



信義光能控股有限公司

XINYI SOLAR HOLDINGS LIMITED

(Incorporated in the Cayman Islands with limited liability)

(根據開曼群島法例註冊成立的有限公司)

Stock Code 股份代號 : 00968

LEADING GREEN NEW ENERGY

XINYI SOLAR

信義光能 引領綠色新能源



2018

**Environmental, Social and
Governance Report**

環境、社會及管治報告

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ABOUT THIS REPORT 關於本報告

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

This report is the third annual ESG Report of Xinyi Solar with the theme to “start everything with “xin” and together break through the last mile to achieve the grid parity”. The report is centered on “xin”, and the sustainable development work and performance in the three major areas of economy, environment and society in the period of 1 January to 31 December 2018 are fully presented from the five aspects of “Trustworthy (Cheng‘xin’) operation”, “Innovative (Chuang‘xin’) model”, “Fortunate (‘Xin‘fu) team”, “Bonding (‘Xin‘xi) around the world” and “Believe (‘Xin‘yu) in the future”. Some of the works might be traced back to the past years or extend to 2019 and 2020. In this report, the terms “\$”, “\$’000”, “\$ million” and “\$100 million” represent “HK\$”, “HK\$’000”, “HK\$ million” and “HK\$100 million” respectively. During the reporting period, the Company has complied with the disclosure requirements of the “comply or explain” provisions as set out in the ESG Reporting Guide.

This Report covers the Company and its subsidiaries located in Mainland China, Hong Kong, Malaysia, Canada, and their principal businesses, which include: (i) production and sale of solar glass; (ii) development and operation of solar farms; and (iii) provision of engineering, procurement, and construction (“EPC”) services.

本報告乃信義光能控股有限公司(「信義光能」或「本公司」)及其附屬公司(「集團」或「本集團」)按照香港聯合交易所有限公司(「香港聯交所」)的證券上市規則附錄二十七《環境、社會及管治報告指引》(「ESG報告指引」)編寫的《環境、社會及管治報告》(「本報告」或「ESG報告」)。

本報告為信義光能的第三份年度ESG報告，以「從『信』出發，協力突破平價最後一公里」為主題，圍繞「信」字，從「誠『信』經營」、「創『信』模式」、「『信』福團隊」、「『信』繫天下」及「『信』予未來」五方面完整呈現信義光能於2018年1月1日至12月31日期間在經濟、環境及社會三大範疇的可持續發展工作和表現，部分內容或追溯過往年份或延伸至2019及2020年度。在本報告中，如無特別說明，「元」、「千元」、「百萬元」、「億元」均指「港元」、「千港元」、「百萬港元」、「億港元」。報告期內，本公司已遵守ESG報告指引所載「不遵守就解釋」條文的披露要求。

本報告涵蓋本公司及其位於中國大陸、香港、馬來西亞、加拿大的附屬公司及其進行的主營業務，包括：(i)生產及銷售太陽能玻璃；(ii)發展及營運太陽能發電場；及(iii)提供工程、採購及建設(「EPC」)服務。

ABOUT THIS REPORT 關於本報告

This Report is available for download at the website of the Hong Kong Stock Exchange (www.hkexnews.hk) and the website of the Company (www.xinyisolar.com).

This Report should be read in conjunction with Xinyi Solar's 2018 Annual Report. This Report is published in Chinese and English. In case of any discrepancy between the two versions, the Chinese version shall prevail.

If you have any questions or suggestions regarding the contents of this Report, please contact us by phone or by mail. Our contact details are as follows:

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本報告可於香港聯交所網站 (www.hkexnews.hk)及本公司網站 (www.xinyisolar.com)下載。

建議本報告連同信義光能2018年年報一併閱覽；本報告以中、英文兩種文字出版，若兩種版本出現差異，請按中文版解讀。

如對本報告的內容有任何疑問或建議，歡迎來電或來函詢問。我們的聯繫方式如下：

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1. ABOUT US 關於我們

1.1 “Trust (Xin)”-oriented Sustainable Business

Xinyi Solar is the world’s largest solar glass manufacturer, 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. We provide solar glass products to major solar module manufacturers in the world, which accounts for more than thirty percent of the global market share. Major products include ultra-clear solar patterned glass (raw or tempered), coated solar glass, back glass, etc. As of 31 December 2018, the Group has three major solar glass production bases, which are located in Wuhu City of Anhui Province, Tianjin in China and Malacca City in Malaysia respectively. The solar glass production lines have a total daily melting capacity of 7,800 tonnes, of which two production lines with a daily melting capacity of 500 tonnes and 600 tonnes respectively in Wuhu City of Anhui Province have been undergoing repairs and upgrade since the second half of 2018 and are expected to resume operation in the second half of 2019. In addition, the Group plans to build the fourth solar glass production base in Beihai, Guangxi Province, and will add two solar glass production lines with a daily melting capacity of 1,000 tonnes each there. The Group also intends to add two production lines in Wuhu, Anhui in the second half of 2020, with a daily melting capacity of 1,000 tonnes each.

