240
Water consumption intensity (per unit product)	Ton/MW	279.728	419.236	406.691
Including: water consumption in office	Ton	199,576	192,073	160,865
Including: water consumption in production	Ton	9,226,386	7,980,735	5,247,375
Primary water consumption	Ton	8,149,721	8,172,808	5,408,240

### Water Stress Risk Assessment

Aiko Solar gains a swift understanding of any changes in local water resource and water risk, and work out measures accordingly to ensure enough water resource is available to support its long-term operation and sustainable development.

### Packaging Material Management

Aiko Solar has worked out the Environmental Protection and Resource Saving Policy. Given the impact of packing materials over their life cycle, the Company gives preference to harmless and non-toxic materials that can be easily degraded or recycled, and practices the principle of reasonable packaging by avoiding the excessive use of packaging materials and the generation of packaging waste. Furthermore, Aiko Solar is committed to building a circular supply chain so that it is possible to closely trace the use of packaging materials by companies in the chain. In 2022, Aiko Solar recycled approximate to 2,000 tons of packaging of raw materials.



<sup>7</sup>Note: Data covering Tianjin Base, Zhejiang Base and Foshan Base. The total number is increased because new constructions happened in 2021 and 2022 to production bases.



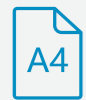
## Strive for Low-carbon Operation

As an active response to China's call for clean production, Aiko Solar uses environment friendly production technologies, processes and equipment that protect the soil environment for integrating the low-carbon and circulation idea into the whole production and operation.

### Clean Production

Zhejiang Base has formulated a raft of internal management policies including Clean Production Management Policy, Clean Production Plan and Objectives, and Clean Production Incentive Procedures, set up a Clean Production Management Office, and established an organizational system where the General Manager is fully responsible the overall clean production, and EHS Management Office takes charge of specific jobs, workshops and relevant departments take charge of their respective duties.

Zhejiang Base has passed the third-party clean production audit. The clean production renovation in the factory can



help reduce the A4 paper consumption by

**30,000** sheets

**HNO<sub>3</sub>**

nitric acid consumption by

**21.3** kg

**NaClO**

sodium hypochlorite consumption by

**3,650** kg



water consumption by

**10,000** tons



wastewater generation by

**8,000** tons

**NH<sub>3</sub>**

ammonia (NH<sub>3</sub>) emission by

**1.64** tons

**H<sub>2</sub>S**

hydrogen sulfide (H<sub>2</sub>S) emission by

**8.46** kg



volatile organic compounds (VOCs)

emission by **0.5** tons

This marks its continuous efforts into increasing resource efficiency and reducing the environmental impact. In addition, Tianjin Base is doing an active job in this regard.

#### Clean production measures by Aiko Solar

Replace raw materials that bring heavy toxic and harmful effects with non-toxic and harmless, or less-toxic and less-harmful materials;

Less-toxic and less-harmful raw materials are isolated from other materials, strictly sorted, and clearly identified in warehouses and workshops; and the use of toxic and harmful raw materials must be controlled;

Replace manufacturing processes and equipment that produce less pollution and deliver higher energy efficiency with manufacturing processes and equipment that bring the opposite effect;

Adopt the comprehensive use or circular use of solid waste, wastewater and afterheat from production processes, use pollution prevention and control technologies that can meet national or local standards on pollutant emission and discharge;

Workshops must strive to minimize energy consumption in production processes, and increase energy efficiency and the circular utilization of energy;

Workshops must strictly control environmental pollution caused throughout the entire production process, make sure that the production space and environment are clean;

Sales Department must use adequate care on product quality after products are shipped and before they are delivered to customers to prevent products from being damaged or contaminated during transportation.

### Ecological and Environmental Protection

Aiko Solar honors the value of ecological civilization and pledges to make no production or construction within the red line of ecological protection. Zhejiang Base prepared Soil and Underground Water Self-Monitoring Plan which was reviewed by the expert board arranged by local environment authority and registered with the authority. According to the plan, Zhejiang Base performs monitoring on its own to obtain the background value of soil environment and values of soil monitoring indicators and provide warnings on soil pollution through quantitative data for the ultimate purpose of soil protection. In 2022, 45 indicators on soil pollution as well as the measured values of PH, fluoride, silver, tin and petroleum hydrocarbons from Zhejiang Base met relevant standards.



## Green Office

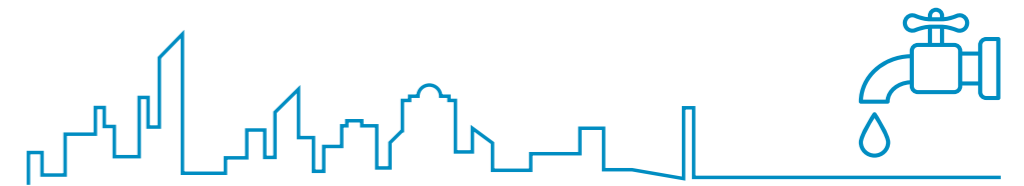
Aiko Solar tries every effort to create a green working environment by encouraging employees to save water, electricity, office consumables, commuter energy consumption, and to practice a lifestyle that saves energy and protect the environment. In 2022, Aiko Solar started a green office patrol scheme under which the Administration Department and Production Department performs patrols, and persons that violate green office rules are subject to punishment. This is one of the Company's actions to practice the green concept.



Aiko Solar Signs for Saving Energy



Foshan Base PV Generation Project on Rooftops



### Save water

Install sensing faucets, urinals and toilets that can save water in restrooms;  
Enhance water saving publicity and turn off water taps immediately after use



### Save electricity

Make the most out of natural light and reduce electricity consumption caused by lighting system;  
Turn off lamps, air-conditioners and power off equipment at the end of a working day or if you will leave the office for a long time;  
Power off computers and electrical appliances that are at long-time standby or when jobs are completed;  
Arrange someone to take care of lamps and air-conditioners in public areas depending on the natural light and natural temperature, to prevent they are on overnight;  
The Company plans to pave PV panels on unused plant rooftops in 2023, as a way to increase the utilization of clean energy



### Save money

Save office consumables and reduce paper consumption by editing documents on electronic media as much as possible;  
Encourage the use of both sides of paper;  
Minimize the printing of documents;  
Try to reuse envelopes and copy paper;  
Refill printer and copier cartridges that run out of ink or toner;  
Reduce the use of disposable products



