

LEADING GREEN  
NEW ENERGY

**XINYI  
SOLAR**



Environmental, Social and  
Governance Report

**2022**

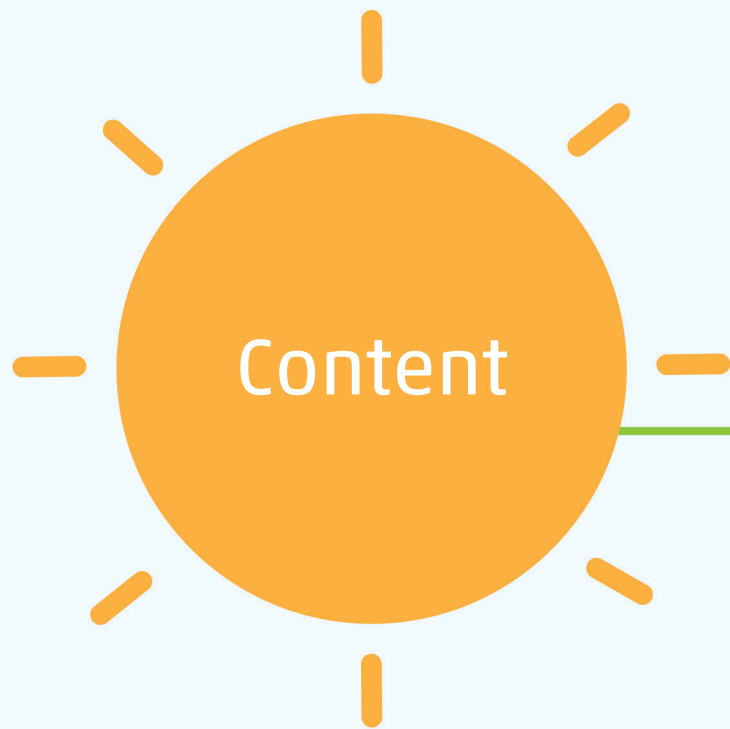


**信義光能控股有限公司**  
**XINYI SOLAR HOLDINGS LIMITED**

(Incorporated in the Cayman Islands with limited liability)

Stock Code : 00968





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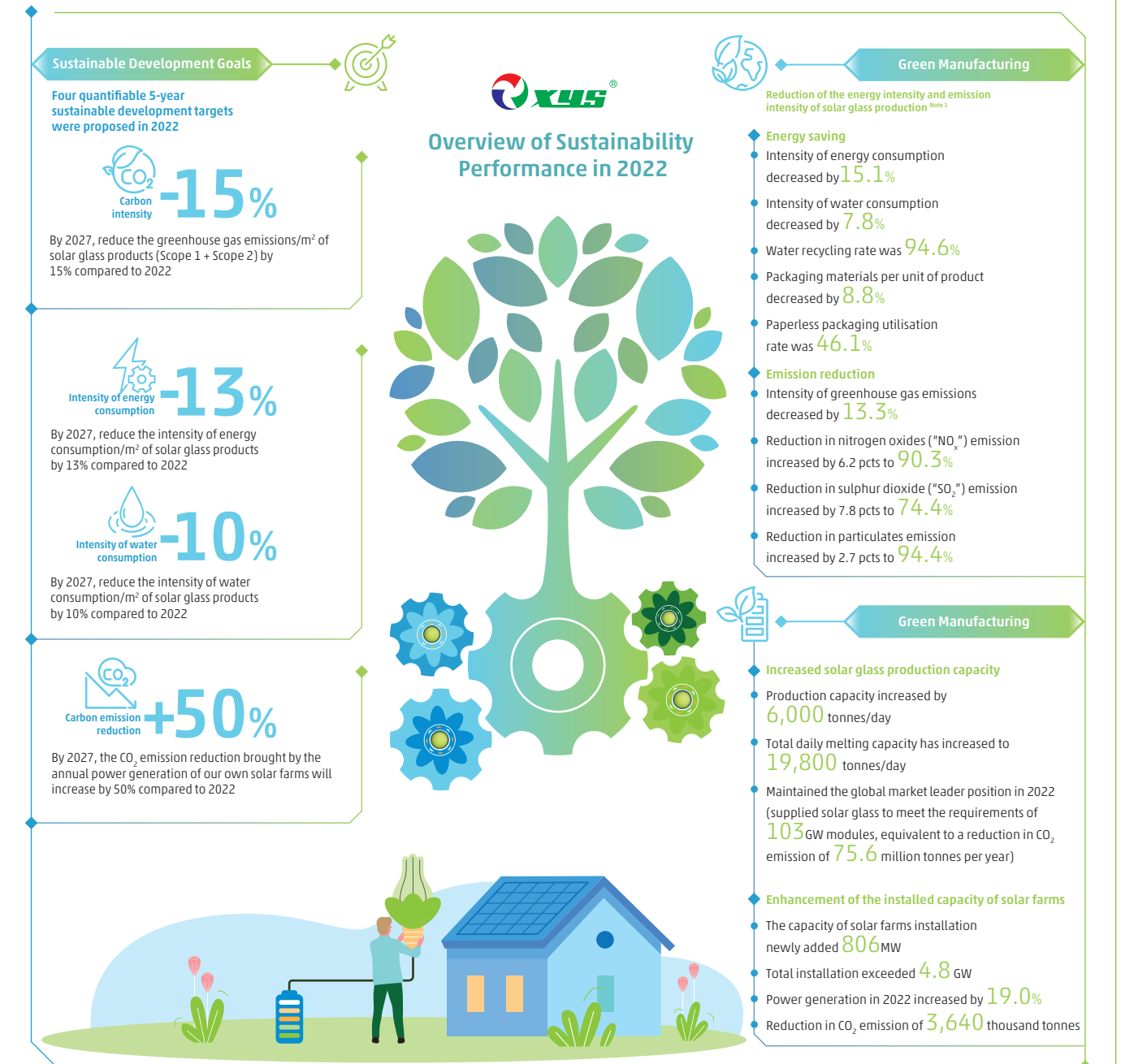
# MESSAGE FROM OUR CHAIRMAN AND CEO

Being rooted in the photovoltaic ("PV") industry and leading green new energy is the business foundation and mission of Xinyi Solar. We hope that Xinyi Solar can become an enterprise that grows like a tree, rooted in the green business pursued all its life, accumulates and absorbs nutrients from the support given by society, upstream and downstream of the industrial chain and employees, and eventually becomes a reliable and trustworthy partner of employees, upstream and downstream of the industrial chain and society. Therefore, the Group is committed to promoting the green manufacturing transformation of solar glass and the development of "environmentally friendly" solar farm projects, so as to cooperate with the photovoltaic industry chain to achieve green and low-carbon sustainable development throughout the life cycle, help the global energy transition and move towards carbon neutrality.



# MESSAGE FROM OUR CHAIRMAN AND CEO

2022 has been a year full of changes, turbulence and uncertainty. Unexpected circumstances and uncertainties have risen from the pandemic, war, economies, trade environment, industry environment to natural climate environment. As one of the global citizens and members of the photovoltaic industry, Xinyi Solar also shares the weal and woe, and face the challenges brought by the external environment to business operations. However, with its accumulation of products and technologies, solid financial, business and customer base, and continuous improvement of business and supply chain flexibility following implementation of sustainable development strategies in the past few years, the Group rose to the challenges in 2022 and achieved commendable results in business development, financial performance and sustainable development performance.



Note 1: For further details in relation to environmental performance data of solar glass business, please refer to "ESG Performance in 2022" section



Xinyi Solar has been selected as one of the **"World's 100 Most Sustainable Corporations"** for two consecutive years by Corporate Knights, a Canadian media and investment research firm, with global ranking risen to 12th in 2023, maintaining the first place in Mainland China. Xinyi Solar is honored to continue to be re-elected as the first place in the industrial category (including infrastructure) companies in all sub-categories (including the **"Best Environmental, Social and Corporate Governance"**, the "Best Investor Relations Company", the "Best CEO", the "Best CFO" and the "Best Investor Relations Professional") in the "2022 Asia Corporate Management Team Ranking" held by Institutional Investor, a world's leading financial magazine, and it has been rated as the **"Most Honoured Company"** for three consecutive years since 2020. Xinyi Solar is also a constituent of a number of ESG indices of MSCI (**"MSCI"**), Hang Seng (**"HSI"**) and FTSE in the UK, and has outperformed its peers in a number of international and local sustainability ratings, including Carbon Disclosure Project (**"CDP"**), Standard & Poor's (S&P), MSCI, HSI, etc. The recognition we have achieved so far is the best testimony to Xinyi Solar's unswerving commitment to continuous investment and improvement in environmental, social and governance (**"ESG"**) issues, and is also the driving force for us to continue to achieve self-improvement in management, supervision, strategy and disclosure in related fields, and promote the upstream and downstream of the industrial chain to jointly pursue sustainable development.



As the increasingly sound governance model is the foundation for the implementation of a sustainable corporate strategy, the Group attaches great importance to ESG governance to ensure that the Group's sustainable development concept is fully integrated into various areas such as strategy formulation, corporate governance, production and operation and industrial chain cooperation, and has been actively implemented from the top down. In 2022, the Group continued its original governance structure, and the board of directors of the Company (the **"Board"**), as the highest governance body, is responsible for monitoring the Group's ESG matters, including assessing and reviewing our ESG strategies, material ESG-related (including climate-related) opportunities and risks, ESG-related goals and core indicators, overseeing the formulation and implementation of internal policies, the work of the Sustainable Development Management Committee (the **"SDM Committee"**), the progress of sustainable development goals, the annual performance of core indicators, ESG information disclosure, etc. The SDM Committee, led by the CEO, is responsible for coordinating all ESG work under the authority and supervision by the Board, including formulating ESG strategies, annual and medium-long term plans which are consistent with sustainable development goals to ensure that ESG factors are fully taken into consideration in the Group's strategy formulation and business operation, directing the work of the ESG working group (e.g. participating in materiality assessment, reviewing quarterly and annual performance on core ESG indicators and reviewing ESG reports, etc.), establishing a mechanism to regularly review ESG risks and opportunities and developing action plans and overseeing implementation and reporting regularly to the Board on relevant issues. For more detailed disclosure on ESG governance, please refer to the section headed **"Sustainability Development Governance"** of this report.

The Board also pledges to continue to pay close attention to, supervise and actively promote the implementation of the Group's sustainable development concept in all aspects from strategy formulation to production and operation, and to put specific issues such as climate response, environmental protection and occupational safety and health management at the core of sustainable development governance. Under the supervision of the Board, the Group has formulated and implemented a sustainability action plan to achieve the sustainable development goals and address climate change, and the Board will also regularly review the implementation of the relevant plans and the progress of the established targets, with a view to enhancing the Group's business resilience to cope with the volatile macro environment, and contributing to the achievement of the United Nations Sustainable Development Goals and global climate goals, so as to create long-term value for key stakeholders.

The Group attaches great importance to stakeholder communication as the suggestions of different stakeholder groups on the operation and development have been driving us to improve sustainability strategy and governance structure, and to enhance the ESG governance and disclosure standards. During the Reporting Year, through close stakeholder communication, we learned that key stakeholders have significantly increased their attention to climate risk management and response, green and low-carbon development and ecological environmental protection, supply chain resilience and sustainability, and human rights policies. Therefore, in addition to taking active measures to continuously optimise performance in relevant areas in production, operation, and industrial chain cooperation, the Group also provides more detailed information in the form of separate chapters in this Report to meet the disclosure requirements on relevant issues that stakeholders concern.

As the saying goes, "the predecessors plant trees, while the descendants enjoy the shade", we also hope that every technological research and development and breakthrough of Xinyi Solar in solar glass, each innovative exploration of Xinyi Solar in the development and operation mode of solar farms, can guide a more environmentally and socially beneficial, low-carbon and green sustainable development path for solar glass production and solar farm development, construction, management and operation, and at the same time, every piece of solar glass produced and every kilowatt hour of green power generated by solar farms can contribute to building a more sustainable future for society and the next generation. The Group's two principal businesses, solar glass and solar farms, are highly consistent with the global energy transition and carbon neutrality goals, and both are low-transition risk businesses. We are honoured to be a member of the photovoltaic industry, through our own business operation and development, we can make a positive contribution to society and environment, but we are not satisfied with this. We will still make unremitting efforts to achieve a lower carbon and more sustainable operation and development of solar glass. Therefore, in 2022, the Group continued to firmly implement the sustainable development strategy of "Two enhancements and one reduction", namely "Enhancement of solar glass production capacity and installed capacity of solar farms" and "Reduction of unit energy consumption and emissions of solar glass production".

There is no end to the path of sustainable development. With the growth and development of the enterprise and the increase of social recognition, we are well aware of the growing responsibility, not only in our own business scope, but also through our own influence in the industry and industrial chain, to promote the sustainable development of the industry and the upstream and downstream of the industrial chain. We will take current achievements as a new starting point, with the belief of "Treating the world well", continue to grow towards the sun, and firmly move towards a sustainable future. In the pursuit of sustainable development, we are grateful to our Board members, all employees, business partners, friends from investment community and other key stakeholders for their continued support and collaboration, and look forward to continuing to work together to build a more sustainable planet in the future.

*Chairman of the Board*  
**Dr. LEE Yin Yee, B.B.S.**

*Executive director and CEO*  
**LEE Yau Ching**

28 April 2023





# ABOUT THIS REPORT

## Overview

This Report (the “**Report**”) was prepared in accordance with the Environmental, Social and Governance (“**ESG**”) Reporting Guide (the “**ESG Reporting Guide**”), Appendix 27 to the Rules Governing the Listing of Securities (the “**Listing Rules**”) of the Hong Kong Stock Exchange by Xinyi Solar Holdings Limited (“**Xinyi Solar**” or the “**Company**”) and its subsidiaries (the “**Group**”).

This Report is the seventh sustainability report (the “**ESG Report**”) of Xinyi Solar. Through the five sections of “An Optimised Governance Model”, “Sustainable Development Enterprise Strategy”, “A Lifetime Pursuit of Green Business”, “A Cooperative and Win-win Business Model” and “An Inclusive Team of Talents”, this Report fully presented the Group’s performance in corporate and sustainable development governance, sustainable development strategy, goals, actions and progress, sustainable development of core businesses as well as management of suppliers, customers and talents during 1 January 2022 to 31 December 2022 (the “**Reporting Year**”). Some contents may be traced back to previous years or extended to 2027 (in terms of corporate sustainable development goals only). This Report should be read in conjunction with the “Corporate Governance Report” in the Company’s 2022 Annual Report. This Report is published in Chinese and English. In case of any discrepancy between the two versions, the Chinese version shall prevail.

The Report is available for download at the website of the Hong Kong Stock Exchange ([www.hkexnews.hk](http://www.hkexnews.hk)) and the website of the Company ([www.xinyisolar.com](http://www.xinyisolar.com)).

## Reporting Boundary

The Report covered the Company and its wholly-owned and non-wholly-owned subsidiaries located in Mainland China, Hong Kong, Malaysia and Canada and their core businesses, which include: (i) production and sales of solar glass; (ii) solar farm business. The coverage is the same as Company’s 2022 Annual Report.

## Reporting Principles

The environmental and social key performance indicators (“**KPIs**”) have been compiled with reference to the Reporting Guidance on Environmental KPIs and the Reporting Guidance on Social KPIs of the Hong Kong Stock Exchange, respectively. We selected the scope of disclosure and collect data based on the principles of materiality, relevancy and applicability via a systematic materiality assessment procedure combining internal and external opinions, and calculated according to the parameters applicable to the Group’s industry and geographical location of operations. Details on the materiality assessment can be referred to in the section headed “**Materiality Assessment**” of the Report.

The Group’s performance under each of the quantifiable KPIs in the Reporting Guidance on Environmental KPIs and the Reporting Guidance on Social KPIs of the Hong Kong Stock Exchange during the Reporting Year and the comparison against the performance in 2021 are set out in the section headed “**ESG Performance in 2022**”. The standards, methods, assumptions and/or references of calculation adopted for the relevant KPIs and the sources of the major conversion parameters have been properly explained.

In the Report, unless otherwise specified, the performance data of all non-wholly-owned subsidiaries are reported on a 100% basis without adjustment based on the proportion of equity of the Company and all monetary amounts are presented in Hong Kong dollars. KPIs in different periods are calculated with the same methodology, and explanation will be made if there are any changes.

## Reporting Framework

The Report has complied with all mandatory disclosure requirements and the “comply or explain” provision in the ESG Reporting Guide. Moreover, the Report has also made reference to other international and industry disclosure standards on sustainable development reporting to further enhance the level of disclosure and enrich the content. For example, relevant disclosures have been made with reference to some of the disclosure requirements in the Sustainability Reporting Guidelines of the Global Reporting Initiative (“**GRI**”) and the recommendations from the “Sustainability Accounting Standards for the Solar Technology & Project Developers Industry” issued by the Sustainability Accounting Standards Board (“**SASB**”) of the United States. Content index has been disclosed in Appendix: “**2022 ESG Report Guide Content Index**”, which can help readers to find the information they needed.

With regard to the identification and disclosure of climate related risks and opportunities, the Group has further optimised and improved the level of the Group’s disclosure on climate information by taking into account the recommendations of the Task Force on Climate-related Financial Disclosures (“**TCFD**”) and based on the communications with different stakeholders, such as the Hong Kong Stock Exchange, Carbon Disclosure Project (the “**CDP**”), the Hong Kong Quality Assurance Agency, institutional shareholders, ESG analysts, etc. The Group has continued to use the relevant climate scenarios and major parameters disclosed in the 2021 Environmental, Social and Governance Report (the “**2021 ESG Report**”), fully taken into account such factors as the natural environment, policies and corporate development in 2022, re-examined and re-evaluated the major climate risks and opportunities disclosed in 2021 ESG Report and made corresponding adjustments and/or supplements. We have provided a qualitative analysis of the financial impact brought by identified key risks and opportunities of the Group, with partly provided quantitative analysis in the form of case studies, and disclosed the strategies and actions adopted by the Group. Such disclosure can be found in the paragraph headed “**Climate Action**” in the “**Sustainable Development Enterprise Strategy**” section in this Report.

## Forward-looking Statements

The Report contains forward-looking statements, which are projections and assumptions based on the current state of the Group’s business and the industry and market in which the Group operates, and are not guarantees of future performance. The Group’s performance may be affected by market risks, uncertainties and factors beyond the Group’s control. Hence, the actual result may differ from the assumptions and related statements made in the Report.

## Review and Approval

The Report has been reviewed by the SDM Committee and was published on 28 April 2023 after the approval by the Board.

## Contact and Inquiry

We look forward to receiving your feedback and suggestions on continuous improvement on our ESG work and performance.

If you have any enquiries or suggestions regarding this Report or the Group’s ESG work, please feel free to call or write to us. Our contact is as follows:

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Website: [www.xinyisolar.com](http://www.xinyisolar.com)



## ABOUT THE GROUP

Xinyi Solar listed on the Main Board of the Hong Kong Stock Exchange on 12 December 2013 (stock code: 00968.HK). The Group specialises in the research and development, manufacturing, sales and after-sales services of solar glass. Major products include ultra-clear patterned solar glass (raw or tempered), anti-reflective coating solar glass, back glass. We are the world's largest solar glass manufacturer and provide solar glass products to major PV module manufacturers in the world. As of 31 December 2022, the Group had five major solar glass production bases, which are located in Wuhu City of Anhui Province, Zhangjiagang of Jiangsu Province, Beihai City of Guangxi Province, Tianjin Municipality in China and Malacca City in Malaysia, respectively, with a total daily melting capacity of 19,800 tonnes.

The global energy transition and the progress of climate action are set to drive a speedy growth in PV demand in the coming years. Solar glass is a critical component of PV module and its quality can have a material impact on the efficiency and lifespan of PV module. Therefore, the Group is determined to adopt aggressive capacity expansion plan and continuously carry out research and development on new production technology and products to supply sufficient and diversified high quality solar glass products with low carbon emissions to help the solar value chain to reduce cost, enhance efficiency and strengthen the competitiveness, reduce carbon emissions to achieve a full life cycle green development as well as satisfy the PV demand arising from energy transition. The Group plans to add a total of seven new solar glass production lines in Zhangjiagang, Jiangsu Province and Wuhu, Anhui Province in 2023 with a daily melting capacity of 1,000 tonnes each. The Group's total daily melting capacity is expected to reach 26,800 tonnes by the end of 2023, and the Group will actively push forward the expansion of its production capacity in Malaysia to boost its ability to respond to uncertainties in the trading environment.

In line with the management philosophy of "Green and sustainable development", the Group operates its solar glass business in accordance with the "5G" principle. Green Procurement, Green Production, Green Product, Green Packaging, and Green Partner are strictly applied to each production and operation process in order to continuously improve the environmental benefit and further reduce the environmental impacts brought by energy, water and raw materials consumption in the production of solar glass.

Due to the current feasible technology and cost efficiency consideration, solar glass production is still dependent on fossil energy. Therefore, even though the Group has been using natural gas as the main production fuel and has been committed to reducing carbon emissions in raw materials procurement, packaging and design as well as logistics, greenhouse gas emission cannot be completely avoided during the production and operation process. Given the constraints of existing technology, it would be difficult for the solar glass business to achieve net zero emissions in the short term. To enhance the overall environmental benefits and carbon performance, the Group has installed distributed PV power system on its factory rooftops since 2012 to reduce indirect greenhouse gas emissions, and formally commenced its solar farm business in 2014 to bring more carbon reduction contributions to society through producing and selling green electricity. As of 31 December 2022, the total installed capacity of the solar farms held by the Group amounted to 4,879 megawatt ("MW")<sup>Note 1</sup>, including 4,566MW utility-scale ground-mounted solar farm projects and 313MW commercial and self-use distributed projects, making the Group the largest utility-scale private solar farm owner and operator in China. During the Reporting Year, the solar farm projects held by the Group generated a total of approximately 4,396 million kWh of electricity, resulting in 3,640,000 tonnes of CO<sub>2</sub> emission reduction, equivalent to 92.6% of the greenhouse gas emissions from solar glass production in the same period.

Note: (1) Including a 100MW project in which the Group holds a 50% interest

Following the successful spin-off of Xinyi Energy Holdings Limited ("**Xinyi Energy**") (stock code: 03868.HK) in 2019, the Group has continued to engage in the business of development and construction of solar farms, while the business of the operation and management of solar farms is vested in Xinyi Energy, which is 49.03% owned by the Group as at 31 December 2022. Through the "build-sell-hold via Xinyi Energy" model, the funding of the Group's solar farms has gradually achieved a more rapid cycle, providing stronger capital support for the continued growth of the installed capacity in the future. In addition, the acquisition of solar farm projects by Xinyi Energy from independent third parties will also help accelerate the increase in the Group's overall installed capacity. As of 31 December 2022, the Group had 3,014MW solar farm projects held through Xinyi Energy.

Being a global citizen, industry leader, corporate citizen and employer, Xinyi Solar always bears in mind the missions and responsibilities of our different roles. As a global citizen, the Group is committed to improving environmental performance and complying with business ethics to help achieve the United Nations' Sustainable Development Goals ("**SDGs**") and global climate goals. As a corporate citizen, we give hands and care to vulnerable group through charity activities on the premise of contributing economic benefits and creating job opportunities and try our best to promote the sustainable development of the community. As a leading corporate in the PV industry, the Group strives to reduce energy consumption and carbon emissions, lower the cost and enhance the efficiency of solar glass production, promote green development of the PV industry and enhance the cost competitiveness of PV power generation. As an employer, the Group is committed to protecting the rights and interests of our employees and providing a safe working environment and equal development opportunities to attract and retain talents. Our multiple roles have given us a driving force to move forward, keeping in mind our corporate mission, vision and core values in business operation, production management, strategy planning and business cooperation, and always placing the interests of the community and relevant stakeholders ("**Stakeholders**") at the forefront, thus gaining the recognition, trust and support of all sectors.

## XUS<sup>®</sup> Roles and Responsibilities

### Global citizen

- Integrate SDGs into business strategy and operational management to proactively increase the positive impact and reduce the negative impact in the following aspects:
  - 7 Climate Action
  - 8 Decent Work and Economic Growth
  - 12 Responsible Consumption and Production
  - 13 Climate Action
- Response to the call of the United Nations Global Compact, the Group has followed the ten principles of the UN Global Compact in the areas of human rights, labour standards, environment and anti-corruption, and plans to formally sign and join the UN Global Compact in 2023.
- During the Reporting Year, the Group's capital expenditure amounted to HK\$6,646 million, all of which was invested in the climate change mitigation activities

### Corporate citizen

- We practice the core value of "Treating the world well", uphold the spirit of "What is taken from society will be used on society", provide employment opportunities for society and contribute tax to create economic benefits, actively participate in charitable activities to enhance social benefits, pay attention to environmental performance and give full play to our expertise to enhance ecological benefits
- During the Reporting Year, the Group made tax contributions of HK\$835 million and charity donations of HK\$13.29 million

### Industry leader

- Always keep in mind the corporate mission and vision, we maintain advanced economic efficiency, production technology, product development and environmental benefits advancements to provide viable action plans for the sustainable development of the solar glass industry and facilitate a full life cycle carbon emissions reduction and green development of the PV industry
- We are concerned about the environmental and social benefits of supply chain, and persevere in establishing a sustainable supply chain. By establishing and optimising mechanisms to effectively monitor the ESG performance of suppliers, we ensure compliance with the Group's established supplier code of conduct
- During the Reporting Year, the intensity of energy consumption, intensity of water consumption and unit greenhouse gas emissions of the Group's solar glass products decreased by 15.1%, 7.8% and 13.3%, respectively. During the Reporting Year, the procurements of the Group were all from qualified suppliers

### Employer

- We strictly abide by the talent management system, protect the legitimate rights and interests of our employees, actively respond to their aspirations, and are concerned about occupational safety and health management. We uphold the principle of "Equality, diversity and inclusion" to create a good working environment and provide a development platform to help employees to grow. We strive to be a trustworthy employer
- As at 31 December 2022, the Group had 8,459 employees in China, Malaysia and Canada

### XUS<sup>®</sup> Belief

**Core value**  
Trust, integrity, passion and people

**Business Concept**  
Green and sustainable development

**Corporate mission**  
Leading green new energy

**Corporate vision**  
Creating an outstanding glass company and establishing a world-class brand

### XUS<sup>®</sup> ESG Strategy

"Two enhancements and one reduction"

Enhancement of solar glass production capacity  
The goal is to meet 40% of the annual global demand for new PV installations and help the world to achieve carbon neutrality by the middle of this century

Enhancement of the installed capacity of solar-farms  
Increasing green electricity to reduce carbon emission

Reduction of the energy consumption intensity and emission intensity of solar glass production  
Reducing the negative environmental impact of solar glass production

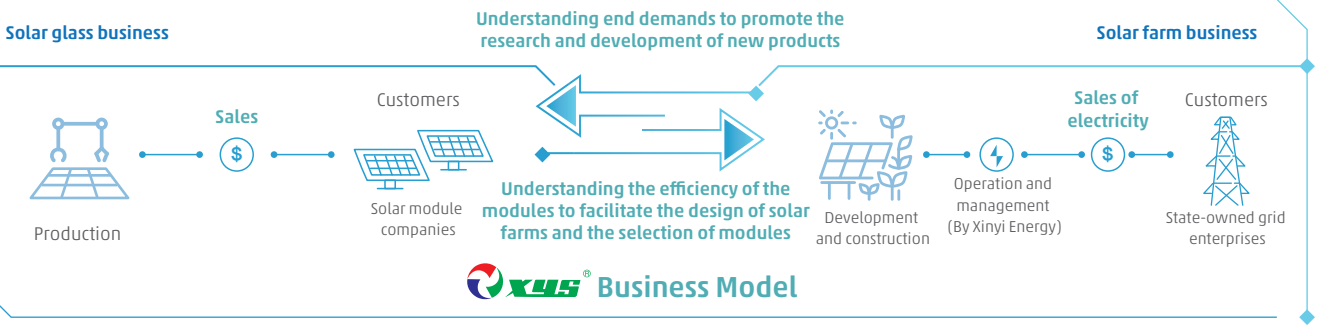
### XUS<sup>®</sup> ESG Strategy

"Two enhancements and one reduction"

Enhancement of solar glass production capacity  
The goal is to meet 40% of the annual global demand for new PV installations and help the world to achieve carbon neutrality by the middle of this century

Enhancement of the installed capacity of solar-farms  
Increasing green electricity to reduce carbon emission

Reduction of the energy consumption intensity and emission intensity of solar glass production  
Reducing the negative environmental impact of solar glass production



## GLOBAL100 2023

THE WORLD'S MOST SUSTAINABLE CORPORATIONS

Awarded as one of the **TOP 100 Global Most Sustainable Corporate** in 2023 by Corporate Knights, a Canada media and investment research corporation, **ranked 12th in the world**, and **1st in mainland China** for two consecutive years

## Institutional Investor

2022 ASIA (EX-JAPAN) EXECUTIVE TEAM  
**MOST HONORED COMPANY**

Institutional Investor  
"2022 Asian Corporate Management Team Rankings"  
"Most Honoured Company" and ranked 1st in the "Best Environmental, Social and Corporate Governance", "Best Investor Relations Company", "Best CEO", "Best CFO" and the "Best Investor Relations Specialist" awards in the industrial sector (including infrastructure)

## CARBON CLEAN 200

Entered the Carbon Clean 200™ jointly issued by As You Sow, a non-profit organisation in US, and Corporate Knights for two consecutive years in 2022 and 2023

Awarded the "Prime Status" Note 2 in the latest ISS ESG corporate rankings of 2022

"B" rating by CDP Climate Change 2022 Questionnaire  
"BBB" rating in the MSCI ESG rating  
"A-" rating in the Hang Seng Index ESG Rating  
S&P 2022 Global Corporate Sustainability Assessment (CSA): 38 points  
"Green Finance Pre-Issuance Stage Certificate" issued by the Hong Kong Quality Assurance Agency

Notes: (1) The above table is based on the latest available results as of the issuance date of this Report, and is not a complete list  
(2) For details of Prime Status, please refer to the ISS website: <http://www.issgovernance.com/esg/ratings/corporate-rating/>

Index constituents Note 1

## ESG index

FTSE4Good  
**FTSE4Good Emerging Index Constituents**

Hang Seng Corporate Sustainability Index Series Member 2021-2022

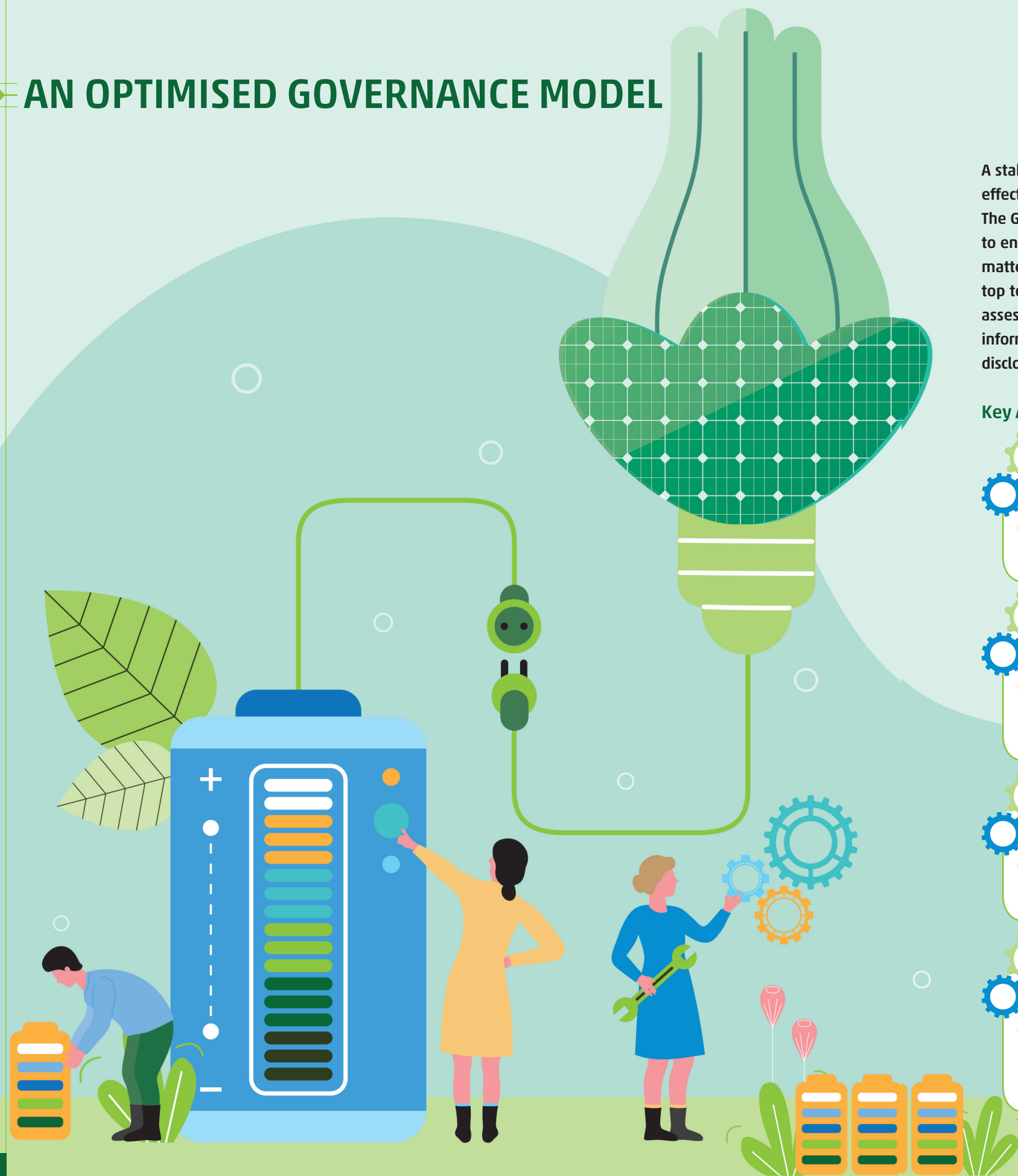
Hang Seng ESG 50 Index  
Hang Seng Climate Change 1.5°C Target Index  
Hang Seng Corporate Sustainability Benchmark Index  
Hang Seng Shanghai-Shenzhen-Hong Kong Clean Energy Index  
HSI Low Carbon Index

MSCI Global Alternative Energy Index  
MSCI ACWI Sustainable Impact Index  
MSCI ACWI IMI Select Top 30 Efficient Energy Indexes  
MSCI ACWI IMI New Energy ESG Filtered Index  
MSCI ACWI IMI SDG Impact Select Index  
MSCI Emerging Markets ESG Leaders Index  
MSCI Emerging Markets ESG Climate Paris Aligned Index  
MSCI Asia-Pacific ESG Leaders Index  
MSCI China Climate Paris Aligned Index

## Non-ESG Index


Hang Seng Index  
Hang Seng Composite Index  
Hang Seng Composite Industry Index- Industrial  
Hang Seng Composite LargeCap Index  
Hang Seng Stock Connect Hong Kong Composite Index

MSCI All Country World Index  
MSCI Emerging Markets Index  
MSCI China Index  
MSCI China Quality Index




A stable governance framework and continuously improving it is the foundation for implementing strong and effective governance, as well as ensuring the long-term strategic goals and sustainable development of companies. The Group actively draws on the best local/international practices to optimise its governance framework, in order to enhance the Board's effective supervision of its operation, particularly in strengthening the supervision of ESG matters and risk management, thus ensuring that the concept of sustainable development is implemented from top to bottom in every aspect of daily operation. Meanwhile, through stakeholder engagement and materiality assessment, the Group is able to understand the shortcomings in ESG management, strategy formulation, and information disclosure, thereby clarifying the direction for improvement and continuously improving the level of ESG disclosure.


## Key Areas and Objectives



**Corporate Governance**  
Good corporate governance effectively ensures that all business activities and decisions of the Group are properly regulated and are fully complied with applicable laws and regulations. Subject to full compliance with the CG Code set out in the Listing Rules, the Group actively refers to and adopts the local/international best practices so as to continuously optimise its governance structure and enhance its governance level



**Sustainable Development Governance**  
By stepping up the supervision of the Board over ESG matters and continuously improving its sustainable development governance structure, the Group ensures that the sustainable development risks and opportunities it faces are included in its long-term development strategic planning and various business and decision-making processes. As a industry leader, the Group is committed to setting a model ESG governance and strives to be in line with international and local best practices



**Stakeholders Identification And Communication**  
The Group strives to strengthen its relationship with Stakeholders by establishing and maintaining close contact and proper communication with Stakeholders through designated personnel and diversified channels. Through such measures, we get to understand their expectations and requirements on Xinyi Solar, in order to formulate and optimise relevant strategies and take actions to respond to their concerns and suggestions



**Materiality Assessment**  
To ensure that the ESG Report reflects and satisfies the concerns of the Stakeholders, while objectively presenting the material impacts of the Group's operation on the environment and society, each year the Group will evaluate and identifies the material issues which have a substantial impact on the Stakeholders and/or business by referring to international/local best practices and Stakeholders' participation and reviews by the SDM committee and makes corresponding disclosure in each year



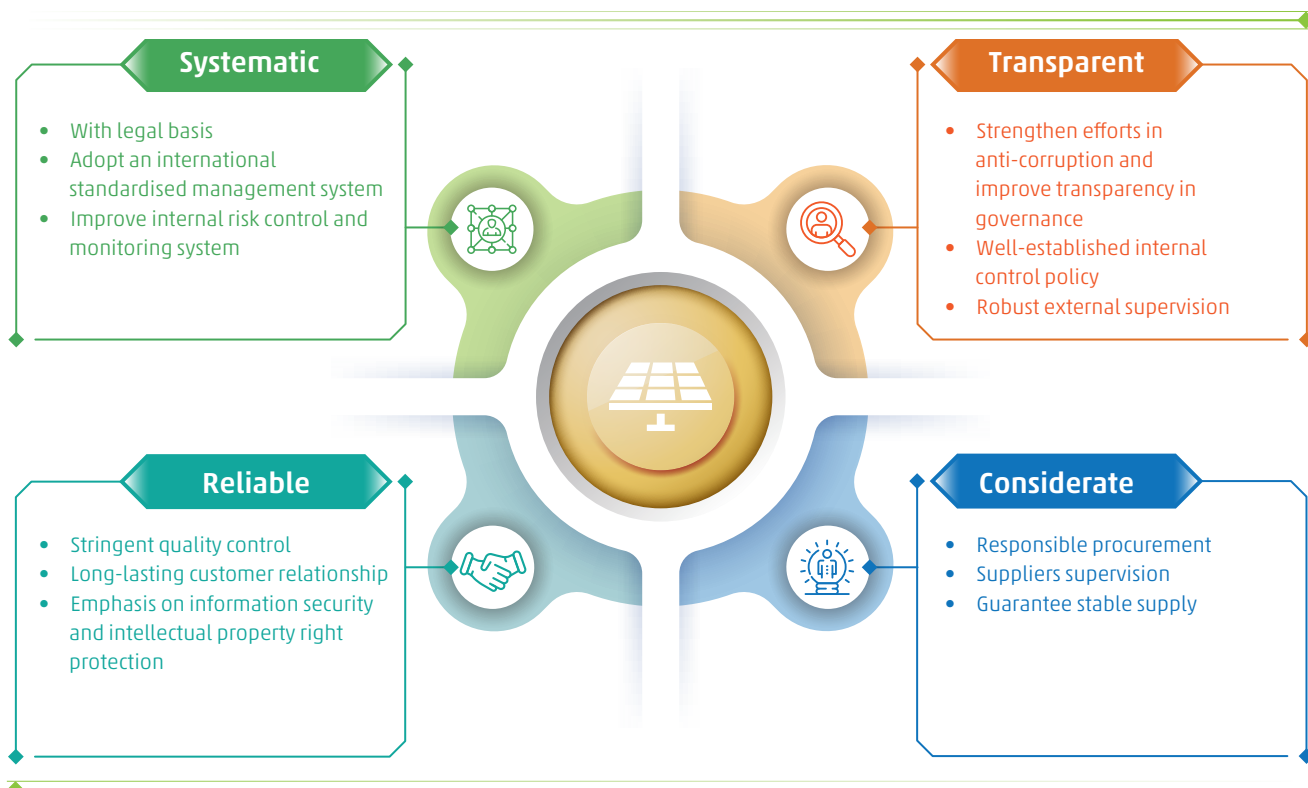


### CORPORATE GOVERNANCE

The Company has adopted the Corporate Governance Code ("CG Code") as set out in Appendix 14 of the Listing Rules ("Listing Rules") during the Reporting Year. The Company's 2022 Corporate Governance Report has been published in the Company's 2022 Annual Report. It is recommended to be read in conjunction with the contents of this section.