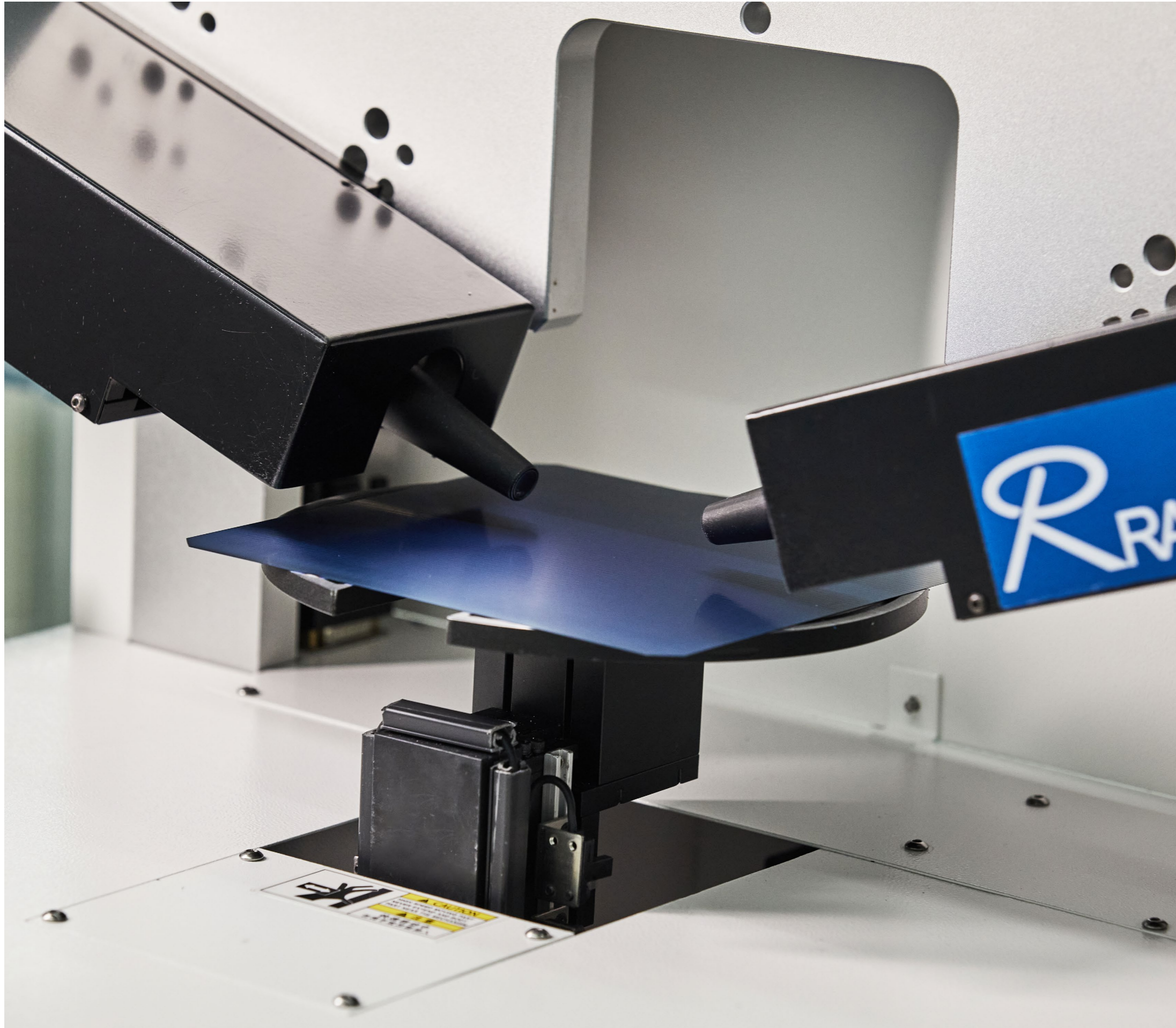
### Waste sorting

Kitchen waste is transported by canteen staff to designated waste site on a daily basis;  
Office waste sorting and recycling;



### Commuter management

Install solar charging stations and encourage employees to use electric cars;  
The Company plans to purchase electric vehicles for business use in 2023



## Create Value for Customers at Steady Pace

Aiko Solar put customers at the center of what we are doing and adhere to the principle of quality first. We are committed to providing high-quality products to our customers, building and improving our supplier management system and treating suppliers as partners to ensure a stable supply chain and timely delivery of goods. We provide excellent after-sales service and actively protect the rights and interests of our customers.

### Responses to UN SGDs



## Protect Rights and Interests of Customers

Aiko Solar spares no effort to protect customer rights and interests by creating smooth communication channels and providing premium products and great after-sale services. During the covid-19 pandemic, we managed to make on-time delivery.

### Customer Rights Protection

Attaching importance to the protection of customer rights and privacy, Aiko Solar has specified how to identify and protect customer properties in its Sale Process Management Procedures. Customer information is stored in CRM and SAP systems to which only authorized persons whose work is related to customers have access, which maximizes the protection of customer rights and privacy.

### On-time Delivery

In 2022, keeping the situation of COVID-19 pandemic in mind, Aiko Solar tried to know about the delivery prioress, fully coordinated the shipment plan and logistics system, sought special vehicles from reliable sources, and booked vehicles in advance. Aiko Solar also achieved vehicle-pooling across-city by making precise plan, and therefore achieved 100% on-time delivery without any logistics complaint.

### Good After-sale Services

Aiko Solar has Customer Complaints Handling Control Procedures under which, customer complaints are managed in a multiple grade system, and handed over to primary department leaders, secondary department leaders, supervisors or engineers as applicable. What is more, Aiko Solar broadens its customer communication channels including phone calls, WeChat messages, and emails. In 2022, the overall rate of customer complaints received by Aiko Solar dropped by 64.29% compared to the previous year; and 93.20% of customer complaints were resolved.

The Company performs regular customer satisfaction surveys containing quality rating, technology rating, commerce rating and satisfaction ranking. Given results obtained from these surveys, the Company performs targeted corrections and preventions to bring better services to customers, continuously improving customer satisfaction.

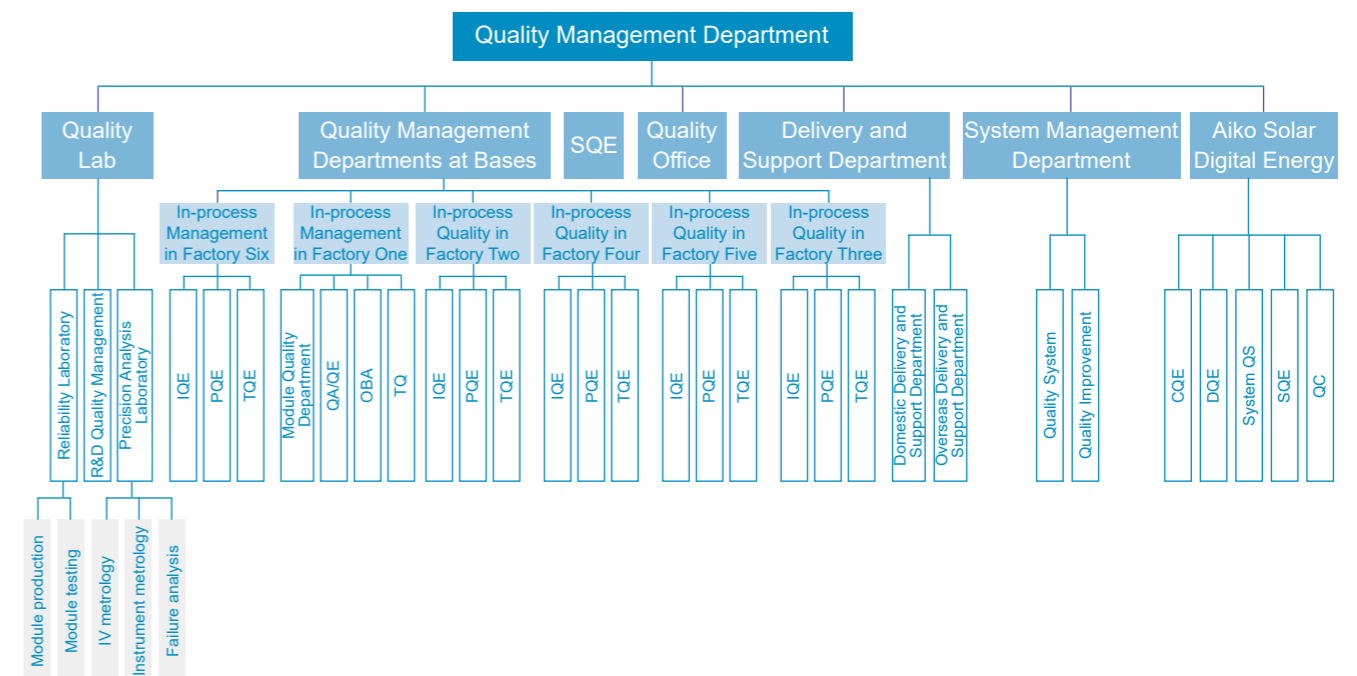
Overview of Customer Complaints in Aiko Solar

Indicator	Unit	2022
Customer complaints resolved	%	93.20
Reduction of customer complaints	%	64.29

## Strengthen Product Quality Management

As a part of its work to provide high-quality products and services to customers, Aiko Solar improves its quality management structure, having laid down more than one hundred management procedures on product quality to further regulate quality management processes. In 2022, our products were widely recognized by customers.

Aiko Solar has formulated a wide range of management policies and procedures including Modules Management Procedures for Quality Lab, Management Policy for Quality Lab, Final Quality Control Standard Operating Procedures, Out Quality Control Standard Operating Procedures, and set up Quality Management Department and CQO Office for comprehensive quality management. In 2022, 97.32% of Aiko Solar products were rated Grade A, and 96.21% rated Grade A (effective).



Aiko Solar Organizational Structure for Quality Management

## Refine Supply Chain Management

Aiko Solar gives importance to supply chain management with continuous work on improving supply chain stability. Besides, we hold technological exchanges with suppliers on a regular basis to work hand in hand with them for mutual development.

### Supplier Chain Management

As a part of its continuous work on building the responsible supply chain, Aiko Solar keeps improving our management policies and organizational structure which helps identify possible supply chain risks and work out measures. What is more, we practice the green procurement principle, for example, provisions on the use of environment friendly raw materials are included into contracts, and we promise not to purchase and use disputed materials, to advance the sustainable development of the supply chain.

In 2022, Aiko Solar ensured the continuity of material supply for a stable supply chain through comprehensive research on suppliers regarding their supply ability, production capacity and logistics ability. We also imposed traceability management on suppliers to ensure the reliable quality of materials from suppliers.

### Supplier Management

Aiko Solar has laid down the Supplier Development and Management Procedures, and has well-established processes for supplier sourcing, selection and review with EHS factors considered. The Company performs supplier performance review on on-time delivery and service quality each quarter, and rates their product and service quality according to the reviews.

All suppliers are required to sign the Anti-Corruption Agreement. As a core enterprise in the supply chain, Aiko Solar clarify provisions on environmental protection, safety, human rights, labors, disputed territory procurement, anti-corruption, to help improve internal ESG management in suppliers. In 2022, silicon wafers purchased from suppliers in areas like Yinchuan and Yunnan were increased significantly, which account for about 20% of materials purchased.



#### Overview of Aiko Solar Suppliers

Indicator	Unit	2022
<b>Total suppliers</b>	/	275
In which: Chinese Mainland suppliers	/	250
Percentage of Chinese Mainland suppliers	%	75
Hong Kong, Macao and Taiwan suppliers	/	5
Percentage of Hong Kong, Macao and Taiwan suppliers	%	2
Overseas suppliers	/	20
Percentage of overseas suppliers	%	7
Including: Core silicon wafer suppliers	/	17
Auxiliary material other than silicon suppliers	/	88
Equipment suppliers	/	120
Infrastructure suppliers	/	50
Total suppliers audited	/	275
Supplier violations of contract	/	0

## Training and Exchanges

Aiko Solar gives importance to the shared development with its supply chain partners by holding exchanges and training activities with them on a regular basis. In 2022 company organized technological exchanges with suppliers on a monthly basis. Their discussion covered the development direction of slurry products and the progress of experiments for developing new materials that can lower costs and increase efficiency.

#### Aiko Solar Performance on Supplier Training

Indicator	Unit	2022
<b>Number of supplier training sessions</b>	/	96
<b>Duration of supplier training</b>	hour	96
<b>Supplier training participants</b>	/	1,920



## Focus on Corporate Responsibilities for Good

Aiko Solar values employee cultivation and care, contributes a well-established training system and promotion path for employees, and takes a raft of initiatives to create a good working environment, encouraging them enjoy the Company's development achievements and move forward together with the Company. During the Covid-19 pandemic, the Company tried its level best to combat against the pandemic with all social forces, which fully evidenced its bold fulfillment of its social responsibilities. In 2022, Aiko Solar donated a total of 300,000 CNY to charity, including Zhejiang Base donated 200,000 CNY to Yiwu Charity Federation, Tianjin Base donated 100,000 CNY to the Red Cross for rural development promotion.

### Responses to UN SDGs



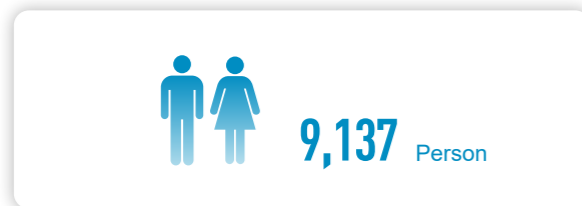
# Safeguard the Rights and Interests of Employees

## Employment Management

Aiko Solar abides by applicable laws including the Labor Law of the People's Republic of China, and Law of the People's Republic of China on Employment Contracts, and has laid down internal management procedures including Recruitment Management Procedures. In its recruitment process, the Company follows the equality, diversity and non-coercion principles, does not discriminate against anyone based on factors including religion, family status or disability, and uses no child labor or forced labor.

Aiko Solar Employee Overview 2022

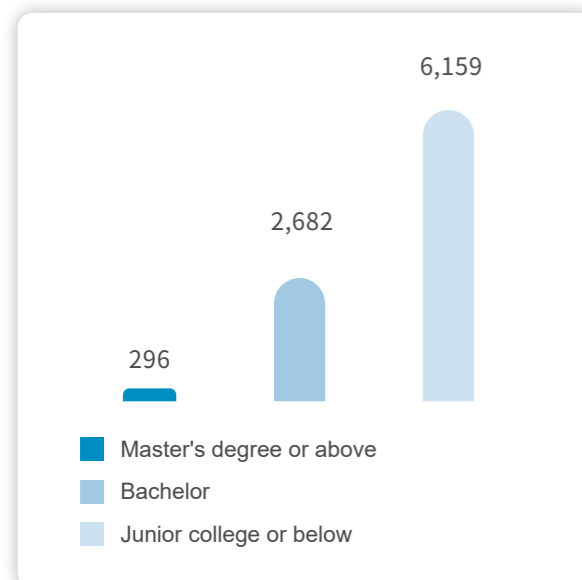
### Total employees



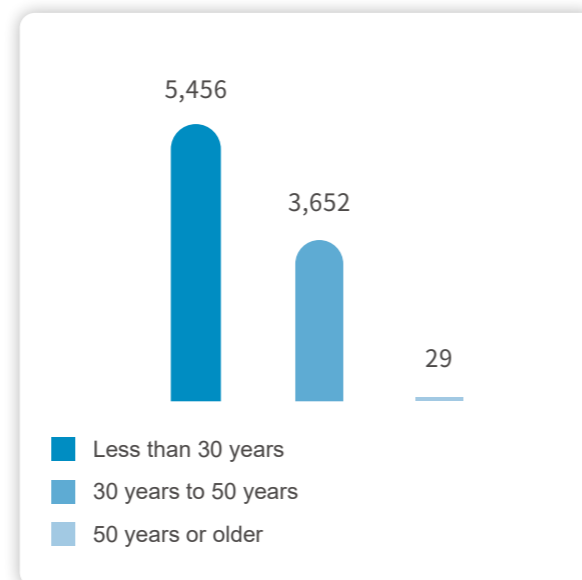
### By gender



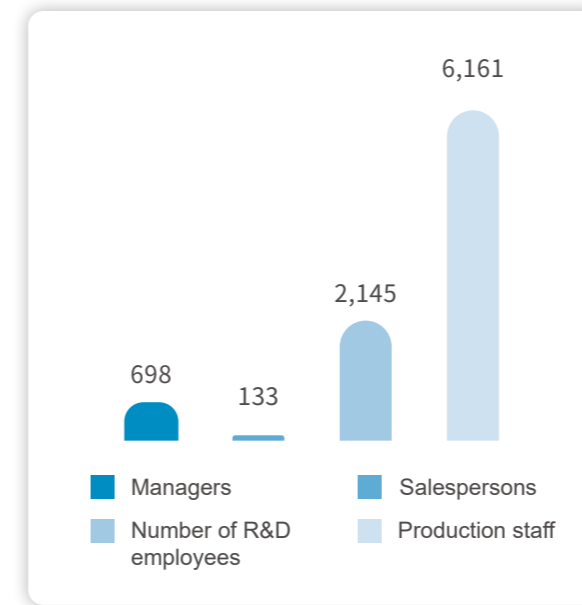
### By education background (Person)