#### Philosophy

The Group upholds the "STRC" (Systematic, Transparent, Reliable and Considerate) concept in corporate governance, strictly complies with the CG Code as set out in Appendix 14 of the Listing Rules, and actively refers to and adopts the local/international best practices recommended by the Hong Kong Stock Exchange for continuous improvement in governance.



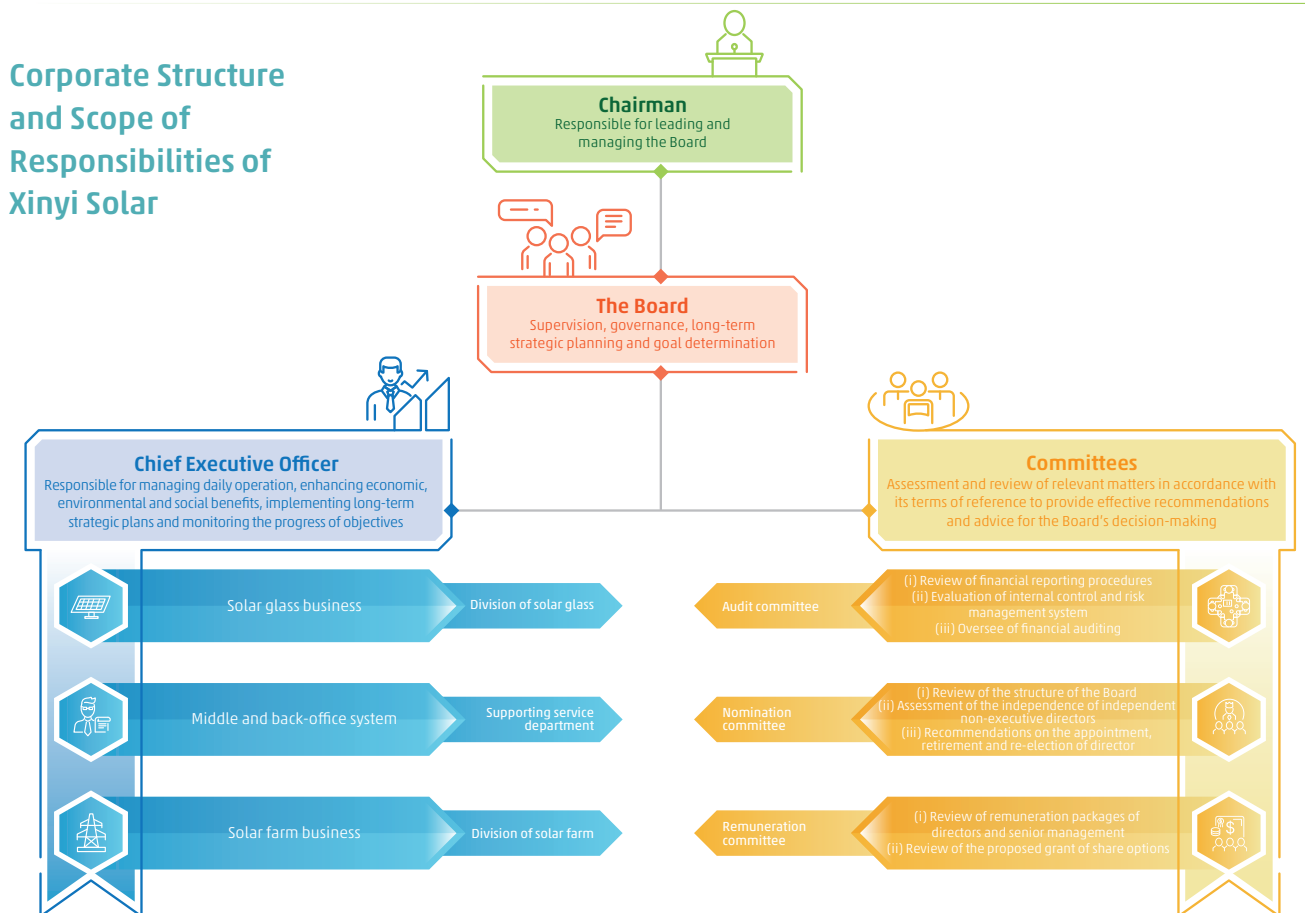
#### Composition of the Board

The Board of the Company comprises four executive directors, two non-executive directors and three independent non-executive directors, with the independent non-executive directors accounting for one-third of the Board membership. We agree that a diversified board of directors can accommodate and make full use of a wide range of skills, experience, background and professional knowledge, which can help companies improve their governance capabilities and make governance decisions more insightful and reasonable. Therefore, the Company has adopted a board diversity policy, details of which are posted on the Company's website. The nomination committee bases its selection of directors on a

range of diversity principles, including but not limited to gender, age, cultural and educational background, ethnicity, professional experience, skills, knowledge and tenure of service, and the final decision is based on the professional merits of the candidates and the contributions they can provide to the Board. In 2022, a new requirement was incorporated into the Listing Rules requiring that a single gender board of directors of an issuer will not be accepted. Following the steps of the Hong Kong Stock Exchange, the Company has made progress in promoting gender diversity in the Board and appointed Ms. LEONG Chong Peng as an independent non-executive director during the Reporting Year.

The Group complies with the provisions of the Rule C2.1 of the CG Code by distinguishing the division of responsibilities between the chairman and the chief executive officer and are performed by different directors. Dr. LEE Yin Yee, B.B.S. is the chairman of the Group and Mr. LEE Yau Ching is the chief executive officer of the Group. The chairman, Dr. LEE Yin Yee, B.B.S. is responsible for managing and leading the Board to ensure that the Group maintains strong and effective corporate governance practices and procedures. Mr. LEE Yau Ching, the chief executive officer, is responsible for daily management and operation of the Group's business, including closely monitoring the Group's operating and financial results with the assistance of other members of the Board and other senior management, taking necessary actions to enhance operational efficiency, and formulating future business plans and strategies for the approval by the Board. The Group's corporate governance structure and scope of duties have not been adjusted during the Reporting Year:

#### Corporate Structure and Scope of Responsibilities of Xinyi Solar





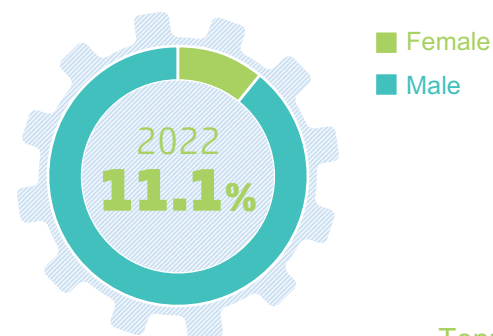
## Board Diversity

The Company believes that the increasing diversity of the Board will provide support for achieving the Company's strategic goals and sustainable development.

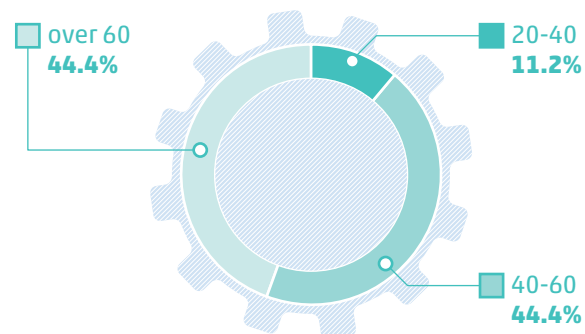
The Company has complied with the requirements of Rules 3.10 and 3.10A of the Listing Rules (relating to the appointment of at least three independent non-executive directors), which require that one of the independent non-executive directors must have appropriate professional qualifications or accounting or related financial management expertise, and that all independent non-executive directors must represent at least one-third of the board of directors.

The Company has complied with the requirements of Rule 13.92 of the Listing Rules. Considering various factors including but not limited to gender, age, cultural and educational background or professional experience, the Board has achieved diversity and the composition of the Board is not of a single gender.

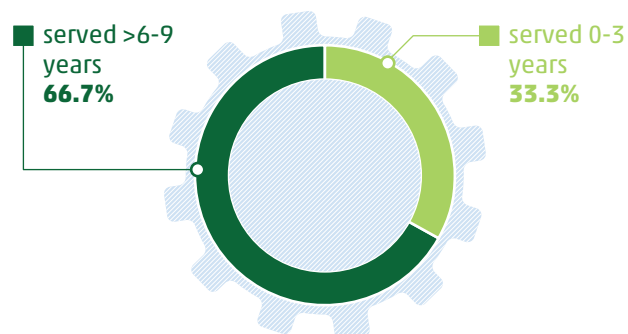
**By gender**  
(Percentage of female directors in the board of directors of listed issuers)



**By age**  
(Based on directorship)



**Tenure of independent non-executive directors**  
\* No INED has served more than nine years



Following the recommendation of the Hong Kong Stock Exchange, the Group will regularly reviews the implementation of the Board Diversity Policy to ensure that it remains appropriate and effective. For the first time, the Group has included a board diversity matrix in the ESG Report to more clearly present the Group's implementation of board diversity during the Reporting Year:



	LEE Yin Yee	LEE Yau Ching	LI Man Yin	CHEN Xi	TUNG Ching Sai	LEE Shing Put	LO Wan Sing, Vincent	KAN E-ting, Martin	LEONG Chong Peng
	Chairman and Executive Director	Executive Director	Executive Director	Executive Director	Vice Chairman and Non-Executive Director	Non-Executive Director	Independent Non-Executive Director	Independent Non-Executive Director	Independent Non-Executive Director
<i>Audit Committee</i>							Member	Member	Chairman
<i>Remuneration Committee</i>	Member				Member		Chairman	Member	Member
<i>Nomination Committee</i>	Chairman				Member		Member	Member	Member
<b>Governance Guidelines Criteria</b>									
<b>Independent</b>							○	○	○
<b>Senior leadership experience</b> <sup>Note 1</sup>	○	○	○	○	○	○	○	○	○
<b>Industry experience</b> <sup>Note 2</sup>	○	○	○	○	○	○	○	○	○
<b>Audit experience</b>									○
<b>Board experience</b> <sup>Note 3</sup>	○	○			○	○	○		○
<b>Other public company board member</b>	○	○			○	○	○		
<b>Other public company CEO</b>					○				
<b>Experience and Skills</b>									
<b>Industry experience - Solar Glass</b>									
- Manufacturing and supply	○		○	○	○				
- Marketing and sales		○							
- Research and development				○					
<b>Industry experience - Solar Farm</b>									
- Construction and development		○		○		○			
- Mergers and acquisitions						○			
<b>International exposure</b> <sup>Note 4</sup>								○	○
<b>Financial expertise</b> <sup>Note 5</sup>									○
<b>Legal expertise</b>								○	
<b>Digital and technology</b>							○	○	
<b>Compliance and corporate governance</b>	○	○	○	○	○	○	○	○	○
<b>Demographic Background</b>									
<b>Board Tenure (full years)</b>	9	9	9	9	9	9	9	9	<1
<b>Age (as of 31 December 2022)</b>	70	47	67	65	57	45	75	39	48
<b>Gender</b>									
- Male	○	○	○	○	○	○	○	○	○
- Female									○

Notes :

- Experience as president, chief executive officer or in similar senior management positions
- Experience in industrial manufacturing, glass manufacturing, solar PV, power generation, transportation or basic materials industries
- Prior or current service on other listed company boards
- Seniority in a global enterprise or significant experience in international markets
- Expertise in accounting, auditing, tax, banking or investments



## Appointment and Re-election of Directors

The nomination committee (comprising five members, including three independent non-executive directors) has been established under the Board of the Company. The primary duties of the nomination committee are to review the structure, size and diversity (including the skills, knowledge and experience) of the Board on a regular basis, assess the independence of independent non-executive directors of the Company and make recommendations to the Board on the appointment, retirement and reelection of directors. The procedures for shareholders to nominate candidates for election as directors of the Company have been disclosed on the Company's website.

In compliance with Rule B2.2 of the CG Code, all directors of the Group would retire by rotation every three years, and the retiring directors, being eligible, would offer themselves for election at the annual general meeting.

## Independence of Independent Directors

The independence of the independent non-executive directors is confirmed annually in accordance with the established procedures and Rule 3.13 of the Listing Rules. All the independent non-executive directors of the Company are not involved in the daily management of the Group's business, have no business dealings with the Group or any connection with other directors, substantial shareholders and chief executive officer of the Company, and do not hold, directly or indirectly, any issued shares of the Group as well as any share options granted by the Company.

## Control of Connected Transactions

The Group's major connected transactions and continuing connected transactions during the Reporting Year were disclosed in the Report of the Directors in the Annual Report 2022. Pursuant to Rule 14A.53 of the Listing Rules, the Group has set annual caps for such continuing connected transactions and has entered into written agreements governing the conduct of these transactions.

Such continuing connected transactions have been submitted to the Board for approval before entering into the transactions. In the course of voting on the resolutions, the directors that may have conflicts of interest are required to abstain from voting on the relevant resolutions. To ensure that such continuing connected transactions are executed in accordance with the agreements entered into and in compliance with the annual caps, the Group has adopted, but not limited to, the following internal control measures:

- annual review and sample inspection conducted by the internal audit team to ensure that the transactions are conducted in accordance with the agreed pricing basis and internal control requirements;
- annual review conducted by the independent non-executive directors and reported to the Board;
- the issuance of an opinion letter by the auditor in respect of the continuing connected transactions in accordance with Rule 14A.56 of the Listing Rules.

All independent non-executive directors of the Company have reviewed the continuing connected transactions during the Reporting Year and confirmed that such transactions were conducted in accordance with the relevant agreements governed by them, the terms of which are fair and reasonable and in the interests of the shareholders of the Company as a whole.

## Determination of Directors' Remuneration

The remuneration committee (comprising five members, including three independent non-executive directors, and is chaired by an independent non-executive director) has been established under the Board of the Company, which is primarily responsible for reviewing the remuneration packages of directors and senior management and determining bonuses.

The remuneration of the Group's executive directors is determined on the basis of their experience, responsibilities, workload and time contributed to the Group. In accordance with the agreements entered into with the directors, the remuneration comprises directors' fees, annual salaries, discretionary bonuses, allowances and benefits in kind (including housing allowances and share options, if any) and contributions to pension schemes. Discretionary bonuses are determined based on the Group's operating results, individual performance (including but not limited to the key business performance of their responsible scopes and the core indicators of other areas in relation to the long-term development of the Company, such as environmental, social, etc.) and comparable market data for each financial year within the executive directors' tenure, and are capped at a maximum of 5% of the Group's total net profit for such financial year.

The Group has a share option scheme. Except for an executive director, Mr. CHEN Xi, who is not a substantial shareholder or a person connected with the substantial shareholders, none of the directors has been granted any share options of the Company.

The remuneration of the Group's non-executive directors and independent non-executive directors are determined in accordance with the duties and responsibilities of the non-executive directors and independent non-executive directors respectively and their agreements with the Company. Pursuant to the relevant agreements, the non-executive directors and independent non-executive directors only received director's fees paid by the Group, received no other non-cash benefits, and were not granted any share options by the Company.

Dr. LEE Yin Yee, B.B.S., the chairman of the Board and an executive director of the Group, and Tan Sri Datuk TUNG Ching Sai *P.S.M., D.M.S.M., J.P.*, a non-executive director, waived their annual director's fee of HK\$250,000 each during the Reporting Year. Details of the remuneration, benefits and interests of each of the directors during the Reporting Year are set out in Note 9 to the consolidated financial statements in the Company's Annual Report 2022.

## Internal Control and Risk Management

The audit committee (comprising three independent non-executive directors) is established under the Board of the Company, which is primarily responsible for reviewing the financial reporting process, assessing the independence and performance of the external auditor, overseeing the audit process of the Group, and conducting regular reviews and making recommendations to the Board on continuing connected transactions, compliance procedures, internal control and risk management systems, as and when appropriate.

A risk-based approach is adopted to ensure that a methodical coverage of the Group's operations and resources are focused on high-risk areas. The Group has set up an internal audit team, which is responsible for evaluating the Group's risk management and internal control systems and review the major operations of the Group every year. The review covers all material controls, including financial, operational and compliance controls. The internal audit team has conducted a review and internal audit on the risk control of the solar glass and solar farm businesses in 2022, the review results and recommendations have been submitted to the audit committee in the form of a written report for discussion and review. Risks, opportunities and actions taken by the Group related to climate change were disclosed in the "Climate Action" section of this Report. The internal audit team will take follow-up actions to ensure that the previously identified results are properly addressed.

Based on the results of internal control review for the year ended 31 December 2022 and the assessment of the results by the audit committee, no material defects have been discovered in the risk management and internal control systems.

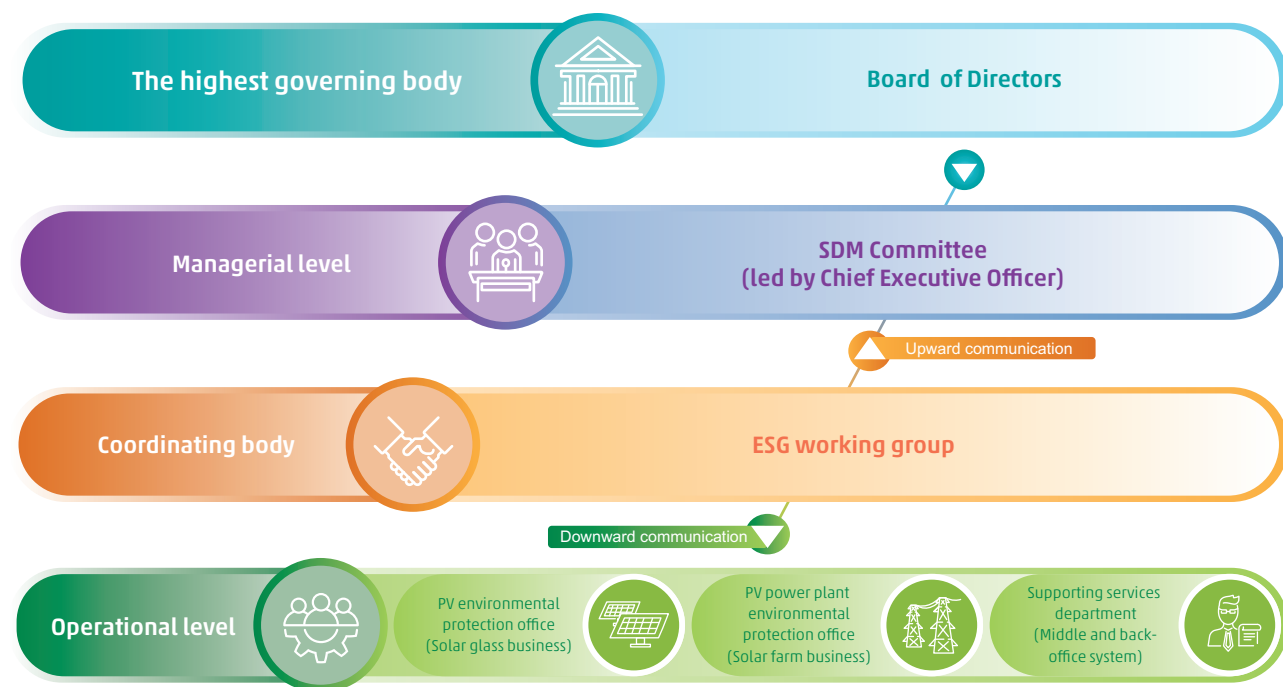
## SUSTAINABLE DEVELOPMENT GOVERNANCE

During the Reporting Year, the Group did not make any adjustment to its sustainable development governance structure. To complement with the corporate governance structure, the Board serves as the highest governing body to execute, coordinate and supervise matters relating to sustainable development, so as to ensure that ESG factors are fully considered in the decision-making on all levels, laying a foundation for the consistent implementation of the Group's sustainable development strategy from the Board to all functional departments.

During the Reporting Year, the Board strengthened its monitoring of ESG matters, including monitoring the SDM Committee and ensuring its effective operation, regularly reviewing the internal ESG risk assessment and control mechanisms and their effectiveness, monitoring the assessment of key opportunities and risks, corporate actions and effectiveness, reviewing the core ESG policies and internal rules and monitoring their implementation, and reviewing the corporate sustainability objectives and progress.

The SDM Committee, led by the chief executive officer and comprised of the heads of relevant divisions and/or key functional departments, has been authorised by the Board to direct and oversee the management of the Group's ESG affairs, including: (1) to ensure that ESG factors are fully considered in the Group's strategy formulation and business operations; (2) effective management of ESG risks and establishment of mechanism to regularly review the relevant risks and the effectiveness of the countermeasures; (3) to guide the work of the ESG working group, such as participating in materiality assessments, reviewing quarterly and annual data on core ESG indicators and reviewing ESG reports. The SDM Committee regularly reports to the Board on the ESG risks and opportunities relating to the Group's development, the corresponding strategies and actions taken, ESG core indicators and ESG reports.

### Sustainability Development Governance Structure Of Xinyi Solar



Regarding the day-to-day management efforts in ESG matters, the Group has established a series of governance practices to ensure that the Group's concept of sustainable development is implemented in the core business operations and value chain management. The ESG working group is the coordinating body under the SDM committee. Its main tasks include: (1) collect, consolidate and report quarterly/annual performance of ESG core indicators to the SDM Committee; (2) keep abreast of the latest regulations and guidelines on ESG governance

and information disclosure and update the SDM Committee in a timely manner to ensure that the SDM Committee can improve the relevant processes/governance structure as soon as possible to meet the regulatory requirements; (3) report to the SDM Committee on the requests of key Stakeholders and assist in materiality assessment; (4) prepare ESG reports; and (5) understand, collect and provide feedback and suggestions from/to the execution departments to assist the SDM Committee in evaluating the progress of ESG work and the effectiveness of ESG risk management and internal control system.

The execution department of the Group's ESG work is the environmental protection office under the solar glass and solar farm businesses, with a dedicated position of environmental protection officer to ensure that all environmental protection indicators in the daily business operation meet or even exceed national or local standards. The supporting service departments serve as a bridge between the Group and its employees, the community and society, maintaining communication with Stakeholder groups and reflecting their opinions in a timely manner.

To promote sufficient awareness and concern over environmental and social benefits among the management team and employees, and places these benefits on the same level of importance with economic benefits, the Group has included ESG-related elements, including production safety, environmental protection performance and compliance, occupational safety and health and integrity when setting annual performance indicators for management personnel and relevant departments and staff. ESG-related indicators account for more than 50% of the key performance indicators of middle and senior management personnel, covering areas such as energy conservation and emission reduction, resources efficiency, supply chain management, talent management, self-discipline and integrity in conduct and performance of management duties, safety management and performance of scope of duties, etc. to ensure that middle and senior management personnel attach great importance to daily ESG matters and strive to reach higher performance goals, thus driving the achievement of the Group's annual and long-term sustainable development goals.

## STAKEHOLDERS IDENTIFICATION AND COMMUNICATION

Fully considering the needs and interests of Stakeholders is an indispensable foundation for us to formulate sustainable development strategies. Therefore, the Group attaches great importance to establishing and maintaining good two-way communication with Stakeholders. The Group identifies its key Stakeholders through "Stakeholder Influence-Dependency Matrix". Based on the principles of relevance, influence, degree of dependency and proximity, the Group's definition of key Stakeholders during the Reporting Year is consistent with that in the past and refers to the group of persons that are effectively related to the Group's major businesses and/or whose actions are/potentially likely to have a significant impact on the achievement of the Company's objectives and on whom the Group's business operation and long-term development are/potentially likely to have a significant impact. The Group has classified the key Stakeholders identified into six groups, namely regulators, shareholders/potential investors, employees, suppliers/business partners, customers and communities, same as the previous years.

The Group has built a well-established key Stakeholder communication mechanism, and maintained close communication with different Stakeholder groups through diversified channels during the Reporting Year. This enables us to keep abreast of the concerns, demands and suggestions of key Stakeholders on the operation and long-term development of the Group, and to respond in a timely manner. We value the feedback from key Stakeholders. Combining historical operating experience, the opinions and suggestions of key Stakeholders can often enable us to discover deficiencies in governance, operation, and planning in time, and make timely improvements to avoid risks and seize opportunities. During the Reporting Year, the Group strengthened communication with different Stakeholder groups and obtained strategic advice on many issues that may potentially affect sustainable development planning. For example, in terms of solar glass product life cycle management, the Group has communicated with customers and internal technical teams; in terms of climate information disclosure, it has communicated with the Hong Kong Stock Exchange, CDP, Hong Kong Quality Assurance Agency and other institutions, and thus further improved climate information disclosure. On the basis of the original qualitative analysis, the Group has introduced quantitative analysis through case studies to make it easier for Stakeholders to assess the potential financial impact of climate risks.







### Well-established Communication Mechanism with Key Stakeholders



Key Stakeholders	Functions/departments primarily involved	Major communication channels	Issues of concern
 Regulators	External communication personnel, development division	<ul style="list-style-type: none"> <li>Phone call/meeting</li> <li>Site visit</li> <li>Online real-time monitoring system</li> <li>Compliance report</li> </ul>	<ul style="list-style-type: none"> <li>Corporate governance and business ethics</li> <li>Environmental governance and protection</li> <li>Community participation (charitable activities, donations, support to community building)</li> <li>Production management and product responsibility</li> <li>Talent team building and management</li> </ul>
 Shareholders/Potential Investors	Investor relations department	<ul style="list-style-type: none"> <li>Annual general meeting</li> <li>Circular and announcement</li> <li>Annual/interim financial report</li> <li>Annual ESG report</li> <li>Investor conference and roadshow</li> <li>Press release/company website</li> <li>Phone/e-mail inquiry</li> <li>Instant chat/online communication APPs</li> </ul>	<ul style="list-style-type: none"> <li>Corporate governance and business ethics</li> <li>Environmental governance and protection</li> <li>Business model (sustainable, flexible) and innovation</li> <li>Value chain development (supplier management and customer management)</li> <li>Production management and product responsibility</li> </ul>
 Employees	Trade union, administrative department	<ul style="list-style-type: none"> <li>Regular department/group meeting</li> <li>Performance appraisal</li> <li>Training and employee activity</li> <li>Employees' satisfaction survey</li> <li>Interview/employee opinion box</li> </ul>	<ul style="list-style-type: none"> <li>Talent team building and management</li> <li>Production management and product responsibility</li> <li>Corporate governance and business ethics</li> <li>Business model (sustainable, flexible) and innovation</li> <li>Environmental governance and protection</li> </ul>
 Suppliers/Business Partners	Procurement team	<ul style="list-style-type: none"> <li>Product procurement/project tendering</li> <li>Cooperation plan/site visit</li> <li>Qualification certification and regular review on suppliers</li> <li>Phone call/e-mail/meeting</li> </ul>	<ul style="list-style-type: none"> <li>Value chain development (supplier management)</li> <li>Corporate governance and business ethics</li> <li>Environmental governance and protection</li> </ul>



Key Stakeholders	Functions/departments primarily involved	Major communication channels	Issues of concern
 Customers	Sales department, quality control department	<ul style="list-style-type: none"> <li>Site visit</li> <li>Phone call/meeting</li> <li>Questionnaire and feedback</li> <li>Press release/corporate website</li> <li>WeChat public account</li> </ul>	<ul style="list-style-type: none"> <li>Value chain development (customer management)</li> <li>Production management and product responsibility</li> <li>Corporate governance and business ethics</li> <li>Environmental governance and protection</li> <li>Business model (sustainable, flexible) and innovation</li> </ul>
 Communities	Engineering department, external communication personnel, trade union	<ul style="list-style-type: none"> <li>Environmental assessment</li> <li>Coordination meeting</li> <li>Charitable activity</li> <li>Press release/official website</li> <li>WeChat public account</li> <li>Phone call/visit</li> </ul>	<ul style="list-style-type: none"> <li>Community participation (charitable activities, donations, support to community building)</li> <li>Environmental governance and protection</li> <li>Business model (sustainable, flexible) and innovation</li> <li>Production management and product responsibility</li> </ul>

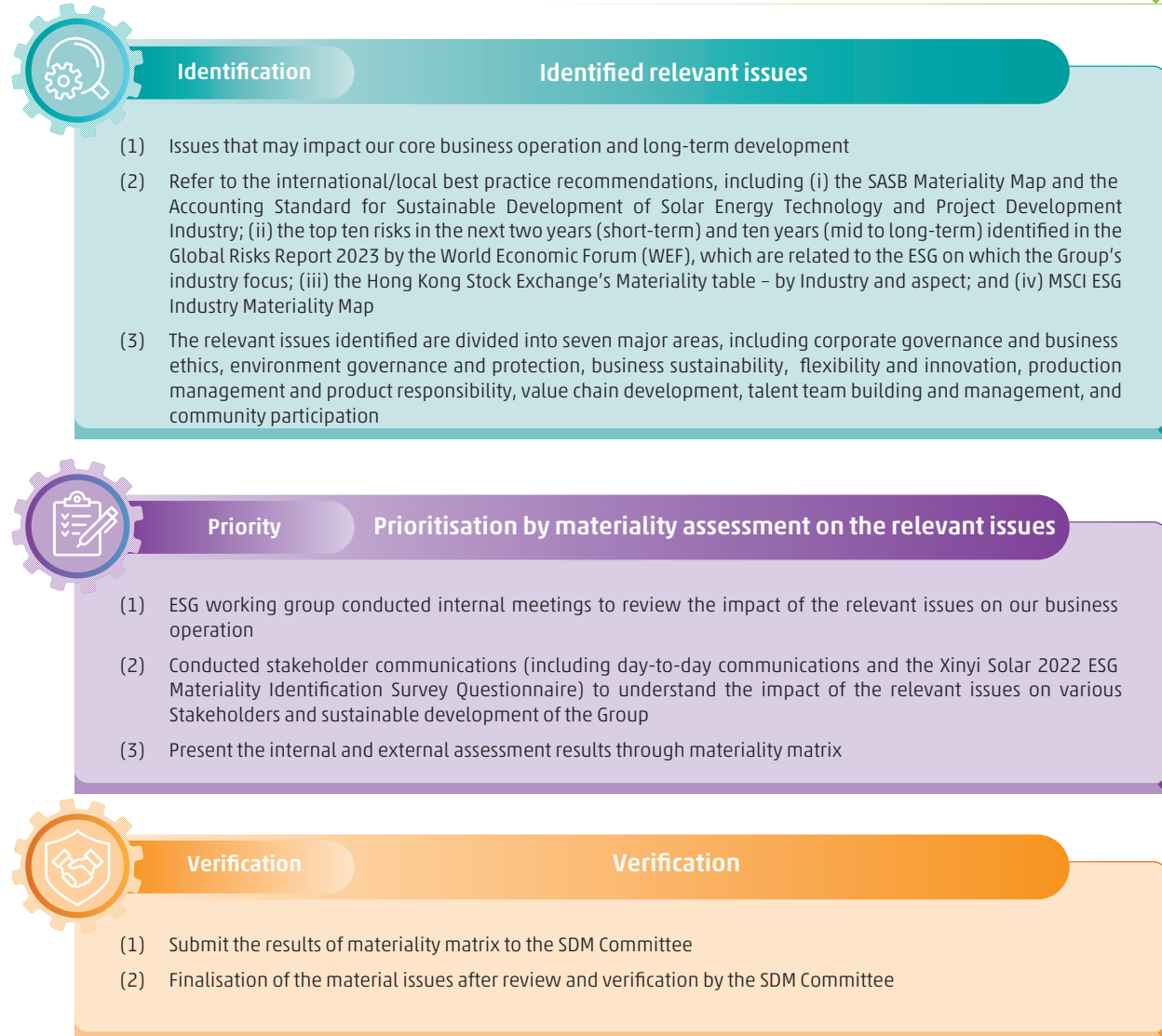


### MATERIALITY ASSESSMENT

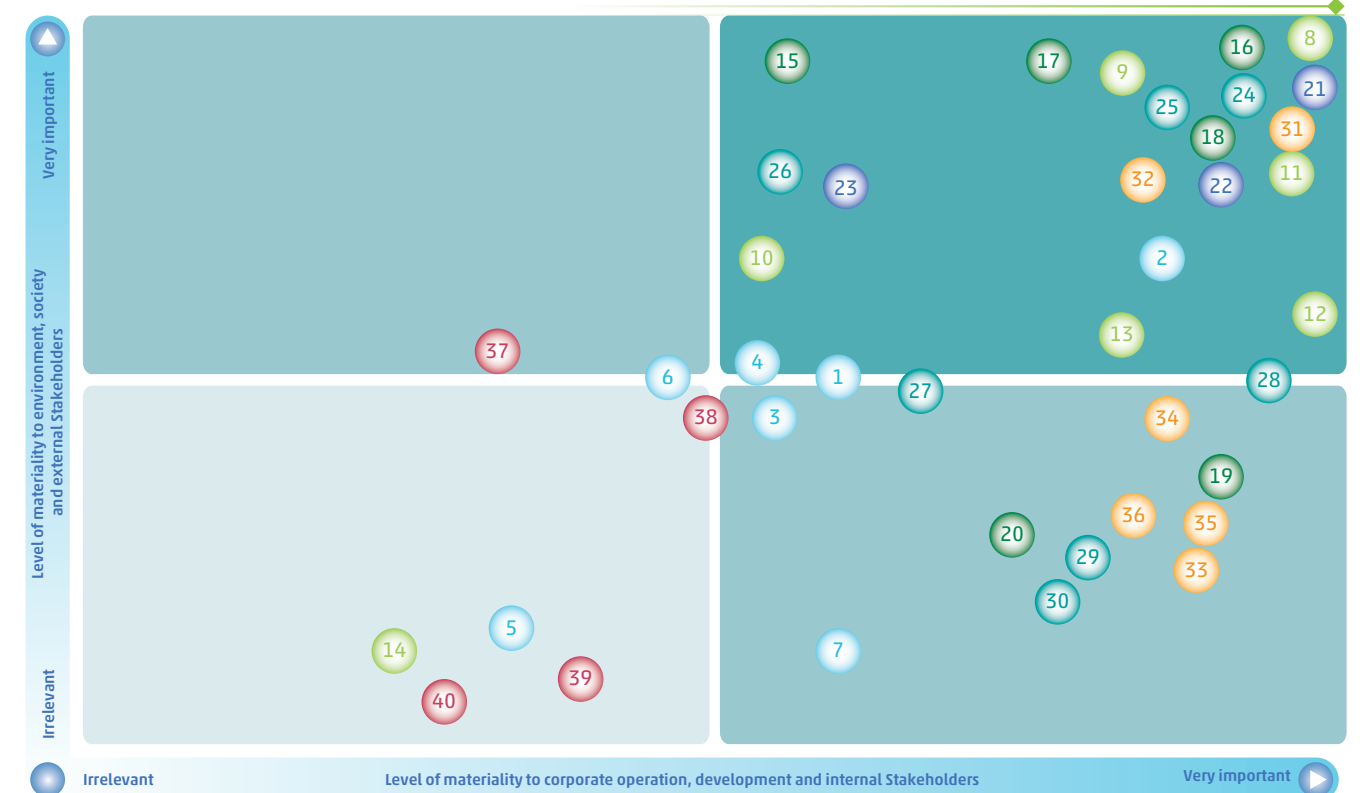
The external economic, political, social and industry environments are constantly changing and so are the concerns of key Stakeholders, which would evolve along the changes in the external environment. Therefore, the Group will strictly follow the established materiality assessment process every year to identify and verify issues which have a material impact on the key Stakeholders and/or the Group's business operations and development and which must be disclosed and prioritised.

During the Reporting Year, the Group implemented an internationally recommended standardised process of "identification, prioritisation and verification" for materiality assessment, and identified 36 material issues. Among them, "establishment of sustainable supply chain", "ecological impact and biodiversity", "water resources management and responses to risks" and "international labour and participation in human rights initiatives" are new material issues in 2022.