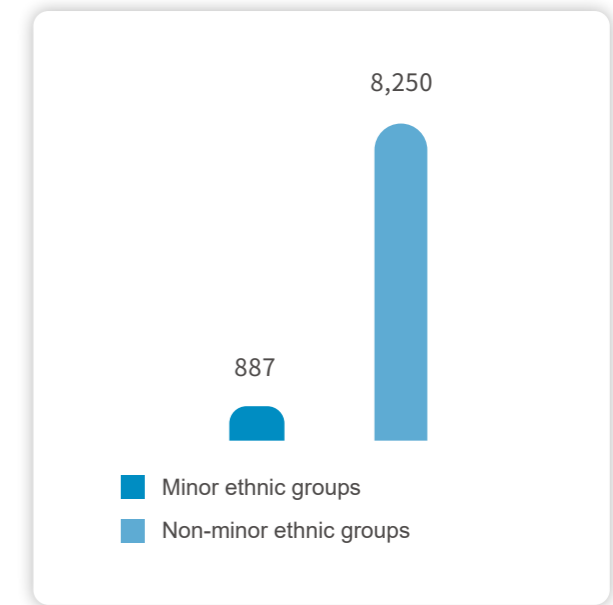
### By age (Person)



### By profession (Person)



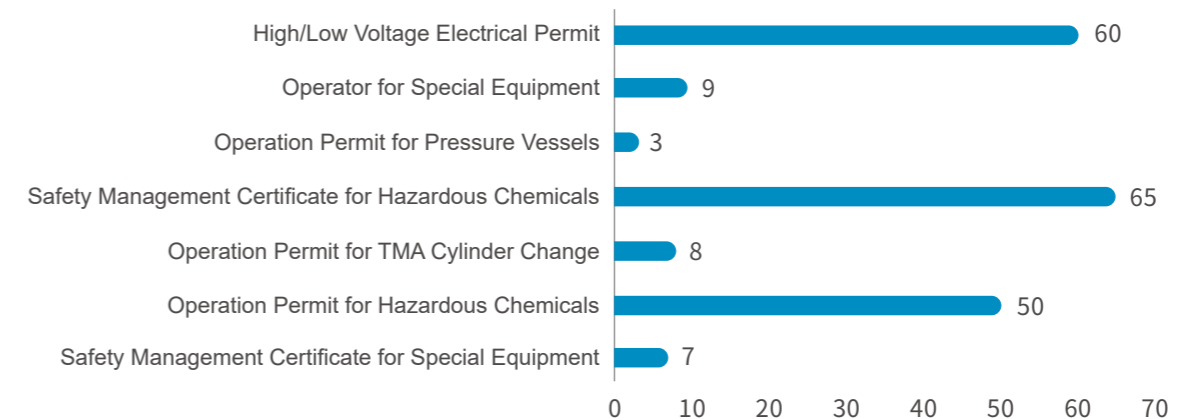
### By ethnic group (Person)



Aiko Solar has a well-established employee benefit system under which it pays all kinds of social insurances and house provident fund, and paid annual leave for employees, and maternity leave and breast breeding leave for female employees. What is more, the Company has a flexible compensation scheme that connects organizational performance with personal performance, on the basis of its job-level system and career development paths available to employees. Employees at certain roles are entitled to the share incentive plan which can motivate employees effectively for better productivity and performance.

Aiko Solar observes the Law of the People's Republic of China on Prevention and Control of Occupational Diseases, and based on which, has formulated its own Occupational Health Management Policy. In addition to arranging occupational health check each year and buying work safety insurances for employees, the Company holds PPE use examinations on employees each year. Employees engaged in high-risk roles are required to obtain relevant internal and external certificates. The Company has its occupation health and safety management system certificated according to ISO45001 standards for years in a row. In 2022, Aiko Solar obtained 202 certificates either as a company or via its employees.

Internal and External Certificates Obtained by Aiko Solar 2022

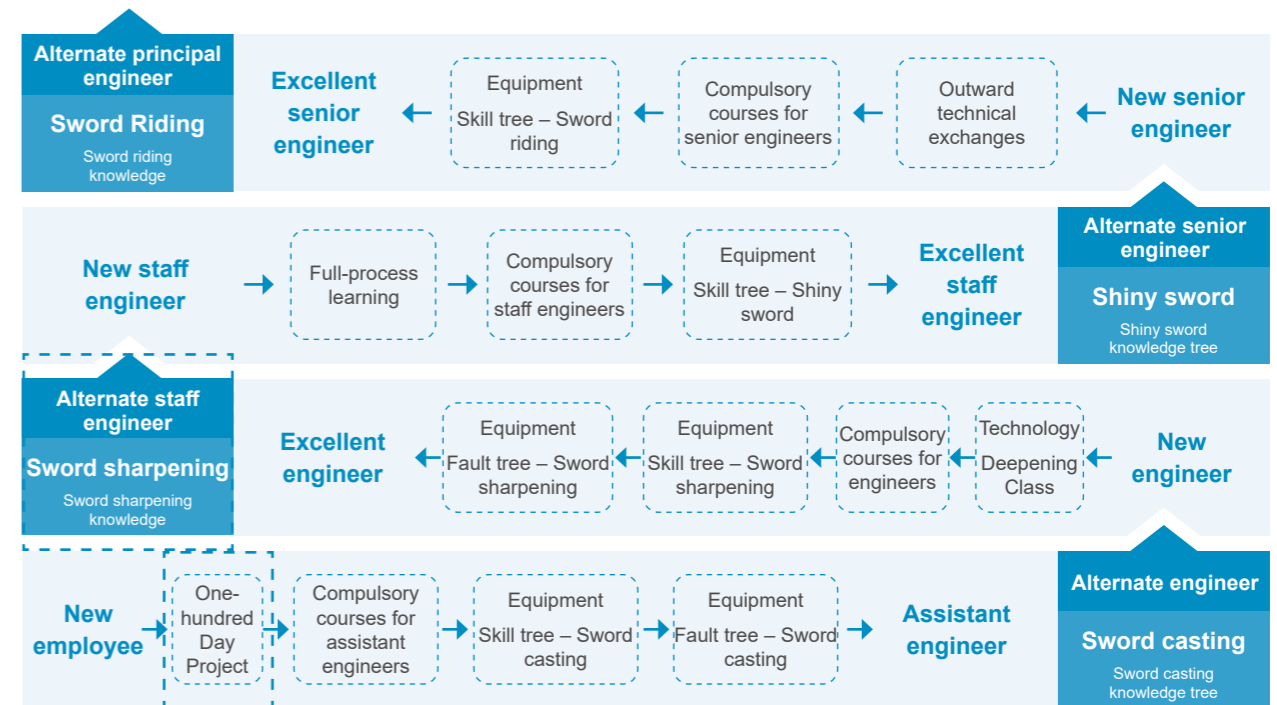


## Employee Development

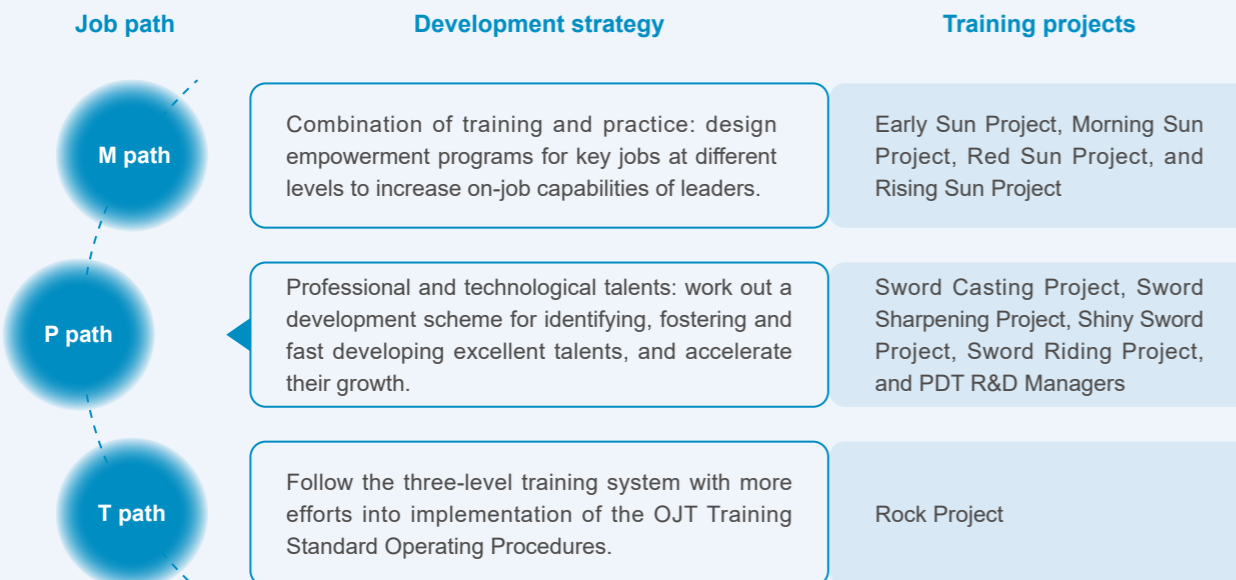
Focusing on talent empowerment, Aiko Solar has released internal management procedures including Training Management Procedures, Management Procedures on Knowledge Contribution from Leaders and Key Employees, and Internal Trainers Management Procedures, as a part of its on-going work on improving the employee career development system and encouraging them to realize their own value.

## Development System

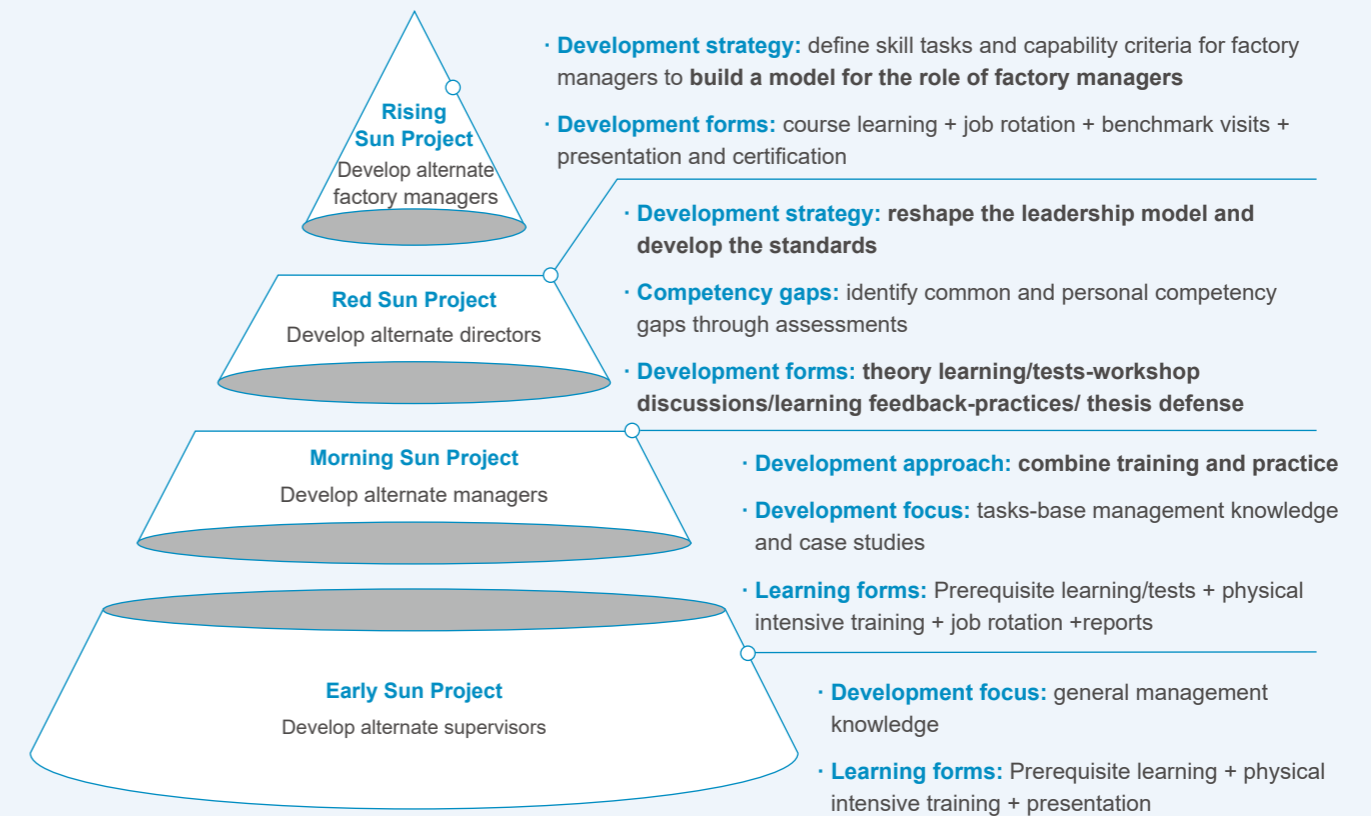
Aiko Solar has a complete employee development system in place. It has worked out differentiated development strategies and training programs for management job family (M path), technology, professional and marketing job families (P path), and management and operation job families (T path).



Employee Development System



Development Strategies and Programs



M sequence training program



**Case** Dawnlight Project launched to help management trainees grow

In July 2022, Aiko Solar started its Dawn Light Project, a key program for management trainees who would receive four training modules including front learning, team outreach, culture conversion, mind change and upgrading. On average, each trainee was trained about 400 hours.



Dawn Light Project Training Site

## Digital Learning Platform

Aiko Solar has launched a digital learning platform where online classrooms include Main Classroom, New Employee Classroom, Cells – Basic Classroom, and Lean Quality Classroom, to help increase training efficiency.

**Main Classroom**

It covers the broadest range including leadership, general technologies, professional skills and company policies

**New Employee Classroom**

It provides knowledge that new employees are required to learn about and understand, such as company profile, corporate culture and activities of the company

**Cells-Basic Classroom**

It is applied to employees engaged in equipment, production and manufacturing processes.