### XUS MATERIALITY ASSESSMENT PROCESS



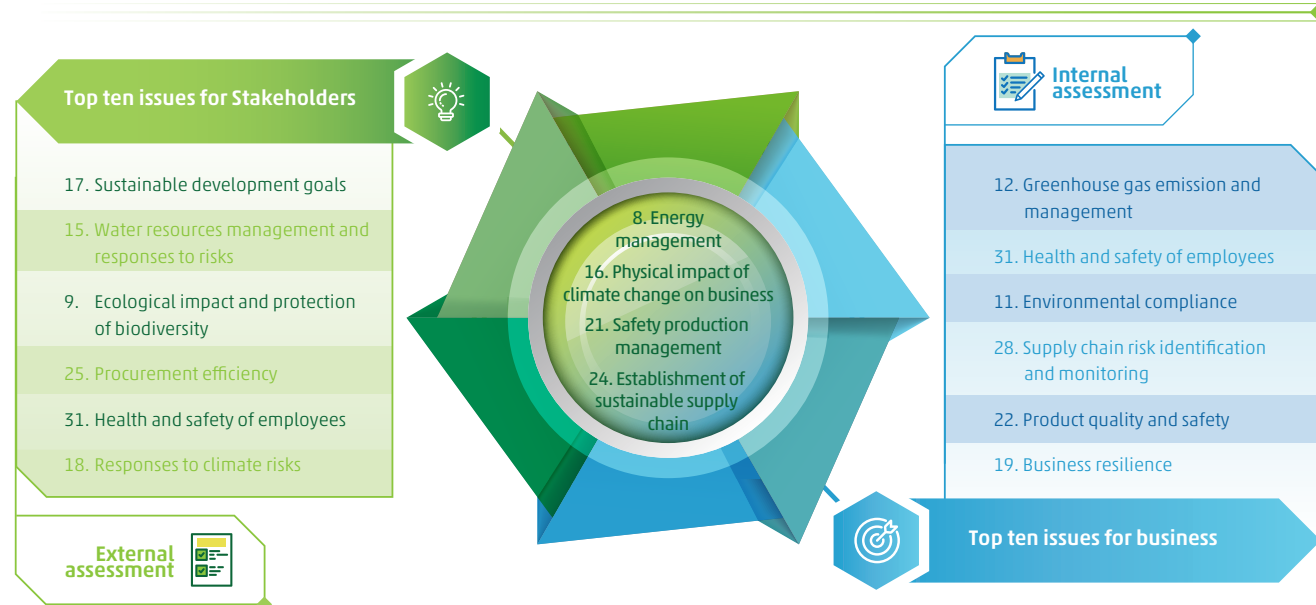
### XUS Materiality matrix



<b>Corporate governance and business ethics</b> <ul style="list-style-type: none"> <li>1. Law-abiding business</li> <li>2. Anti-corruption and integrity management</li> <li>3. Anti-unfair competition</li> <li>4. Business ethics</li> <li>5. Governance structure</li> <li>6. Supervision of the Board over ESG matters</li> <li>7. Board diversity</li> </ul>	<b>Environmental governance and protection</b> <ul style="list-style-type: none"> <li>8. Energy management</li> <li>9. Ecological impact and protection of biodiversity</li> <li>10. Hazardous and non-hazardous waste management</li> <li>11. Environmental compliance</li> <li>12. Greenhouse gas emission and management</li> <li>13. Air pollutants emission and treatment</li> <li>14. Packaging materials consumption and environmentally friendly packaging</li> </ul>	<b>Business model (sustainable, flexible) and innovation</b> <ul style="list-style-type: none"> <li>15. Water resources management and responses to risks</li> <li>16. Physical impact of climate change on business</li> <li>17. Sustainable development goals</li> <li>18. Responses to climate risks</li> <li>19. Business resilience</li> <li>20. Board's supervision and climate information disclosure</li> </ul>	
<b>Production management and product responsibility</b> <ul style="list-style-type: none"> <li>21. Safety production management</li> <li>22. Product quality and safety</li> <li>23. Product life cycle management</li> </ul>	<b>Value chain development</b> <ul style="list-style-type: none"> <li>24. Establishment of sustainable supply chain</li> <li>25. Procurement efficiency</li> <li>26. Information security</li> <li>27. Supply chain management</li> <li>28. Supply chain risk identification and monitoring</li> <li>29. Sales and after-sales service management</li> <li>30. Customer management and complaint handling system</li> </ul>	<b>Talent team building and management</b> <ul style="list-style-type: none"> <li>31. Health and safety of employees</li> <li>32. Employment compliance</li> <li>33. Training and career development</li> <li>34. International labour and participation in human rights initiatives</li> <li>35. Employee benefits and talent incentives</li> <li>36. Employee engagement, diversity and inclusion</li> </ul>	<b>Community participation</b> <ul style="list-style-type: none"> <li>37. Charity work</li> <li>38. Economic benefits (taxation, employment)</li> <li>39. Community relations building and maintenance</li> <li>40. Education and publicity</li> </ul>



According to the results of the materiality assessment in the Reporting Year, the key Stakeholders' concerns on issues such as the sustainability of the Group's business model, resilience to climate and external environmental changes, sustainable development of supply chain, safety production management, and biodiversity protection have increased. In addition, environmental governance and protection remain key areas of concern. Given the concerns of domestic and international regulatory agencies over the full life cycle carbon management, carbon emission reduction and green development of the PV industry, internal Stakeholders have increased their attention on product life cycle management. At the same time, changes in international trade policies and increased uncertainties have also increased internal Stakeholders' attention and concerns on participation in international labour and human rights initiatives and supply chain risks and sustainability. In addition, employee health and safety, environmental compliance, product quality and safety continue to be issues which internal Stakeholders considered to be critical to the operation and development of the Group. The following are the issues that jointly/separately have a significant impact on the business and Stakeholders:



SDM Committee carefully reviewed the results of the materiality assessment and identified the following 36 issues as material based on comprehensive consideration of the impact of the relevant issues on the Group's business and response to Stakeholders' requests. The material issues identified have been disclosed accordingly in this Report:

Material issues <sup>Note 1</sup>	Sections of this Report that contain the relevant disclosures
1 Board diversity	Corporate governance
2 Supervision of the Board over ESG matters	Sustainable development governance
3 Law-abiding business	Sustainable development approach
4 Sustainable development goals	United Nations' sustainable development goals
5 Participation in international labour and human rights initiatives	United Nations Global Compact's 10 principles
6 Supervision of the Board and disclosure on climate-related matters	
7 Physical impact of climate change on business	Climate action
8 Responses to climate risks	
9 Business resilience	



Material issues <sup>Note 1</sup>	Sections of this Report that contain the relevant disclosures
10 Environmental compliance	
11 Energy management	
12 Water resources management and responses to risks	Journey to green production of solar glass
13 Greenhouse gas emission and management	
14 Air pollutants emission and treatment	
15 Hazardous and non-hazardous waste management	
16 Ecological impact and protection of biodiversity	Journey to green production of solar glass A win-win development model of solar farms
17 Product life cycle management	Product life cycle management
18 Supply chain management	
19 Supply chain risk identification and monitoring	Sustainable supply chain management
20 Establishment of sustainable supply chain	
21 Procurement efficiency	
22 Sales and after-sales service management	
23 Customer management and complaint handling system	Sustainable customer relationship
24 Product quality and safety	
25 Information security	
26 Employment compliance	Employment compliance
27 Employee benefits and talent incentives	Talent attraction and retention
28 Safety production management	Occupational safety and health
29 Health and safety of employees	
30 Employee engagement, diversity and inclusion	Diversity, inclusion and equal opportunities
31 Training and career development	
32 Business ethics	
33 Anti-corruption and integrity management	ESG Performance in 2022 - Business ethics
34 Anti-unfair competition	
35 Economic benefits (taxation, employment)	ESG Performance in 2022 - Economic performance
36 Charity work	ESG Performance in 2022 - Social welfare and community participation

Notes:

(1) The material issues in the table are listed in sequence of their disclosure sections in this Report

# SUSTAINABLE DEVELOPMENT ENTERPRISE STRATEGY

## SUSTAINABLE DEVELOPMENT ENTERPRISE STRATEGY

Sustainable development is the development that does not sacrifice social and environmental benefits for economic benefits. Xinyi Solar has been honoured twice as one of the "TOP 100 Global Most Sustainable Corporations" and ranked number 1 among companies in Mainland China. We firmly believe that the sustainable development of a business must lie in the sustainable development of society and the environment. Therefore, pursuing sustainable development should not be limited to its own business scope, but requires more proactive actions to fully support the achievement of sustainable development in the community, region, country, and even the world. Xinyi Solar's sustainable development strategy is based on itself, exploring sustainable development paths applicable to core businesses, and seconding the United Nations' Sustainable Development Goals and the call of the United Nations Global Compact. We aim to promote sustainable development along our value chain and among society as a whole.

down ▼ **13%**      down ▼ **15%**      up ▲ **50%**      down ▼ **10%**

Intensity of energy consumption in 2027 (compared with 2022)      Intensity of greenhouse gas emissions in 2027 (compared with 2022)      CO<sub>2</sub> emissions reduction corresponding to power generation in 2027 (compared with 2022)      Intensity of water consumption in 2027 (compared with 2022)

### Key Areas and Objectives

**Sustainable Development Approach**  
 The Group strictly complied with the legal and regulatory requirements of the countries and regions where it operates in respect of environmental protection and pollution prevention, employment relations, business operation and governance, ensuring legal compliance in production and operation. The Group has also established standardised management mechanism to strengthen management in key areas such as environmental protection, employee safety and health as well as product quality management, in order to achieve the best practices and respond with practical actions to the United Nations' Sustainable Development Goals and the call of the UN Global Compact

**United Nations' Sustainable Development Goals (SDGs)**  
 The Group endeavours to set and take proactive actions to achieve corporate sustainability goals in the areas of SDGs where the Group is most likely to have an impact, to reduce the negative impacts of business operations and to continue to increase positive impacts

**United Nations Global Compact's 10 Principles (UN Global Compact)**  
 The Group has always supported the ten principles of the UN Global Compact and implemented them in production and operation, supplier management, customer relationship building and other business cooperation. The Group plans to formally sign and join the UN Global Compact in 2023

**Climate Action**  
 Establish and continuously improve the climate-related governance structure, effectively identify climate risks and opportunities based on internal climate scenario analysis, and ensure that the Group can take timely response actions to reduce or avoid the impact of major climate risks on business, while actively seizing climate opportunities to achieve sustainable development

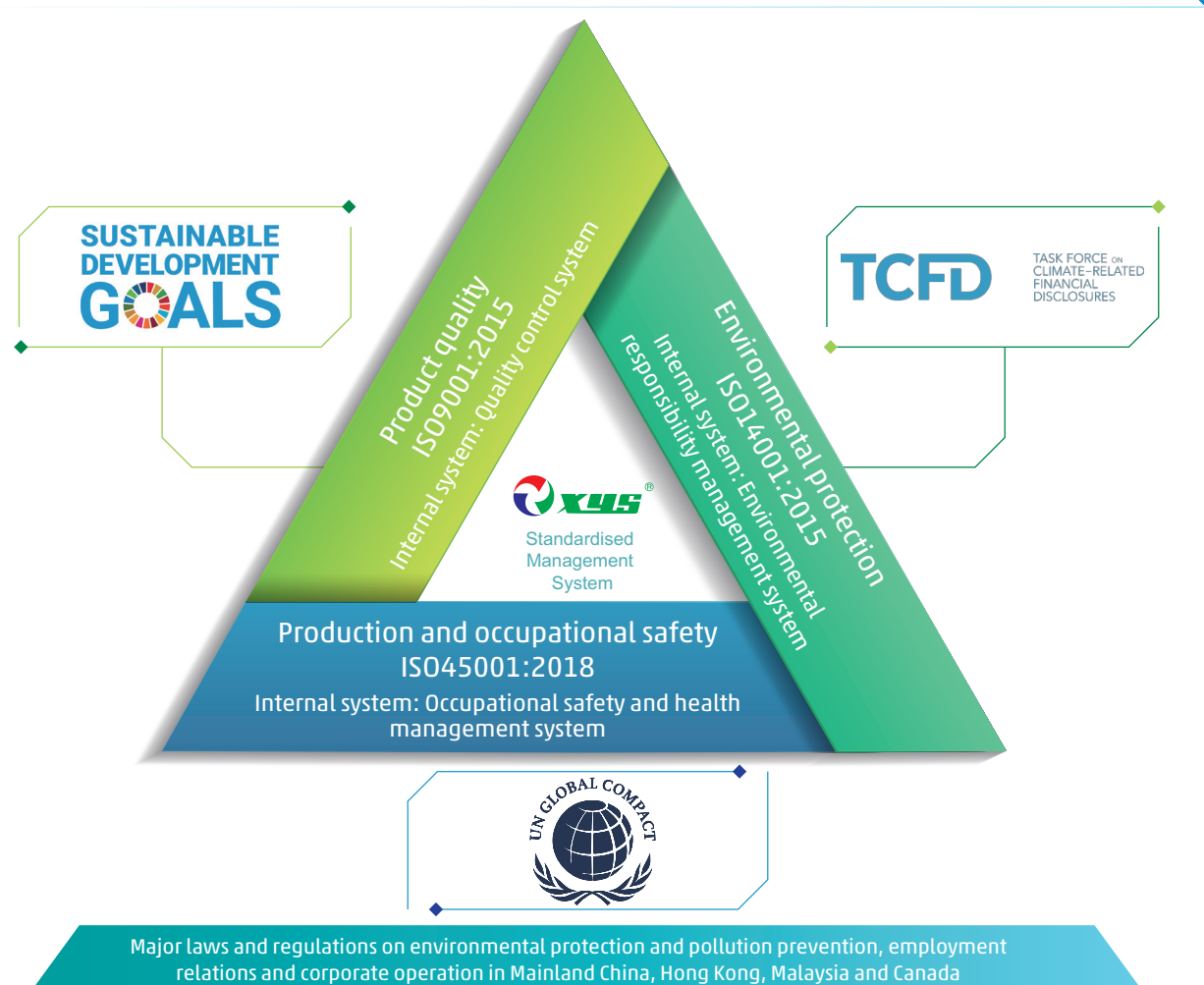




### SUSTAINABLE DEVELOPMENT APPROACH

The Group adheres to the law, strictly abides by the laws and regulations of the countries and regions where the business is located, and has established a "Three-in-One" standardised management system in accordance with Quality Management System (ISO9001:2015), Environmental Management System (ISO14001:2015) and Occupational Health and Safety Management System (ISO45001:2018) and obtained relevant certifications to ensure that the Group's management model and monitoring mechanism for product quality control and management, environmental protection and occupational safety and health are in line with international standards. During the Reporting Year, the Group followed the standards and established internal procedures set out in the "Integrated Management Manual" of Xinyi Solar Group to effectively monitor work related to product quality, environmental governance and protection, resource utilisation, pollutant emission and treatment, production safety and occupational health to ensure that the interests of customers, ecology and social benefits as well as the safety and health of employees are fully protected while achieving business development and growth in scale, in a bid to becoming a responsible corporate citizen.

At the same time, the Group responds with practical actions to the United Nations sustainable development goals and the ten principles of the global Compact. We believe that by acting in accordance with local/international best practices of corporate actions will guide the Group to effectively avoid risks related to the environmental and social aspects and capture development opportunities, so as to move towards a sustainable future with firmer pace.



Xinyi Solar's Sustainability Development Approach

The major laws and regulations that had a significant impact on the Group in respect of environmental protection and pollution prevention, employment relations, corporate operation and governance are set out below. There were no material events relating to the Group's violation of these laws and regulations during the Reporting Year.



Environmental protection and pollution prevention	
Mainland China	Malaysia
<ul style="list-style-type: none"> <li>Environmental Protection Law of the People's Republic of China</li> <li>Law of the People's Republic of China on Environmental Impact Assessment</li> <li>Regulations on Environmental Protection Management of Construction Project</li> <li>Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution</li> <li>Law of the People's Republic of China on the Prevention and Control of Water Pollution</li> <li>Law of the People's Republic of China on the Prevention and Control of Pollution from Environmental Noise</li> <li>Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste</li> <li>Emergency Response Law of the People's Republic of China</li> <li>National Catalogue of Hazardous Wastes (2021 edition)</li> <li>Technical Guidelines on Formulating Emergency Emission Reduction Measures of Key Industries for Heavily Polluted Weather Conditions</li> </ul>	<ul style="list-style-type: none"> <li>Environmental Quality Act 1974</li> <li>Environmental Quality Act 1987</li> <li>Environmental Impact Assessment (EIA): Procedure and Requirements in Malaysia (1990)</li> <li>Environmental Impact Assessment (EIA): Procedure and Requirements in Malaysia (1994)</li> </ul>



Employment relations	Corporate operation and governance
<b>Mainland China</b> <ul style="list-style-type: none"> <li>Labour Law of the People's Republic of China</li> <li>Labour Contract Law of the People's Republic of China</li> <li>Law of the People's Republic of China on Work Safety</li> <li>Law of the People's Republic of China on the Prevention and Treatment of Occupational Diseases</li> <li>Provisions on the Prohibition of Using Child Labour</li> <li>Special Rules on the Labour Protection of Female Employees</li> </ul>	<b>Mainland China</b> <ul style="list-style-type: none"> <li>Product Quality Law of the People's Republic of China</li> <li>Criminal Law of the People's Republic of China (on relevant clauses relating to corruption, embezzlement, misappropriation of funds, bribery, etc.)</li> </ul>
<b>Hong Kong, China</b> <ul style="list-style-type: none"> <li>The Employment Ordinance</li> </ul>	<b>Hong Kong, China</b> <ul style="list-style-type: none"> <li>Prevention of Bribery Ordinance</li> </ul>
<b>Malaysia</b> <ul style="list-style-type: none"> <li>Employment Act 1955</li> <li>Occupational Safety and Health Act 1994</li> <li>Factory &amp; Machinery Act 1967</li> </ul>	<b>Malaysia</b> <ul style="list-style-type: none"> <li>Anti-Corruption Commission Act 2009</li> </ul>
<b>Canada</b> <ul style="list-style-type: none"> <li>Canada Labour Code</li> </ul>	

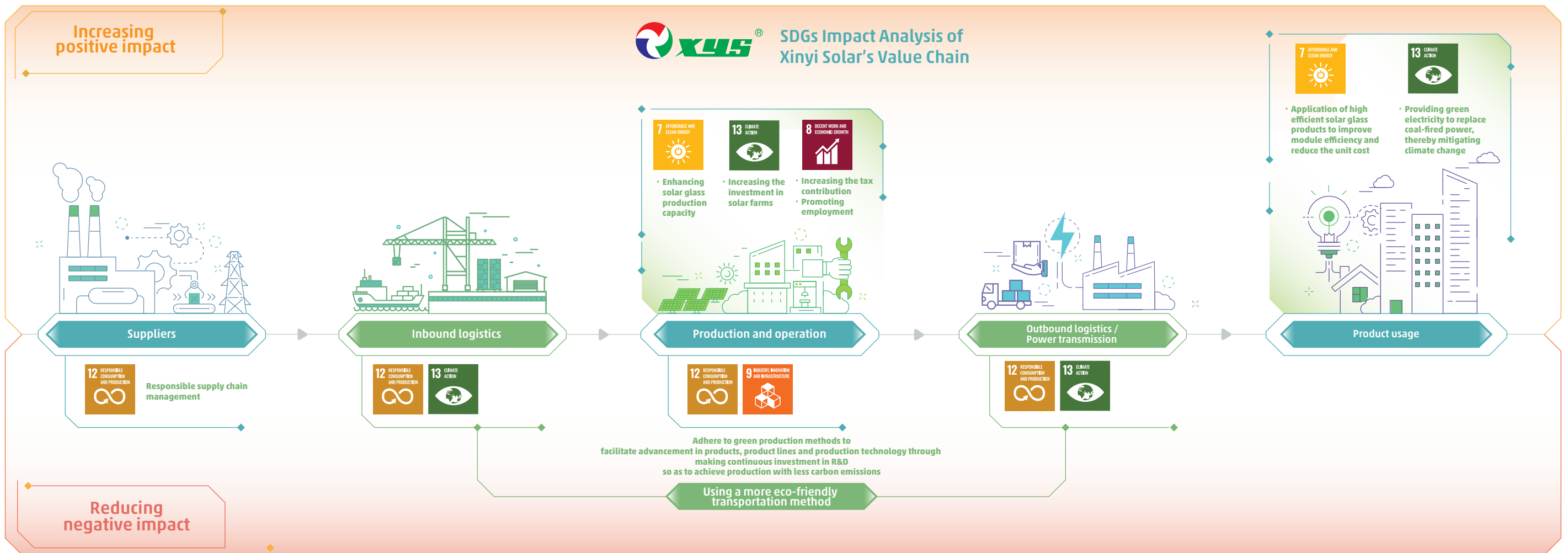


### UNITED NATIONS' SUSTAINABLE DEVELOPMENT GOALS (SDGs)

The United Nations calls on companies to take all necessary actions to maximise positive and minimise negative impacts on the 17 UN Sustainable Development Goals where they have the greatest influence. The Group actively responds to the call of the United Nations and take effective measures to ensure that all activities of the Group related to production, operation and value chain management are consistent with the SDGs.

As there were no significant changes in the nature of the Group's core business, its operating model as well as the industries and regions/countries in which it operated during the Reporting Period, the SDGs impact analysis of the value chain disclosed in the Company's 2021 ESG Report can still adequately reflect the different segments along the value chain in which the Group has the most influence, and is consistent with the actual operations of the Group during the Reporting Period.

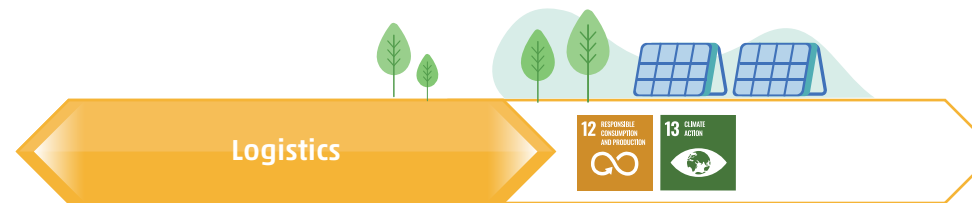
"Affordable and Clean Energy" (SDG 7), "Decent Work and Economic Growth" (SDG 8), "Responsible Consumption and Production" (SDG 12), and "Climate Action" (SDG 13) remain the Group's highest priority sustainability development areas. Apart from the aforementioned four sustainable development goals, MSCI recommends that the Group pay attention to the field of "Industry, Innovation and Infrastructure" (SDG 9), and believes that the Group can increase its positive impact in related fields. During the Reporting Year and in the future, the Group has been or will be actively expanding positive impacts and reducing negative impacts through the following actions and will regularly review, adjust and disclose the areas where the Group has the greatest impact and the ways in which it affects the value chain:



**XUS** Striving to Enhance Our Contribution to SDGs throughout the Value Chain



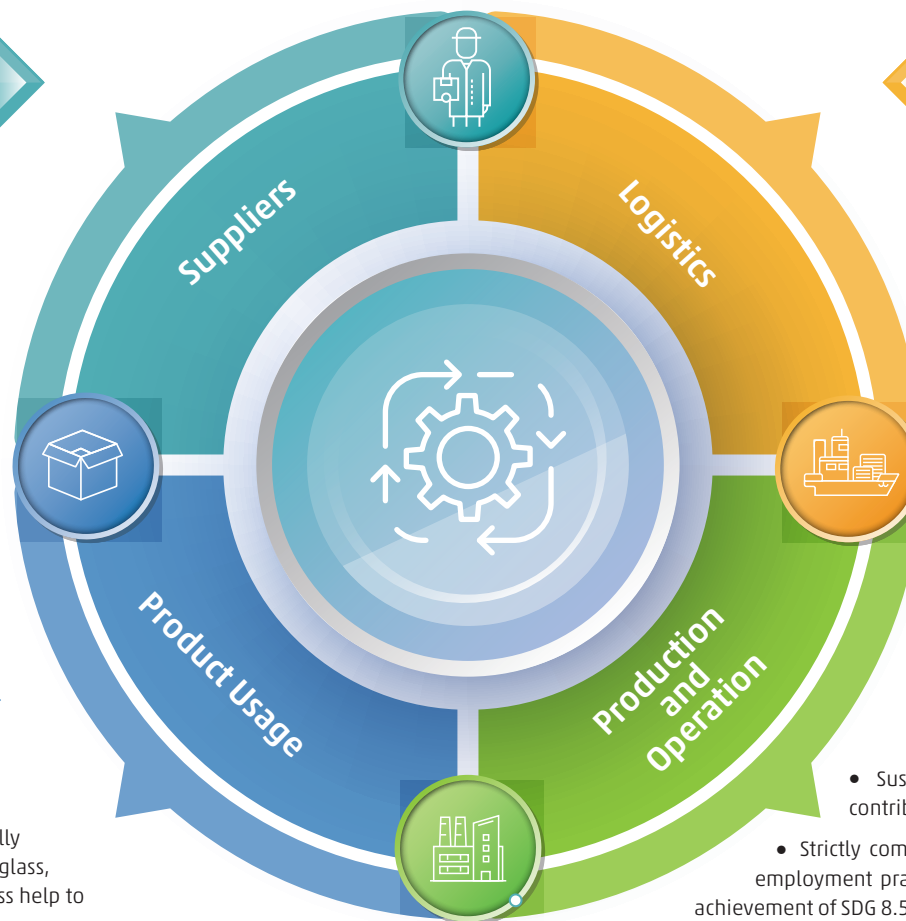
The Group adheres to ethical and sustainable procurement principles, and have put forward a total of 14 codes of conduct that the Group's suppliers must fully comply with in respect of ethical standards, human and labour rights, and environmental protection, to ensure that suppliers and the Group share similar sustainability concepts. The Group encourages suppliers to adopt the same principles in supply chain management to enhance their performance in other SDG areas (such as SDG 8)



By increasing the use of sea freight and reducing road transportation for raw materials, the Group has reduced the CO<sub>2</sub> emissions per ton per kilometre for its products, thereby reducing negative environmental impacts and supporting the achievement of SDG 12.a and SDG 13.1



- The continuous decline in PV installation cost is an important factor in attracting new capital investment in solar energy. Through continuous investment in R&D, the Group has successfully developed and mass produced more efficient and cost competitive solar glass products (thin glass, large-format glass) to support the realisation of SDG 7.1. Both the thin glass and large-format glass help to improve module efficiency and support the achievement of SDG 7.3
- Helping PV power generation to reduce costs and increase efficiency can promote global investment in PV power generation projects, hence positively impact the global energy transition and enhance the ability to respond to climate change, and support the achievement of SDG 7.2 and SDG 13.1
- The Group is also the owner and operator of solar farms, which help the power industry to reduce carbon emission and decarbonise by providing green electricity to society and reducing demand for electricity from coal-fired power and other fossil fuels, supporting the achievement of SDG 13.1



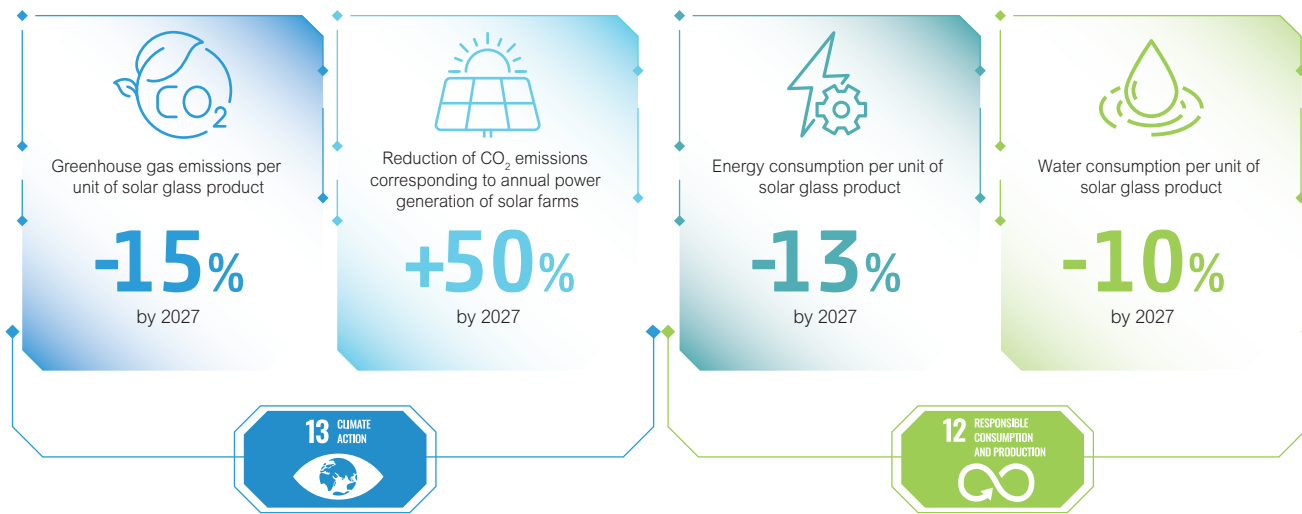
- Support the achievement of SDG 7.2 and SDG 7.a by investing in solar farms and increasing the share of renewable energy in the global energy mix
- Support the realisation of SDG 7.2 by expanding solar glass capacity and providing diversified solar glass products that are both cost-competitive and of high quality, and by promoting cost reduction and efficiency improvement in the competitiveness of PV power generation
- Sustainably improve the economic efficiency of businesses and promote local economic growth through tax contributions and employment to support the achievement of SDG 8.1
- Strictly comply with the local labour laws and proactively take all necessary measures to ensure that the Group's employment practices comply with the labour-related principles of the United Nations Global Compact and support the achievement of SDG 8.5 and SDG 8.7
- Adhering to the "green manufacturing" model in the solar glass production process, we support the realisation of SDG 12.2 and SDG 12.5 by improving production efficiency and enhancing the recycling of resources (water recycling rate, recycling packaging method, etc.), reducing energy consumption, water consumption and packaging material consumption per unit of finished product, and ensuring the effective use of resources and reducing emissions
- Pay close attention to the risks and opportunities presented by climate change, we fully consider the impact of climate factors when formulating corporate strategies and long-term development plans, and take effective actions to enhance the Group's ability to cope with climate change and its business resilience to support the achievement of SDG 13.3
- As all of the Group's core businesses help mitigate climate change, the continued expansion of our core businesses will contribute to our ability to cope with global climate change and support the achievement of SDG 13.1
- As the only company in the solar glass industry that has its own design and research institute, through continuous R&D investment, we have achieved breakthroughs in solar glass production line design, furnace design and product development. By increasing the scale of furnace, the degree of automation of production lines and the thinning of products, the efficiency of use of resources has improved, and the production of solar glass has generated less carbon emissions and become cleaner, thereby supporting the realisation of SDG 9.4 and SDG 9.5



### SDGs Corporate Action:

#### SDGs and Long-term Action Plan of Xinyi Solar

The Group has disclosed its five-year SDGs ("XSG") and long-term action plan for the first time in the ESG Report 2019, and two targets related to climate action (greenhouse gas emissions per unit of solar glass products and carbon reduction corresponding to annual power generation of solar farm projects) have been completed in 2021. Therefore, the Group has proposed the following new quantitative targets, among which two are related to SDG 13 (climate action) and two are related to SDG 12 (responsible consumption and production) in the Reporting Year:



As a member of the PV industry, we have spared no effort to promote the global application of PV power generation to support global climate actions and related sustainable development goals. At the same time, we are also committed to comprehensively enhancing the positive impact and reducing the negative impact in the influential SDGs through our own efforts in production and operation and active guidance to the value chain, so as to support the realisation of relevant SDGs. The Group has proposed quantifiable corporate sustainable development goals and/or long-term sustainable development action plans for the four SDGs areas of greatest concern. Encouraging progress has been achieved on relevant targets and long-term action plans during 2022:

**13**

CLIMATE ACTION

**XSG 1: Strive to reduce greenhouse gas emissions per unit of product by 15% by 2027** <sup>Note 1</sup>

- In 2022, the Group's greenhouse gas emissions per unit of product decreased by 13.3% year-on-year
- Excluding the effect of different percentages of thin glass production over the years, the Group's greenhouse gas emissions decreased by 6.4% in the Reporting Year as compared to 2021 <sup>Note 2</sup>
- A new carbon emission target has been proposed in 2022, striving to reduce greenhouse gas emission per square metre of finished solar glass product by 15% by 2027 as compared to 2022

**XSG2: Increase investment in renewable energy, aiming for a 50% increase in the corresponding carbon dioxide emissions reduction from the annual power generation by the solar farms owned by the Group by 2027** <sup>Note 1</sup>

- In 2022, new grid-connected capacity of 806MW was added, and the annual carbon dioxide emissions reduction increased by 18.4% compared to 2021
- A new carbon dioxide emissions reduction target of solar power generation has been proposed in 2022, striving to increase the corresponding CO<sub>2</sub> reduction from the annual power generation by the solar farms owned by the Group by 50% by 2027

**XSG3: Support most countries around the world to achieve carbon neutrality by 2050 by increasing solar glass production capacity and the scale of solar farm projects**

- In 2022, the Group added six new solar glass production lines with a daily melting capacity of 1,000 tonnes each, increasing its effective annual melting capacity by 26.5%. Limited by the current production technology of solar glass furnaces, it is temporarily impossible to produce without fossil fuels, therefore, net zero emission can yet be achieved in the production of solar glass. However, the greenhouse gas emission of a single piece of solar glass used in the 182 series 550W monofacial module is only 14.6KG and the green electricity generated by the module will result in approximately 13.4 tonnes<sup>Note 3</sup> of CO<sub>2</sub> emissions reduction over a 25-year life cycle. Therefore, the Group believes that solar glass production has a positive contribution to global climate mitigation and that the difference in carbon emissions reduction from power generation and carbon emissions from production will further increase as modules become more efficient. In 2022, the greenhouse gas emission generated from solar glass production accounted for only 0.11% (2021: 0.13%) of the CO<sub>2</sub> emissions reduction brought by the power generation of the PV module throughout its full life cycle
- In 2022, the Group's solar farm projects generated 4.4 billion kWh of electricity, equivalent to a reduction of CO<sub>2</sub> emissions of approximately 3.64 million tonnes
- In 2022, the CO<sub>2</sub> emission reduction from the power generation of the Group's solar farms was equivalent to 92.6% of the CO<sub>2</sub> emissions from solar glass production in the same period

**Notes:**

(1) Benchmarked against the relevant data of the base year (2022)

(2) If the below method is used (so as to eliminate the impact caused by the different percentages of thin glass production in different years), the target is to achieve a close to 7.0% reduction in greenhouse gas emissions per unit of product by 2027


i) Calendaring process: Use the actual product output (in tonnage) to calculate the greenhouse gas emissions per tonne of output, and then multiply it by the tonnage/area conversion factor in the base year to get the greenhouse gas emissions per square metre of output;

ii) Deep processing: Use the actual product output (in square metre) to calculate the greenhouse gas emissions per square metre of output.

(3) Assuming annual utilisation hour of 1,178 hours





Priority SDGs areas	XSG and long-term action plan	Progress in 2022
 <p><b>Responsible Consumption and Production</b></p>	<p><b>XSG 4: Strive to reduce energy consumption per square metre of finished solar glass product by 13% by 2027</b> <sup>Note 1</sup></p> <p>XSG 5: Adopt strict standards to regulate and manage the emission of exhaust gas, and strive to surpass national standards</p> <p>XSG 6: Obtain and use water resources in a responsible and sustainable manner to further improve the utilisation rate of recycled water and strive to achieve zero waste except normal evaporation and sedimentation tank loss</p>	<ul style="list-style-type: none"> <li>The intensity of energy consumption reduced by 15.1% year-on-year</li> <li>The emission intensity indicators for the major air pollutants (SO<sub>2</sub>, NO<sub>x</sub> and smoke and dust) during the Reporting Year were all better than national and local standards of the countries where we operate</li> <li>In 2022, desulphurisation efficiency, denitrification efficiency and dust removal efficiency increased to 74.4%, 90.3% and 94.4%, respectively</li> </ul>
	<p><b>XSG 7: Strive to reduce water consumption per square metre of finished solar glass products by 10% by 2027</b> <sup>Note 1</sup></p> <p>XSG 8: Promote more environmentally friendly product packaging, and strive to adopt paperless packaging for 50% of our products by 2023</p> <p>XSG 9: Conduct procurement in a responsible and sustainable manner and regulate supplier behaviour through quality, environmental protection and safety protocols</p>	<ul style="list-style-type: none"> <li>The utilisation rate of recycled water remain at a relatively high level of 94.6%</li> <li>The intensity of water consumption decreased by 7.8% year-on-year</li> <li>The utilisation rate of paperless packaging increased by 11.7 percentage points to 46.1%</li> <li>Packaging consumption per square metre of finished solar glass product decreased by 8.8% year-on-year</li> <li>Purchased from a total of 2,841 suppliers, 100% of which were qualified suppliers that complied with the Group's supplier development and management practices and met the standards in regular assessment</li> </ul>

Note:

(1) Benchmarked against the relevant data of the base year (2022)



Priority SDGs areas	XSG and long-term action plan	Progress in 2022
 <p><b>Decent Work and Economic Growth</b></p>	<p>XSG 10: Protect the health and safety of employees with an ultimate goal of zero harm</p> <p>XSG 11: Promote the development of mutual prosperity for the community and make positive contributions to the economy, environment and public welfare</p>	<ul style="list-style-type: none"> <li>Work-related injury rate was 0.67</li> <li>Lost workdays ratio reduced to 22.0</li> <li>No work-related death cases</li> <li>Generated direct economic value of HK\$20.84 billion</li> <li>Contributed economic value of HK\$18.27 billion to community and upstream value chain, including charitable donations of HK\$13.293 million</li> </ul>
 <p><b>Affordable and Clean Energy</b></p>	<p>XSG 12: Protect local natural resources and biodiversity while developing and building solar farms, and insist on building environmentally friendly solar farms</p>	<p>Among the 772MW utility-scale solar farm projects newly added in 2022, all of them were developed and constructed in an environmentally friendly manner and 72.3% were fishery-PV/agricultural-PV complementary solar farms, achieving mutual prosperity for ecology, society and economy</p>



### UNITED NATIONS GLOBAL COMPACT'S 10 PRINCIPLES (UN Global Compact)

Corporate sustainability starts with a company's value system and principles-based approach to doing business. The UN Global Compact sets out ten principles of universal application in the areas of human rights, labour standards, environment and anti-corruption. The Group's current principles in its own business scope and value chain management coincide with the requirements of the Global Compact, so although the Group has not formally signed up to join the UN Global Compact as of the end of 2022, it has been practicing the spirit of the Global Compact with practical actions. The Group also plans to formally join the UN Global Compact in 2023 and pledges to take effective measures to implement and uphold the ten principles, and to report annually on actions and progress in these areas for supervision by the public and other key stakeholders.



**Human rights**

1. Businesses should respect and uphold internationally proclaimed human rights
2. Enterprises are not involved in any acts of disregard and abuse of human rights




**Labour Criteria**

3. Enterprises should uphold the freedom of association and recognise the right to collective bargaining
4. Enterprises should eliminate all forms of forced labour
5. Enterprises should support the elimination of child labour
6. Enterprises should eliminate any discrimination in employment and occupation


#### The Group respects and upholds various human rights and labour standards listed in the Universal Declaration of Human Rights and the International Labour Organisation Declaration on Fundamental Principles and Rights at Work

- In terms of corporate operation, we take all measures to prevent any form of violations of human rights protection and human rights violations in production, operation and business cooperation.
- In terms of employee management, the Group strictly abides by the laws and regulations and industry norms related to labour and human rights in the places where it operates, and ensures that the Group's employment system, behaviours and measures comply with the human rights and labour-related principles of the United Nations Global Compact. We provide employees with a safe and healthy working environment, ensure their freedom of employment, association and religious belief, and ensure that they receive equal treatment and opportunities for their employment and throughout the entire working period in the Group. In addition, as employee benefits, we provide employees with medical insurance, including physical examination and critical illness insurance; provide employees with housing allowance/housing; provide employees with comprehensive skill enhancement courses and training; provide education fund for employees' children
- In terms of supplier management, we regulate suppliers' business practises through systematic and rigorous review and screening procedures, strict periodic assessments, Supplier Code of Conduct and other effective measures to ensure that suppliers respect and uphold human rights, protect the labour rights of their employees, and encourage suppliers to convey the Group's human rights philosophy and labour standards to their supply chains. We have a clear zero-tolerance policy on bonded labour, illegal transactions, slavery or child labour. Not only do we operate, we also require our suppliers to provide proof of voluntary employment
- In terms of community involvement, the Group is committed to helping the global energy transformation through its own business operations (providing high-quality photovoltaic glass and photovoltaic power generation), improving the city's ability to respond to climate risks, protecting the life and health rights of more people, and avoiding their infringement of extreme climate events. By establishing charity foundations and participating in charity and public welfare activities, we contribute to the fight against the pandemic and disaster relief, medical insurance, social security, and helping the poor to alleviate poverty, so as to ensure that more groups enjoy their basic human rights equally



**Environmental**

7. Enterprises should prepare for environmental challenges
8. Enterprises should take the initiative to increase their responsibility for environmental protection
9. Enterprises should encourage the development and promotion of environmentally friendly technologies



**Anti-corruption**

10. Enterprises should oppose all forms of corruption, including extortion and bribery

#### The Group has established a long-term goal of sustainable development. Therefore, we are determined to fulfil our environmental protection responsibility and strive to create maximum environmental benefits for the society through the development of our main business

- Rooted in the photovoltaic industry, the Group is the largest solar glass supplier in the world and the largest private utility-scale solar farm project owner in the PRC. In 2022, 100% of the Group's capital expenditure was invested in the PV industry to achieve the global goal of carbon neutrality, and 99.3% of the annual revenue was also from the PV industry. In 2022, the solar glass sold by the Group can be for usage in 103GW of PV modules worldwide, and the annual power generation of these PV modules can bring about 75,600,000 tonnes of carbon dioxide emission reduction worldwide. Meanwhile, the electricity generated by the solar farm projects held by the Group in 2022 can meet the green electricity demand of 1,830,000 households, representing a reduction of 3,640,000 tonnes of carbon dioxide emissions
- In terms of solar glass business, we adhere to "green procurement", "green production" and "green packaging" to reduce carbon emissions throughout the life cycle of solar glass products. At the same time, through continuous R & D investment, we provide new solar glass products with higher efficiency and lower carbon emission for global PV module enterprises
- In terms of solar farm business, we adhere to the concept of "not sacrificing the ecological environment and not destroying the ecological balance" for development, and operate and manage with the concept of "coexisting with society and environment". As of the end of 2022, 100% of the solar farm projects held by the Group are environmentally friendly, among which over 56% are fishery-PV and agriculture-PV complementary projects that can create higher environmental and social benefits

#### The Group strictly complies with laws and regulations and adheres to the principle of "zero tolerance" for any form of corruption

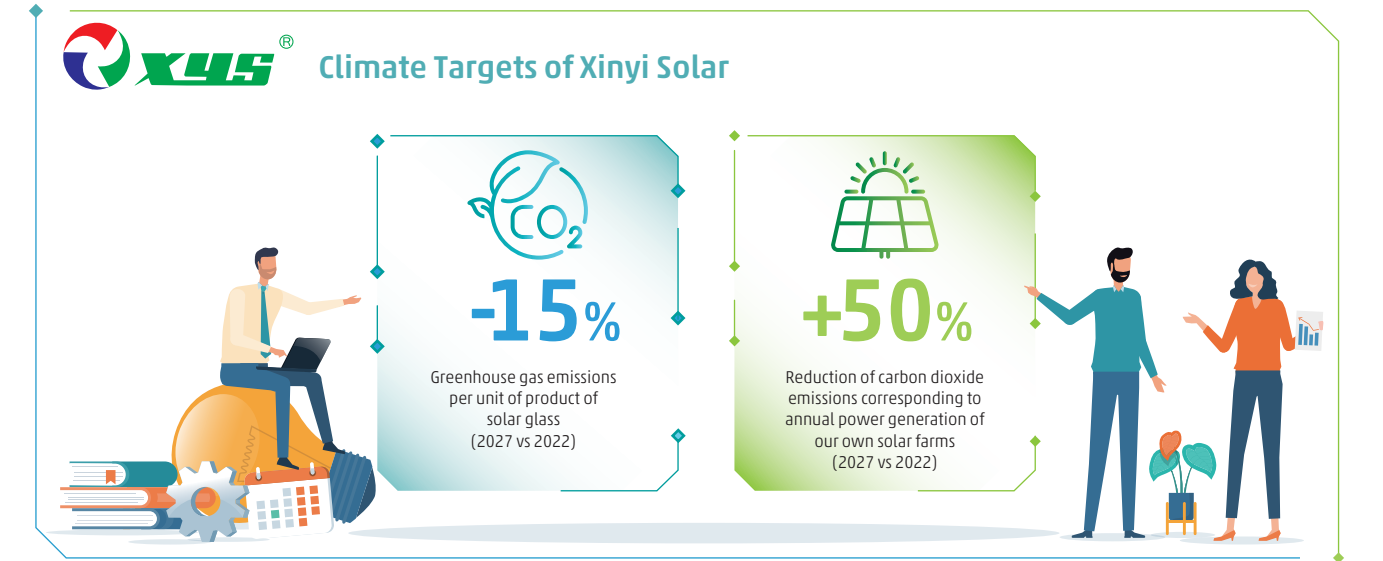
- Ensure the Group's own business and employees strictly adhere to the bottom line of integrity through the integrity management system
- By issuing the "Notification Letter on Integrity Management, Mutual Benefit and Win-win" to suppliers and other business partners, the Group has clearly defined 14 violations of integrity and honesty in business cooperation, and required all suppliers to sign integrity agreements and comply with the "Supplier Code of Conduct", and promised to strictly abide by laws and regulations in business transactions, and prohibit any forms of bribery

For more information on the Group's compliance with and implementation of the ten principles of the Global Compact in employee management and supplier management, please refer to the sections headed "Sustainable Supply Chain Management", "Employment Compliance", "Occupational Safety and Health", and "Diversity, Inclusion and Equal Opportunities" in this Report. For information on the Group's commitment to environmental protection as well as the environmental challenges and opportunities faced, please refer to the sections headed "A Lifetime Pursuit of Green Business" and "Climate Action" in this Report. In addition, the Group has also detailed its principles in integrity management, actions taken and reported on its effectiveness during the Year in the section headed "Anti-Corruption" on pages 110-111 of this Report.