**Lean Quality Classroom**

It basically provides ideas and tools used for lean quality

Aiko Solar Performance on Employees Training

Indicator	Unit	2022
Number of training sessions	/	1,567
Training duration	hour	391,101.12
Average training duration of leadership training per manager	hour	39
Average training duration per technology professional	hour	51.17
Average training duration per new employee	hour	24

## External Training

Aiko Solar puts importance to the coordination of external high-quality training resources. In 2022, the Company invited several industry experts and scholars to provide professional training for managers, internal trainers, and employees.

**Case** Human Resource Management for Non-HR Managers

In 2022, Aiko Solar held a human resource management training course for non-HR managers. This course empowered business managers with human resource management capabilities in several aspects including how to identify roles in a team, how to set up an efficient team, how to develop your employees, how to do performance management, how to motivate your employees, and how to establish employee retain and exit mechanism.



Training Site

**Case** Case Course Development based on Lessons and Experience

In 2022, Aiko Solar provided a training program for internal trainers. This performance improvement-oriented course divided the process of gaining cases from lessons and experience into several modules that can be employed with tools and assessed against standards, and helped internal trainers understand the concepts, principles, and applicability of case study method in a company, as well as the methodology of case development and teaching. In the end, these internal trainers delivered their own draft cases and teaching frameworks.



Training Site

**Case** Business etiquette and writing training for salespersons

In 2022, Aiko Solar organized a training program on business etiquette and writing to help salespersons behave properly in business and social occasions. The course covered several topics including "What Is Etiquette", "Why Should We Learn Etiquette", "Social Etiquette", and "Differences Between Domestic and International Business Etiquettes".



Training Site

**Promotion Mechanisms**

The Job Management Procedures of Aiko Solar specify the promotion mechanisms for different types of employees, i.e., operator family, management family and professional family. Four promotion windows are available to operators each year, and two to professionals. A promotion window is open to management staff each month when the administration management team holds a meeting.

Candidates are expected to meet the conditions including compliance with ethics in business conduct, scope of development path, performance, education background, duration and job eligibility. The starting and completion of a promotion must be circulated to all employees through the Company's notification system to ensure a fair and transparent process.

**Rights and Interests of Employees**

Aiko Solar honors employee feedback and their engagement and satisfaction. All departments organize discussions for front-line employees and technological professionals regularly as a way to improve employee satisfaction. These discussions enable department leaders to understand current challenges faced by employees in both work and life to help them solve these problems; and also present the Company's benefit policies and help employees understand the Company's policies and direction. In 2022, organizations of all levels in Aiko Solar held 442 employee discussions to have their voice fully heard and to help them solve real problems. The Company held 56 employee care activities to increase the sense of belongingness and happiness of employees.



In 2022, organizations of all levels in Aiko Solar held

**442**

employee discussions

**Case** Dragon boat race on land

In June 2022, Zhejiang Base held a dragon boat race on land to celebrate the Dragon Boating Festival. The race was designed to stimulate the teamwork spirit and facilitate exchanges among employees for better team cohesion.



Zhejiang Base Dragon Boat Race on Land

**Case** Keep employees cool in summer

In July 2022, Zhejiang Base provided frozen watermelons and large ice creams to front-line workers as a part of their effort to keep employees healthy in the hot summer.



Zhejiang Base employees received "cool" in summer

**Case** Take care of female employees

On the International Women's Day in 2022, Aiko Solar held a wide range of activities including sending flowers to each female employee to thank for their hard work and contribution to the Company.



Female Employees on the International Women's Day

Aiko Solar cares much about the mental and physical health of its people, and prioritizes the work of creating a health, safe and comfortable workplace for its employees. As of the end of 2022, the Company had 23 employee associations that covered over 900 employees. With the help of these associations, the Company held over 200 team buildings and entertainment activities.



The Company had  
**23**  
employee associations

covered over  
**900**  
employees

With the help of these associations,  
the Company held over  
**200**  
team buildings and entertainment activities

Case Basketball Association

In December 2022, Zhejiang Base Basketball Association held its first basketball activity which helped them relax both mentally and physically, and help them connect with colleagues.



Basketball Association Activity

Case Mountain Climbing Association

As of the end of 2022, the Mountain Climbing Association at Aiko Solar had successfully organized several climbing activities including Desheng Cliff, Flying Eagle Path, and Eight-Ridge Path, which helped improve the mental and physical health of employees.



Climbing Activity

Case Football and Frisbee Association

In 2022, Aiko Solar organized several football and frisbee matches which adds colors to the life of employees and help them relieve their work pressure.



Football and Frisbee Activity





## Work Safety

Aiko Solar has a wide range of internal policies on work safety, including Construction Project Management Procedures, Targets and Indicators Management Policy, Special Operations Management Policy, Emergency Response Management Policy and Hazardous Factors Management Policy to ensure and regulate its work safety.

### Work Safety Measures

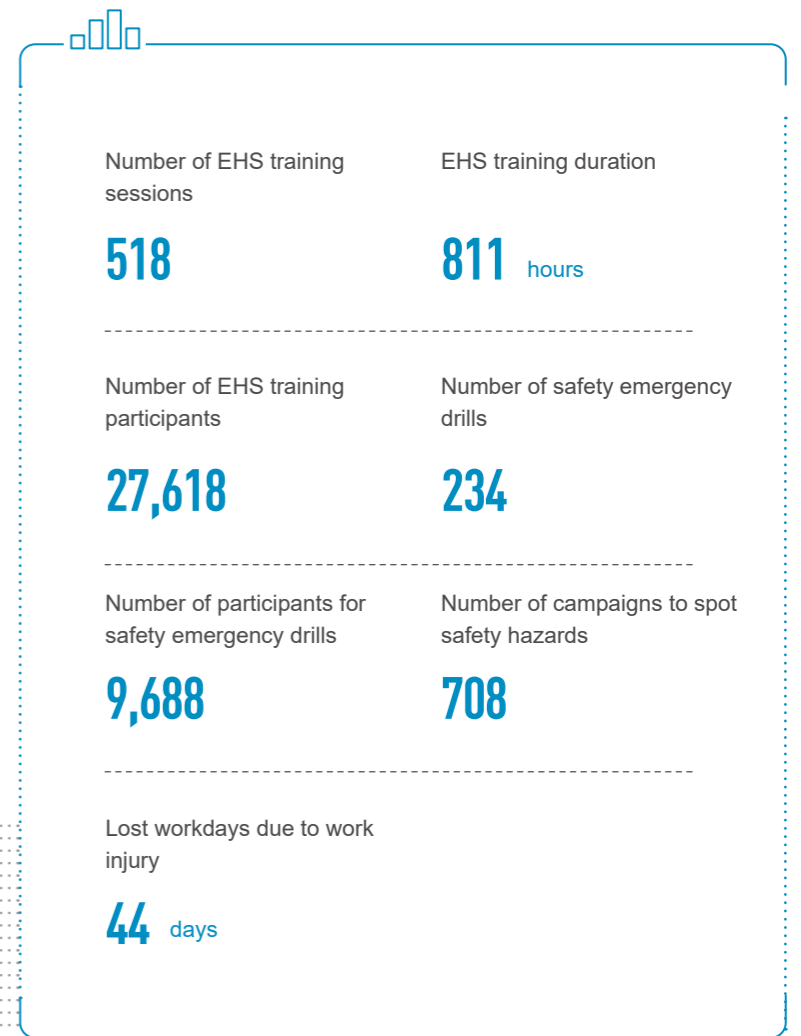
Zhejiang Base has obtained the grade two qualification of safety standardization enterprise, and awarded as the demonstration enterprise for construction of standardization pilot areas in national industry and trading industries by Jinhua Emergency Response Bureau in 2019. In 2022, with strict measures for construction management and management of significant sources of risk, the Company achieved overall work safety.