### CLIMATE ACTION

The latest report by the United Nations Intergovernmental Panel on Climate Change (IPCC) notes that the burning of fossil fuels and unequal and unsustainable energy and land use have led to a sustained rise in global temperatures over the past century and are now 1.1 degrees Celsius above pre-industrial levels. This has led to more frequent and intense extreme weather events, putting nature and populations at risk in every region of the globe. In 2022, nearly a third of Pakistan was flooded; record-breaking heatwaves were observed in China, Europe, North and South America; persistent drought in Africa has led to a chronic food crisis. Extreme weather events caused by climate change has had a significant impact on the lives and health of millions of people and caused billions in losses over the past year.

Addressing climate change requires a fundamental transformation of energy and transportation systems, breaking dependence on fossil fuels and enabling a shift to renewable energy. As a leading enterprise in the photovoltaic industry, the Group has an unshirkable responsibility to fully support the global energy transition through the operation and development of its core business to achieve the goal of carbon neutrality and enhance its ability to cope with climate change. At the same time, the Group also expects that global actions to adapt to and mitigate climate change will bring great development space and opportunities to our two core businesses, so we would enhance our ability to adapt to and respond to climate change and enhance the climate resilience of our business at the core of the Group's sustainable development strategy.





## Governance Structure

The Group adopted the same structure as the sustainable governance for the governance of climate-related risks and opportunities. The Board is the highest governance body responsible for formulating the Group's climate strategies and policies, establishing internal mechanisms for climate management, and overseeing the management of climate-related affairs by the SDM Committee. The SDM Committee, under the supervision of the Board, guides and coordinates various business departments to ensure that the Group's climate strategy is incorporated into daily operations, monitors the progress of climate-related goals and actions, and reports regularly to the Board on the work and progress of climate-related issues. The ESG working group provides regular updates to the SDM Committee on the progress of climate actions, and climate goals, and the latest changes in the identified physical and transition risk parameters. The Group's internal audit team would submit an annual risk management and internal control report, which includes environmental and climate-related risk assessment and management to the Audit Committee every year. During the Reporting Year, the review results of the internal control and the Audit Committee's assessment to the results did not reveal significant deficiencies in the climate-related risk management and internal control systems.

## Climate Scenarios and Key Parameters

In accordance with the requirements of "Guidance on Climate Disclosure" issued by the Hong Kong Stock Exchange, the Group has disclosed the internal scenarios applicable to the Group's analysis and assessment of climate risks and opportunities for its own business development and the resilience of corporate development strategies in its 2021 ESG Report. The internal scenarios are based on the climate scenarios publicly available by the "Net Zero by 2050: A Roadmap for the Global Energy Sector" issued by the International Energy Agency ("IEA"), the IPCC Sixth Assessment Report Working Group I Report, and the Network of Central Banks and Supervisors for Greening the Financial System, which are neutral scenario, positive scenario (below 2°C scenario), and ideal scenario (1.5°C scenario), and put forward the main assumptions of the physical environment, socio-economic environment and energy environment in different scenarios. Specific assumptions about the internal scenarios can be found on pages 42 to 47 of the 2021 ESG Report. As the Group's principal business has not changed during the Reporting Year, after internal assessment, the established internal scenarios remain suitable for analysing and assessing the Group's climate risks and opportunities, as well as corporate strategic flexibility.

Based on the analysis of the above internal climate scenarios, the Group believes that the probability and impact of physical risks will decrease from neutral scenario to positive scenario and to ideal scenario, while the probability and impact of transition risks will increase. Therefore, the Group identified relevant physical risk parameters in neutral and positive scenarios and identified relevant transition risk parameters in positive and ideal scenarios:



	Neutral Scenario	Positive Scenario (<2°C scenario)	Ideal Scenario (1.5°C scenario)
<b>Physical Risk Parameters</b>	<ul style="list-style-type: none"> <li>Number of extremely hot days throughout the year</li> <li>Annual precipitation days (compared with annual power generation tracking)</li> <li>Number of extreme weather days throughout the year (typhoons, floods etc.) and direct economic losses, such as equipment replacement, insurance, etc.</li> <li>Baseline water pressure at the location of the business</li> </ul>		/
<b>Transition Risk Parameters</b>	/	<ul style="list-style-type: none"> <li>Carbon price (carbon trading price in China, carbon tax policies and prices in Europe and other regions)</li> <li>Global annual PV installations</li> <li>China's Industrial Energy Efficiency Control Policy (Industrial/Glass Manufacturing Energy Consumption Requirements)</li> <li>China's Environmental Management and Control Policies</li> <li>China's Energy Consumptions Management and Control Policies</li> </ul>	

## Major Climate Risks and Responding Actions

Based on neutral scenario, that is, based on the changes expected in the physical, socio-economic and energy environment under the currently announced climate policies, the Group identifies climate risks have a high probability of occurrence and have an impact on the Group's business and/or finances through a qualitative assessment based on historical data analysis, taking into account the combination of four aspects: likelihood, impact, adaptability, and resilience. In view of the following risks, the Group has taken corresponding countermeasures and actions, and has fully considered the resilience of response strategies under different climate scenarios. The financial impact section focuses on qualitative disclosure, and the part combines historical data to provide quantitative indicators in the form of case studies.


### Physical Risks

Physical risks caused damages to the Group's solar power generation equipment, affected the safety and health of employees or disrupted the delivery of services/products during the historical period of operation. During the past operation period, the physical risks that had a significant impact on the Group were mainly extreme weather and climate events such as typhoons, floods, heavy rainfall and thunderstorms, as well as long-term climate changes such as rising temperatures (increased extremely hot weather) and changes in precipitation patterns (increased rainy weather). Comparatively speaking, since the Group's production bases are located in the PRC (Wuhu City, Anhui Province, Zhangjiagang City, Jiangsu Province, Beihai City, Guangxi Autonomous Region, Tianjin Municipality) and Malacca, Malaysia, no production capacity is located in high/extremely high baseline water pressure areas, and about 95% or more of the water used for solar glass production can be met by recycled water, and the water consumption of the solar power generation is extremely low and the dependence on fresh water is low, so it has not encountered or expected to have a significant business and financial impact on the Group due to sea level rise and water resource stress.




According to the assumption of the physical environment under the neutral scenario, the global warming will reach 2°C by 2060, the frequency of extreme high temperature weather is several times to tens of times the present, and the intensity of extreme precipitation is significantly increased. Affected by climate change, the frequency and intensity of extreme weather and climate events will increase significantly, which is expected to have a more significant impact on the Group. The key impacts of physical risk on the Group's core businesses are summarised as follows:



Risk Level	Impact (probability of occurrence)	Specific Climate Risks	Potential Business Impacts	Possible Financial Effects	Climate Action
 <b>Acute Physical Risk</b>	Medium-high (Medium-high)  * The degree of impact and probability of occurrence decline from neutral scenario to positive scenario and to ideal scenario	<ul style="list-style-type: none"> <li>Increased frequency and intensity of extreme weather events such as typhoons, floods (caused by extreme precipitation), thunderstorms and rainstorms</li> </ul>	<ul style="list-style-type: none"> <li><b>Solar Farm Business:</b> <ol style="list-style-type: none"> <li>Potential damage to PV modules leading to failure of solar farms or affecting power generation efficiency</li> <li>Increasing operation and maintenance risks and affecting the safety and health of employees</li> <li>Possible impact on the progress of project development and construction</li> </ol> </li> <li><b>Solar Glass Business:</b> <ol style="list-style-type: none"> <li>Possible impact on logistics, affecting the supply of raw materials and product delivery</li> <li>Possible impact on project construction progress</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li><b>Solar Farm Business:</b> <ol style="list-style-type: none"> <li>Impairment of assets due to early retirement of equipment</li> <li>Increase in operating costs due to equipment failure</li> <li>Decrease in revenue due to the impact of power generation efficiency</li> <li>Increased capital expenditure, and the scale and timing of grid connection of new solar farm projects may also affect the revenue performance for the year</li> </ol> <p><b>Case studies</b> In 2022, the value of electricity lost due to extreme weather and climate events such as typhoons, thunderstorms and rainstorms was approximately HK\$200,000. In the most frequent year of extreme weather and climate events in the past 5 years, the loss of electricity value due to natural disasters was approximately HK\$11,280,000 in that year</p> </li> <li><b>Solar Glass Business:</b> <ol style="list-style-type: none"> <li>Increased transportation costs</li> <li>Increased capital expenditure and disruption to capacity expansion may also affect revenue performance for the year</li> </ol> <p><b>Case studies</b> In previous years of operation, extreme weather and climate events did not have a significant impact on the transportation of solar glass and project construction. Estimated based on average sales price and product mix in 2022, the output value of a 1,000-tonne production line was approximately HK\$1.0 billion. If the production line is delayed for one month due to extreme weather, the corresponding revenue will decrease by about HK\$86 million.</p> </li> </ul>	<ul style="list-style-type: none"> <li>Comprehensive assessment of the probability of occurrence and impact of climate risks with reference to historical data, full consideration of extreme weather risks in the design of solar farm projects, and adoption of PV modules and auxiliary materials with higher protection performance to improve the ability of solar farms to respond to extreme weather</li> <li>Centralised 24-hour remote monitoring through the electronic monitoring platform to effectively identify abnormal conditions for timely handling and reduce economic losses</li> <li>Control the inventory level of raw materials through the centralised procurement centre and make reasonable procurement arrangements to ensure sufficient inventory of raw materials, which is not affected by short-term extreme weather factors</li> <li>Improve the comprehensive transportation capacity of water and land transportation</li> <li>Improve the safety awareness of construction personnel to implement safe construction technical specifications and operating procedures through training, and strengthen construction quality, safety risk control and emergency response under extreme weather conditions</li> </ul>





Risk Level	Impact (probability of occurrence)	Specific Climate Risks	Potential Business Impacts	Possible Financial Effects	Climate Action
 <b>Long-term Physical Risks</b>	Low (Medium to High) * The degree of impact and probability of occurrence decline from neutral scenario to positive scenario and to ideal scenario	<ul style="list-style-type: none"> <li>Changes in precipitation mode (increase in rainfall)</li> <li>Increase in average temperature (increase in frequency of extreme high temperature weather)</li> </ul>	<ul style="list-style-type: none"> <li>Continuous rainy weather will lead to lower power generation during the period</li> <li>Under high temperature, workshop/outdoor working hours need to be controlled, and operation in high temperature environment may adversely affect the working efficiency and health of employees</li> </ul>	<ul style="list-style-type: none"> <li>Decrease in revenue</li> <li><b>Case studies</b> In 2020, the average annual precipitation in Anhui Province was forty percent more than that in normal years, which was the second highest in history. At that time, the installed capacity of the Group's power plants in Anhui Province accounted for more than 48%. Due to the extended rainy season in Anhui Province, the power generation of the Group's comparable power plants decreased by more than 20% year-on-year during the rainy season.</li> <li>Increase in costs (e.g. increase in electricity cost due to the use of air-conditioning and environmental protection equipment, increase in water cost due to high temperature resulting from water evaporation, and increase in labour cost due to flexible scheduling, provision of protective equipment and drugs, high temperature subsidies, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Accumulate historical data for site selection of new solar farms through horizontal comparison of power generation performance of different solar farm projects in different regions</li> <li>Improve the power generation efficiency of solar farms through efficient operation and maintenance to partially offset the impact of persistent rainy weather</li> <li><b>Case studies</b> In 2022, the completion rate of electricity generation target of the Group's grid-connected solar farm projects in operation exceeded 100%, which represents efficient operation and maintenance to effectively offset the negative impact of weather and the annual attenuation rate of components on electricity generation during the Reporting Year</li> <li>Formulate heatstroke prevention and cooling measures for high-temperature weather, including adjusting operation arrangements, controlling operation hours, and providing heatstroke prevention and cooling supplies and drugs to ensure the health of employees</li> <li><b>Case studies</b> In 2022, the Group had no work-related accidents due to high temperature</li> </ul>




### Transition Risks



The Group is a key player in the photovoltaic industry and both core businesses of the Group are in line with the global energy transition trend, and have a positive impact on achieving the carbon neutrality goal and enhancing the global ability to cope with climate change. Therefore, in the neutral scenario, the transition risk does not have a negative impact on the Group's core business operation and development. However, in the positive scenario (under scenario 2 °C) and the ideal scenario (1.5 °C scenario), the global energy transition brings considerable room for development to the Group's core business, and also puts forward higher environmental efficiency requirements for production and operation.

Therefore, the Group assesses the challenges that the transformation trends in policy, laws and regulations, technology, market and reputation may bring to the development of the Group's core business and identifies potential major risks based on positive scenario and ideal scenario. For the potential risks identified, the Group has adopted effective preventive/mitigation measures:




Risk Level	Specific Climate Risks	Trend of Influence Change (impact cycle)	Potential Business Impacts	Possible Financial Effects	Prevention/Mitigation Measures
 <b>Policies, Laws and Regulations</b>	<ul style="list-style-type: none"> <li>Carbon Emissions Trading (Carbon Price Increase)</li> </ul>	Increase (medium-to long-term)  * No impact under the neutral scenario, with the expected impact and probability of occurrence escalating from the positive scenario to the ideal scenario	<ul style="list-style-type: none"> <li>Currently, only the power industry in China is included in the national carbon trading market. In addition, among the 8 local carbon trading pilot markets, the Group only has 500 tonnes of production lines in Tianjin. However, as of the end of 2022, Tianjin production base did not need to participate in the local carbon trading market. The industry of solar glass is expected to be included in China's national carbon trading market in the foreseeable future. However, provided that the Group's carbon intensity remains at the leading level in the industry and the annual decline is not less than 2%, the inclusion in the carbon trading market would not have a substantial impact on the business</li> <li><b>Case studies</b> The Group's Wuhu production base has submitted the corporate greenhouse gas emission report for the previous year during the Reporting Year. During the Reporting Year, the carbon intensity of the Group's solar glass products (in tonnes) decreased by 6.4% year-on-year, which was much higher than the requirement of carbon intensity reduction for carbon emission trading. Therefore, there was no need to purchase additional carbon emission quota</li> <li>Under the ideal scenario, the IEA expects that China's carbon cost may rise to USD 200/tonne by 2050 (the average trading price of China's carbon emission quota during the Year is only RMB 55.3/tonne in 2022), therefore, based on the assumption of future carbon price rise, the Group must take more active measures to ensure that the annual carbon intensity decline is not less than 2% or achieve decarbonisation production through the research and development of furnace technology</li> </ul>	<ul style="list-style-type: none"> <li>No substantial financial impact is expected under the current regime</li> <li>Under the ideal scenario, an increase in the requirement for carbon intensity or a change in the free carbon emission quota mechanism may lead to an increase in research and development costs, capital expenditures (technological transformation to low-carbon/decarbonisation furnaces) or an increase in production costs (carbon costs) if the decarbonisation production of furnace is not successful</li> <li><b>Case studies</b> If the solar glass industry is included in China's national carbon trading market and assumes that the free carbon emission quota is cancelled, it is estimated that the carbon cost for the Group will increase by RMB 180 million, taking into account the carbon emission of the Group's production bases in China and the average trading price of carbon emission quota in China in 2022.</li> </ul>	<ul style="list-style-type: none"> <li>The Group has set up a carbon management team in 2021 to improve the Group's carbon emission management and collect the Group's carbon emission data for the purpose of setting a science-based carbon reduction target (SBTi) in the future</li> <li>Improve production efficiency and yield rate, and reduce unit carbon emissions. In 2022, the carbon intensity of solar glass products decreased by 13.3% year-on-year in terms of square metres and 6.4% year-on-year in terms of tonnes, by far exceeding the reduction requirement in carbon intensity in the carbon trading market</li> <li>Put forward a new 5-year carbon intensity reduction target in 2022 (15% reduction by 2027) and set up an incentive mechanism to motivate staff from the management to the technical team to strive for better carbon intensity performance</li> <li>Explore the feasibility of low-carbon/decarbonisation furnace technology (such as the use of hydrogen) and increase research and development efforts</li> </ul>




Risk Level	Specific Climate Risks	Trend of Influence Change (impact cycle)	Potential Business Impacts	Possible Financial Effects	Prevention/Mitigation Measures
 <p>Policies, Laws and Regulations</p>	<ul style="list-style-type: none"> <li>Strengthen energy efficiency and environmental control</li> </ul>	<p>Increase (short-to medium-term)</p> <p>* Expected impact and probability of occurrence escalating from neutral scenario to positive scenario and to ideal scenario</p>	<ul style="list-style-type: none"> <li>China implements a dual control system for energy consumption, requiring each province to reduce energy consumption per unit of GDP during the "14th Five-Year Plan" period. As solar glass is a high energy-consuming industry, the addition of solar glass production capacity is restricted by the energy consumption quotas of different provinces</li> <li>China has strengthened its control over the production capacity of the solar glass industry, requiring all new solar glass production lines to undergo expert hearings starting from 2022, ensuring that the project is advanced in terms of economic, technological and environmental indicators</li> <li>Both Anhui Province and Tianjin City have issued more stringent air pollutant emission standards in 2022. The emission quotas restrict the application for new production capacity. The annual emission quotas require solar glass manufacturers to strengthen air pollutants treatment to reduce emissions</li> </ul>	<ul style="list-style-type: none"> <li>Increase in capital expenditure (environmental protection equipment, etc.)</li> <li><b>Case studies</b> In 2022, a number of production bases were equipped with new backup environmental protection equipment to ensure the stable operation of environmental protection equipment and the air pollutants not exceeding the annual emission limit. The relevant equipment involved capital expenditure of HK\$2,000,000</li> <li>Increased uncertainties in capacity expansion plans and longer ramp-up cycles may affect the expected revenue performance</li> <li><b>Case studies</b> Estimated based on the average market price and product mix in 2022, assuming that new production capacity cannot be added as scheduled due to energy consumption/emission quota restrictions, every reduction in the launch of a 1,000-tonne production line will reduce the Group's annual revenue by HK\$1 billion</li> <li>Increase in costs (such as operation of environmental protection equipment, increase in market price of electricity and raw materials)</li> </ul>	<ul style="list-style-type: none"> <li>The Group has overseas production capacity expansion experience, which is not subject to policy control in China in the long run. It has planned to add 2 production lines of 1,200 tonnes/day each in Malaysia, which are expected to commence production in 2024</li> <li>The Group's performance in energy efficiency and environmental protection has maintained at industry-leading level, and the intensity indicators have decreased year on year. Therefore, the Group has advantages over its peers when competing for quotas of new production capacity. It can also maintain its advantages through applying continuous energy conservation and emission reduction measures in the future</li> <li>The reserve capacity is sufficient, and the reserve capacity available for future expansion exceeds 12,000 tonnes/day</li> </ul>
 <p>Technology</p>	<ul style="list-style-type: none"> <li>Transforming to lower emission technology</li> </ul>	<p>Increase (medium-to long-term)</p> <p>* No impact under the neutral scenario, with the expected impact and probability of occurrence escalating from the positive scenario to the ideal scenario</p>	<ul style="list-style-type: none"> <li>Under the ideal scenario, carbon dioxide emissions generated in the global energy-related and industrial processes will decrease by 40% in the next 10 years. Therefore, it may require the current high-energy consumption industries to reduce carbon emissions as soon as possible by increasing R &amp; D investment</li> <li>At present, the production technology of solar glass furnaces still quite relies on fossil fuels. Therefore, if the policy becomes stricter, the Group may need to increase investment in research and development and change the production technology to achieve decarbonisation production. Based on the current price of hydrogen and the consideration of production safety, it is not yet possible to use hydrogen as the main fuel in the commercial production of solar glass</li> </ul>	<ul style="list-style-type: none"> <li>Increase in research and development costs</li> <li>Increase in capital expenditure (e.g. replacement of old production capacity with new furnaces)</li> <li>Impairment of assets (early elimination of existing production lines/equipment)</li> </ul>	<ul style="list-style-type: none"> <li>The Group is the only enterprise in the solar glass industry with its own research institute, and is the industry leader in both technology and new product research and development. Therefore, even if the transformation to lower-carbon technology is needed in an ideal scenario, the risk will be lower than that of its peers, and it is more likely to achieve technological breakthroughs ahead of its peers</li> </ul>



Risk Level	Specific Climate Risks	Trend of Influence Change (impact cycle)	Potential Business Impacts	Possible Financial Effects	Prevention/Mitigation Measures
 <b>Market</b>	<ul style="list-style-type: none"> <li>Full life cycle carbon emission management of photovoltaic products (EU carbon tariff, low-carbon photovoltaic modules)</li> </ul>	Increase (short-to medium-term) * Expected impact and probability of occurrence escalating from neutral scenario to positive scenario and to ideal scenario	<ul style="list-style-type: none"> <li>The European Union plans to commence trial implementation of the Carbon Border Adjustment Mechanism (CBAM) in 2023 and officially levy it in 2026. Although the initial planning of CBAM focuses on the high-carbon emission industry, it is expected that the coverage of the industry will be expanded according to the amount of industrial carbon emission. The photovoltaic industry is likely to be included in the future due to its high electricity consumption. With the implementation of the European Union's carbon tariff, it is expected that more regions will follow and put forward similar policy</li> <li>France sets requirements for carbon emissions of PV modules in public tenders, with a minimum carbon footprint of 750 kg CO<sub>2</sub>/kW. In addition, the French Energy Management Commission has proposed the requirement of using low carbon footprint PV modules for distributed projects, i.e. PV modules less than 550 kg CO<sub>2</sub>/kW. In the Asian market, the Korean government has taken the lead in proposing a carbon certification system for photovoltaic modules, which is believed that it may be expanded to other Asian countries in the future</li> </ul>	<ul style="list-style-type: none"> <li>Increasing costs (such as reducing carbon footprint, may be more inclined to use green electricity, driving up the price of green electricity. Increase the carbon cost of exporting products after the EU's carbon tariff mechanism is incorporated into the photovoltaic industry</li> <li>Increase research and development costs (low-carbon/decarbonisation furnace technology, low-carbon products)</li> </ul>	<ul style="list-style-type: none"> <li>By continuously reducing the unit energy consumption and electricity consumption, improving yield rate, increasing the proportion of distributed photovoltaic power generation and residual heat power generation in the total electricity consumption of solar glass production, the carbon intensity per unit of product was effectively reduced. Given that the Group's carbon emission intensity is far below the industry average, if module manufacturers raise the carbon intensity requirement for solar glass products in the future, it will further enhance the competitiveness of the Group's products</li> <li><b>Case studies</b> Calculated based on the French carbon footprint requirement for low-carbon PV modules (less than 550 kg CO<sub>2</sub>/kW). Based on the carbon intensity performance of the Group's solar glass products in 2022, the carbon emission from solar glass production only accounts for 5% and 10% of the carbon footprint of PV modules in single and double-glass modules, respectively. Therefore, solar glass is not the main source of the carbon footprint of PV modules</li> <li>The Group has also gradually expanded its production to provinces with cleaner power and energy structure. For example, the Group plans to expand its production in Yunnan Province. More than 80% of the local electricity supply comes from renewable energy, which also helps in the carbon footprint certification of its products.</li> <li>The Group has been leading the industry in the research and development of furnace technology and low-carbon products during the historical operating period. As the Group is the only enterprise in the industry with its own research institute, it is expected that it will continue to maintain its advantages in research and development of technologies and products in the future</li> </ul>





Risk Level	Specific Climate Risks	Trend of Influence Change (impact cycle)	Potential Business Impacts	Possible Financial Effects	Prevention/Mitigation Measures
 <b>Reputation</b>	<ul style="list-style-type: none"> <li>Trade disputes</li> </ul>	<p>Increase (short-to medium-term)</p> <p>* Expected impact and probability of occurrence escalating from neutral scenario to positive scenario and to ideal scenario</p>	<ul style="list-style-type: none"> <li>Climate change drives the global enthusiasm for investment in renewable energy. Countries have also strengthened the protection of local enterprises, with an aim to promote the development of local solar manufacturing industry. However, as the production capacity located in China or owned by Chinese manufacturers has already accounted for more than 99% of the global solar glass production capacity, there will be no actual impact on the operation</li> </ul>	<ul style="list-style-type: none"> <li>Increase in selling expenses (e.g. imposing trade tariffs)</li> <li>Increase capital expenditure (accelerate overseas production expansion)</li> </ul>	<ul style="list-style-type: none"> <li>As over 99% of the global solar glass production capacity is located in China or is under Chinese manufacturers' control, even with the imposition of trade tariffs, it would not be fully borne by solar glass manufacturers and there is a high probability that it will be passed on to customers. In addition, the Group has overseas production bases and overseas production capacity, which can effectively diversify the risks and reduce the impact of trade disputes. At the same time, the increasing uncertainty in the trading environment will significantly increase customers' demand for non-China product supply, thereby further enhancing the competitiveness of the Group's overseas production bases. During the Reporting Year, the Group supplied the market that imposed tariffs on China through its Malaysia production base, and therefore no tariff expenses were incurred</li> </ul>



## Climate Opportunities

IEA stated in the World Energy Outlook 2022 (World Energy Outlook 2022) that the global energy crisis caused by the war in Russia has shown that the current global energy system is neither solid nor sustainable. The IEA rejected the view that climate policies and net zero emission commitments have led to rising energy prices and pointed out that among the most affected areas, the higher proportion of renewable energy, the lower the tariff. The IEA believes that the measures taken by governments in response to the energy crisis and the long-term measures implemented will help promote the global annual clean energy investment to 50% higher than the current level by 2030, which will accelerate the formation of a clean energy economy.

In the World Energy Outlook 2022, IEA divided the three climate scenarios based on different assumptions of government policies, of which the 2050 Net Zero Emission scenario ("NZE") proposed a plan to stabilise the global average heating up to 1.5 °C and achieve the popularisation of modern energy by 2030. Due to the new national commitments, industry-specific commitments and corporate commitments in 2022, IEA believes that annual CO<sub>2</sub> emissions are expected to peak at a faster pace and decrease at a faster pace after peak, which is much larger than the emission reductions forecasted by the IEA in 2021. In order to fulfil the climate commitments of various countries, the globe needs to take effective actions, including clean power investment, power grid modernisation, energy-related carbon dioxide emission reduction and power cost reduction, in order to accelerate the construction of a safer, more sustainable and more affordable energy system in the key ten years starting from now. As a result, under the optimised NZE scenario in 2022, the IEA expects that the CAGR of newly installed solar PV capacity will exceed 21% during the period from 2021 to 2030, which is higher than its assumed 16.74% under the 2021 NZE scenario.

If the Group maintains the current market share and does not take into account the positive impact on the demand for solar glass due to the increase in the penetration rate of thin glass, the CAGR of the daily melting capacity of the Group from 2021 to 2030 needs to be consistent with that of the global new solar photovoltaic installation, and the daily melting capacity of the solar glass production line needs to increase from 13,800 tonnes at the end of 2021 to 76,000 tonnes or above at the end of 2030, representing approximately 3.8 times of the daily melting capacity (19,800 tonnes/day) at the end of 2022. As the Group hopes to capture the growth in global PV installation demand and continue to increase its market share, assuming that our market share increases to 40% or above, and taking into account the positive impact of the increase in thin glass penetration on the demand for solar glass, the Group's daily melting capacity needs to increase to over 85,000 tonnes by the end of 2030, representing a CAGR of approximately 22.5%.

Due to the urgency of solving the energy crisis and the current progress of climate action has significantly fallen behind expectations, the global temperature by the end of 2022 has been 1.1 °C higher than the pre-industrial level. If no action is taken immediately, it will miss the last window to ensure that everyone enjoys a livable and sustainable future. Meanwhile, China is also actively promoting the realisation of its "dual carbon" goal, it is expected that the control of energy consumption will be more stringent. The production capacity expansion of high energy consumption industries, including solar glass, in China will face a more severe regulatory environment in the future. Taking into account the new policies and measures in response to climate change and energy crisis in various countries, as well as the trend of regulatory policies on solar glass production capacity in the places where our principal businesses are located, we believe that the "14th Five-Year Plan" will be a key growth period for the solar glass industry.

The Group has adopted a proactive capacity expansion plan since 2020, increasing the total daily melting capacity from 7,800 tonnes at the end of 2019 to 19,800 tonnes at the end of 2022, representing a CAGR of over 36%. The Group will continue to maintain a proactive production expansion plan to achieve a faster growth in scale than the growth of global newly installed capacity. In 2023, the Group plans to add 7 new solar glass production lines with a daily melting capacity of 1,000 tonnes in Wuhu City, Anhui Province and Zhangjiagang City, Jiangsu Province, with a total daily melting capacity expected to increase to 26,800 tonnes by the end of 2023. In addition, as the overseas countries and regions, including the European Union and the United States, are determined to improve the supply capacity of local photovoltaic modules in response to climate change, and the trade policies in the relevant regions are highly volatile. In order to further enhance the flexibility of the Group to cope with the increasing uncertainties in the trade environment, the Group plans to add 2 new production lines of 1,200 tonnes/day in Malaysia, which are currently under construction and are expected to commence production in the first half of 2024.

In order to promote the realisation of the "dual carbon" goal, China strongly supports the development of renewable energy and promotes the further optimisation of energy structure. At the same time, China is also actively promoting the low-carbon transformation of the industry and improving the level of electrification. Therefore, end-users' demand for green electricity, including photovoltaic power, has increased rapidly. By expanding the scale of green electricity participation in market-oriented trading and continuously improving market-oriented measures such as green power trading and green certificate trading mechanism, the environmental value of green power will be fully released. During the Reporting Year, the proportion of electricity generated from the Group's participation in the trading of renewable energy remained low, but the proportion of participation in grid-parity projects will increase significantly in 2023. From the perspective of the transaction price of all projects participating in market-based transactions in 2022 and 2023, the transaction price was higher than the local benchmark desulfurisation coal-fired power price, with an increase of more than 9%. Therefore, for the Group's solar farm business, end consumers' recognition of the environmental value of green electricity and the increasing demand for green electricity are expected to continuously enhance the revenue and continuous cash flow of the projects in the future.

In the past, the Group has successfully accumulated advantages in research and development, technology, products and cost control in the solar glass business, and has established and continuously improved the advantages in development, construction and operation cost control in the solar farm business. Therefore, although the photovoltaic industry has been facing challenges in recent years due to the policies and mismatch of supply capacity in different aspects of the industry chain, as photovoltaic power generation is the key to the success of global climate action, the Group, as a global leader in the solar glass industry and a leading solar farm project owner in China, will keep in mind the corporate mission of "Leading Green New Energy", unswervingly implement the strategy of active solar glass production capacity expansion and steady PV installation scale improvement, and also believe that it can seize the opportunities brought by climate change and achieve dual growth in scale and efficiency.

# A LIFETIME PURSUIT OF GREEN BUSINESS

# A LIFETIME PURSUIT OF GREEN BUSINESS

Xinyi Solar focused on the PV industry and is now the world's largest solar glass manufacturer and China's largest private utility-scale solar farm developer and owner. The Group adheres to its corporate mission of "leading green new energy". In addition to contributing to the promotion of global energy transition through its own products, solar glass and green electricity, the Group is also committed to finding a sustainable path with greater environmental benefits, less resources consumption and lower carbon footprint for solar glass production through R&D and exploration in its production and operation, constructing a roadmap for solar farm development that allows "coexistence with society and the environment", so as to push forward the realisation of a full life cycle of green development for the PV industry.

**100%**

Proportion of capital expenditure invested in the PV industry

**99.3%**

Green revenue percentage

Down **13.3%** **3.64 million tonnes**

Intensity of greenhouse gas emission of solar glass products

Reduction of CO<sub>2</sub> emission contributed by PV power generation

## Key Areas and Objectives

### Journey to Green Production of Solar Glass

**Energy saving:** Reduce energy consumption intensity, water consumption intensity and other resources (such as packaging materials) per unit of finished solar glass products to achieve efficient use of resources

**Emission reduction:** Strive for greenhouse gas emissions, air pollutants emissions, hazardous and non-hazardous waste treatment and sewage discharge that are better than national and local standards, and reduce the unit emissions of various types of emissions year by year

**Protection of biodiversity:** Strictly abide by the requirements of local laws and regulations, stick to the red line of ecological protection, clarify the animal and plant resources and environmental quality conditions in the region by preparing and submitting an environmental impact report, formulate effective environmental management and monitoring plans, ensure that construction and operation do not involve the red line area of ecological protection and will not reduce the original functional level of regional environmental quality

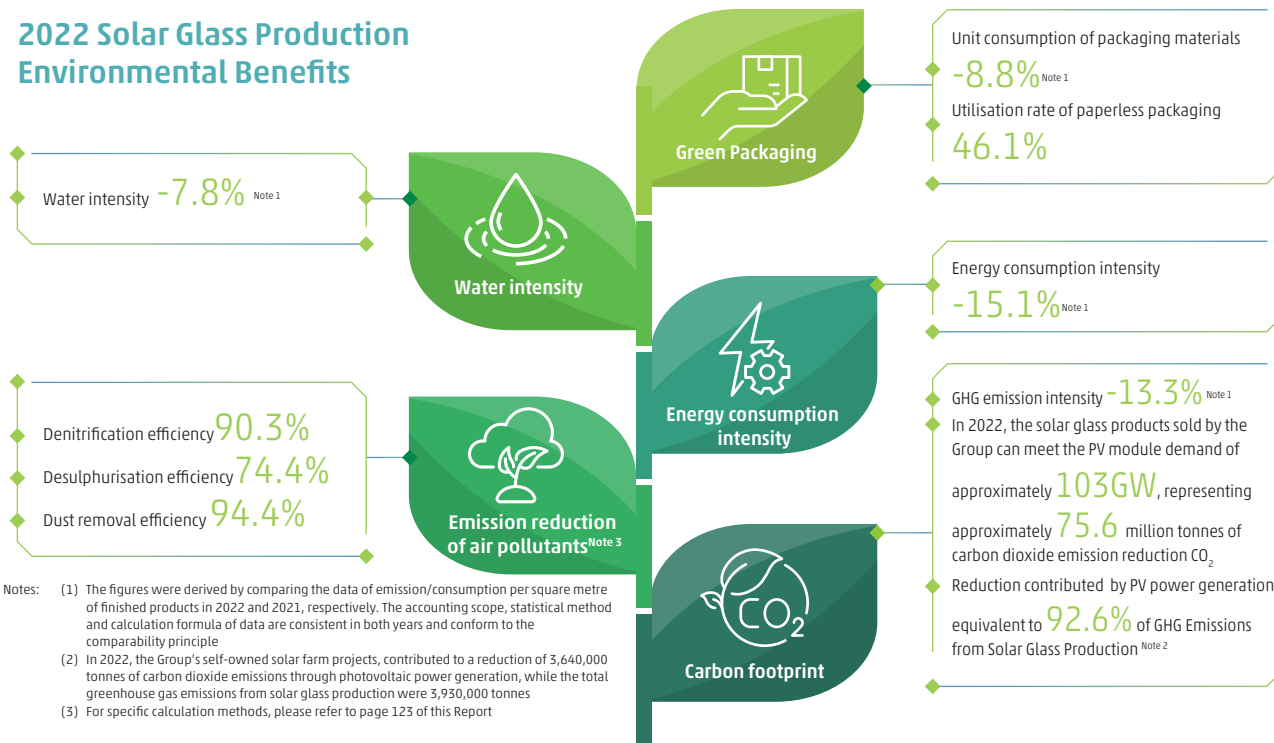
### A Win-win Development Model of Solar Farms

Continuously increase the installed capacity of solar farms to achieve continuous growth in annual carbon reduction. Insist on building environmentally friendly solar farms. During development and construction, local natural resources and biodiversity will be protected, and social benefits are placed in the same or more important position than economic benefits, in a bid to maximise the ecological, social and economic benefits of solar farm projects



## JOURNEY TO GREEN PRODUCTION OF SOLAR GLASS

### 2022 Solar Glass Production Environmental Benefits



### Environmental Compliance

The Group complies with the environmental laws and regulations of the countries and regions in which it operates, and has established and continuously optimised its internal environmental responsibility management system in compliance with the ISO14001 environmental management system standard. The Group has obtained the green finance pre-issuance stage certificate issued by the HKQAA in 2019. Subsequent additions of the solar glass production sites also implement the same environmental management and protection practices, and therefore all the solar glass production bases of the Group in operation met the requirements of the HKQAA's Green Finance Certification Scheme during the Reporting Year.

The Group has established PV environmental protection office, which is responsible for coordinating and managing all environmental management-related activities in the production of solar glass. The PV environmental protection office updates the ESG working group on a quarterly basis on the performance of environmental-related core indicators, and proposes feasible proposals for the optimisation and improvement of the core indicators to assist the SDM Committee in monitoring the environmental management-related work of solar glass business. The Group has also established the position of environmental protection officer to maintain good communication with environmental protection regulatory authorities and keep abreast of the latest environmental protection policies and regulatory requirements to ensure that all environmental protection indicators are in compliance with national and local standards. The Group also undergoes regular external audits by certification bodies (e.g. TÜV SÜD) to ensure that the Group's environmental management system continues to meet international standards.

### Green Production Base

As solar glass production involves the consumption of energy (natural gas and electricity), water resources, raw materials (such as soda ash, ultra-clear silica sand) and other resources (such as packaging materials, wood, paper and plastic strips etc.), the production processes generate greenhouse gases, air pollutants, hazardous and non-hazardous wastes and sewage and other pollutants. During the Reporting Year, the standard environmental protection facilities and the environmental protection practices implemented at the Group's solar glass production bases were as follows:



Environmental goals	Environmental facilities/ Environmental practices	Specific environmental performance indicators
 <b>Reduce greenhouse gas emissions</b>	Use of clean energy (natural gas)	To reduce Scope 1 greenhouse gas emissions
	Residual heat power generation equipment to reduce purchased electricity <sup>note 1</sup>	To reduce Scope 2 greenhouse gas emissions
 <b>Reduce air pollutants</b>	Rooftop distributed PV power generation system to reduce purchased electricity <sup>note 1</sup>	To reduce Scope 2 greenhouse gas emissions
	Desulphurisation device	To reduce SO <sub>2</sub> emissions
 <b>Improve utilisation of water resources</b>	SCR denitrification device	To reduce NO <sub>x</sub> emissions
	Electrostatic precipitator	To reduce particulates emissions
 <b>Improve resources efficiency</b>	Water recycling system (sewage treatment and recycling system)	To reduce new water intake by using recycled water in production
	Regular maintenance and energy-saving upgrades	To reduce energy and resources consumption per unit of finished products by improving production efficiency and yield rate
 <b>Effective waste management</b>	Waste recycling facilities	To reduce hazardous and non-hazardous waste emissions

Note:

(1) Purchased electricity is mainly coal-fired power, which causes greater environmental pollution









## Energy Management

According to the definition of direct energy consumption accounting scope in the Hong Kong Stock Exchange's "Reporting Guidance on Environmental KPIs", the Group's direct energy consumption mainly includes fuel used in the production of solar glass, electricity generated from residual heat power generation system and distributed PV generation equipment and used for solar glass production, and diesel used in forklifts and gasoline used in motor vehicles. Indirect energy consumption mainly includes purchased electricity used in the processing, stacking, transportation and loading processes. During the Reporting Year, the Group effectively reduced the initial carbon intensity of solar glass products and to continuously improved energy efficiency in the production process mainly by adopting the following measures:



Measures	Environmental benefits of the relevant measures	Performance in 2022
 Use natural gas as the primary source of energy	Heavy oil and natural gas are the two most commonly used production fuels in solar glass production. With the same amount of calorific value provided to the furnaces, the carbon emission of natural gas is 27% <sup>Note 1</sup> lower than that of heavy oil. To effectively reduce initial carbon intensity of solar glass products, the Group has chosen natural gas as its primary production fuel	<ul style="list-style-type: none"> <li>The Group continued to use natural gas as its primary production fuel during the Reporting Year</li> <li>Scope 1 greenhouse gas emissions per unit of finished goods (calculated by square metres) decreased by 11.0% year-on-year</li> </ul>
 Replace diesel forklifts with electricity forklifts	The use of electric forklifts instead of diesel forklifts can reduce the amount of diesel used in the production process, thus reducing air pollutants and Scope 1 greenhouse gas emissions	<ul style="list-style-type: none"> <li>Diesel consumption at Beihai plant decreased by 14.7% year-on-year during the Reporting Year</li> <li>Nitrogen oxides (NO<sub>x</sub>) emissions and Sulphur dioxide (SO<sub>2</sub>) emissions at Beihai plant decreased by 43.7% and 27.7% year-on-year, respectively</li> </ul>
 Provide part of the electricity for its production through residual heat power generation and rooftop distributed PV power generation	Reduce the use of purchased electricity, which will in turn reduce Scope 2 greenhouse gas emissions	<ul style="list-style-type: none"> <li>By increasing daily melting capacity and optimising residual heat power generation equipment, the total power generation from residual heat increased by 45.3% year-on-year during the Reporting Year, accounting for 20.3% of the Group's total electricity consumption for solar glass production</li> <li>Installed capacity of rooftop distributed PV power generation at Wuhu production base increased. The Group's total power generation from distributed PV power generation increased by 39.6% year-on-year during the Reporting Year, accounting for 8.6% of the total power consumption for solar glass production</li> </ul>
 Energy-saving renovation of production equipment and optimisation of production process, furnaces and production lines	Reduce natural gas consumption and power consumption of production lines by such measures as retrofitting production and environmental protection equipment in the deep-processing procedures, improving equipment efficiency, reducing equipment use frequency and optimising process parameters  Improve yield rate and reduce energy consumption intensity of products through conducting R&D on continuous optimisation of production processes, furnaces and production lines	<ul style="list-style-type: none"> <li>During the Reporting Year, all production bases have implemented various measures to increase energy efficiency. Such measures can save approximately more than 23 million kWh and 5.70 million m<sup>3</sup> of natural gas every year when in full operation. The saving of energy costs, increase in yield rate and reduction of waste loss have brought economic benefits of more than RMB35 million to the Group</li> </ul>

Note: (1) Calculated by using the unit calorific value of natural gas of 9,000 kcal/m<sup>3</sup> and unit calorific value of heavy oil of 9,600 kcal/L

**Case studies** More than ten energy saving and emission reduction measures were implemented at Wuhu production base during the Reporting Year. One of such measures was the optimisation and renovation of furnace of one of the production lines. After renovation of the furnace, the natural gas consumption per unit of solar glass product decreased by 2.5%, and yield rate of raw glass increased by 2 percentage points. Such measures are expected to bring economic benefits of over RMB9.6 million to the Group when in full operation. During the Reporting Year, clean energy and renewable energy accounted for 99.92% of the Group's total direct energy consumption in solar glass production, purchased electricity as a percentage of total energy consumption decreased from 12.7% to 11.9%, intensity of energy consumption of solar glass products significantly decreased by 15.1% year-on-year to 16.74 kWh/m<sup>2</sup>, achieving the green production target of less energy consumption and lower carbon intensity.

## Water Resources Management

The solar glass production processes, such as raw material mixing, equipment cooling, residual heat generation, as well as washing and cleaning during the tempering process, all require water resources. Through measures such as continuous optimisation of the sewage recycling and treatment system ("**water recycling system**"), increasing the frequency of use of sewage treatment equipment and regular cleaning of sewage tanks, we ensure that the recycled water after treatment by the water recycling system meets the water requirements of production equipment, thus maximising the use of recycled water in production. During the Reporting Year, as some of the furnaces are under cold repair, and water recycling at new production bases and new production lines was not stable during the initial stage of operation, the utilisation rate of recycled water declined to 94.6%. The Group will continue to strive to improve the efficiency and purification capacity of the sewage treatment system in the future, with the goal of increasing the utilisation rate of recycled water in some processes to 100%, so as to achieve the long-term goal of "zero waste except normal evaporation and sedimentation tank loss".

As the Group's water recycling rate has been maintained at a relatively high level, an average of 95% or more of the production water in the past three years has been met through recycled water, so the dependence on fresh water (mainly tap water supplied by water plants) is low. In addition, the Group is not currently facing or foreseeing the risk of water resource acquisition pressure and shortage as it has no production base located in areas with high/extremely high baseline water stress. Nevertheless, the Group is still actively adopting various water-saving measures to further reduce the water consumption intensity of solar glass products, thereby enhancing its ability to resist water resource risks. **Case studies** During the Reporting Year, by adopting effective water-saving measures, the Group has achieved an annual water saving of more than 480,000 tonnes. After deducting the renovation costs, it is expected to bring economic benefits of more than RMB 1.3 million each year after full operation. During the Reporting Year, industrial water intake increased only 10.2% at Beihai production base despite an increase of approximately 14% of deep processing output through strengthening water consumption management and renovating water supply equipment. Meanwhile, upon renovation, sewage discharge decreased remarkably. It is estimated that after a full year of operation, the annual sewage discharge can be reduced by more than 130,000 cubic meters, thereby reducing the pressure on sewage treatment. During the Reporting Year, water consumption intensity of solar glass products decreased by 7.8% year-on-year to 0.015 cubic meters per square meter, achieving efficient use of water resources.



### Emission and Treatment of Greenhouse Gas and Other Pollutants

The major greenhouse gas generated during the production of solar glass is carbon dioxide, which is mainly generated from direct emissions (Scope 1) as a result of natural gas combustion and raw material decomposition as well as indirect emissions (Scope 2) as a result of the consumption of purchased electricity. Measures to reduce Scope 1 greenhouse gas emissions per unit of finished goods include: i) choosing the cleanest production fuel (natural gas) within the realm of available technology, leading to less initial CO<sub>2</sub> emission concentrations than using heavy oil; ii) continuously improvement of production processes through optimisation of production lines and equipment to increase production efficiency and yield rate; and iii) replacing diesel forklifts with electric forklifts. Measures to reduce Scope 2 greenhouse gas emissions per unit of finished goods include: i) using residual heat generated electricity and PV distributed power generation to fulfil part of the electricity demand for production; ii) continuously optimising the furnace melting process to enhance residual heat power generation; and iii) adopting more efficient energy saving measures to reduce the electricity consumption of deep-processing section. During the Reporting Year, the Group's Scope 1 and Scope 2 greenhouse gas emissions per square metre of solar glass products decreased by 11.0% and 19.8% year-on-year, respectively. The comprehensive greenhouse gas emissions intensity of solar glass products were 5.69 kilograms of carbon dioxide equivalent/square metre.

**Case studies** As the greenhouse gas emissions from energy consumption accounted for more than 81% of the comprehensive greenhouse gas emissions from solar glass production, the Group has finally achieved the goal of reducing the greenhouse gas emission intensity of solar glass production by actively adopting energy-saving measures. During the Reporting Year, the production bases of the Group implemented a total of more than 20 energy-saving and emission-reduction measures. By reducing the consumption of natural gas and purchased electricity, it is estimated that more than 28,000 tonnes of carbon dioxide emissions can be reduced per year after full-year operation.

In addition to greenhouse gas emissions, the Group has identified the major pollutants generated during the solar glass production process and classified them as follows:

- (i) Air pollutants: SO<sub>2</sub>, NO<sub>x</sub> and particulates (smoke and dust) are generated as a result of the feeding and mixing of raw materials and the consumption of natural gas, electricity and water in melting raw materials. Among them, SO<sub>2</sub> and NO<sub>x</sub> are mainly generated from the melting process, and particulates are generated from various processes from feeding of raw materials to packaging of finished products
- (ii) Sewage: Production sewage that cannot be recycled after being recycled several times in the production process, and domestic sewage generated by employees for domestic use
- (iii) Solid wastes: Major hazardous wastes, such as discarded packaging barrels, denitrification catalysts, oil sludge, waste mineral oil and discarded chemical reagent; as well as major non-hazardous wastes, such as desulphurisation gypsum collected by environmental protection facilities, ash and dust, sludge generated after sedimentation of production sewage, discarded raw material ash, construction waste and broken glass and discarded packaging materials generated from production process
- (iv) Noise: Mainly generated from wind turbines used in raw material feeding, mixing, melting, calendaring and annealing processes as well as residual heat generators







Regarding the major pollutants identified, the Group strictly complies with the requirements of the national and local environmental protection-related laws and regulations in the countries where it operates, and adopts the following treatment techniques, disposal methods and monitoring measures under the supervision of local environmental protection regulatory authorities. During the Reporting Year, Anhui Province promulgated new emission standards of air pollutants for the glass industry, tightening the emission quota of SO<sub>2</sub>, NO<sub>x</sub> and particulates to 100mg/m<sup>3</sup>, 200mg/m<sup>3</sup> and 10mg/m<sup>3</sup>, respectively, and requiring new enterprises to implement such standards from 2022 onwards and existing enterprises from October 2024 onwards. New local air pollutants emission standards were implemented in Tianjin Province since October 2022, requiring that the intensity of emission of SO<sub>2</sub>, NO<sub>x</sub> and particulates to be limited to 50mg/m<sup>3</sup>, 200mg/m<sup>3</sup> and 10mg/m<sup>3</sup>. The provincial and local emission standards for other production bases remained the same as in 2021.

**Case studies** In 2022, Wuhu production base reduced initial emission concentration of air pollutants through energy-saving transformation of the kiln to reduce exhaust gas emissions. At the same time, through measures such as standard improvement, regular maintenance, inspection and replacement of environmental protection equipment as well as addition of spare equipment, the Group ensured the stable operation of environmental protection equipment during the Year. Desulphurisation, denitrification and dust removal efficiency were up 5.8, 2.9 and 1.8 percentage points, respectively, ensuring that emission of air pollutants met the national class A enterprise emission standards throughout the Year. The Group complied with the national, local and/or industry standards set out in the table below in respect of the discharge and treatment of pollutants during the Reporting Year, and implemented the highest standards among them.





Pollutants	Treatment/Disposal	Monitoring methods	Applicable standards
 <p><b>Sulphur dioxide (SO<sub>2</sub>)</b> <b>Nitrogen oxides (NO<sub>x</sub>)</b> <b>Particulates (smoke and dust)</b></p>	<ul style="list-style-type: none"> <li>Use natural gas as fuel</li> <li>Equipped with desulphurisation, denitrification and dedusting devices along with spare devices</li> <li>Clean, maintain, inspect and replace devices regularly</li> <li>Upgrade and renovate existing devices</li> <li>Adjust dose of usage of catalysts and replace catalysts regularly</li> <li>Enhance operation of precipitator, reduce unorganised emissions of workshop dust</li> <li>Arrange water sprinkling on roads regularly to reduce fugitive dust in working areas</li> </ul>	<p>An online monitoring system is installed for flue gas at the exhaust ports and monitoring spots are set up for 24-hour ongoing monitoring, with the monitoring data uploaded through the CEMS system.</p> <p>The Wuhu, Zhangjiagang, Tianjin, Beihai and Malaysian plants are connected with their respective local environmental regulatory departments, and are monitored by the government to ensure their emission data are up to standards</p>	<p><b>Production bases in China:</b> Integrated Emission Standards of Air Pollutants (GB16297-1996) (National Standard)</p> <p>Comprehensive Air Pollution Control Plan for Industrial Furnaces and Kilns (National Standard)</p> <p>Emission Standard of Air Pollutants for Flat Glass Industry (GB26453-2011) (Industry Standard)</p> <p>Local Standards of Anhui/Jiangsu/Tianjin/Guangxi</p> <p>Industry standards: SO<sub>2</sub>≤400mg/m<sup>3</sup>; NO<sub>x</sub>≤700mg/m<sup>3</sup>; smoke and dusts≤50mg/m<sup>3</sup> or the local standards whichever are higher</p> <p><b>Production base in Malaysia:</b> National standard under the Environmental Quality Act 1974 on the emission of exhaust gases from glass furnaces: SO<sub>2</sub>≤800mg/m<sup>3</sup>; NO<sub>x</sub>≤800mg/m<sup>3</sup>; smoke and dust≤50mg/m<sup>3</sup></p>
 <p><b>Sewage</b></p>	<ul style="list-style-type: none"> <li>Sewage from tempering is recycled after treatment through the sewage treatment and collection system and the efficiency of purification is enhanced using filter presses, water purifier and a water agent, thereby improving the water recycling utilisation rate</li> <li>Production sewage, rainwater and domestic sewage that cannot be reused are collected centrally and transported to urban sewage treatment plants through designated channels after sedimentation/filtration/septic tank treatment</li> </ul>	<p>Qualified third parties are commissioned to conduct quarterly sampling to ensure that the key indicators are met: pH value (pH), chemical oxygen demand (CODCr), biological oxygen demand (BOD5), suspended solids, ammonia nitrogen, animal and vegetable oil</p> <p>Production bases in China are continuously monitored 24 hours a day through an online real-time sewage discharge monitoring system and are subject to real-time monitoring by local environmental protection authorities. The production base in Malaysia is required to submit sample analysis to regulatory departments regularly</p>	<p><b>Production bases in China:</b> Level three standard under the Integrated Wastewater Discharge Standard (GB8978-1996), or local standards whichever is higher</p> <p><b>Production base in Malaysia:</b> Standard A under the Environmental Quality (Industrial Effluents) Regulations 2009</p>
 <p><b>Solid wastes</b></p>	<ul style="list-style-type: none"> <li>Construction waste: Recycle and reuse by the manufacturer</li> <li>Dust and sludge: Reduce discharge of solid wastes through reusing after deep processing, engage qualified agencies to dispose those which is unfit for reuse</li> <li>Discarded broken glass: Reuse in production</li> <li>Discarded packaging materials and discarded electronic equipment: Recycle/dispose by legal means</li> <li>Hazardous wastes: Develop a hazardous waste management plan and file it with local ecological and environmental protection department. For hazardous wastes, enterprises are required to specify a transfer plan in annual declaration plan, confirming the qualified agency and types and quantity of hazardous wastes to be disposed of, and to be filed with local ecological and environmental protection bureau by the relevant unit. In case of transfer outside the province, enterprises are required to report to the provincial ecological and environmental protection bureau and upon receiving approval, the qualified agency should arrange vehicles to conduct the transfer. After the hazardous waste is transferred, the enterprise is required to register the transferred hazardous waste data information in the local solid waste management information system, and confirmation of receipt is required from the receiving party. Some of the waste packaging barrels that can be recycled for reuse will be handed over to the manufacturer for recycling</li> </ul>	<p>Non-hazardous solid wastes are sorted and stored in designated locations before disposal, whereas the relevant departments are responsible for statistics and the material control team is responsible for supervision</p> <p>Designated material control team is responsible for supervising the disposal and management of hazardous solid wastes</p>	<p><b>Production bases in China:</b> Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Wastes (Revised in 2020) Standard for Pollution Control on Hazardous Waste Storage (GB18597-2001) National Catalogue of Hazardous Wastes (2021 edition) Management Measures for Hazardous Wastes Movement</p> <p><b>Production base in Malaysia:</b> Environmental Quality (Scheduled Waste) Regulations 2005</p>
 <p><b>Noise</b></p>	<ul style="list-style-type: none"> <li>Noise insulation for plants</li> <li>Shock absorption</li> <li>Install sound insulators and silencers for fans</li> </ul>	<p>Annual inspections by qualified third parties</p>	<p><b>Production bases in China:</b> Emission Standard for Industrial Enterprise Noise at Boundary (GB12348-2008), Category 3 Standards</p> <p><b>Production base in Malaysia:</b> Occupational Safety and Health (Noise Exposure) Regulations 2019, not exceeding 82dB(A)</p>



### Green Actions in Non-production Section

The Group not only implements the concept of "green manufacturing" in the production of solar glass, but also integrates the concept of sustainable development into every link from site selection and construction to daily operation, striving to achieve better environmental benefits. In addition, the Group also encourages employees to practice energy-saving and low-carbon concepts in their daily lives, conserve resources, reduce waste, and take practical actions to reduce carbon footprints.



China attaches great importance to biodiversity protection, and has divided more than 30% of land resources into ecological protection red lines. The Group strictly abides by the red line system of ecological protection. Before the establishment of a solar glass production base, a professional environmental assessment agency will be commissioned to conduct an investigation and assessment on the surrounding ecological environment of the proposed project, and an environmental impact report will be prepared. After seeking public opinions and reviewing by experts, the report will be submitted to the local ecological environment bureau

All of the Group's solar glass production bases are located in industrial parks and are industrial land. They do not involve living function guarantee areas with important water source conservation, biodiversity maintenance, marine ecological stability and other functions, nor do they belong to ecological environment vulnerable areas such as soil erosion and land sandification. Prior to the preparation, the Group will evaluate and assess the current situation and impact on the local ecological environment, including vegetation, wild animals, land, atmosphere and hydrology through professional institutions to ensure that no rare and endangered species of wild animals and plants are involved in the area. The construction and operation of the project will not significantly change or damage the living environment of animals and plants in the area, and the impact on the land, atmosphere and hydrological environment is controllable and meets the requirements of national and local environmental protection laws and regulations

After the construction of the production park is completed, the Group has strengthened the greening of the plant area, a large number of trees, shrubs and vegetation are introduced through artificial planting to gradually restore and improve the biological quantity in the park and improve the quality of the ecological environment



- Green Office**
- Actively advocate the concept of "green office", and call on employees to make good use of office resources to avoid unnecessary waste of resources
  - Fully implement the online OA system for purchase and approval to replace traditional paper-based purchase forms, and gradually realise paperless office by using the OA system
  - Make reasonable use of indoor lighting according to natural light conditions and develop a good habit of turning off lights when not in use
  - Prohibit the use of air conditioners in public places during non-office hours, reasonably set the temperature of air conditioners, and eliminate the idling of air conditioners
  - Office electrical equipment such as computers, printers and water dispensers are turned on when in use and turned off when not in use, and long-term standby is prohibited

- Green Packaging**
- Traditional packaging requires a large amount of wood and paper, which is difficult to be recycled and reused. The Group actively promotes "replacing wooden pallets with iron pallets" and paperless packaging to effectively reduce the use of packaging materials per unit of solar glass products
  - During the Reporting Year, the Group was committed to solving the problem of matching the size of iron pallets with different products, and further optimising the design of paperless packaging to better ensure that the adoption of environmentally friendly packaging does not affect the appearance, storage and use of products, so that more customers can recognise and choose green packaging
  - In 2022, while the Group's sales volume increased by 44.4% year-on-year, the consumption of wood and paper only increased by 20% and 30% year-on-year, driving the consumption of unit packaging materials to decrease by 8.8% year-on-year to 99 g/m<sup>2</sup>. Iron pallet usage increased to 73.5% and paperless packaging increased significantly by 11.7 pct to 46.1%





### A WIN-WIN DEVELOPMENT MODEL OF SOLAR FARMS

With our corporate mission of "leading green new energy", Xinyi Solar insists on the sustainable development model of "coexistence with society and the environment" in solar farm development, actively explores the "PV +" models to realise ecological and environmental protection and improvement and adequate use of resources and space. Since the first utility-scale solar farm project was connected to grid in 2014, the Group's accumulated fixed asset investment in solar farms reached HK\$18.8 billion in the past 8 years, with the total approved grid-connected capacity close to 4.9GW.

As utility-scale solar farms require a large amount of land resources and are responsible for supplying electricity to the community and have an operating cycle of several decades, they have a practical impact on the local ecology, economy and people's livelihood. Therefore, the Group firmly implements the win-win concept in the whole cycle of solar farm project from development, construction to operation. Through a series of successful projects, It is proved that PV power generation can not only bring economic benefits to the local community, but also create considerable environmental and social benefits.

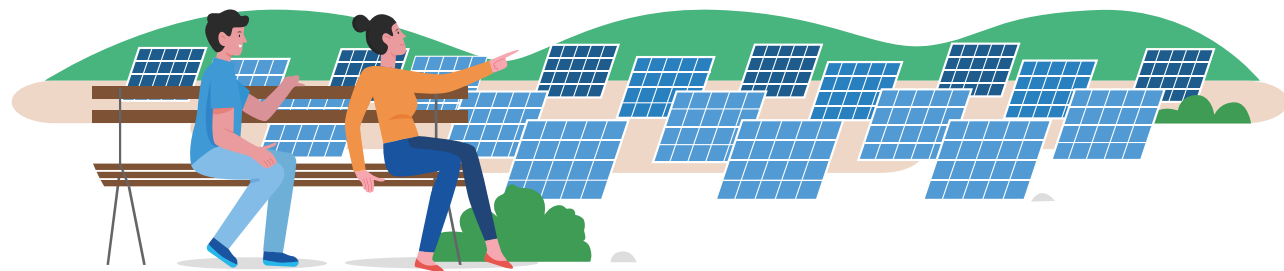


### WIN-WIN DEVELOPMENT MODEL OF SOLAR FARM BY XINYI SOLAR

**56.3%** solar farms are agriculture-PV/fishery-PV complementary projects

Since the investment and development of the first utility-scale solar farm in 2014, the Group has been adhering to the environmentally friendly model of harmonious coexistence with the original ecological environment. Before project development, professional institutions will be commissioned to conduct environmental impact assessment to ensure that the project does not involve ecological protection areas, ecological red lines and natural reserves, scenic spots and drinking water source protection areas. Environmental protection acceptance procedures will also be conducted upon completion of project construction to ensure compliance with regulatory requirements

In response to the differences in the local ecological environment of different projects, various "photovoltaic +" development models such as fishery, agriculture and floating power stations in coal mining subsidence areas have been adopted to give full play to the advantages of the original environment and reduce the impact of biodiversity in project development, and restore and improve the local environment by adopting vegetation restoration and other measures



Total power generation in 2022  
**4,400,000,000 kWh**  
Meet **1,830,000** households' annual green electricity demand  
**3,640,000** tonnes of CO<sub>2</sub> emission reduction  
Improve urban climate resilience  
Helping China achieve energy transition and dual carbon goals



Accumulated fixed assets investment  
HK\$ **18,800,000,000**  
2022 Solar Farm Segment Revenue  
HK\$ **2,740,000,000**  
2022 tax contribution from Solar Farm Segment  
HK\$ **340,000,000**  
HK\$ **75,000** per MW tax contribution



Due to the large land/water area of the utility-scale solar farm project and the need to install PV modules, concerns about the impact on the native ecological environment and biodiversity are unavoidable. In fact, as the Group insists on "not sacrificing the ecological environment and not destroying the ecological balance" in its project development, construction and operation, completed projects not only have no negative impact on the ecological environment, many of them involve ecological restoration and transformation of the original environmental pollution or ecological damage areas, making the ecological environment around the project look refreshed and more suitable for the growth and habitat of animals and plants. The Group effectively avoided the ecological red line area and other resource protection areas during preliminary site selection and survey, so that all projects will not affect or destroy the habitats of rare and endangered animals and plants. During that stage of design and development, the model that best matches the native ecological environment will be selected according to local conditions, and effective measures will be taken to reduce changes and impacts on the native environment (land, air, hydrology). After the construction is completed, a series of restoration measures will be taken to restore the vegetation and improve the environment. In addition, since the operation process does not involve fossil energy consumption, there will be very little adverse impact on the ecological environment.



Ecological restoration and landscape improvement in Huaibei and Huainan coal mining areas (left: before restoration; middle & right: after restoration)



Ecological reconstruction of Daihu Beach in Fanchang Country (left: before reconstruction; middle & right: after reconstruction)

Climate change has had a major impact on the world, and PV power generation is an important way to realise energy transition, move towards low-carbon life, enhance the ability to deal with climate change and change the survival crisis brought about by climate change. The solar farm projects of the Group supply approximately 4.4 billion kWh of green electricity in 2022, which could meet the annual electricity demand of 1.83 million households. Compared with the use of traditional thermal power, it can save 1.325 million tonnes of standard coal and reduce 3.64 million tonnes of carbon dioxide emissions. The economic benefits brought by investment, construction and operation of solar farm projects to local community are not limited to fixed asset investment, tax contributions and more job opportunities. The "PV+" model enables the projects to achieve multiple social benefits. **Case studies** Xinyi Heshan agricultural-PV complementary project adopts the model of "generating electricity on the solar panels and growing vegetables under the solar panels" to combine PV power generation with modern agriculture. The height and width of the supporting frames have been fully considered during the stage of project design, in order to meet the requirements of various small agricultural machinery operations. The project is also equipped with an advanced intelligent drip irrigation system to meet irrigation needs. In addition, the project enhances crop production capacity by forming a ground layer to strengthen water and soil conservation. Moreover, the Heshan project combines local tea culture to create a rural PV tourism demonstration site to achieve an all-win situation that enhances the image of towns, creates tourism culture and generates agricultural income. The Heshan project is not a special case, it is an epitome of Xinyi Solar's "PV+" model. Through different methods such as science popularisation bases, ecological industrial parks, cultural tourism landscape projects, we hope that PV power generation will attract the attention of different social groups and that more people will understand and gradually recognise the benefits of PV power generation to society, economy and environment, and join us in promoting and using PV power generation.



Heshan Agricultural-PV Complementary Project

Sanshan Project

Fanchang fishery-PV Complementary+PV Project



Heshan PV Smart Agricultural Tourism Demonstration Site

Sanshan PV Ecological Plant Science Popularisation Base

Fanchang Cultural and Tourism Park



# A COOPERATIVE AND WIN-WIN BUSINESS MODEL

## A COOPERATIVE AND WIN-WIN BUSINESS MODEL

Sustainable development of enterprises must be based on a win-win business model that can have a positive impact on customers, suppliers, other business partners, the industry and society. Therefore, the Group not only pays attention to and strives to improve the environmental benefits, social benefits and governance level of its scope of business, but also hopes to share the concept of sustainable development with suppliers and other business partners through business cooperation and call on them to practice the same, help customers and the industry reduce Scope 3 carbon emissions and product carbon footprints through lower-carbon products and make positive contributions to the society for achieving energy transition and "carbon neutrality" goals through efficient solar glass products and solar power generation.

**100%**

ratio of qualified suppliers

**0%**

rate of recall of products sold/  
delivered due to  
safety or health reasons

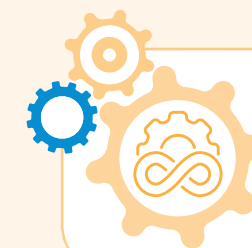
over **98%**

solar glass product theoretical  
recyclable ratio

**95%**

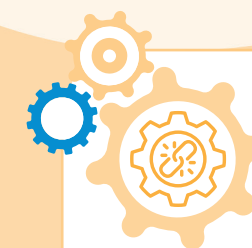
solar glass product theoretical  
reusability ratio

### Key Areas and Objectives



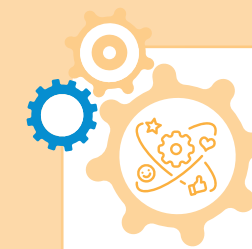
#### Product life cycle management

Based on the Group's current product management and value chain management model, we are exploring a sustainable lifecycle management model for solar glass products, taking into account possible policy and market trend changes, and striving to further reduce the carbon footprint of solar glass products through the development of low-carbon products, responsible procurement, green and efficient production, environmentally friendly packaging and transportation methods, as well as other measures



#### Sustainable supply chain management

The Group insists on purchasing in a responsible and sustainable manner, and attaches great importance to the performance of suppliers and other business partners in terms of environmental protection, resource conservation, occupational safety and health, honesty and integrity, and human rights protection. Through quality, environmental protection, safety, integrity agreements and the "Supplier Code of Conduct", the Group not only hopes to regulate the production and operation of suppliers, but also share the Group's sustainable development concept with suppliers and other partners, and encourage them to follow the same concept in supply chain management to promote the common adoption of more environmentally friendly and responsible production and operation models along the value chain



#### Sustainable customer relationship

The Group pays attention to establishing long-term stable, multi-dimensional cooperation, mutual benefit, and common growth strategic partnership with customers, and strives to enhance competitiveness in terms of product R&D, production management, quality control, and after-sales service. The Group has established and continuously enhanced its quality control system in accordance with the ISO9001:2015 quality management system standard to meet customers' needs for product quality and safety. Through R&D and mass production of products with high-efficiency and low-carbon emission, and the implementation of green production methods, the Group meets the more stringent requirements from customers in respect of environmental benefits and carbon footprints of products and helps the PV industry to reduce carbon emissions. The Group also further improves customer satisfaction and loyalty by improving service quality and providing more intimate after-sales service



## PRODUCT LIFE CYCLE MANAGEMENT

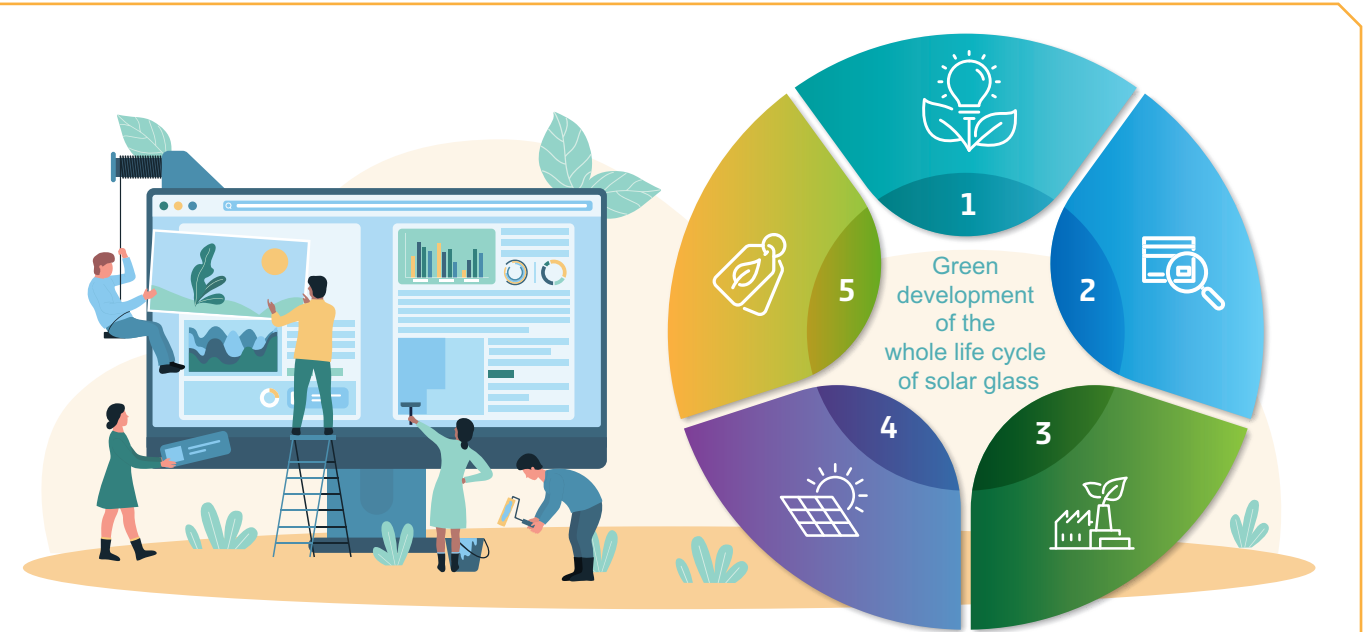
During the Reporting Year, the Ministry of Industry and Information Technology, the State Administration for Market Regulation, the National Development and Reform Commission, the Energy Bureau and other ministries issued a number of policy guidance documents, which mentioned the strengthening of management of carbon emissions and carbon footprint calculation throughout the life cycle of the PV industry chain, and pushing forward the research on technical standards of recycling discarded PV modules and industrial application, accelerating the construction of PV supply chain tracing system, establishing and improving the environmental impact assessment system for the full life cycle of the PV industry, so as to realise the closed-loop green development of the entire life cycle of the PV industry. In addition, the European Union has officially adopted the Carbon Border Adjustment Mechanism (CBAM), which is planned to be implemented in two phases from October 2023. During the transition period from 2023 to 2025, importers only need to declare to the EU the amount of greenhouse gas emissions (including direct and indirect emissions) in five types of commodities such as steel and cement imported into the EU, but do not need to make any financial payments or adjustments. From January 2026, importers must declare the import volume of the aforementioned five types of products every year and their embedded greenhouse gas emissions, and need to provide the corresponding CBAM certificates (that is, bear the carbon border adjustment fee). The carbon emission management and carbon footprint of photovoltaic products, and the closed-loop green development of the whole life cycle have attracted great attention from the industry and regulatory agencies. Based on France's carbon footprint requirements for low-carbon photovoltaic modules (less than 550 kg/kW), the carbon emissions from solar glass production account for 5% and 10% of the carbon footprint of photovoltaic modules in single-glass and double-glass modules, respectively. Although solar glass accounts for a relatively low proportion in the carbon footprint of PV modules, the Group, as a global leader in the solar glass industry, is committed to further reducing carbon emissions in the solar glass production process and the carbon footprint of solar glass products through conducting research and development on products and production lines, and actively participates in the process of promoting the closed-loop green development of the entire life cycle of the PV industry, with a view to realising the green closed-loop management of the entire life cycle of solar glass through cooperation with customers and other industry chain partners in the future. As of the end of 2022, given that the recycling of PV modules in China is still in the initial stage of technical standard research and development and industrial application, and there are still objective factors restricting the direct participation of solar glass manufacturers in the recycling process, the Group has not yet practically participated in the recycling and reuse of solar glass products on discarded PV modules.

### 1. Product design and R&D

- Since the light transmittance and physical strength of solar glass have a substantial impact on the power generation efficiency and service life of PV modules, improving the transmittance, physical strength and other parameters of the product can help PV modules increase the power generation throughout their whole life cycle, corresponding to bringing more considerable carbon emission reduction to the society
- As the only solar glass company with its own glass research institute, Xinyi Solar has led the launch and commercial mass production of high-efficiency and low-carbon new products (such as thin glass, large-format, ultra-high transmittance products) for large-scale applications in the solar glass industry in recent years
- **Case studies** Since the double glass module can generate additional 5-10% power generation from the back of the module and extend the service life by about 5 years, based on the full life cycle power generation, a single 182-size double-glass module can reduce CO<sub>2</sub> emissions by 26-32% more than a single-glass module

### 2. Responsible procurement

- Pay great attention to the performance of suppliers in occupational safety and health management, environmental protection, business ethics, respect for and protection of human rights and labour rights, and ensure that their ESG-related areas other than products, services and costs also meet the Group's standards by formulating and requiring all suppliers to sign and confirm the "Supplier Code of Conduct" to regulate their relevant behaviors
- Comply with the "Conflict Minerals Procurement Policy" and require both suppliers and their upstream to comply with the same policy and not use minerals from conflict mining areas
- Ensure that suppliers' environmental management related activities and their products comply with the Group's environmental policy requirements and the relevant provisions of RoHS and REACH and other regulations through the establishment of the "Green Procurement Agreement"
- **Case studies** Referring to SGS's earlier assessment on the carbon footprint of products for the Group's overseas production base, the carbon emissions generated by logistics (upstream + downstream) account for about 6% of the carbon emissions of products. Waterway transportation is the mode of transport with the lowest carbon emissions per unit of transport. The Group's Wuhu and Beihai production bases have their own terminals, and other production bases are also close to local cargo terminals, and when looking for new production bases, we also prefer areas with convenient waterway transportation, believing that the increased use of waterway transportation will help the Group further reduce carbon emissions caused by upstream transportation
- The global supply channel has been established and we intend to gradually increase the proportion of self-supply of core raw materials in the future to ensure supply stability, improve procurement efficiency and environmental benefits of the upstream environment



### 3. Green production

- Set 5-year carbon intensity and energy intensity targets, and reduce carbon intensity of products and enhance other environmental benefits through continuous optimisation of energy conservation and emission reduction measures, research and development, and continuous improvement of production efficiency and yield ratio
- Continue to invest in the research and development of glass furnace technology, strive to break through the dependence of existing technologies on fossil fuels, and help decarbonise solar glass production from the source. During the Reporting Year, there was a feasibility study on the use of hydrogen energy to produce solar glass with furnace technology, however, it is still not suitable for commercial production in terms of safety and economic benefits

### 4. Customer management and product usage

- Quality control is carried out according to ISO9001:2015, the products have obtained China's National Compulsory Product Certification (CCC), and can also meet RoHS and REACH requirements
- Only natural gas is used as the fuel for production, and some of the peers still use heavy oil, so our carbon emissions per unit calorific value are low. At the same time, the unit energy consumption of the Group's solar glass products is at the leading level in the industry, and the energy consumption accounts for more than 80% of the carbon intensity of the product, so lower unit energy consumption means lower product carbon intensity, which helps customers reduce their Scope 3 emissions and product carbon footprint
- Referring to SGS's earlier assessment on the carbon footprint of products for the Group's overseas production base, the solar glass products do not produce carbon emissions in use. In addition, as a necessary component of PV modules, the solar glass, can bring considerable carbon dioxide emission reductions to society through PV power generation

### 5. Product recycling and reuse

- The theoretical recoverability of solar glass products exceeds 98%, and the theoretical reuse rate reaches 95%, so theoretically, the possibility of recycling is high. However, as a solar glass manufacturer, the main reasons why closed-loop management cannot be completed at present are: Solar glass products need to be processed by PV module factories after leaving the factory, so when the product is applied to PV modules and after a 25-30 year use cycle and up to the module retirement. We, as a solar glass manufacturer, can no longer trace the products, so there is no objective basis for assuming the main responsibility for recycling
- For the recycling of solar glass products in the future, we can participate in the following ways:
  - △ Cooperate with module customers to work on the "reuse" level after they have completed module recycling and separation of solar glass, such as reuse as cullet for production or reprocessing for more complete glass. During the Reporting Year, we communicated with some customers about the possibility of cooperation, but there are no actual implementation cases yet
  - △ Purchase recycled solar glass from professional PV module recycling institutions and use a certain proportion for our solar glass production, and strive to achieve better environmental and economic performance through the reuse of resources. China is still in the stage of promoting the research of waste PV module recycling technology standards, and has not yet formed industrial application

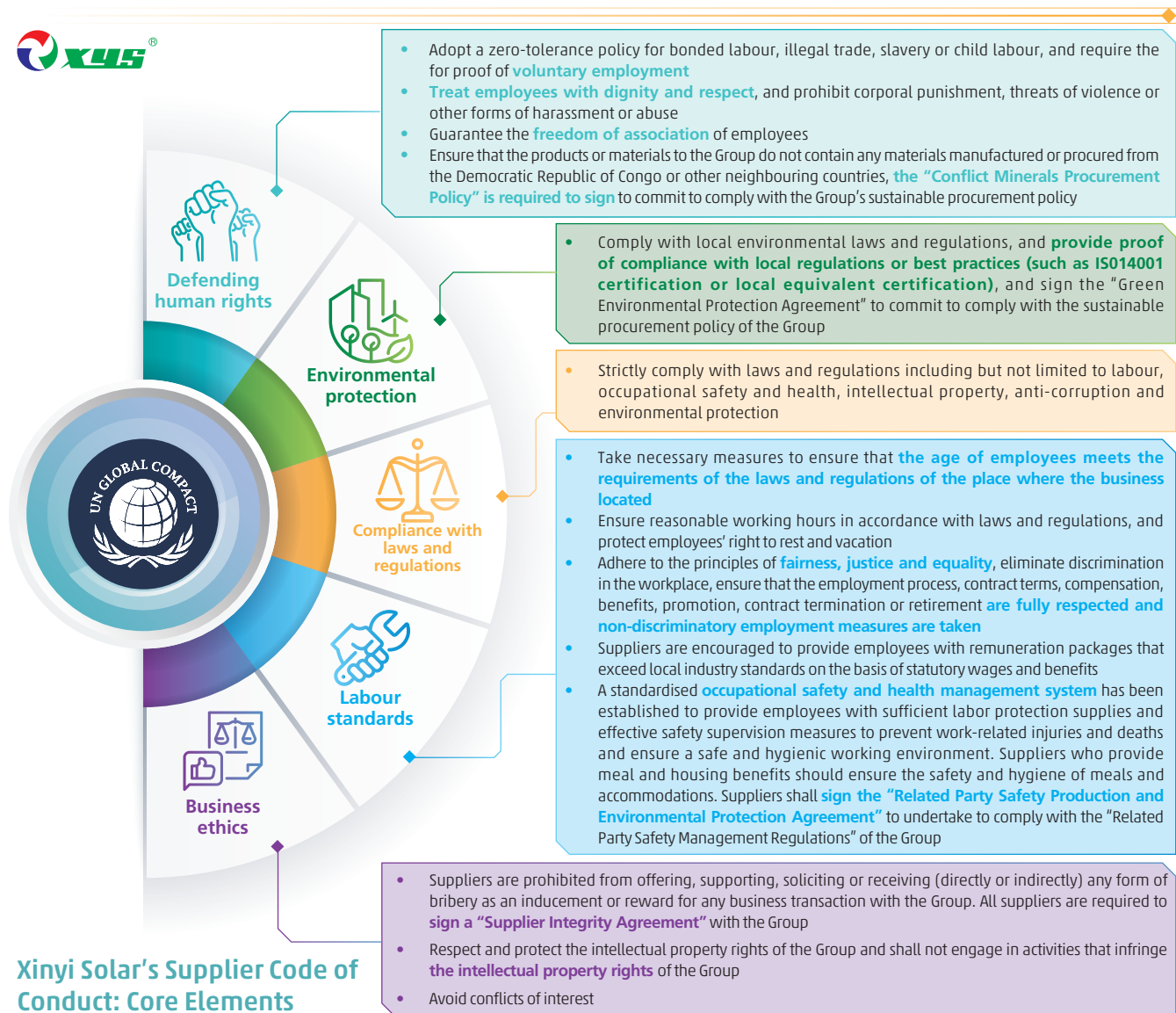




### SUSTAINABLE SUPPLY CHAIN MANAGEMENT

Countries around the world have successively issued relevant policy requirements for sustainable supply chains, continuously promoting enterprises to improve their supply chain responsibility. China has also formulated guiding documents around all aspects of the green supply chain to encourage enterprises to promote the construction of green supply chains. As an enterprise with production capacity in China and overseas and global sales of its products, the Group attaches great importance to supply chain management to continuously meet the needs of regulators, customers and the enterprise for long-term development. In recent years, in the face of the impact of the pandemic, the economic downturn and the intensification of international trade games, the establishment of a resilient supply chain to ensure the security, stability and sustainability of upstream supply has become a new core competitiveness of enterprises and an indispensable and important part of enterprises' sustainable development.