Category	Measure
 <p>Construction management</p>	<ul style="list-style-type: none"> <li>Develop the construction management policy regarding factory affairs, and arrange the construction management process with respect to contractors;</li> <li>Joint construction survey and pre-construction briefings;</li> <li>Daily pre-construction training/toolbox meeting;</li> <li>Set up visual signs for construction operations containing construction application forms/risk analysis/training and staff eligibility/safety check records;</li> <li>Specify regulatory requirements, perform patrols every two years for average construction, arrange full-process manual monitoring and automatic monitoring for dangerous operations and areas.</li> </ul>
 <p>Chemicals management</p>	<ul style="list-style-type: none"> <li>Develop the chemical management policy regarding factory affairs, and implement the approval process for chemical filling and loading;</li> <li>Regulate the protections on chemical filling and loading operations, and the standards on emergency supplies and first-aid medicine, and carry out field supervision;</li> <li>Set up visual signs on filling and loading operations over chemical filling and loading application forms/PPE standards/safety checklist/notes to factory visitors;</li> <li>Newly build chemical filling and loading supervision booths and improve operation steps to reduce exposure risk.</li> </ul>

## Training and Emergency Drills

Aiko Solar attaches importance to safety training, identification of safety hazards and emergency drills, with all kinds of safety measures developed and implemented. In 2022, the Company organized 518 EHS training sessions that covered 27,618 participants for a total duration of 811 hours.

It also performs well in identification of safety hazards and emergency drills for lowering safety risks. In 2022, the Company launched 708 campaigns to spot safety hazards and 234 emergency drills in which a total of 9,688 people participated.



### Case Safety training

At the 2022 annual work safety meeting, Aiko Solar introduced and explained the new Work Safety Law and the "fifteen rules" from Work Safety Committee Office under the State Council, and played videos on typical work accidents that happened in the industry to employees, to enhance their safety awareness.



Aiko Solar Annual Work Safety Meeting

**Case** Solid waste knowledge training

In 2022, Zhejiang Base provided a training course on solid waste knowledge where the requirements on collection, storage and transportation of as well as the disposal process for solid waste were detailed, to deepen employees' knowledge of properties of solid waste and to ensure solid waste is disposed under regulations.



Solid Waste Knowledge Training at Zhejiang Base

**Case** Various measures to combat against the pandemic

In 2022, Zhejiang Base spared no effort to reduce the contact between people in external vehicles and people in the factory by arranging fixed fences and mobile toilets, and delivering box meals and gift packages. Volunteers in the Base made full preparation for checks at 5:00 am each day to ensure the point-to-point control. Zhejiang Base ensured the safety of its people to the largest extent by coordinating a large number of external resources and improving the efficiency of nucleic testing. Throughout the year, they performed 280,000 nucleic tests.



Zhejiang Base coordinated Shutter Buses for employees during the pandemic

## Fight against the Pandemic

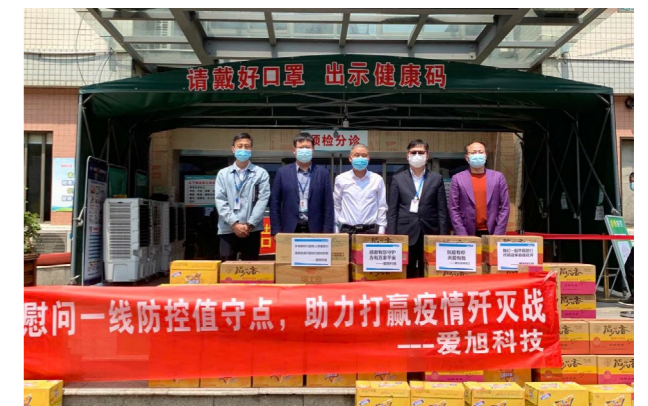
2022 was a critical year for the successful campaign against the COVID-19 pandemic, Aiko Solar showed its commitment to social responsibility with strong will for standing together through storm and stress.

In 2022, the COVID-19 pandemic continued spreading across the world; against which, Aiko Solar released a variety of pandemic prevention and control measures with swift responses from Zhejiang, Foshan and Tianjin Bases which accordingly formulated respective emergency response plans. Zhejiang Base provided nucleic testing for employees and required the presentation of negative testing results obtained within 24 hours by visitors; and visitors in external vehicles that entered the Base were not allowed to get off. Foshan Base create a file for each person and performed field disinfection periodically. Tianjin Base gave full supports to the Company's nucleic testing, and ensured all employees to take nucleic testing.

Aiko Solar sent continuous supports to front-line workers who fought against the pandemic. The Company purchased and delivered 100,000 disposable facial masks to the front-line workers including law enforcement workers and public officials in Suxi Town, send gifts to workers on duty in Suxi Hospital, and donated materials such as drinks and instant noodles to pandemic prevention and control spots. This marked the Company's contribution to the war against the pandemic.



Aiko Solar Donated Disposable Masks



The Company Sent Gifts to Front-line Workers on Duty

## Future Outlook

With climate change intensifying across the globe, climate change has become a common challenge that threatens the mankind and the green and low-carbon transformation has been a global consensus. Replacing traditional energies with clean renewable ones is a crucial step for the low-carbon transformation. As the world's second-largest economy, China is an important participant and contributor in the campaign dealing with the climate change. And the development center of global new energy industry will be gradually moved to China. Guided by the "dual-carbon" goals, China for the first time produced over one terawatt-hour by wind and solar energies in 2022. This has marked the explosive development of clean energies. The PV industry has become the main force leading the energy revolution and the most important clean energy contributor.

Aiko Solar never stops its pursuit of excellence. From monocrystalline to polycrystalline, and from PERC to ABC cells, it has made strategic predications and made the right choices in each stage along the journey of PV technologies. The Company will be bound to get hold of unprecedented opportunities and ride on the waves by contributing to energy security and low-carbon development, and providing reliable and cost-effective clean energy solutions to the world.

Aiko Solar puts customers at the center of everything, thanks to its efforts and achievements over the past years, and has repeatedly broken through the bottlenecks of photoelectric conversion efficiency of solar cells to inject strong momentum into the development of the industry and energy transformation. The Company will continue building an industry-wide responsible supply chain, firmly forge along the way of green and sustainable development, and contribute to a climate-friendly society in and beyond China.

Heaven does not speak and it alternates the four seasons; Earth does not speak and it nurtures all things. The world today is marked by unseen climate changes. With a firm belief in the community with a shared climate future for mankind, Aiko Solar is here to stand shoulder on shoulder with all possible partners. We are going to play our role in global clean energy development and in the world's zero-carbon and sustainable future!