Building a resilient supply chain requires enterprises to pay attention not only to the quality and economic benefits of suppliers and their products and services, but also to their own performance in non-economic areas such as corporate governance, business ethics, environmental protection, labour standards, occupational safety and health, and respect for human rights. With reference to the 10 standards proposed by the United Nations Global Compact to measure the sustainability of the supply chain in the four areas of human rights, labour standards, environment and anti-corruption, the Group also proposed 14 codes of conduct that suppliers must fully comply with. All suppliers are required to sign and affix their corporate seal to clearly acknowledge and undertake to comply with the established Supplier Code of Conduct of the Group.

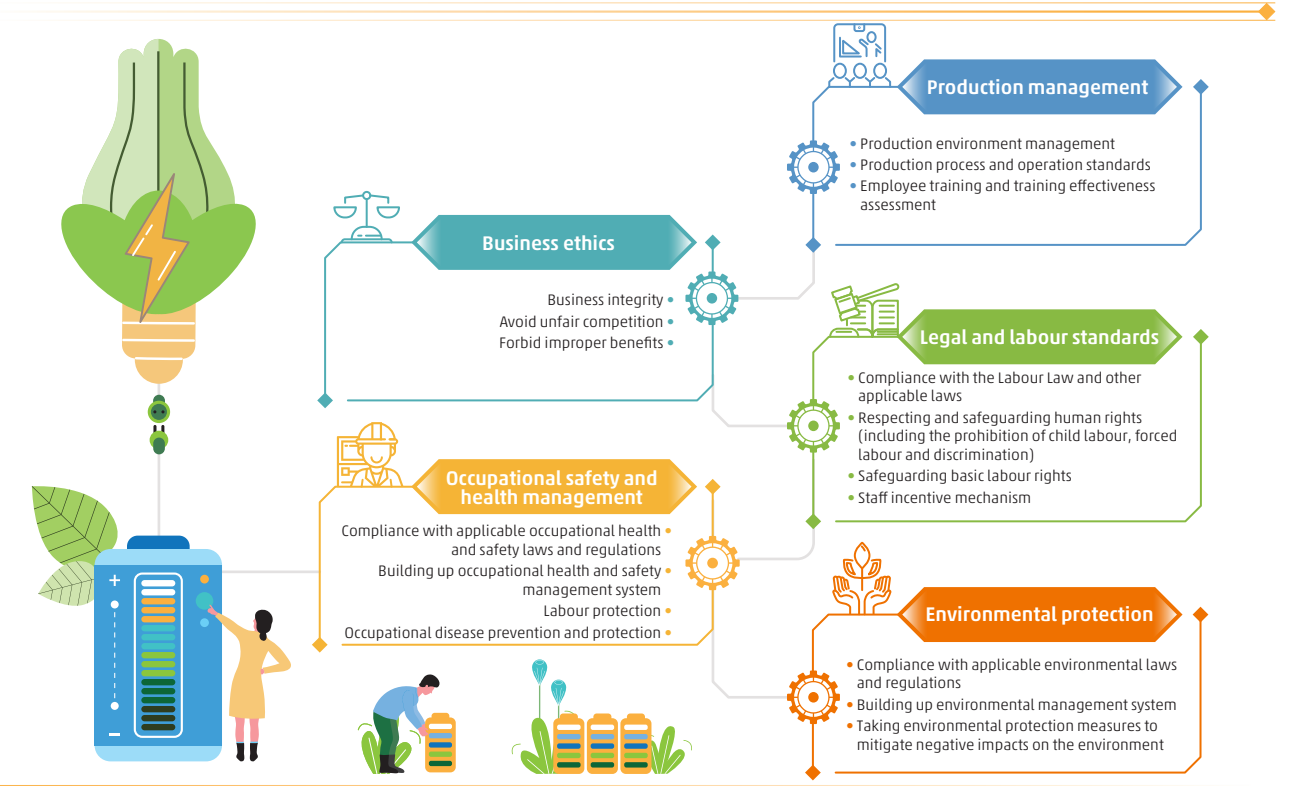


The sustainable supply chain construction and management of the Group mainly focuses on three aspects:

#### • Prudent and principled supplier selection

The development of new suppliers is conducted by a review team composed of relevant personnel from quality control, procurement, production, logistics and technology departments, and the review plan is formulated based on the established indicators and standards, and evaluated strictly according to the plan. The development of new suppliers is generally conducted by the review team in the form of an on-site audit at the location of the candidate supplier enterprise, the main process includes members from different departments in the review team to meet and communicate with different departments of the candidate supplier enterprise one by one according to the items listed in the supplier audit form to review their fulfillment/compliance. According to the audit list, the review team will review the qualification certificates, management system documents and other materials provided by the candidate supplier enterprise that need to be reviewed on site, such as environmental certificates, environmental system certificates, EIA acceptance reports, pollution discharge permits, corresponding personnel plans (proving voluntary employment) and other ESG-related certification documents; production line and workshop visits, etc.

The Group has established 50 detailed assessment indicators and scoring criteria for corporate qualifications, production and supply capabilities, quality management, service quality, cost competitiveness and ESG-related areas. New suppliers are required to obtain A grade in the assessment before they can be included in the "Qualified Supplier List" to ensure that new suppliers are not only competitive in terms of products and prices, but also meet the requirements of the Group in the ESG-related areas that the Group attaches equal importance to. **Case studies** During the Reporting Year, the Group required major raw and auxiliary material suppliers to sign the "Green Procurement Agreement" to ensure (1) the environmental legality of the products provided to the Group (including compliance with RoHS and REACH); (2) the production management can meet the Group's needs for continuous improvement of the environment, and it is necessary to cooperate with the Group's environmental management related operational requirements and accept written or on-site environmental review activities proposed by the Group; and (3) take the initiative to assume environmental responsibility, not only limited to its own production and operation and products strictly abide by green environmental protection laws and regulations and the Group's environmental management requirements, but also need to strengthen the control of its supply chain and actively promote the green development of its supply chain. Qualified suppliers who have signed and committed to abide by the Green Procurement Agreement are the Group's green partners and enjoy the right of priority in procurement among suppliers with equal conditions, so as to promote more suppliers to actively implement the concept of green and sustainable development in their own operations and supply chain management. The assessment of new suppliers in ESG-related areas such as compliance with laws and labour standards, occupational safety and health management, production management, business ethics, environmental protection and other aspects mainly includes:





### • Build long-term relationships with ethical business practices

The Group has always adhered to the business purpose of “reputation first” as the standard for business dealings with all suppliers. Integrity management is the bottom line that the Group cannot compromise when carrying out business cooperation, therefore, the Group issued the “Notification Letter on Integrity Management, Mutual Benefit and Win-win” and required all suppliers to sign and seal to ensure that they are aware of the 14 violations of integrity transactions that the Group firmly eliminates in business cooperation. In addition, the Group requires all suppliers to sign integrity agreements, pledging to strictly abide by laws and regulations in business transactions, prohibit any form of bribery, and actively monitor and report violations of laws and disciplines in the cooperation between the two parties to protect fair, just and open transactions and the interests of both parties. The integrity agreement clearly sets out the joint and independent responsibilities of both parties, and stipulates the liability for breach of contract, so as to better strengthen the suppliers’ integrity awareness and ensure that they abide by business ethics in business cooperation.

### • Conduct supplier assessment with scientific and systematic mechanism

For suppliers in the “Qualified Supplier List”, the assessment is carried out on a monthly, quarterly and annual basis, and the assessment focus is slightly differentiated: the monthly assessment focuses more on factors such as products, services, quality, supply capacity, etc., and the scores in ESG categories such as environmental protection and occupational safety and health account for relatively low; quarterly and annual reviews also pay attention to the relevant performance in the ESG-related areas. For suppliers who fail to meet the standards in the monthly assessment for several consecutive times, or fail to meet the standards in the quarterly/annual assessments, the Group will put forward rectification opinions, and if they still fail to meet the standards after rectification, they will be disqualified from suppliers and terminate the business relationships. During the Reporting Year, the suppliers who supplied products and/or services to the Group were suppliers who complied with the development and management practices of suppliers and met the standards in regular assessments. Through regular assessments, the Group ensures that suppliers have fulfilled their environmental and safety commitments under the “Green Environmental Protection Agreement”/“Green Procurement Agreement” or contractual clauses, so as to ensure that the products procured during the Reporting Year meet the Group’s quality, safety and environmental standards. The Group maintained a 100% performance rate of economic contracts during the Reporting Year.

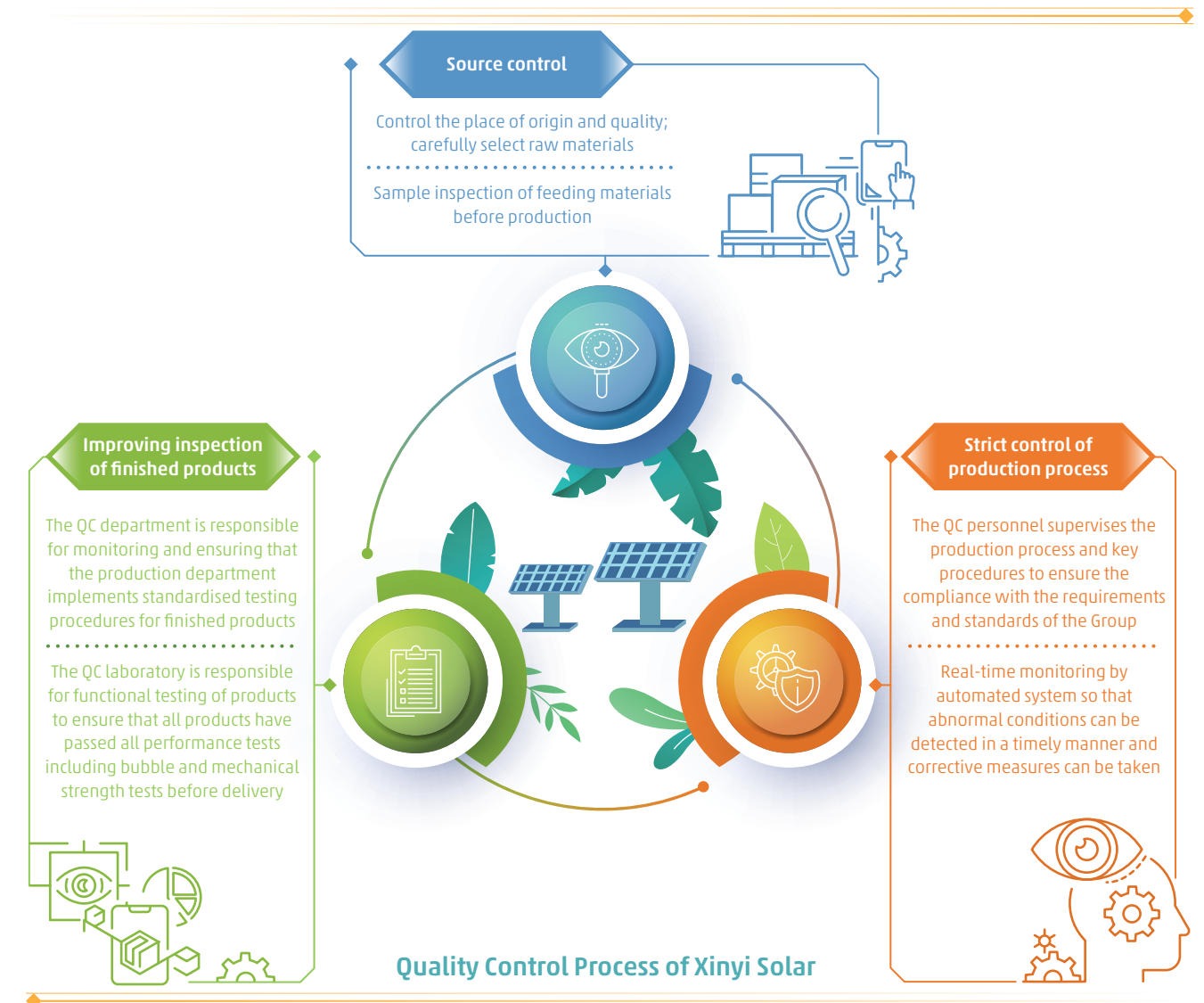
The Group aspires to be a responsible purchaser and takes all feasible measures in the whole process from the development and selection of new suppliers to business cooperation to identify, monitor and mitigate possible environmental and social risks in the supply chain. At the same time, the Group encourages suppliers and their supply chains to share the Group’s sustainable development philosophy, conduct supply chain management with the same principles and regulate the conducts of their suppliers with the same standards.

In addition to scientific and sustainable supply chain management, building a resilient supply chain also requires enterprises to continuously improve channel layout, establish and improve supply capacity in different regions of the world, so as to reduce the fluctuation of supply capacity and purchase cost in a single region, as well as the impact of external factors such as logistics. Natural gas, soda ash and silica sand are the three major costs of solar glass production. The Group has direct supply of natural gas. Each production base has established stable natural gas supply channels, and the procurement of core raw materials such as soda ash and silica sand has laid out supply channels in many regions around the world, and gradually strengthened its own controllable supply resources to further improve supply stability and cost-effectiveness. The Group conducts procurement management through ERP system, and uses the same monitoring platform for domestic and overseas procurement. The ERP system can give full play to the Group’s channel and scale advantages, ensure that resources are obtained at the most reasonable price through comprehensive price comparison and centralised procurement, and establish and gradually improve the Group’s global supply chain by combining internal resources to reduce procurement risks caused by regional policy changes. At the same time, it can also enable the Group to manage raw material inventory more efficiently, grasp the inventory situation of each production base in a timely manner, and ensure that inventory is maintained at an appropriate level. In the future, the Group will continue to increase its controllable supply ratio through resource reserves, long-term strategic cooperation and upgrading processing capacity to further strengthen the stability of raw material supply and improve cost-effectiveness.

### SUSTAINABLE CUSTOMER RELATIONSHIPS

The Group is a global leader in the solar glass industry, providing global PV module manufacturers with diversified solar glass products to meet their needs for continuous cost reduction and economic and environmental efficiency improvement. Solar glass is mainly used as the cover and back sheet of PV modules. It plays a key role in protecting the cells in PV modules. Therefore, the quality of solar glass has a significant impact on maximising the service life of the battery and minimising the degradation rate of PV modules. As there is defined degradation rate of PV modules over 25 years under the IEC and TÜV standards, customers are particularly concerned about the quality of solar glass products, and have set stringent standards on performance parameters. The Group has established and continuously improved the quality control system in accordance with the ISO9001:2015 quality management system standards to ensure that product quality meets industry standards and customer requirements. According to the 2022 customer satisfaction survey, customers’ satisfaction with the quality of the Group’s solar glass products and after-sales service has been further improved.

The Group implements control over the whole process of solar glass production in accordance with the requirements of the internal “Quality Control Manual” of the Group, and the quality control management process has not changed during the Reporting Year, except that the Tianjin production base has optimised the details of offline inspection and tempering inspection of patterned glass to further improve the detection accuracy and efficiency.





In addition to the testing of finished products, the Group has also established and strictly implemented a regular re-inspection process for inventory glass to ensure that all performance indicators of inventory products meet internal control and customer standards. For non-conforming products that fail to pass the finished product/inventory/shipment test, the "Non-conforming Product Management Procedures" is implemented, and the quality control department is responsible for supervising the disposal of relevant products to ensure that they are not delivered if they do not meet the standards. On the basis of ensuring product quality, the Group standardises the delivery process in accordance with the requirements of the internal system, strictly abides by the delivery deadline, and ensures on-time delivery through smooth communication among sales, production, storage and transportation departments to protect the interests of customers.

After the product is delivered, the after-sales service personnel will follow up with the customer in time to understand their feedback on the product and service. In order to further improve customer satisfaction, increase customer loyalty, and establish and maintain long-term cooperative relationships, the Group focuses on strengthening after-sales service. After learning the customer's feedback on product quality problems, the after-sales service personnel will respond within the specified time in accordance with the internal system requirements, and take timely measures to make up for the negative impact on customers. If it involves the appeal of returning the product, the after-sales service personnel and quality engineers need to communicate with the customer within the specified time limit in accordance with the return operation process, and after jointly analysing the urgency of the customer feedback, make corresponding arrangements as soon as possible according to the negotiation results, and provide an analysis and improvement report according to customer needs after the incident is resolved, and feedback the relevant situation to the production department and the leaders in charge. The Group's responsive and proactive attitude, after-sales service and handling procedures have been highly recognised by customers, and customers' satisfaction with the Group's service quality, especially after-sales service, has continued to improve during the Reporting Year.

With the advancement of the goal of carbon neutrality in countries around the world, different countries and regions such as the European Union, South Korea, and China have introduced policies to strengthen the carbon emission management of PV products and put forward higher requirements for the carbon footprint of PV modules. The Group mainly enhances the environmental performance of solar glass products and reduces the carbon footprint to better meet the needs of PV module customers by:

- (1) promote the R&D and mass production of low-carbon and high-efficiency products, such as replacing 2.5mm glass with 2.0mm glass, ultra-high transmittance glass, etc.;
- (2) use cleaner fuels and replace heavy oil with natural gas to reduce carbon emissions per unit of calorific value by 27%;
- (3) improve production efficiency, yield ratio, reduce energy consumption, electricity consumption and carbon-containing raw material consumption per unit of finished products, so as to reduce the carbon footprint of products

Referring to the relevant regulations of France on carbon emission assessment of PV modules, the carbon footprint of solar glass is mainly based on the carbon emissions of solar glass per kW of PV modules. According to the greenhouse gas emissions data of the Group's production of solar glass in 2022, the CO<sub>2</sub> emission of solar glass per kW of module is less than 27 kg. France set a minimum standard for the carbon footprint of PV modules of 750 kg CO<sub>2</sub>/kW in public tenders, even if based on the requirements for low-carbon PV modules proposed by the Energy Regulatory Commission (French Energy Regulatory Commission, CRE), for the PV modules with a carbon footprint of less than 550 kg CO<sub>2</sub>/kW, if the Group's solar glass products are used, solar glass would only account for a single-digit percentage of the carbon footprint of single-glass PV modules, which is more conducive for customers to meet the requirements of low-carbon modules. Since the EU plans to implement the Carbon Border Adjustment Mechanism (CBAM), core customers have communicated with the Group on carbon emission management and carbon footprint certification, and the Group has also set up a team to follow up customer requirements and start preliminary preparations for carbon footprint certification.

In addition to higher requirements for carbon footprint, overseas regions have always had higher standards for environmental protection and safety of solar glass products. During the Reporting Year, the Group implemented environmental management, safety production management and occupational health management in strict accordance with the requirements of the internal environmental responsibility management system and occupational health and safety management system, meanwhile fulfilling the standards of ISO14001:2015 environmental management system and ISO45001:2018 occupational health and safety management system. In addition, the Group has also implemented the principles of responsible procurement through the signing of the "Conflict Minerals Procurement Policy", the "Green Environmental Protection Agreement" and the "Green Procurement Agreement" with suppliers to meet the requirements of global customers related to the Group's production management, supply chain management and corporate social responsibility. During the Reporting Year, the Group mainly sold deep-processed solar glass products, which have obtained China Compulsory Product Certification (CCC) to meet the requirements of relevant safety performance. The products sold to overseas markets are mainly provided by our Malaysian production base to meet international certification standards such as RoHS and REACH. During the Reporting Year, the Group was not required to recall products sold or shipped for safety or health reasons.

Sustainable customer relationships not only need to meet customers' requirements for product quality, safety performance, environmental benefits and carbon footprint, continuously improve customers' satisfaction in sales and after-sales service, but also keep pace with customers in product development and supply capabilities. In order to meet the needs of diversified photovoltaic application scenarios, such as application on rooftops, offshore and in deserts, the product specifications and designs of PV modules are becoming increasingly diversified, so PV module customers are increasingly paying attention to the product research and development capabilities of solar glass manufacturers and the supply capacity and stability of diversified products. As a leading private solar farm developer and operator in the PRC, the Group has been involved in the development and construction of solar farm projects since 2012, so it has been able to maintain a keen sense of the market for a long time. The unique business model enables the Group to develop and deploy new product markets early, optimise and transform production equipment in an orderly manner to meet the demand for new products, and continuously meet the needs of customers for product innovation, so as to form a closer strategic cooperative relationship with customers. During the Reporting Year, the Group maintained its competitive advantage in the thin glass and large-format glass markets, and continued to improve in areas of light transmittance, strength and weather resistance, and its new products were well recognised by customers. The Group's R&D investment in 2022 exceeded HK\$560 million, representing a year-on-year increase of 73.6%, mainly for the research and development of solar glass production technology, equipment and products. The Group attaches high importance to technical talents and their scientific research achievements, and attracts and retains technical talents through a number of reward systems. In terms of intellectual property management, the Group has formulated the "Measures for the Administration of Intellectual Property" in accordance with the "Patent Law of the People's Republic of China", and optimised the details on the patent application process, management structure, training system and award issuance during the Reporting Year, so as to further strengthen the protection of intellectual property rights and guide employees to pay more attention to patent creation and protection. The Technology R&D Centre of the Group is responsible for patent management, the Group has also set up a special team at the Group level and assigned dedicated personnel to each subsidiary to be responsible for patent application, management and protection. We will resolutely take legal measures to protect the rights and interests of the Group and its employees in the event of infringement, and strengthen the protection of intellectual property rights through the engagement of third-party professionals such as external experts, patent agents and attorneys. As of 31 December 2022, the Group had a total of 199 registered patents and 42 patents pending registration.

According to the World Economic Forum, loss of cybersecurity will continue to be one of the top ten risks affecting the world over the next two to ten years. The Group's materiality assessment also shows a significant increase in stakeholder attention to information security issues. In order to improve the Group's information security management system and conduct more standardised and effective information security management, the Group revised the "Information Security Management System" during the Reporting Year and implemented it in September. For information security management, the Group has set quantifiable targets and the IT Centre regularly reviews and assesses the progress. During the Reporting Year, there were no major failures in the Group's information systems, nor did any trade secrets, sensitive information leaks and large/major information security incidents occur. The Group manages confidential information such as intellectual property rights and customer information in strict accordance with the requirements of the "Confidentiality System". The sales contract contains confidentiality clauses to protect customer information and privacy, and the Group also has internal systems to regulate the legal use and effective management of customer information by the sales department to ensure customer information security and prevent information leakage. Important customer files and information are classified as Class I confidential files and are properly managed by the Group's archive. During the Reporting Year, no customer information leakage was reported for the Group.





In the face of increasingly fierce industry competition and a complex and volatile macroeconomic environment, building and maintaining a diverse talent team with deep industry knowledge and adaptive thinking is the key to ensuring the Group's long-term competitiveness and leading position in the industry competition. We integrate the concept of "people-oriented" into every aspect of talent management, patiently listen to the demands of employees, continuously improve the talent management system, provide employees with a safe and healthy working environment, create equal and broad development opportunities, and enjoy the results of corporate development with employees, and strive to become an enterprise that employees can be proud of and a trusted employer.

<b>HK\$2.43 Million</b>	<b>1,387</b>	<b>0%</b>	Decreased by <b>▼6.0%</b>
Revenue created per employee	Jobs created during the Year	Work-related mortality	Lost workday rate

### Key Areas and Objectives

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**Employment Compliance**  
We strictly comply with the requirements of labour laws and regulations of the countries and regions where we operate, protect the legitimate rights and interests of the Group and its employees through a scientific talent management system, and respond to and support the principles of the United Nations Global Compact in human rights and labour with practical actions
- 

**Talent Attraction and Retention**  
On the basis of meeting the statutory compensation and benefits requirements of the countries and regions in which we operate, we attract and retain talent by providing competitive compensation and benefits. Through the labour union, we pay close attention to and respond to the needs of employees, not only provide full support and care at work, but also enhance team cohesion and relieve employees' work pressure through diversified activities, and guide employees to pay attention to physical and mental health and pursue work-life balance
- 

**Occupational Safety and Health**  
We continue to improve the safety management structure, strictly implement the safety production management system, improve safety awareness, eliminate potential safety hazards, and implement occupational health and safety management in accordance with ISO45001 standards to ensure safe production and employee health, strive for continuous improvement of safety production related indicators, and determined to achieve the ultimate goal of zero injury
- 

**Diversity, Inclusion and Equal Opportunities**  
We establish and improve the supervision mechanism, take practical actions to ensure that employees have equal development opportunities, and create a diverse, inclusive, fair and tolerant working environment. We value talents regardless of gender, race, ethnicity, religion, or sexual orientation. We provide a variety of training for all employees to ensure that each employee is treated fairly in terms of training resources and career advancement



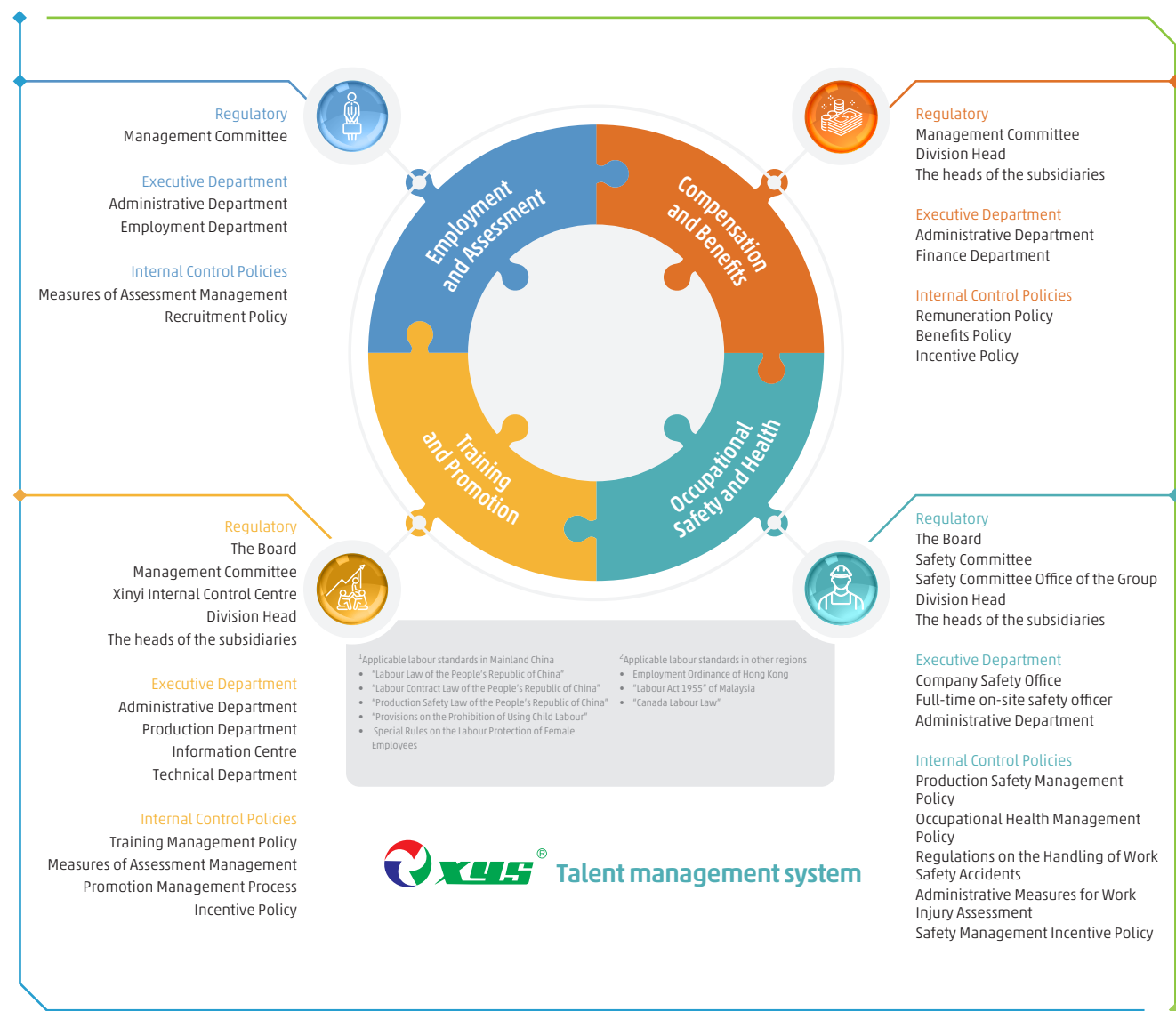


## EMPLOYMENT COMPLIANCE

### Talent Management System

In terms of talent management, the Group strictly abides by the laws and regulations of the place where it operates, respects and defends the rights and interests of employees granted by law, and implements the "people-oriented concept" into every aspect of talent management through the establishment and improvement of the talent management system.

The Group's talent management system is established based on the requirements of local regulations/laws and regulatory authorities where it operates, and benchmarks industry, local and international best practices as reference. The Group's internal management system was set up according to the four core modules of "Employment and Assessment", "Compensation and Benefits", "Training and Promotion" and "Occupational Safety and Health", which are implemented by the relevant departments and monitored by the Board, the management committee ("Management Committee") or dedicated committees/organisations (such as the Safety Committee ("Safety Committee") and the Internal Control Centre) to ensure that employees receive fair and equal treatment in hiring, training, assessment and promotion, adequate safety and health protection in the workplace, timely care and assistance in work and factory life, and comprehensive protection of employees' rights and interests.



### Employment Relationship

The Group mainly employs new employees through social recruitment, campus recruitment and other channels. In terms of employee recruitment, the Group has always adhered to the principle of equal employment and firmly upheld the right of everyone to equal employment opportunities. Through the implementation of a strict personnel recruitment system and enhanced supervision of the employment process, the Group has effectively eliminated all kinds of discriminatory measures and behaviors concerning employment, including but not limited to differential treatment due to non-personal ability factors such as race, ethnicity, nationality, age, gender, religious belief, marital status, etc. of applicants, discriminatory conditions contained in recruitment information, and discriminatory conditions as selection criteria in actual recruitment.

On the basis of ensuring fairness and equality in the employment process, the Group protects the interests of both employees and the Group itself through equal and friendly communication, negotiation and determination of employment terms, including job and occupational requirements, basic working hours, compensation and benefits, training and promotion mechanisms, occupational safety protection, non-competition agreements, confidentiality and termination clauses. After both parties have clarified their rights and obligations and agreed to the terms of employment in writing, the employment relationship is established by signing a written employment contract. During the Reporting Year, the Group standardised the management of employment contracts and maintained a 100% signing rate of employment contracts.

In recent years, the human rights policies and management of PV companies have attracted great attention from major stakeholders including regulators, customers, shareholders/potential investors, etc. The Group has always strictly abided by the laws, regulations and industry norms related to labour and human rights in the places where it operates, and ensures that the Group's employment systems, behaviors and measures comply with the human rights and labour-related principles of the United Nations Global Compact. Human rights are inviolable, the Group supports and respects the protection of human rights, resolutely abstains all employment practices that violate human rights and the spirit of the United Nations Global Compact in its own business areas, and requires suppliers and other business partners to follow the same standards to avoid human rights violations in business relationships. At the same time, as a global leader in solar glass, the Group makes good use of its influence in the industrial chain to call on and guide more enterprises to comply with the principles of the United Nations Global Compact.



United Nations Global Compact

Principle 4: Elimination of all forms of forced and compulsory labour

Principle 5: Effective abolition of child labour



We promise not to allow child labour, forced or involuntary labour within the Group.

#### Our actions

- Never employ anyone below the legal minimum age of labour in the place of business
- The terms and conditions of employment are set out in writing and are made known to employees, and the employment relationship is determined by a written employment contract
- Strict inspection and supervision of the recruitment and entry process, including verification of original identity documents such as ID cards and other required documents to avoid child labour and forced labour
- Respect and protect employees' right to terminate their employment contracts, and ensure that employees are entitled to the benefits of termination in accordance with the terms of employment, including but not limited to wages and share options
- Establish a system of reasonable working hours. Strictly comply with the statutory regulations on working hours in the place of business. If working hours need to be extended, ensure that the wishes of employees are respected and the requirements of laws and regulations in the place of business are met and provide overtime allowances



United Nations  
Global Compact

Principle 3: Uphold the freedom of association and the effective recognition of the right to collective bargaining



We are committed to respecting and protecting our employees' rights of association and freedom to participate in trade unions

#### Our actions

- Respect for employees' rights to association in accordance with the law
- Respect and protect the freedom of employees to participate in trade unions. Trade unions have been established at all production sites and all employees have the right to participate in trade unions and to communicate their opinions, suggestions and demands to the Group through trade unions
- Strictly comply with the relevant laws of the place where the Company operates in relation to "Collective bargaining" and "Collective contracts"



United Nations  
Global Compact

Principle 6: Elimination of discrimination in respect of employment and occupation



We undertake not to allow differential or unequal treatment of employees on the basis of characteristics unrelated to their personal qualities or the knowledge, skill and experience required for the job

#### Our actions

- We are committed to establishing a work environment free of harassment, bullying, defamation and harm to ensure that all employees are treated with respect, fairness and dignity, and are monitored through effective internal control mechanism
- Strictly follow the established internal systems and regulations of Xinyi Solar's talent management system in handling employment, assessment, remuneration, benefits, training, promotion and other related matters, and ensure compliance with relevant local laws and regulations to eliminate inequality treatment of employees in any employment matters based on race, ethnic, nationality, age, gender, religious beliefs, marital status and other factors

During the Reporting Year, the Group was not aware of any violations of laws and regulations regarding the prohibition of child labour and forced labour, nor was it aware of any other violations of employment laws and regulations or human rights violations.

## TALENT ATTRACTION AND RETENTION

### Compensation and Benefits

Under the influence of the Covid-19 pandemic and the war in Europe, inflation and macroeconomic uncertainty have risen, resulting in a sharp increase in the cost of living. In this context, employees need enterprises to provide stable income security. In response to the call of the United Nations Sustainable Development Goal 8, the Group ensured its own operational efficiency through stable operations and timely expansion strategies, while promoting productive employment in the areas where it operates, with 1,387 new employees added during the Reporting Year. The Group also shares development results with employees by enhancing overall remuneration returns and diversified benefit protection, so as to motivate employees to work hand in hand with the enterprise and give full play to its strengths to help the enterprise to reduce costs and increase efficiency in the long term.

Based on the basic requirements of the labour laws and regulations of the place where it operates, the Group has formulated and strictly implemented the "Salary Policy" and "Welfare Policy" to ensure that the determination, and adjustment of employees compensation and benefits comply with the legal requirements, industry norms and our internal rules and regulations, and at the same time, ensure that the overall remuneration returns of employees are attractive and competitive in the market through the implementation of the "Incentive Policy" to attract and retain outstanding talents.

The compensation of the Group's employees is mainly composed of basic salary, performance pay and reward and punishment adjustment. When determining the compensation of employees, we consider the duties and responsibilities of employees, individual performance, corporate performance, market benchmarks and economic environment, etc., and strive to achieve a balance between employee expectations and the Group's benefits. The basic salary is set in a manner that ensures legal compliance and adherence to the principle of fairness and equality. In addition, based on the responsibilities of different positions, the Group has set up quantifiable performance appraisal standards in terms of economic performance, environmental performance, and production/sales/R&D and other Job objectives. According to the results of regular assessment and the provisions in the "Incentive Policy", the Group sets the performance pay and the amount of rewards and penalties, and ensures the objectivity, fairness and impartiality of the assessment and results through an effective supervision mechanism so as to reward the good and punish the bad. The Group implemented a compensation assessment system for middle and senior management, and during the Reporting Year, in order to fully mobilise the work enthusiasm of administrative management personnel, the Group set up additional administrative assessment scores and provided additional incentives. [Case studies](#) Taking the administrative personnel of production-related departments as an example, ESG-related indicators account for 50% of the annual key assessment indicators, covering energy conservation and emission reduction performance, resource efficiency, supply chain management, talent management etc. and the weight of ESG indicators in the additional administrative assessment scores is as high as 80%, focusing on energy conservation and consumption reduction, innovation and efficiency project establishment, participation and effectiveness, administrative personnel's own integrity behavior and integrity management performance in the area of responsibility, and safety management and performance in the area of responsibility. The results of the annual administrative assessment is an important reference for the evaluation of professional titles and promotion, and since the weight of ESG-related indicators in the comprehensive performance indicators of the annual administrative assessment is as high as 65%, it ensures that middle and senior management personnel pay close attention to and attach great importance to ESG daily affairs, governance and performance, so as to work together with the Group to achieve the long-term goal of sustainable development.

The Group's working hours are set and managed in strict accordance with the statutory working hours requirements of the place where the business is located, and employees are guaranteed paid holidays such as statutory holidays, marriage leave, maternity leave, sick leave and paid annual leave. We encourage employees to combine work and rest, arrange work and rest reasonably, and achieve a balance between work and life. [Case studies](#) The Group's Hong Kong office implements a flexible working hours system, which allows colleagues to choose their own



commuting time, so as to ensure that the company's operation during core hours is not affected. It enables colleagues to better balance work and family needs, and arrange work, life and rest time according to their actual situation. The implementation flexible working hours enhance the employees' freedom of work and the sense of belonging, which leads to a more enthusiastic and positive attitude towards work, and has a positive significance for the long-term benefits of the enterprise, attracting and retaining talent.

The Group provides employees with medical benefits (critical illness insurance, occupational disease physical examination, annual health examination, etc.), housing benefits (housing subsidy/provision of housing), holiday benefits (gifts/holidays/festive activities), various subsidies (meals, transportation, communications, etc.), share options, education funds, etc., and also rewards employees with outstanding performance and long-term service to the Group, such as bonuses, additional paid holidays, and additional share options. **Case studies** In the Group's 2022 annual assessment, a total of 11 teams and 28 employees were rated as the "Excellent Teams" and "Excellent Employees" for their outstanding performance in performance contribution, quality cost, operation and maintenance efficiency, safety management, technological innovation, key tasks and core performance indicators, and were awarded bonuses to encourage them. During the Reporting Year, the Group also provided a scholarship fund of RMB400,000 to the children of 100 employees through the Xinyi Education Fund.

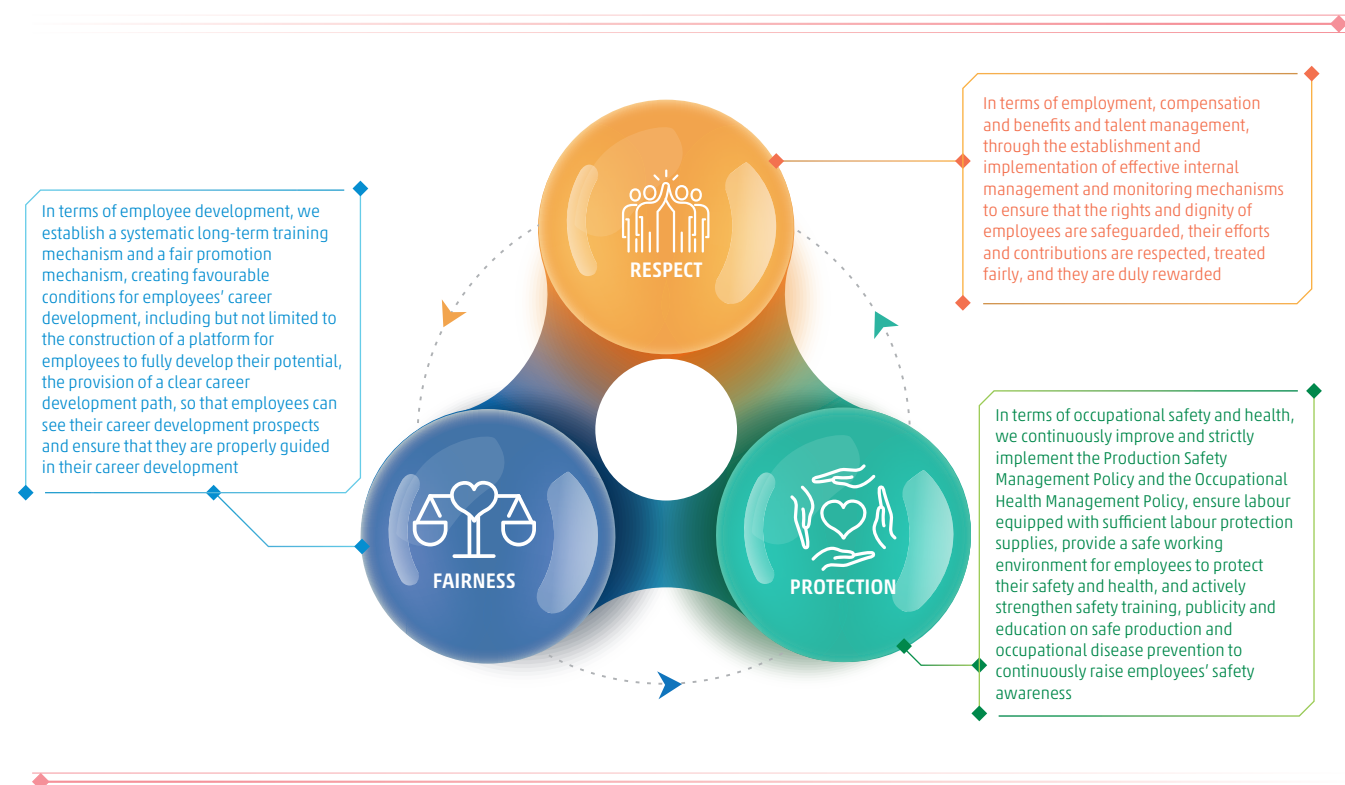
In order to seize the golden period of rapid growth of the photovoltaic industry, the Group intends to adopt a more proactive expansion strategy in the coming years. In order to meet the strong demand for talents brought about by rapid business expansion, especially professionals with rich industry experience, the Group's different production bases and solar farm business system departments actively implemented the talent reserve plans during the Reporting Year in response to the actual talent needs. **Case studies** Through the implementation of the local intern reserve program, our Malaysia production base allows more young talents to recognise, understand and gradually identify with the Company through internship opportunities, and ultimately enrich the diversified talent pool while promoting local employment, to better meet the Group's long-term development demand for technical and management talents.

In order to attract, cultivate and retain technical talents, the Group encourages employees to participate in the establishment and implementation of energy saving, cost reduction and efficiency improvement, product innovation technology project. The benefits and performance of related projects are linked with the evaluation of professional titles. The Group also sets up an incentive mechanism according to the substantive benefits brought by the projects, attracting more employees to pay attention to the technology that creates long-term benefits for the enterprise, to continuously expand the Group's technical talent team, and further enhance the welfare of core technical talents through project benefit rewards and equity incentives, so as to attract more external technical talents. **Case studies** In 2022, a total of 62 technicians received technical project awards issued by the Group. During the Reporting Year, the Wuhu production base, the Group's largest production base, achieved zero loss of core technical talents. As of the end of 2022, more than 95% of employees in the core technical team of the Wuhu production base have served for more than 5 years, of which nearly 49% have served for more than 10 years.

### Employee Care

The Group takes the initiative to care for the needs of employees, actively responds to and takes effective measures to answer employees' questions, so that employees can truly feel our concern for them and sincerity in solving difficulties encountered in work and work-life balance, which is the key to enhancing employees' sense of belonging and enhancing cohesion. Therefore, the Group has established and continuously improved its internal communication mechanism and continuously strengthened effective communication with employees.

In the areas of work, we strive to achieve:







In 2022, the pandemic in China recurred in the second and fourth quarters, and Malaysia was still affected to some extent by the pandemic, coupled with macroeconomic and geopolitical instability, which exacerbated personal anxiety and apprehension. Therefore, since 2021, the Group has extended employee care from the scope of work to physical and mental health care and life security care, sparing no effort to guide employees to choose a healthy lifestyle, actively communicate, regulate and relieve psychological stress, and establish the concept of mental health. During the Reporting Year, the Group mainly alleviated anxiety and insecurity arising from the pandemic and the macro environment through the following measures:

- **“Reconnection”**. The loneliness caused by the Covid-19 pandemic and nearly three years of pandemic prevention and anti-pandemic measures needs to be gradually alleviated through the gradual resumption of offline activities and exchanges. During the controllable period of the pandemic, the Group gradually resumed offline employee activities, especially during the traditional festivals with the meaning of reunion, and enhanced the communication between and within departments through diversified activities, so that employees can gradually eliminate trust anxiety and social fear caused by the pandemic, and gradually return to the pre-pandemic interpersonal communication state.



Lantern riddle event in the Lantern Festival



Joy Party in the Mid-Autumn Festival



- **“Healthy living”**. The three-year-long and repeated pandemic aroused everyone's attention to health. The Group has always promoted the concept of healthy living, and actively guided employees to establish the concept of healthy living through publicity, education and employee activities, develop the habit of regular exercise, and maintain a healthy body. During the Reporting Year, especially in the controllable period of the pandemic, the Group held a variety of health promotion activities at various production bases, including basketball, table tennis, badminton, billiards and other ball competitions, as well as mini marathons, tug-of-war competitions, fun games, etc.



Tug-of-war competition



Badminton league



Basketball game



Mini marathon





- **“Harmonious Family”**. The Group hopes that employees can balance work and family, especially when the Covid-19 pandemic has had a significant impact on the public’s work, life and education model. Harmonious family relationships are important to maintain employees’ good emotional and physical and mental health. Therefore, during the Reporting Year, the Group organised different types of leisure and recreational activities for employees and their family members to participate in, and encouraged employees and their family members to participate in volunteer activities to enhance their understanding, support and trust in the work of employees and the enterprise.



Activities in family open day



Family members participate in volunteer activities

Family networking activities

- **“Welfare Enhancement”**. The pandemic and macroeconomic uncertainty have led to a wave of layoffs in many industries, and many enterprises have experienced wage cuts, wage frozen and welfare cuts, which have caused individuals’ concerns about the stability of business operations and their own development. Despite the pressures of intensified industry competition, significantly higher operating costs and heated up trade disputes, the Group has continued to improve its economic efficiency and maintain steady development through stable operation, excellent cost control and strategic scale expansion. The Group also takes the initiative to share the results of its achievements with its employees, conducts annual reviews of their performance and remuneration in accordance with the established policy, continuously improves employee welfare, and continues to increase medical insurance, housing and meal allowances, holiday benefits and other aspects that can effectively reduce employees’ economic pressure and protect their physical and mental health.

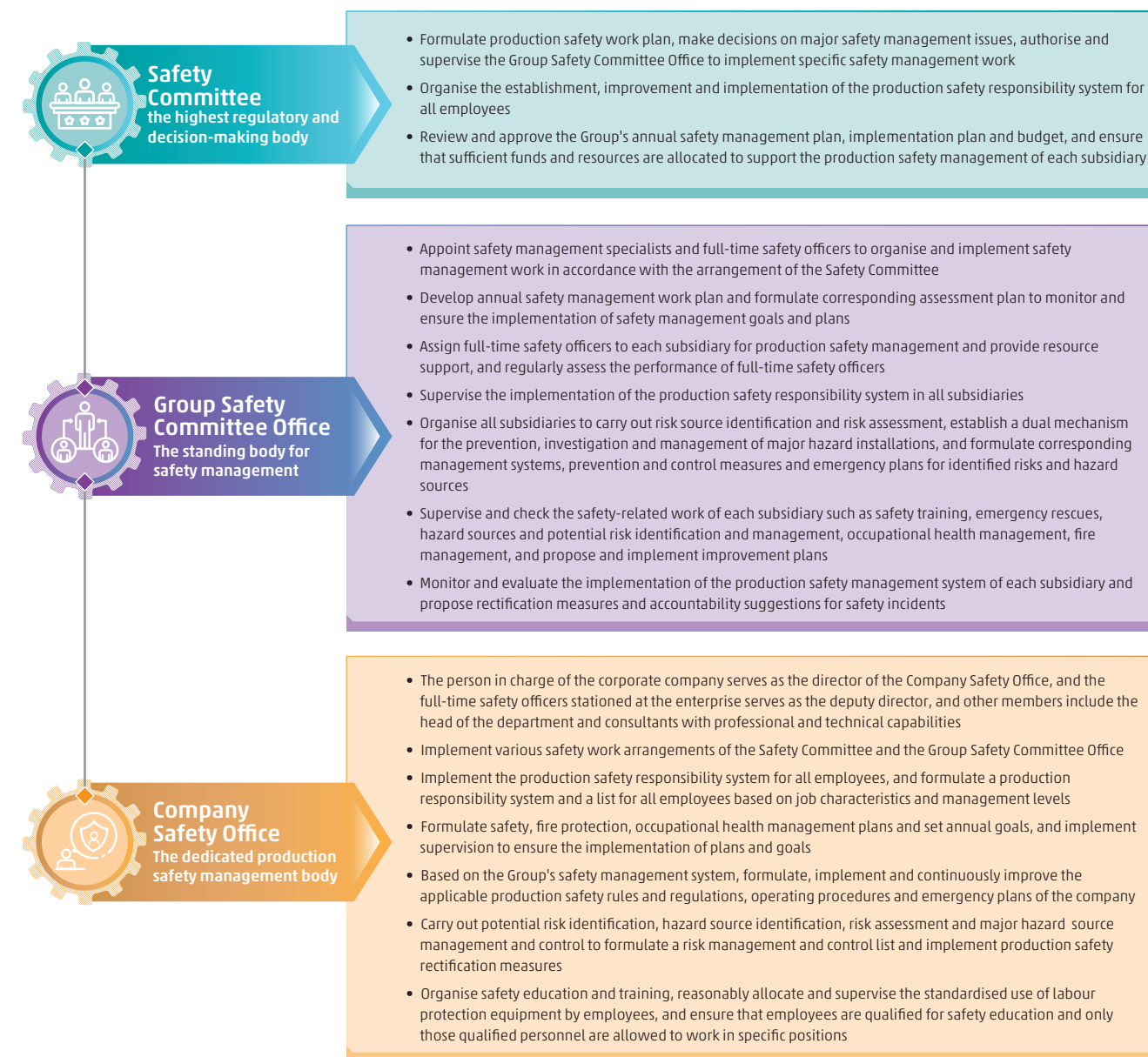
## OCCUPATIONAL SAFETY AND HEALTH

### Production Safety Management

Safety is above all else and is an insurmountable bottom line. The Group highly recognises that the establishment of a strong culture of occupational safety and health is crucial to the long-term development of the enterprise, and therefore attaches great importance to the strengthening of safety awareness from senior management to ordinary employees. The Group calls on every employee to value life and jointly promote a safe and healthy working environment by clearly and firmly fulfilling the safety responsibilities of their own positions. The Group strictly complies with the applicable laws and regulations related to safety production, such as the “Law of the People’s Republic of China on

Work Safety”, “Provisions on Safety Training for Production and Operation Entities”, “Measures for the Administration of Contingency Plans for Work Safety Incidents” and the “Factory & Machinery Act 1967”. The Group’s production safety work is supervised and managed by the Xinyi Solar Safety Committee (the **“Safety Committee”**), which is under the direct leadership of the Chief Executive Officer, in accordance with the established “Production Safety Management System”.

The Safety Committee is the highest supervisory and decision-making body for the production safety management of the Group, with the Group’s chief executive officer as the director and the deputy director being the respective division head. The deputy director of the Safety Committee is also the first responsible person for the division he/she in charge and is responsible for the overall leadership of the safety production work under his/her jurisdiction and assists the director to perform the duties of the Safety Committee. The Group has set up a two-level safety management structure under the Safety Committee, with the first tier being the office of the Safety Committee of Xinyi Solar (the **“Group Safety Committee Office”**) and the second tier being the safety management office of each corporate company (the **“Company Safety Office”**). The main responsibilities of each level of the organization are as follows:





Since the implementation of safety production management with a new safety management structure in 2021, the Safety Committee has continuously promoted the construction of the Group's safety management system by strengthening the implementation of established systems and introducing detailed systems and measures, so as to realise institutionalised, standardised and refined management of safe production.

**Case studies** During the Reporting Year, each industrial park reorganised the dual prevention mechanism of hazard source identification and risk grading control, optimised risk assessment methods, and the Safety Committee compiled and issued the "Hazard Source Identification and Risk Grading Control and Management System", and supervised the implementation of established regional risk control measures during the year, especially strengthened the safety control of major risk areas, and eliminated potential safety hazards in a timely manner through regular inspections by safety officers and monthly safety hazard investigations, so as to further reduce safety risks. In addition, in order to strengthen the safety management and supervision of hazardous operations, prevent and reduce safety accidents, and ensure the safety of operators, the Group issued and implemented the "Safety Management System for Hazardous Operations" in 2022. The "Safety Management System for Hazardous Operations" clearly states: (1) the responsibilities of personnel related to hazardous operations, requiring operators to hold certificates to work, and guardians and operation leaders need to bear corresponding guardianship, education and supervision responsibilities; (2) all hazardous operations must strictly perform the approval procedures, and be approved and managed according to the hazard degrees of the operations; (3) operators and guardians must strictly implement relevant safety precautions, operators shall receive relevant safety education before operation and obey the command of on-site management personnel during operation, and abide by the operation site management system; and (4) the corresponding working procedures and supervision of eight hazardous operations.

In addition to ensuring its own safe production, the management of related parties is also an important part of the Company's safety production activities. After establishing cooperative relationships with related parties, the safety management performance of related parties will have a real impact on the safety performance of the Group. Therefore, the Group is committed to strengthening the safety management of related parties, aiming to build a safety community and work together to achieve sustainable safety production. The Group strengthens the personnel management of suppliers, contractors and other external institutions, teams and individuals related to the Group's production and operation activities, and implements the responsibility system for safe production of all types of personnel at all levels. **Case studies** During the Reporting Year, the Group issued and implemented the "Regulations on Safety Management of Related Parties": (1) requiring related parties to sign the "Agreement on Safety Production and Environmental Protection of Related Parties" to clarify the safety management responsibilities of both parties; (2) to review strictly the safety management system, safety training system and technical qualifications of foreign operators of related parties, and require related parties to conduct safety education and training for employees; and (3) related parties must provide adequate labour protection supplies and purchase labour insurance for their employees. The Company Safety Office performs its responsibilities to supervise and inspect the implementation of the requirements of related parties, while the Group Safety Committee Office is responsible for reviewing the related parties' documents for safety management system, construction operations and technical plans, relevant qualifications, employee insurance and safety training implementation.

The implementation of the system is inseparable from every employee is emphasis on safety. In order to establish the awareness of safety red lines for all employees, the Group implements the responsibility system for safe production of all employees, and ensures that all employees can clearly understand the potential safety risks of their posts, the safety responsibilities they should perform, and the importance and necessity of complying with the standard operating procedures of the post and regulations by strengthening safety training and education. **Case studies**

During the Reporting Year, the Group provided 3 levels of safety training to 3,459 new employees, with an assessment pass rate of 100% after training. In addition, 183 on-the-job special safety trainings were conducted, with more than 5,200 participants. In 2022, the Group provided a total of 32,896 hours of new employee safety training, special safety training and routine safety training, with 32,001 participants. At the same time, the Group has established an incentive mechanism through the implementation of the "Safety Management Incentive Policy" to encourage all departments and employees to improve their safety production performance, to gradually reduce and ultimately avoid safety accidents caused by human negligence. During the Reporting Year, the Group recorded 57 work-related accidents, with a work-related injury rate of 0.67, 1,953 working days lost and the ratio of work-related days lost decreased to 22.0.

## Occupational Health Management

The Group strictly complies with the laws and regulations related to occupational safety and health in the country and the region where it operates, such as the "Law of the People's Republic of China on the Prevention and Treatment of Occupational Diseases", the "Occupational Safety and Health Act of 1994", and the "Regulations on Occupational Safety and Health". Under the supervision of the Safety Committee and the Group Safety Committee Office, our occupational health and safety management is implemented by the Company Safety Office in accordance with the established occupational health management policy, which complies with the standards of international ISO45001:2018 Occupational Health and Safety Management Systems. By arranging professional organisations to regularly monitor occupational hazardous factors in workplaces, the Group ensures that the intensity and concentration of occupational hazardous factors in workplaces meet or are lower than the occupational health standards of the regions and countries where the businesses are located, takes effective technical measures, such as dust removal by ventilation, noise reduction, etc., as well as reasonable working hours arrangement and provide necessary personal protective equipment to reduce exposure levels and physical work loads of employees and protect the health of employees. The Group also provides annual health check-ups and occupational health check-ups for its employees to ensure that they are aware of their health conditions in a timely manner so that they can respond to and deal with health problems as soon as possible.

**Case studies** During the Reporting Year, the Group issued and implemented the "Occupational Health Management Policy" and the "Management Policy for Occupational Protection Supplies" to better standardise the reporting, procurement, distribution and use of occupational health-related work and occupational protection supplies, so as to continuously improve the Group's occupational health management system, ensure that employees receive move protection, prevent, control and eliminate the occupational disease hazards, improve the production and working environment, and protect employees' life safety and physical and mental health. The relevant policies define the supervisory responsibilities of the Safety Committee. The Group Safety Committee Office is responsible for urging each subsidiary to strictly implement the established systems and conduct regular assessment. The Company Safety Office is responsible for formulating detailed implementation measures to ensure the implementation of relevant policies, regularly checking the development of relevant works, carrying out special training as needed and assessing the training effect to ensure that employees fully understand the Group's management system for occupational health and labour protection supplies, and continuously improve their occupational health professional knowledge and labour protection awareness, so as to strictly abide by the standardised operation procedures in daily work to protect their own safety.



### XINJI Occupational Health Management System

#### Legal compliance

- Compliance with local laws and regulations relating to occupational safety and health
- Arranging and supervising occupational health management in accordance with the Occupational Health Management System

#### Strict supervision

- Under the supervision of the Safety Committee and the Group Safety Committee Office
- We have established an employee's personal occupational health management file, and the safety officer responsible for occupational health management has obtained the Occupational Health Training Certificate
- Making reasonable adjustments to work arrangements for special weather such as high temperature and workplaces that may cause physical burden to employees
- Develop and take corresponding protective measures for special processes
- Set up occupational health and safety affairs representatives to collect employees' opinions and suggestions on occupational health, safe production and labour protection, and provide regular feedback to supervisors
- Employees can also provide feedback on the Group's existing occupational health management system, work and protection measures through channels such as trade unions and mailbox

#### Training and Publicity

- Regular occupational health training is arranged to ensure that employees understand occupational hazards related to their job positions, occupational disease prevention and protection and control measures, continuously improve their health awareness, and ensure that they consciously abide by the Group's established rules and regulations
- Set up an employee care team to carry out occupational health, labour protection and safety publicity in the factory on a daily basis to improve employees' occupational health and safety awareness

#### Labour Protection

- Provide employees with adequate professional labour protection supplies according to the needs of different departments and job positions, and arrange special training for labour protection supplies to ensure that employees understand the relevant systems of the Group, the meaning of using labour protection supplies and the correct use of labour protection supplies
- Conduct at least one evaluation of the status of occupational hazards every three years
- Arrange qualified professional institutions to test occupational hazards in the production site every year, including noise, high temperature, air quality, etc., to ensure that the working environment meets the standards and is continuously improved

#### Health Protection

- Provide pre-employment health check-ups and annual health check-ups for employees to ensure that they are regularly informed of their health conditions
- Providing occupational health examinations for employees in specific positions before taking up their posts, each year during their employment and before leaving
- Purchase critical illness insurance for employees to provide additional protection and reduce the impact of critical illness on employees and their families





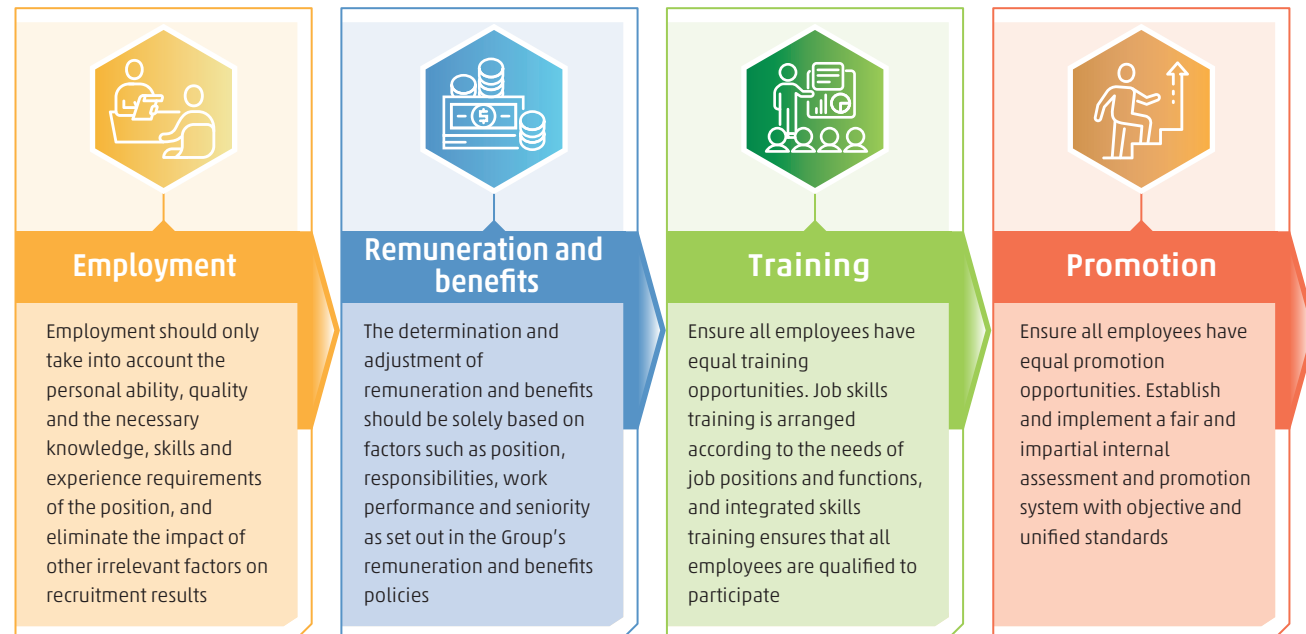


## DIVERSITY, INCLUSION AND EQUAL OPPORTUNITIES

### Principle of "Equality, Diversity and Inclusion"

The Group believes that a diversified talent team help us stand out from the global competition. The Group also intends to accelerate its overseas presence and enhance overseas production capacity to better cope with the uncertainty of trade disputes. In the face of talent management challenges brought about by the expansion of business scale and overseas expansion, the Group deeply recognises the importance of diversity and adheres to the principles of "equality, diversity and inclusion" in every aspect of talent team building and talent management, and is committed to taking all effective measures to build a harmonious, mutual assistance and inclusive working environment, forming a team culture of mutual respect, equality and inclusion, so that all employees feel respected and treated with dignity, and prevent and strive to eliminate all forms of unequal treatment at work.

"Equality" is the Group's primary principle in talent management, which is reflected in all aspects of talent management:



The Group's first overseas production base was put into operation in 2016, and after six years of development, the proportion of localised talents has increased significantly. Based on the talent management experience of the Malaysia production base, talent localisation can help the Group understand and integrate into the local society in which it operates, and is the key to building a closer relationship with the local government and local residents and gaining recognition. At the Group level, a staff team with different nationalities, ethnicities, ages, genders, professional knowledge, skills, cultural and educational backgrounds, experiences and qualifications can give the Group a broader perspective to better grasp the market needs and development opportunities of different cultural backgrounds. At the same time, building and managing a diversified team is also conducive to the formation of an inclusive culture and the gradual enhancement of inclusiveness in the Group. We learn to listen to the demands of different employees, create a diverse and inclusive working environment from the details, and pay attention to the establishment and improvement of a fair and equitable talent management system, which makes our talent team more competitive and flexible.

The differentiation comes from the different employee structure and cultural background of each production base. The Group respects and accepts differences, so it has set up local labour unions at each production base to allow different production bases to make differentiated arrangements in terms of employee management, training and development and employee activities that are more in line with the actual situation and needs of local employees on the basis of the principle of equality in talent management of the Group. In addition, employees with different races, ethnicities, nationalities, ages, genders, religious/beliefs and marital status have different demands for work and factory life. Under the premise of ensuring that the requirements of the Group's talent management system and the principle of equality are not violated, the Group is committed to meeting the differentiated demands of employees in terms of dietary, religious/beliefs, work arrangements and family balance by taking different measures:





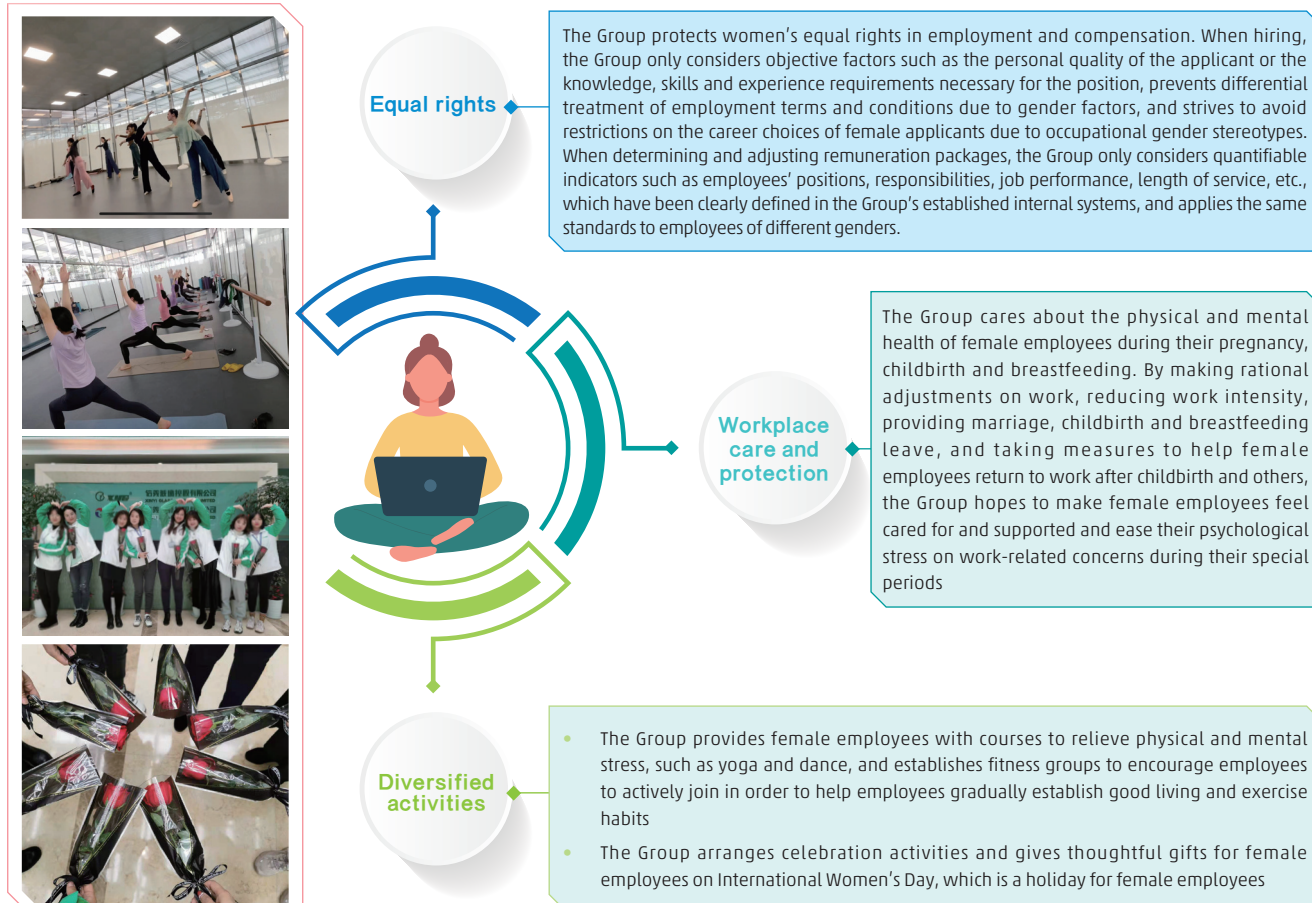


### Support to Female Employee Development

Female employees, like male employees, are important to the Group's human resources team building and long-term development, and the Group is therefore committed to maintaining gender balance in the workplace. The Group has never limited the development of female employees with stereotyped professional or job impressions. On the contrary, we are committed to taking all necessary measures to support the development of female employees in practice, providing equal training and promotion opportunities for female employees, and providing full tolerance and care to female employees during the special period. The Group's principle of equality is to ensure that all employees are not treated unequally in any employment matters on the basis of race, ethnicity, nationality, age, gender, religious/belief, marital status, etc., therefore, gender has never been a condition for the Group to assess talents. On the contrary, we respect employees' personal wishes and demands for positions, and strive to protect their equal right to choose.

Due to the historical imbalance of gender ratio in the large-scale industrial manufacturing industry, especially in the front-line manufacturing process, the imbalance is more obvious, and the proportion of front-line production employees in the Group is as high as 82% due to the flat structure, therefore, although the Group adheres to the principle of equality and strives to eliminate gender bias, the absolute ratio of female and male employees is still far from equal. We believe in equality not in numbers, but in ensuring that every employee does not feel discriminated, harassed, or treated unfairly or unjustly because of their gender during their employment with the Group. Through the Group's persistent efforts, the proportion of female employees has continued to increase in the past three years, increasing by 1.2 percentage points to 21.1% in 2022 compared with 2021. In middle and back offices functions such as quality control, sales, finance, administration or subsidiaries that do not involve production, the gender mix is more balanced with an even higher proportion of female employees.

The Group is committed to creating an equal, fair, inclusive and caring environment for female employees in the following areas:



The scale and development of the Group today is closely related to the hard work and contribution of every employee in their positions. Female employees are the indispensable backbone of the Group's talent team. Female employees often demonstrate outstanding performance in terms of observation, empathy and communication skills, job stability and psychological toughness. The management team and other important positions of Xinyi Solar include outstanding female employees who have demonstrated their dedication and expertise to create long-term value for the Group.

**Female Power**

**Finance Department**

By 2022, it has been the 12th year of joining the Xinyi Family by Sun Xuling, a staff of the finance department of the Wuhu Production Base. From the general financial staff to the head of the finance department of the subsidiary, Xu Ling said that she was deeply influenced by Xinyi's philosophy of "trust, integrity, passion and people". She kept the corporate culture in mind, and worked diligently in her own positions, kept learning and pursued continuous improvement. Xinyi has always adhered to the concept of high-quality and energy-saving products and green development, leading a new green life and promoting a green and healthy corporate culture. Xinyi Solar is deeply engaged in the photovoltaic industry. By increasing investment in solar glass and solar farm businesses, it fully supports the realisation of the national dual-carbon goals and the global energy transformation. At the same time, it also provides a broad platform for employees to show their talents. With the so-called "Boundless is the sea for fish to dive at will, unlimited is the sky for birds to fly at ease", Xu Ling believes that the personal growth in the past 12 years cannot be separated from the development and care of the Company, and also hopes to "be motivated by dreams, and move forward together with the Company" in the future.

**Engineer**

Wang Run, a long-serving member who witnessed the growth of the Group, joined the production team member of Wuhu Base in 2008 and 2022 has been the 15th year of her growth with Xinyi. From a junior team member to the process engineer, to the person in charge of the high-tech enterprise project of the technology department of the subsidiary, Wang Run believes that it is inseparable from the opportunities and support provided by the Company. Due to the influence of corporate culture, Wang Run has been pursuing excellence in work, constantly learning and making progress. Wang Run has participated in the writing of 18 patented utility model patents and 2 patented invention patents. She has not only obtained the title of "engineer" of the enterprise, but also obtained the title of "assistant engineer" of the state. She continually improve herself during spare time. She took the self-taught of postgraduate programme in her spare time to keep up with the pace of the Company and move forward together. Wang Run said, since her graduation, Xinyi is like her home, and Xinyi has provided her a good development platform. As a member of Xinyi, she is honoured and proud of it. In the future, Xinyi will motivate her to continue to contribute to the Company with the standard of a career manager.



### Training and Promotion Mechanism

Systematic training is essential for employees to enhance their professional skills and comprehensive abilities and to achieve their career development goals. Therefore, the Group organised employee training in accordance with the established employee training management policy and the administrative department of the Group or its subsidiaries are responsible for organising employee training. Internal training is arranged by production, technology, solar farms operation and maintenance, internal control centre, information centre, Group Safety Committee Office, Company Safety Office and other departments that offer/receive the training services. According to the targeted employee group, training theme and based on the training effect, the Group flexibly adopts different forms of training, such as large-class training, small-class training, theoretical training and practical operation training. During the Reporting Year, the duration and number of participants of vocational skills training, safety training and integrity training increased significantly due to the addition of two new solar glass production bases and the continuous increase in the grid-connected capacity of solar farms, as well as the great emphasis on the cultivation and enhancement of employees' safety awareness and integrity awareness. The Group arranged a total of 94,558 hours of internal training in 2022, representing a significant year-on-year increase of 118.7%. In addition to internal training, the Group also provides training to employees by commissioning qualified external professional institutions to meet the demand for professional knowledge and skills that cannot be covered by internal training. During the Reporting Year, the Group arranged a total of 8,085 hours of outsourced training, representing an increase of 69.9% compared to 2021. [Case studies](#) In 2022, our Malaysia production base commissioned an external professional organisation to arrange a number of training for administrative management personnel on safety production, occupational safety and health, and employment management, with themes covering safety management knowledge, Employment (Amendment) Act 2022, occupational safety and health management, etc.



The Group's employee training is broadly divided into two categories: technical training and skill training according to different needs, such as long-term development needs of the enterprise, customer needs, legal compliance requirements and personal development needs of employees. Technical training includes vocational skills training, safety training, integrity training and environmental protection training. Through vocational skills training, employees can enhance their professional ability to match job needs and have a deeper understanding of job requirements and responsibilities. Safety education and integrity training strengthen employees' safety awareness and integrity awareness through case analysis and education on the Group's management system, safety and integrity culture, so that employees can more consciously abide by the Group's established safety production management system and integrity management system. In addition, the Group hopes to convey the concept of "live and learn" to employees through skills training, and provide corresponding training resources for employees, so as to encourage employees to continuously improve their comprehensive personal abilities through learning and achieve self-enhancement. Therefore, the themes of skills training cover (but are not limited to) laws and regulations, leadership, time management, business writing and communication skills, digital skills, business etiquette, etc. During the Reporting Year, the Group provided 90,596 hours of technical training and 12,047 hours of skills training to employees respectively, representing a year-on-year increase of 117.7% and 88.9% respectively. [Case studies](#) In 2022, our Malaysia production base provided a number of skills training courses for local manpower reserves, covering leadership thinking, leadership and team management, business etiquette, on-site 6S management and attendance management training, etc., to foster and expand local talent pools to meet the talent needs of management positions and other key positions.







Training on tempering machine operation



New era leadership and team performance



Knowledge of safety management



Occupational safety and health management

Practical operation training has a strict assessment system. In addition to examinations and assessments performed by their respective department, the administrative department also regularly follows, assesses and evaluates relevant training during and after the training to ensure the effectiveness. In addition, for special jobs and special positions, the Group conducts skill assessment and regular review in strict accordance with national laws and industry regulations and ensures that certificates are maintained. The Group also welcomes feedback from employees on the training content and internal training instructors through the Training Assessment Form, so that we can timely receive feedback from employees on the arrangement and effectiveness of training, which will help the Group to continuously optimise staff training arrangements and continuously improve training effectiveness.

Adhering to the concept of "meritocracy", the Group has established and continuously improved the promotion mechanism to build a diversified promotion ladder for all conscientious employees, provide sufficient development space, and ensure equal promotion and career development opportunities for all employees. The Group's promotion mechanism is based on regular appraisal of staff performance and key performance indicators. The promotion process is strictly implemented in accordance with the Group's established system to ensure fairness and impartiality and to eliminate all forms of discrimination and prejudice.

The Group conducts employee performance assessment by strictly complying with the "Measures of Assessment Management", and sets key performance indicators for different departments and individual employees, including but not limited to economic performance and environmental performance, to ensure that the targets are specific, objective, and quantifiable for assessment. The quarterly/annual appraisals of employees are conducted by the department heads, the heads of the subsidiaries or the supervisors in charge and monitored by the Management Committee. Based on the confirmed evaluation results, incentives or promotion opportunities will be offered to employees with excellent performance, and improvement measures such as retraining will be proposed to those who do not meet the standards. The administrative department will assist in arranging, following up and evaluating the implementation progress and effectiveness of the improvement measures. The promotion of managerial personnel emphasises the results of annual administrative assessment. The annual administrative assessment consists of two parts, the annual key performance indicator assessment and the additional administrative assessment, in which the weight of ESG-related indicators is not less than 50%. The assessment has a point deduction mechanism, and the managerial personnel with the highest comprehensive performance ranking will be given priority in the promotion, thereby motivating the managerial personnel to pay close attention to and attach importance to ESG governance and performance, and work with the Group to achieve the long-term goal of sustainable development.



# ESG PERFORMANCE IN 2022

The data collection and calculation methods used in this Report are consistent with the Hong Kong Stock Exchange's "Reporting Guidance on Environmental KPIs" and "Reporting Guidance on Social KPIs", unless otherwise stated, and follow the quantification and consistency principles to provide quantifiable KPIs performance and ensure the comparability between current year data and historical data. Additional remarks will be made for the calculation methods and/or reference coefficients that need special explanation. Unless otherwise stated, the data provided in this section are annual figures for the year or the figures as of 31 December. In the event that previous figures need to be restated, the reasons will be explained accordingly. Following the Hong Kong Stock Exchange's recommendation, on the basis of disclosing the data of key performance indicators, in accordance with the ESG Reporting Guide", Appendix 27 to the Rules Governing the Listing of Securities of the Hong Kong Stock Exchange, the Group also made reference to other international photovoltaic-industry related environmental, social and governance reporting standards, such as "Sustainability Accounting Standards for the Solar Technology & Project Developers Industry" issued by the SASB, and performed corresponding disclosure on its proposed sustainable disclosure topics, accounting metrics and activity metrics.

## Economic Performance

According to the FTSE Russell Green Revenue Classification System (GRCS), the Group's two core businesses, manufacturing of solar glass and solar farm business, were classified as "Energy Equipment - Solar" and "Energy Generation - Solar". As the two core businesses are both green and contributed 85.9% and 13.4% of the Group's total revenue in 2022, respectively, the Group's green revenue accounted for 99.3% of total revenue. In 2022, the Group's capital expenditure was HK\$6.65 billion, 100% of which was invested in the photovoltaic industry.

During the Reporting Year, the solar glass business faced many challenges, such as intensified industry competition, declining market price, substantial rise in raw materials and energy costs, and increased uncertainty of international trade environment. However, we still saw the world's determination to urgently transform into a cleaner energy system and strong support for solar photovoltaic power generation in more countries. Therefore, the Group has strengthened its determination to deepen its commitment to the PV industry, actively increasing production capacity of the solar glass, steadily promoting the growth of the installed capacity of solar farms, and exploring new opportunities in other areas of the areas of the PV industry. During the Reporting Year challenges and opportunities coexisted. With aggressive capacity expansion, excellent cost control, continuous optimisation of product mix and consistent R&D investment, the Group's consolidated revenue reached a new high of HK\$20.54 billion, up by 27.9% year-on-year. The net operating cash inflow amounted to HK\$5.89 billion, and its financial position remained stable. As at 31 December 2022, the Group's net gearing ratio was 7.7%, with cash and cash equivalents of HK\$5.33 billion.