## Appendix I: Index Table of Indicators

The GRI Sustainability Reporting Standards (GRI Standards) issued by the Global Sustainability Standards Board (GSSB)

Indicator No.	Description	Page
<b>General Disclosures</b>		
<b>Organization profile</b>		
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102-3	Location of headquarters	P05
102-4	Location of operations	P05
102-5	Ownership and legal form	P05
102-6	Markets served	P05
102-7	Scale of the organization	P05
102-8	Information on employees and other workers	P73
102-9	Supply chain	P69
102-10	Significant changes to the organization and its supply chain	P05-P06
102-11	Precautionary principles or approaches	/
102-12	External initiatives	/
102-13	Membership of associations	/
<b>Strategy</b>		
102-14	Statement from senior decision-maker	P03-P04
102-15	Key impacts, risks and opportunities	P19-P32
<b>Ethics and integrity</b>		
102-16	Values, principles, standards, and norms of behavior	P05
102-17	Mechanisms for advice and concerns about ethics	P40-P41

Indicator No.	Description	Page
<b>Governance</b>		
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102-20	Executive-level responsibility for economic, environmental, and social topics	P11
102-21	Consulting stakeholders on economic, environmental, and social topics	P13
102-22	Composition of the highest governance body and its committees	P36-P37
102-23	Chair of the highest governance body	P36
102-24	Nominating and selecting the highest governance body	P36-P37
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102-27	Collective knowledge of the highest governance body	P36-P37
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102-34	Nature and total number of critical concerns	P13-P16
102-35	Remuneration policies	P74
102-36	Process for determining remuneration	P74
102-37	Stakeholders' involvement in remuneration	/
102-38	Annual total compensation ratio	/
102-39	Percentage increase in annual total compensation ratio	/



Indicator No.	Description	Page
<b>Stakeholder engagement</b>		
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102-41	Collective bargaining agreements	/
102-42	Identifying and selecting stakeholders	P13
102-43	Approach to stakeholder engagement	P13
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102-50	Reporting period	P01
102-51	Date of most recent report	P01
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102-53	Contact point for questions regarding the report	P02
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102-55	GRI content index	P91-P98
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201-2	Financial implications and other risks and opportunities due to climate change	P19-P32
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206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	/
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301-1	Materials used by weight or volume	/
301-2	Recycled input materials used	/
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302-5	Reduction in energy requirements of products and services	P57-P58
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305-2	Energy indirect (Scope 2) GHG emissions	P52
305-3	Other indirect (Scope 3) GHG emissions	/
305-4	GHG emissions intensity	P52
305-5	Reduction of GHG emissions	P52
305-6	Emissions of ozone-depleting substances (ODS)	/
305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	P55

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<b>Supplier Environmental Assessment</b>		
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403-4	Worker participation, consultation, and communication on occupational health and safety	P85-P86
403-5	Worker training on occupational health and safety	P85-P86

Indicator No.	Description	Page
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403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	P85-P86
403-8	Workers covered by an occupational health and safety management system	P85-P86
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404-1	Average hours of training per year per employee	P77-P82
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405-2	Ratio of basic salary and remuneration of women to men	/
<b>Non-discrimination</b>		
406-1	Incidents of discrimination and corrective actions taken	/
<b>Freedom of Association and Collective Bargaining</b>		
407-1	Operations and suppliers in which the freedom of association and collective bargaining may be at risk	/
<b>Child Labor</b>		
408-1	Operations and suppliers at significant risk for incidents of child labor	/
<b>Forced or Compulsory Labor</b>		
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	/
<b>Security Practices</b>		
410-1	Security personnel trained in human rights policies or procedures	/
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Indicator No.	Description	Page
<b>Human Rights Assessment</b>		
412-1	Operations that have been subject to human rights reviews or impact assessments	/
412-2	Employee training on human rights policies or procedures	/
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413-1	Operations with local community engagement, impact assessments, and development programs	/
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414-1	New suppliers that were screened using social criteria	P69
414-2	Negative social impacts in the supply chain and actions taken	/
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415-1	Political contributions	P72
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416-1	Assessment of the health and safety impacts of product and service categories	P68
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	/
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417-1	Requirements for product and service information and labeling	P68
417-2	Incidents of non-compliance concerning product and service information and labeling	/
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<b>Customer Privacy</b>		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	/
<b>Socioeconomic Compliance</b>		
419-1	Non-compliance with laws and regulations in the social and economic areas	/

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Indicator No.	Description	Page
<b>Environmental (Comply or explain)</b>		
<b>Aspect A1: Emissions</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste.	P47-P50
A1.1	The types of emissions and respective emissions data.	P52-P56
A1.2	Direct (Scope 1) and energy indirect (Scope 2) greenhouse gas emissions (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	P52
A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	P56
A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	P56
A1.5	Description of emissions targets) set and steps taken to achieve them.	P52-P64
A1.6	Description of how hazardous and non-hazardous wastes are handled, and a description of reduction target(s) set and steps taken to achieve them.	P52-P64
<b>Aspect A2: Use of Resources</b>		
General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials.	P57-P64
A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility).	P57-P58
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A2.3	Description of energy use efficiency target(s) set and steps taken to achieve them.	P57-P58, P63-P64
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<b>Aspect A3: Environment and Natural Resources</b>		
General Disclosure	Policies on minimising the issuer's significant impacts on the environment and natural resources.	P45-P64
A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	P45-P64

Indicator No.	Description	Page
<b>Aspect A4: Climate Change</b>		
General Disclosure	Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issuer.	P49-P51
A4.1	Description of the significant climate-related issues which have impacted, and those which may impact, the issuer, and the actions taken to manage them.	P49-P51
<b>Social (recommended disclosure)</b>		
<b>Aspect B1: Employment and Labour Practices</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare.	P73-P74
B1.1	Total workforce by gender, employment type (for example, full- or part-time), age group and geographical region.	P73-P74
B1.2	Employee turnover rate by gender, age group and geographical region.	/
<b>Aspect B2: Health and Safety</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards.	P85-P86
B2.1	Number and rate of work-related fatalities occurred in each of the past three years including the reporting year.	P86
B2.2	Lost days due to work injury	P86
B2.3	Description of occupational health and safety measures adopted, and how they are implemented and monitored.	P85-P86
<b>Aspect B3: Development and Training</b>		
General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.	P75-P79
B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	/
B3.2	The average training hours completed per employee by gender and employee category.	P78
<b>Aspect B4: Labour Standards</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour.	P73
B4.1	Description of measures to review employment practices to avoid child and forced labour.	P73
B4.2	Description of steps taken to eliminate such practices when discovered.	P73

Indicator No.	Description	Page
Aspect B5: Supply Chain Management		
General Disclosure	Policies on managing environmental and social risks of the supply chain.	P69-P70
B5.1	Number of suppliers by geographical region.	P70
B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, and how they are implemented and monitored.	P69
B5.3	Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored.	P69
B5.4	Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	P69
Aspect B6: Product Responsibility		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress.	P67-P68
B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons.	/
B6.2	Number of products and service related complaints received and how they are dealt with.	P68
B6.3	Description of practices relating to observing and protecting intellectual property rights.	P23-P24
B6.4	Description of quality assurance process and recall procedures.	P68
B6.5	Description of consumer data protection and privacy policies, and how they are implemented and monitored.	/
Aspect B7: Anti-corruption		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering.	P40-P41
B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases.	/
B7.2	Description of preventive measures and whistle-blowing procedures, and how they are implemented and monitored.	P40-P41
B7.3	Description of anti-corruption training provided to directors and staff.	P41
Aspect B8: Community Investment		
General Disclosure	Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests.	P87-P88
B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	P87-P88
B8.2	(e.g. money or time) to the focus area. x	P87-P88

## Appendix II: Readers' Comments Sheet

### Dear Readers,

Thank you for reading this report. We value and look forward to hearing your feedback on this report. Your opinions and suggestions are an important basis for us to continuously improve the level of corporate ESG information disclosure and promote corporate ESG management and practice. We welcome and sincerely thank you for your valuable comments!

1. Your overall assessment of our ESG performance is:

Excellent  Good  Average  Poor  Very poor

2. Your overall assessment of this report is:

Excellent  Good  Average  Poor  Very poor

3. What do you think of our performance in communication with stakeholders?

Excellent  Good  Average  Poor  Very poor

4. What do you think of our performance in sustainable development?

Excellent  Good  Average  Poor  Very poor

5. What do you think of our performance in green development?

Excellent  Good  Average  Poor  Very poor

6. What do you think of our performance in digitalization?

Excellent  Good  Average  Poor  Very poor

7. What do you think of our performance in social contribution?

Excellent  Good  Average  Poor  Very poor

8. What are your opinions and suggestions for our ESG performance and this report?