Indicators	2022	2021
<b>Direct economic value (HK\$ million)</b>		
Produced <sup>Note 1</sup>	20,835	16,463
Allocated <sup>Note 2</sup>	18,269	13,283
Retained <sup>Note 3</sup>	2,567	3,180
<b>Earnings performance</b>		
Consolidated revenue (HK\$ million)	20,544	16,065
Consolidated net profit attributable to shareholders (HK\$ million)	3,820	4,924
Earnings per share - basic (HK cents)	42.95	55.65
Dividend per share (HK cents)	20.00	27.00
<b>Asset positions</b>		
Net assets value attributable to shareholders (HK\$ million)	29,748	30,312
Cash and cash equivalents (HK\$ million)	5,326	7,458
Bank loans (HK\$ million)	8,032	8,008
Net gearing ratio (%)	7.70	1.50
Current ratio	1.80	2.70

### Notes:

- (1) The direct economic value produced includes revenue, other income, other losses, net, impairment losses of financial and contract assets, share of profit/loss of investments accounted for using the equity method, finance income as disclosed in the consolidated income statement
- (2) The direct economic value allocated includes cost of sales, selling and marketing expenses, administrative and other operating expenses, finance costs, income tax expense and dividends as disclosed in the consolidated income statement
- (3) Direct economic value retained = Direct economic value produced - Direct economic value allocated

## Business Performance

As a global solar glass leader, its shipment volume in 2022 accounted for about 32% of the global market share (in terms of the solar glass required for global PV module shipment volume). The solar glass sold by the Group in 2022 can meet the 103GW module demand across the globe, which is equivalent to 75.6 million tons of carbon dioxide emission reduction. The Group not only made positive contribution to the global carbon neutrality process through its solar glass products, but also continuously explored and implemented a number of energy-saving and emission-reduction measures in its daily operation to further reduce the possible negative environment impact during solar glass production. For more information about the Group's energy saving, emission reduction measures, and climate actions and performance during the Reporting Year, please refer to the sections headed "Journey to Green Production of Solar Glass" and "Climate Action" in this Report.





The Group is also a leading non-state-owned solar farm owner and operator in China. Since 2012, the Group has been investing in the construction of solar farm projects, including self-use distributed projects that provide electricity for solar glass production, utility-scale ground-mounted solar farms and commercial distributed projects that sell electricity directly to the grid companies. As of the end of 2022, the net asset value of the Group's grid-connected and under-construction solar farm projects was over HK\$15.7 billion. During the Reporting Year, the Group newly added 806MW solar farm projects. As at 31 December 2022, the cumulative installed capacity of the Group's solar farm projects reached 4,879MW, with an annual power generation increased by 19.0% to about 4,396 million kWh, equivalent to saving standard coal 1.325 million tonnes, preventing 3.640 million tonnes of carbon dioxide emissions. The Group is committed to achieving a win-win situation of eco-environmental, economic and social benefits through the development of "environment-friendly" solar farm projects. For relevant cases, please refer to the "A Win-Win Development Model of Solar Farms" in the section headed "A Lifetime Pursuit of Green Business" of this Report.

## Business ethics

### Anti-corruption

The Group strictly complies with the anti-corruption and bribery laws of the locations where it operates, such as the "Criminal Law of the People's Republic of China", the "Prevention of Bribery Ordinance of Hong Kong", the "Anti-corruption Commission Act" of Malaysia and its amendments, and implements "zero tolerance" principle for any form of corrupt behavior, practicing the attitude of "rejecting commercial bribery, not accepting bribes and not bribing" in all aspects of daily operations.

The Internal Control Center is the full-time department of the Group's integrity management, directly led by the Chief Executive Officer, and independently carries out integrity publicity and training, daily supervision, acceptance, investigation and handling of integrity complaints of employees in accordance with the Xinyi Group Integrity Management System.

Honesty, integrity and law-abiding are the bottom line that every employee should adhere to. In order to strengthen employees' sense of integrity and law-abiding, the Group revised the "Ten Integrity Regulations for Xinyi Employees" during the Reporting Year, which explicitly and clearly put forward the code of business ethics that employees should abide by when dealing with the Group's business affairs, and the corrupt or irregular behaviors that employees should not do. The Group strictly requires employees to refrain from taking advantage of their positions to solicit and accept bribes or improper benefits from cooperative business units and individuals, and prohibits employees from bribing or providing improper benefits to business partners, partners' agents and public officials. In order to encourage employees to refuse commercial bribery, the Group implements a reward system, in which the employee will be awarded all or part of the bribe amount, inform praised in the "Integrity Xinyi" WeChat official account, included in the talent pool and given priority in promotion, salary increase, appraisal and title evaluation. In addition, in order to prevent directors, senior management personnel and personnel in other important positions from taking advantage of their powers or positions to seek personal interests with enterprise resources or to commit acts that violate the Group's principles of fairness and justice in business cooperation and employment management, the Group requires them to declare conflicts of interest every year in accordance with the Conflict of Interest Management System, so as to identify potential conflicts of interest, prevent personnel management risks and protect the interests of enterprises, shareholders and employees.

In addition to establishing and constantly refining the code of integrity and code of conduct, the Group has also established an effective supervision mechanism and a strict reward and punishment system to strengthen the regulation of employees, suppliers and other business partners to prevent corruption and improper behaviors. The Internal Control Center carries out daily supervision by reviewing vouchers and data, conducting irregular interviews with key departments and personnel, and regularly arrange working teams to production sites and conducts on-site integrity inspections of various production sites to strengthen supervision. In order to improve the reporting quality and handling efficiency, the Group encourages employees, business partners and members of the public to report any disintegrated behaviors related to the Group through various channels, including but not limited to, letters, emails and telephone calls. After receiving the reporting materials, a two-person team composed of the Internal Control Center specialists will conduct the initial audit, and a panel of commissioners will be set up according to the initial audit results to conduct the case review. The investigation and handling shall be completed within 30 days (with maximum of no more than 60 days) after the case is accepted, and the Internal Control Center shall establish an independent file for storage. For employees who violate the Group's internal integrity system or are suspected of committing duty crimes, according to the Integrity Notification System, the Internal Control Center will notify the Company employees and the public of the specific handling results by email and "Integrity Xinyi" WeChat official account within 30 days after the case is closed. In order to encourage suppliers, other business partners and employees to participate in the Group's integrity operation monitoring system and actively report irregularities such as corruption and duty crimes, the Group implemented the Whistleblower Protection and Reward System. The Internal Control Center is a full-time department engaged in integrity investigation and reports directly to the CEO, which safeguards the independence of integrity report acceptance and investigation from the structure perspective. In addition, the Internal Control Center follows the principle of confidentiality, and has strict control systems and procedures for the acceptance and investigation of integrity reports, so as to ensure that the privacy information and reporting materials of whistleblowers and reported persons are kept strictly confidential. The violation of confidentiality principle will be strictly dealt with in accordance with the Group's confidentiality system, and the violation of criminal laws and regulations will be investigated for criminal responsibility. If the report is real-named and the corruption problem is objectively reflected, the Group will reward all or part of the bribe amount identified by the internal control center to the whistleblower or business unit. The Group encourages internal mutual supervision, and regards integrity performance as the key indicator and bonus item for managerial staff's administrative assessment, which accounts for no less than 15%.

The Group attaches great importance to integrity training, which is required for all new employees. Employees from key departments and positions are required to participate in integrity training organised by the Internal Control Center every year to establish and continuously improve integrity and self-discipline awareness, and ensure the adherence to the law and the bottom line of the Group's business ethics in business activities. In 2022, the Group arranged 44 integrity trainings, which lasted for 4,874 hours, involving 3,632 employees, covering about 43% of total employees as at the end of the Year, and 100% of key departments and positions. Integrity training includes legal provisions, corporate integrity culture, common behaviors violating integrity system, integrity management system and reporting procedures, integrity warning case, etc. Employees participating in the training are required to submit reports sharing their reflections on the training and pass written examination to deepen their understanding of the Group's integrity culture and system.

"Trust" is the core value that the Group adheres to. Integrity is the foundation of an enterprise and an important principle in maintaining market order. Therefore, the Group issued the "Notification Letter on Integrity Management, Mutual Benefit and Win-Win" to suppliers and other business partners, specifying the 14 integrity violation acts that the Group will firmly prohibit, and requiring all suppliers to sign integrity agreements, undertaking to strictly abide by laws and regulations in business transactions and prohibiting any form of bribery, and at the same time proactively supervising and reporting illegal and undisciplined practices in cooperation between the two parties, so as to ensure fair, just and open transactions and the interests of both parties. If suppliers and other business partners violate the integrity agreement and/or in business cooperation, they will be included in the Group's untrustworthy list. The Group will immediately stop the business cooperation with the untrustworthy partners, and prohibit them from participating in the Group's bidding, procurement and business cooperation within a set period of time. If such partners were included into the untrustworthy list for the second time, they will be permanently disqualified from cooperation. Integrity and anti-corruption are one of the requirements that all suppliers must comply with as explicitly specified in the Supplier Code of Conduct. The Group also encourages all suppliers and other business partners to prevent their own bribery and corruption a standard higher than that required by laws and regulations, and work with the Group to create an honest and fair business environment.

During the Reporting Year, there were no legal proceedings concluded against the Group or its employees in relation to corrupt practices and there were no confirmed incidents of termination or non-renewal of contracts with business partners due to corrupt practices.



## Product Responsibility

The Group implements ISO9001:2015 Quality Management System to monitor product quality, and strictly enforces quality inspection management procedures to control the raw materials, the entire production process and finished products in daily operations according to the Group's "Quality Control Manual". The Group's solar glass products have obtained the China Compulsory Certification (CCC), and also met international certification standards such as RoHS and REACH.

During the Reporting Year, the Group did not have to recall any sold or delivered products for safety or health reasons. The number of complaints received by the Group in relation to products and services during the Year was 164, a slight increase from 2021 (2021: 109), mainly due to the addition of two new solar glass production bases in 2022 and the increase in production and sales. The Group responded to customers' complaints about products and services in a positive manner in accordance with the requirements of the quality complaint handling procedures, and also responded to customer return requests efficiently during the Reporting Year in accordance with standardised return procedures. During the Reporting Year, the complaint handling rate of the Group was 100%. According to the 2022 customer satisfaction survey, customers' satisfaction with the quality of the Group's solar glass products has further improved, with satisfaction scores all exceeding 95 points.

In 2022, the Ministry of Industry and Information Technology and other state departments have repeatedly proposed to accelerate the research on recycling technology, standards and industrialisation of waste photovoltaic modules and strengthen the whole life cycle management of photovoltaic industry chain. With the continual focus from the national regulatory authorities, customers, other business partners, institutional investors and other major stakeholders, the Group has made disclosure with reference to SASB's disclosure requirements for accounting indicators on related topics:



Indicators	2022	2021
Product recyclable ratio <sup>Note 1</sup>	98-100%	76-100%
Product reusability ratio <sup>Note 2</sup>	95%	95%
Weight of product recovered during the Reporting Year (tonnes) <sup>Note 3</sup>	N/A	N/A
Proportion of total sales (%) <sup>Note 3</sup>	N/A	N/A
Proportion of products that contain IEC 62474 declarable substances/arsenic-containing substances/beryllium compounds/antimony compounds (%)	0%	0%

Notes:

- (1) This value is an estimate. The 2022 value is acquired according to the preparation notes of the national standard "Physical Method for Recycling and Treatment of Crystalline Silicon Photovoltaic Modules" (Draft for Comment) issued in September 2022, in which 100% recovery rate of solar glass can be achieved by different treatment methods, where only mechanical crushing treatment method will lead to 98% qualified recovery rate, while other methods can achieve 100% qualified recovery rate. The 2021 value is acquired according to the research by GreenMatch, a British institution, the recovery rate of glass in crystalline silicon modules can reach 76%, and also by reference to the research of KIER and IEA, the recovery rate of solar glass can reach 100% if non-destructive solar module recycling technology is adopted.
- (2) This value is an estimate. According to the research by GreenMatch, a British institution, the glass reuse rate in crystalline silicon modules can reach 95%. With reference to "General Technical Requirements for the Recycling and Reuse of PV Modules in China", solar glass can be used directly in the production of PV modules after processing if it is recycled as intact glass and the parameters such as light transmittance can meet the standard requirements for solar glass for modules. Therefore, the Group believes that the overall reusability of the products is high, but it is not possible to reach 100% because of the wastage during processing, so 95% is a reasonable estimate.
- (3) Since solar glass is a component of PV modules, the recycling and reuse of solar glass in waste PV modules is a part of PV module recycling, and should be handled by professionally qualified organisations. As photovoltaic module recycling in China is still in the stage of technical standard research and development now, and has not yet been scaled and industrialised. According to the current regulations of China on the main responsibilities of recycling entities and the qualification of processing enterprises, solar glass manufacturers do not assume the main responsibility and do not have the corresponding qualification to perform the services. Therefore, the Group did not provide the service of recycling solar glass from waste PV modules by the end of 2022.

Solar glass accounts for nearly 70% of the weight of photovoltaic module and has a high recovery rate and reuse rate. It can basically be reused in the production of solar glass except for impurities. Therefore, the Group believes that with the improvement of photovoltaic module recycling technology, the photovoltaic module recycling industrialisation path will become clearer under the background that China is vigorously promoting the formulation of recycling standards and industrial application of waste photovoltaic modules. During the Reporting Year, some customers also started to communicate with the Group on solar glass recycling. In the future, the Group will pay close attention to the photovoltaic module recycling technology development and industrialisation, strengthen communication with customers in relevant aspects, seek cooperation opportunities in product recycling and reuse, and help itself and photovoltaic industry to improve product life cycle management and achieve lower carbon, greener and more sustainable development.

For more information about the Group's actions and measures in terms of customer relationship and product responsibility, please refer to the "Product Lifecycle Management" in the "A Cooperative and Win-Win Business Model" section of this Report.

## Anti-unfair Competition

During the Reporting Year, the Group complied with the relevant provisions of the "Anti-unfair Competition Law of the People's Republic of China", the "Competition Act 2010" of Malaysia and the Group's code of business ethics, followed the principles of voluntariness, equality, fairness and integrity, consciously safeguarded the order of competition in the market, and strictly prohibited all forms of unfair competition in its business activities. The Group has adopted effective internal monitoring and prevention measures to ensure the regulation of business conduct and is subject to the supervision of national and local governments. The Group is not aware of any legal proceedings against the Group in relation to anti-competition or anti-trust practices during the Reporting Year.

In addition to regulating its own business behavior and ensuring compliance with laws, regulations and business norms, the Group issued the "Notification Letter on Integrity Management, Mutual Benefit and Win-Win" to suppliers and other business partners and required them to sign a letter of reply to ensure that all business partners clearly understand that the Group resolutely resists all improper means, such as counterfeiting, adulteration, false publicity, infringement of trade secrets, low-price dumping and commercial slander in the process of bidding, procurement and contract performance, to affect fair cooperation and seek illegitimate interests. The Group adopts a "zero tolerance" attitude towards all acts that violate the principle of good faith transaction. The business partners involved not only need to fully refund the purchase price, but also bear compensation and other corresponding legal responsibilities. Meanwhile, they will be included in the Group's untrustworthy list and lose their qualification to participate in the Group's bidding, procurement and commercial cooperation within the time limit. During the Reporting Year, there was no confirmed event that the contract with the business partner was terminated or not renewed due to violation of the principle of good faith transaction.



## Sustainable Supply Chain

In 2022, 91.5% of the Group's suppliers were from Mainland China (2021: 90.7%). During the Reporting Year, the Group strictly complied with the requirements of "External Supplier Management Procedures" in managing its suppliers, conducting regular assessments on the suppliers in the Qualified Supplier List and ensuring that they continued to meet the standards in terms of legal and labour standards, product research and development, production technology, product quality and prices, supply capability, sales services, occupational safety and health management and environmental and energy performance, the Group will issue warnings to suppliers who fail to meet the standards in regular assessment and require them to rectify within a time limit. Repeated failure to meet the standards within a year will lead to the disqualification of the supplier. During the Reporting Year, the Group made purchases from a total of 2,841 suppliers, all of which were qualified suppliers who met the Group's supplier development and management practices and passed the regular assessment.



Indicators	2022	2021
Number of suppliers	2,841	2,389
<b>By geographical region (%)</b>		
Mainland China	2,600(91.5%)	2,168(90.7%)
Overseas (including Hong Kong)	241(8.5%)	221(9.3%)

The Group incorporates the concept of sustainable development into the procurement and supply chain management process, attaches great importance to the sustainability and environmental benefits of the supply chain, so as to prevent ESG risks in the supply chain and continuously improve the resilience and safety level of the supply chain, and strives to promote the green development of the value chain through the Group's industrial influence. For details of the Group's procurement and supply chain management practises, please refer to the "Sustainable Supply Chain Management" in the section headed "A Cooperative and Win-Win Business Model" of this Report.

## Employment and Labour Practices

The economic slowdown and the sharp energy cost rise have brought great survival challenges to all walks of life, and the unemployment rate has also increased significantly. During the Reporting Year, the Group still effectively responded to the intensified industry competition and the complex and changing macroeconomic environment by virtue of excellent cost control, steady operation and development strategy, creating more local employment opportunities and ensuring reasonable rewards for employees' hard work. As at 31 December 2022, the Group had 8,459 employees, representing an increase of 19.6% over previous year, mainly due to the addition of new production bases in Jiangbei in Wuhu and Zhangjiagang in Jiangsu during the Year, and the increase of in-production solar glass daily melting capacity from 12,000 tonnes by the end of 2021 to 19,800 tonnes by the end of 2022, a growth of 65.0% over previous year, and the addition of 722MW of grid-connected capacity in utility-scale ground-mounted solar farms. During the Reporting Year, the Group's turnover rate increased by 2.9 percentage points to 30.4%, mainly due to the impact of the epidemic was gradually eliminated in China and Malaysia, which significantly increased the mobility of general employees in the factories. Due to the flat structure, with general employees accounted for 98.5% of the Group, the turnover rate of general employees greatly affected the overall turnover rate. The Group's middle and senior management team remained stable with a relatively low turnover rate.

During the Reporting Year, the Group was not aware of any confirmed violations or complaints related to human rights and labour standards that have a material impact on the Group.

## Employment Data



Indicators	2022	2021
<b>Number of employees</b>	<b>8,459</b>	<b>7,072</b>
<b>By gender (%)</b>		
Female	21.1%	19.9%
Male	78.9%	80.1%
<b>By age group (%)</b>		
30 or below	38.3%	40.8%
31-40	35.6%	33.4%
41-50	20.6%	20.5%
51 or above	5.5%	5.3%
<b>By geographical region (%)</b>		
Mainland China	89.4%	87.4%
Malaysia	10.2%	12.4%
Other regions	0.4%	0.2%
<b>By employment type (%)</b>		
Full-time	100%	100%
Part-time	N/A	N/A
<b>By employee category (%)</b>		
Senior management	0.4%	0.4%
Middle management	1.1%	1.2%
General employee	98.5%	98.4%
<b>Turnover rate of employees (%)<sup>Note 1</sup></b>	<b>30.4%</b>	<b>27.5%</b>
<b>By gender (%)</b>		
Female	50.2%	27.7%
Male	25.1%	27.5%
<b>By age group (%)</b>		
30 or below	46.7%	37.6%
31-40	22.8%	22.6%
41-50	19.2%	19.9%
51 or above	7.9%	9.7%
<b>By geographical region (%)</b>		
Mainland China	28.8%	26.7%
Malaysia	45.1%	33.4%
Other regions	9.1%	6.3%

Note:

(1) Turnover rate = Number of resigned employees in the category/total number of employees in the category at the end of the Reporting Year



## Health and Safety

Safety production and occupational health matters a lot for the life safety and physical and mental health of employees, and enterprises should provide such primary and necessary safety guarantee which we firmly believe that no business goal can override. Therefore, in daily operations, the Group is committed to improving the safety management system, reducing the risk factors in the working environment and creating a safer and more secure working environment for employees. Since its establishment in 2021, the Safety Committee has continuously promoted the construction of the Group's safety management system under the CEO leadership. During the Reporting Year, the Committee issued or improved the "Occupational Health Management System", "Relevant Party Safety Management Regulations", "Hazard Source Identification and Risk Classification Management System", and "Safety Management System for Labor Protection Supplies" to further standardise the Group's safety production and occupational health management.

We agree that safety prevention excels remedy, and prevention before it happens is the most effective way to curb safety accidents. However, only making improvement in the Group's system setting is far from achieving the desired effect. Therefore, during the Reporting Year, the Group strengthened the safety education for new employees and incumbent employees, and the Safety Committee supervised each industrial park to strictly implement the established safety training system, and constantly enhanced the safety awareness and job post safety consciousness of employees. During the Reporting Year, the number of safety training hours increased by 135.1% and the number of participants increased by 149.1% over the previous year.

Through the two-pronged approach of optimising and improving the management system and strengthening safety training, the Group's safety performance improved in 2022, with a significant decrease in serious and more serious work-related injuries, and no work-related fatalities occurred. The lost days due to work injury per 100 full-time equivalent employees decreased from 23.4 in 2021 to 22.0.



Indicators	2022	2021	2020
Number of work-related fatalities <sup>Note 1</sup>	0	2	0
Work-related fatal accident rate <sup>Note 2</sup>	N/A	0.028	N/A
Number of work-related injuries <sup>Note 3</sup>	57	46	30
Work injury rate <sup>Note 4</sup>	0.67	0.65	0.6
Number of workdays lost <sup>Note 5</sup>	1,953	1,657	734
Number of workdays lost due to work-related injuries per 100 full-time employees equivalent <sup>Note 6</sup>	22.0	23.4	14.5

Notes:

- (1) The definition of work-related fatalities is consistent with the definition of the relevant local labour laws
- (2) The Work-related fatal accident rate is calculated according to the requirements of GRI 403: Occupational Health and Safety 2018 Disclosure Item 403-9
- (3) Based on the definition under the relevant labour laws in the places where the Group operates, excluding the traffic accidents while commuting to and from work on transportation not provided by the Group or minor work-related injuries
- (4) Work injury rate has been disclosed since 2020 as the number of reported work-related injuries per 100 full-time employees equivalent
- (5) Workdays lost represents the absence for one or more workdays lost due to work-related injuries (including the day of injury)
- (6) Workdays lost due to work-related injuries per 100 full-time employees equivalent (or the rate of workdays lost) = total workdays lost/total working hours\*annual working hours per 100 full-time employees equivalent. Annual working hours per 100 full-time employees equivalent is calculated by referencing to the standard working hours required by the local labour laws in each of the locations where our business operates. The standard annual number of working hours per 100 full-time employees equivalent in Malaysia is 240,000 hours and in other regions is 200,000 hours

During the Reporting Year, the Group was not prosecuted for any occupational health and safety matters. For more information on the Group's philosophy, supervision system, measures taken and results on production safety management and occupational safety and health, please refer to the paragraph headed "Occupational Safety and Health" in "An Inclusive Team of Talents" in this Report.

## Training and Development

During the Reporting Year, the number of employees increased by 19.6% year-on-year due to the addition of two solar glass production bases in Jiangbei, Wuhu, and Zhangjiagang, and the addition of 722MW utility-scale ground-mounted solar farms. In addition, in order to continuously consolidate and enhance employees' safety and integrity awareness, the Group attached great importance to and strengthened safety and integrity training, and the total training hours, average training hours and the number of employees participating in training all recorded significant growth, especially the average training hours of senior and middle management and the proportion of female employees participating in training. During the Reporting Year, employee training covered 82.6% of employees at the end of the Year. By gender, the proportion of trained male and female employees were 84.7% and 74.3% respectively; by employee category, the training coverage rates of senior management, middle management and general employees were 51.5%, 63.3% and 82.9% respectively.



Indicators	2022	2021
Total hours of training received by employees	102,643	47,994
Average hours of training received by employees <sup>Note 1</sup>	12.1	6.8
<b>By gender (hours)</b>		
Female	10.7	6.2
Male	12.5	6.9
<b>By employee category (hours)</b>		
Senior management	10.0	0.5
Middle management	35.1	3.7
General employees	11.9	6.8
<b>Number of employees trained</b>	<b>98,524</b>	<b>39,645</b>
<b>By gender (%)</b>		
Female	18.5%	20.5%
Male	81.5%	79.5%
<b>By employee category (%)</b>		
Senior management	0.17%	0.03%
Middle management	3.12%	0.39%
General employees	96.71%	99.58%

Note:

- (1) Average hours of training received by employees = Total hours of training received by employees/Total number of employees at the end of the Reporting Year

For more information on the Group's actions and results on employment management, talent development and management and caring for talents, please refer to the section headed "An Inclusive Team of Talents" in this Report.





### Social Welfare and Community Participation

The Global Risks Report 2023 released by the World Economic Forum shows that the living cost crisis caused by insufficient energy and food supply will become the most serious risk facing the world in the next two years, and the social cohesion loss and social polarisation will continue to be a major risk that plagues the world in the next two or even ten years. The Group adheres to the core value of "Treating the world well", and firmly implement the concept in actions year after year by providing the society with green and clean energy and high-quality solar glass products that help the global energy transition, treating employees well, promoting the sustainable value chain development, and actively participating in social welfare and matters related to the long-term development of local communities.

The Group advocates knowledge, respects talents, and believes that "knowledge changes destiny". Education is the key for the disadvantaged groups to get rid of poverty and improve their social and economic status. Therefore, donating money for education, helping students to fulfill their academic dreams, providing and ensuring more groups to obtain inclusive and fair quality education and the right to lifelong learning have always been the key areas of concern of the Group in participating in social welfare and community building. In 2021, a subsidiary of the Group funded and established Wuhu Xinyi Charity Foundation, which is dedicated to funding police pensions and preferential treatment, rewarding outstanding doctors and teachers, conducting educational assistance activities, rescuing natural disasters, and preventing and fighting pandemic. In August 2022, Wuhu Xinyi Yinhu Middle School, partly funded by Wuhu Xinyi Charity Foundation, was officially opened, which is expected to accommodate 1,200 to 1,800 students with a safe and comfortable learning environment and high-quality educational resources, and strongly promote the high-quality education development in Wuhu Economic Development Zone. In addition, during the Reporting Year, the Group donated RMB 1.5 million to Kunpeng Education Fund in Yun'an District of Yunfu City to support the local education development.



Pandemic control, economic slowdown and sharp rise in energy cost have made low-income and poor groups face more severe living difficulties, and intensified the disparity between the rich and the poor. Therefore, the Group is also committed to helping the poor and assist the local government to eliminate extreme poverty. The Group is the first batch of "Rural Revitalisation Partners" in Jiujiang District, Wuhu City. Since investing in a solar farm project construction in 2014, the Group has given full play to the advantages of rural resources, actively explored and vigorously developed a variety of "photovoltaic+" application modes, such as agricultural-PV and fishery-PV solar farms, so as to enhance the local fishermen and farmer income, and make stable local tax contribution through power generation income and promote the rural industry development. During the Reporting Year, the Group donated more than RMB 3.3 million to help rural revitalisation and poverty alleviation.



In addition, the Group's subsidiaries in Malaysia, Beihai, Guangxi Province, Wuhu, Anhui Province and a number of solar farms have also actively supported pandemic prevention and fighting, flood control and disaster relief and medical assistance in the locations where our business operates. During the Reporting Year, the Group donated money and materials with a total value of HK\$13.293 million (2021: HK\$72.915 million).

The Group encourages employees to actively participate in volunteer activities, devote themselves to giving back to the society, and take practical actions to care for and help the disadvantaged groups. During the Reporting Year, the Hong Kong subsidiary actively participated in the activities of the Xinyi Volunteer Team, including distributing blessing bags in the Dragon Boat Festival and Mid-Autumn Festival organised by the Lok Sin Tong Benevolent Society Kowloon, and giving festive foods and wishes to 300 elderly people living alone or with their spouse, attending the Flag-selling Day of Tung Wah Group of Hospitals, Yan Chai Hospital and Lok Sin Tong Benevolent Society Kowloon to raise funds for social welfare, medical care, education and elderly services for such institutions and other Hong Kong social welfare organisations; taking part in the Community Chest Dress Casual Day to raise money for the Community Chest of Hong Kong, and also promoting the "We CARE We WEAR" public welfare concept, and always caring for everyone around with the most comfortable dress collocation and the gentlest heart. During the Reporting Year, the Xinyi Hong Kong Volunteer Team also promoted the healthy living concept by participating in public welfare fund-raising activities such as the Virtual Charity Walk 2022 of the Lok Sin Tong Benevolent Society Kowloon, "Walking of the Handicapped" of the Lions Clubs International and the "Walks for Millions" of the Community Chest of Hong Kong in the New Territories. Meanwhile, the Group also raised funds to provide substantial assistance to specific vulnerable groups such as children, people with cognitive impairment and the disabled.





## Environmental Governance

Unless otherwise stated, the energy, water and other resources consumption data and greenhouse gas and other emission data only cover the Group's solar glass production operations in Mainland China and Malaysia. The Group's subsidiaries in Hong Kong and Canada have not been covered in this Report as their operations only had limited impact on the environment. In the future, the Group will continue to monitor and regularly assess their environmental impacts and will include their data in future reports if necessary.

Solar energy is a renewable energy source that produces almost no air pollutant emissions and has low energy and water consumption in process of photovoltaic power generating, making it a key contributor to the global energy transition and enhance the ability to adapt to and cope with climate change. Compared to traditional energy sources, it largely avoids the negative effects of energy production and consumption on the local environment, resources and public health, and can realise the unification of economic, social and environmental benefits. Therefore, the Group has separately presented the environmental benefit indicators of the solar farm business so as to provide a clearer picture of the positive environmental benefits of the green electricity generated from the Group's solar farms during the Reporting Year.

During the Reporting Year, the Group was not aware of any confirmed violations or complaints related to environmental protection that had a material impact on the Group, nor did the Group have any solar glass production lines and solar farm projects of which development and construction had been suspended for ecological reasons.



## Environmental Performance of Solar Glass Business

### 1 · Consumptions of Energy, Water Resources and Other Resources



Indicators	2022	2021	Year-on-year Change <sup>Note 5</sup>
<b>Total energy consumption (MWh)</b>	<b>11,561,961</b>	9,768,624	
Direct energy consumption <sup>Note 1</sup> (MWh)	<b>10,186,141</b>	8,533,205	
By energy type (%)			
• Natural gas	<b>94.43%</b>	95.37%	
• Gasoline/diesel	<b>0.08%</b>	0.06%	
• Residual heat power generation	<b>3.85%</b>	3.16%	
• Solar power generation	<b>1.64%</b>	1.41%	
Indirect energy consumption <sup>Note 2</sup> (MWh)	<b>1,375,820</b>	1,235,419	
<b>Energy consumption intensity (kWh/m<sup>2</sup> of finished product)</b>	<b>16.74</b>	19.73	-15.1%
<b>Total water consumption (million m<sup>3</sup>)</b>	<b>10.490</b>	8.202	
Production water consumption <sup>Note 3</sup>	<b>10.094</b>	7.959	
Domestic water consumption <sup>Note 4</sup>	<b>0.396</b>	0.243	
<b>Water consumption intensity (m<sup>3</sup>/m<sup>2</sup> of finished product)</b>	<b>0.015</b>	0.017	-7.8% <sup>Note 6</sup>
Utilisation rate of recycled water (%)	<b>94.6%</b>	95.6%	-1.0pcts
Capacity ratio in areas with high/extremely high baseline water pressure (%)	<b>0%</b>	0%	
<b>Total amount of packaging materials used (tonnes)</b>	<b>67,864</b>	53,608	
Wood, wood slats and wood pallets (tonnes)	<b>33,000</b>	27,475	
Paper and paper boxes (tonnes)	<b>24,508</b>	18,857	
Plastic, plastic stripes and plastic tapes (tonnes)	<b>10,275</b>	7,193	
Other packaging materials (tonnes)	<b>81</b>	83	
<b>Packing products used per unit (g/m<sup>2</sup> of finished products)</b>	<b>99</b>	108	-8.8% <sup>Note 6</sup>
Utilisation rate of paperless packing (%)	<b>46.1%</b>	34.4%	+11.7pcts

#### Notes:

- (1) In accordance with the recommendations of the "Reporting Guidance on Environmental KPIs", the Group has included internally generated energy from equipment owned/controlled by the Group (i.e., electricity generated from residual heat power generation equipment and rooftop distributed PV power generation equipment) when accounting for direct energy consumption
- (2) Indirect energy consumption represents indirect energy (i.e., purchased electricity) purchased from external sources and consumed by the Group
- (3) Production water consumption is calculated based on the amount of new water intake consumed in production, i.e., it is equivalent to total water intake, excluding recycled water consumption.
- (4) Domestic water consumption is calculated based on the amount of water billed for the living area and is apportioned in the proportion to the number of employees in the living area
- (5) Only the year-on-year change of comparable figures of unit consumption are provided. As the Group's production capacity increased by more than 38% year-on-year, the total consumption of energy, water resources and packaging materials were thus increased. Using the unit consumption figures for comparison can provide a clearer picture of the Group's resource efficiency performance
- (6) The values of water consumption intensity and unit product packaging consumption are rounded off, and the year-on-year change is calculated according to the value before rounding off





## II · Greenhouse Gas and Other Emissions



Indicators	2022	2021	Year-on-year Change <sup>Note 5</sup>
<b>Total greenhouse gas emissions <sup>Note 1</sup> (tonnes of CO<sub>2</sub> equivalent)</b>	<b>3,929,933</b>	3,249,629	
Direct emissions <sup>Note 2</sup> (tonnes of CO <sub>2</sub> equivalent)	<b>3,003,130</b>	2,417,539	
Indirect emissions <sup>Note 3</sup> (tonnes of CO <sub>2</sub> equivalent)	<b>926,803</b>	832,090	
<b>Greenhouse gas emissions intensity (kg CO<sub>2</sub> equivalent/m<sup>2</sup> of finished product)</b>	<b>5.69</b>	6.56	-13.3%
<b>Major air pollutants emissions</b>			
Nitrogen oxides (NO <sub>x</sub> )			
• Amount of emissions (tonnes)	<b>3,455</b>	3,568	
• Emission reduction <sup>Note 4</sup> (%)	<b>90.3%</b>	84.1%	+6.2pcts
Sulphur dioxide (SO <sub>2</sub> )			
• Amount of emissions (tonnes)	<b>1,518</b>	1,386	
• Emission reduction <sup>Note 4</sup> (%)	<b>74.4%</b>	66.6%	+7.8pcts
Particulates (smoke and dust)			
• Amount of emissions (tonnes)	<b>141</b>	133	
• Emission reduction <sup>Note 4</sup> (%)	<b>94.4%</b>	91.7%	+2.7pcts
<b>Hazardous and non-hazardous wastes generated</b>			
Hazardous wastes generated (tonnes)	<b>248.6</b>	112.9	
<b>Hazardous waste intensity (g/m<sup>2</sup> of finished product)</b>	<b>0.36</b>	0.23	+56.5% <sup>Note 6</sup>
Non-hazardous wastes generated (tonnes)	<b>61,611</b>	38,557	
<b>Non-hazardous waste intensity (g/m<sup>2</sup> of finished product)</b>	<b>89.6</b>	77.9	+15.0% <sup>Note 7</sup>

### Notes:

- Total greenhouse gas emissions are the sum of direct and indirect emissions
- Direct emissions (Scope 1 emissions) are greenhouse gas emissions generated directly from solar glass furnaces due to the consumption of fuel (natural gas) and the decomposition of raw materials in the production of glass, calculated according to the formula proposed in the "Accounting Methods and Reporting Guide on Greenhouse Gas Emissions of Enterprises Producing Flat Glass in China"

- Indirect emissions (Scope 2 emissions) are greenhouse gas emissions from the Group's consumption of electricity purchased from external sources, calculated according to the formula proposed in the "Accounting Methods and Reporting Guide on Greenhouse Gas Emissions of Enterprises Producing Flat Glass in China"
- Reduction in major air pollutants emissions =  $(1 - \text{Such type of air pollutant emissions/Amount generated}) \times 100\%$
- Only year-on-year change figures of unit emission/generation are provided. As the Group's production capacity increased by more than 38% year-on-year, the total amount of greenhouse gas, hazardous and non-hazardous wastes generated increased. Using the unit emission/generation figures for comparison can provide a clearer picture of the Group's emission reduction efficiency performance
- During the Reporting Year, the Group recorded a significant increase in hazardous waste intensity, which was mainly due to: (1) the replacement of denitration catalysts which happens every 3-5 years on average, when a single replacement produces a large amount of hazardous waste, leading to the fluctuation of the total hazardous waste amount and intensity. During the Reporting Year, the denitration catalyst accounted for 29.4% of the total hazardous waste output, and no such hazardous waste was generated in 2021; (2) a large number of waste paint barrels generated in cold repair of kilns, environmental protection equipment optimisation and upgrading, and preparation of new production lines and new production bases. In addition, some new product processes require ink, so the output increase in such new products will increase the output of waste ink barrels accordingly. During the Reporting Year, the output of waste packaging barrels increased by 51.2% year-on-year
- During the Reporting Year, the Group recorded an increase in the non-hazardous waste intensity, which was mainly due to: (1) New production lines and production bases will generate a lot of solid waste due to production line and equipment commissioning at the initial stage of production, but actual output will be produced after production line commissioning. Therefore, the production lines and production bases at the initial stage of commissioning have a high density of non-hazardous waste. During the Reporting Year, the Group added six production lines with a daily melting capacity of 1,000 tonnes and resumed two production lines with a daily melting capacity of 900 tonnes; (2) the tightening of environmental control. The number of environmental protection equipment runs increased to meet the new air pollutants emission standards, and the amount of environmental protection by-products has greatly risen accordingly; (3) the changes in regulatory statistical requirements, as some solid waste is calculated on a wet basis in 2021, while all solid waste is calculated on a wet basis in 2022

## Environmental Performance of Solar Farm Business



Indicators	2022	2021
Annual power generation of solar farms (million kWh)	<b>4,395.9</b>	3,695.5
Equivalent to standard coal savings <sup>Note 1</sup> (thousand tonnes)	<b>1,325.4</b>	1,126.8
CO <sub>2</sub> emission reduction <sup>Note 1</sup> (thousand tonnes)	<b>3,639.8</b>	3,074.7
Electricity demand of households to be met <sup>Note 2</sup> (thousand households)	<b>1,831.6</b>	1,539.8
Equivalent to the amount of trees planted (thousand trees)	<b>158,254.2</b>	133,680.4

### Notes:

- The figures are calculated based on the annual conversion factors of the corresponding year provided in the "Annual Report on the Electricity Industry in China" published by the China Electricity Council
- Calculated based on 2,400 hours of annual electricity consumption for each household

For more information on the Group's green development philosophy and practices in its solar glass business as well as the energy saving and emission reduction actions taken and results during the Year, please refer to the chapter headed "Journey to Green Production of Solar Glass" in "A Lifetime Pursuit of Green Business" section in this Report.



# APPENDIX

## Awards and Certifications

### Awards



The World's 100 Most Sustainable Corporations in 2023

(Corporate Knights)



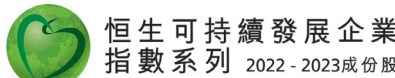
Most Honoured Company (Institutional Investor)



Best Investor Relations Company (Large-cap) (Hong Kong Investor Relations Association)



Most Valuable Industrial Manufacturing Company (Zhitongcaijing)



Constituent of Hang Seng Corporate Sustainability Benchmark Index (Hang Seng Indexes Company Limited)



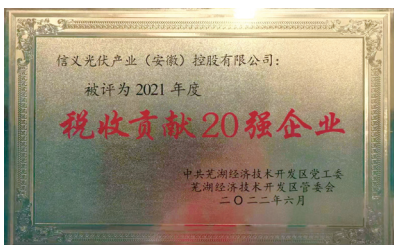
Constituent of FTSE4GOOD Emerging Index (FTSE Russell)



Hong Kong Business Sustainability Index 2021 (TOP 20) (Centre for Business Sustainability, The Chinese University of Hong Kong)



Rural Revitalisation Partner (The People's Government of Jiujiang District)

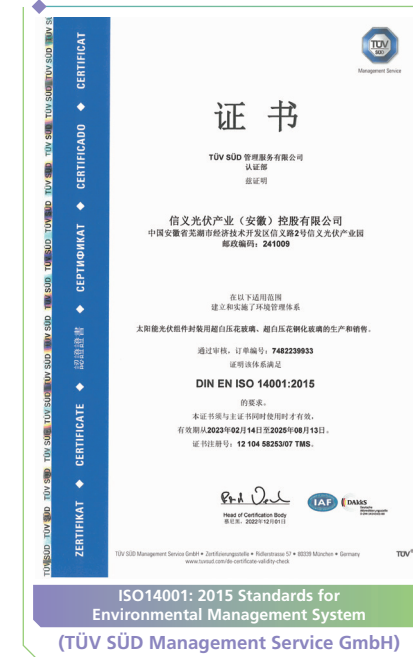


Top 20 Companies in Tax Contribution (The Party Working Committee of Wuhu Technology Development Zone, CPC)



Water-saving Enterprise (The People's Government of Tianjin)

### Certifications







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信義光能控股有限公司  
XINYI SOLAR HOLDINGS LIMITED