The Group is committed to serving as “high-efficiency photovoltaic module guard”, seamlessly combining the ever-changing solar cell technology, providing different product solutions and fully supporting module manufacturers to effectively improve solar energy conversion efficiency, so that end users can rest assured with their energy usage and together break through the last mile to achieve grid parity. Green energy thus becomes popularised in every household and the environment will be protected with sustainability being achieved.

1.1 以「信」為本的可持續發展業務

信義光能是全球最大的太陽能玻璃製造商，於2013年12月12日在香港聯交所主板上市(股票代碼：00968.HK)。本集團專業從事太陽能玻璃的研發、製造、銷售及售後服務，主要產品包括超白太陽能壓花玻璃(原片及鋼化片)、太陽能鍍膜玻璃及背板玻璃，為全球主要的太陽能組件廠商提供太陽能玻璃產品，佔有全球超過三成的市場份額。截至2018年12月31日，本集團共擁有三大太陽能玻璃生產基地，分別位於中國安徽省蕪湖市、天津和馬來西亞馬六甲市，擁有日熔量總計7,800噸的太陽能玻璃生產線(其中於安徽蕪湖的兩條日熔量分別為500噸及600噸的生產線自2018年下半年進行維修改造，預計2019年下半年恢復生產)。此外，本集團計劃於廣西省北海市設立第四個太陽能玻璃生產基地，同時於當地新增兩條每條日熔量1,000噸的太陽能玻璃生產線，並有意於2020年下半年在安徽蕪湖增加兩條每條日熔量1,000噸的太陽能玻璃生產線。

本集團以「高效光伏組件衛士」的身份立命，無縫結合日新月異的太陽能電池技術，提供不同產品解決方案，全力支援組件商有效提高太陽能轉換效率，並為終端用戶提供安心保障，助力突破平價最後一公里，讓綠能走進千家萬戶，重現藍天白雲，永續青山綠水。

1. ABOUT US 關於我們

Currently, the world is experiencing a period of transition from “high-carbon economy” to “low-carbon economy”. New energy and renewable energy are the core of the future energy ecological structure, and solar power generation is the most anticipated in terms of current technological progress and the room for future cost reduction. Promotion of solar power can effectively reduce the dependence on traditional fossil energy. Therefore, increasing the proportion of solar power generation has become the key to winning the new energy revolution. We are firmly committed to the mission of “Leading green new energy”. The Group is actively expanding its business related to solar power generation. In 2012, the Group began to extend to the downstream of the photovoltaic (“PV”) industry to develop solar farms. In 2012, the Group’s first distributed factory rooftop project, with electricity generation for its own use, was successfully connected to the grid, and in 2014, the first utility-scale ground-mounted solar farm project was completed and connected to the grid with power sold to the grid. In addition, the Group also provides EPC services to third parties as a supplementary business through its own EPC team.

In terms of approved grid-connected capacity, the Group ranked third among non-state-owned solar farm owners and operators in China as of the end of 2018. As of 31 December 2018, the total scale of solar farm projects developed, constructed and connected by the Group was 2,500 megawatts (“MW”) ^(Note 1), of which projects of 1,074MW were enlisted in the sixth/seventh batch subsidy catalogue.

當前世界正處於由高碳經濟向低碳經濟轉型的時期，新能源和可再生能源為未來能源生態結構的核心，而太陽能發電作為目前技術進步最迅速、未來成本下降空間最值得期待的可再生能源，推廣太陽能發電可有效降低對傳統化石能源的依賴，因此提升太陽能發電比例成為贏得新能源革命勝利的關鍵。堅定履行「引領綠色新能源」的使命，本集團積極拓展與太陽能發電相關的業務，於2012年開始向光伏（「光伏」）行業下游延伸，開展太陽能發電場開發業務。2012年，本集團首個廠房屋頂自發自用分佈式項目成功併網發電，而後於2014年首個大型地面太陽能發電場項目建成、併網及向電網售電。此外，本集團亦透過內部工程總承包團隊為第三方提供EPC服務，作為本集團的輔助性業務。

以截至2018年底的已核准併網容量計，本集團在中國非國營的太陽能發電場擁有人及營運商中位列第3名。截至2018年12月31日，由本集團開發、建設且併網的太陽能發電場項目總規模為2,500兆瓦（「MW」）^(附註1)，其中，1,074MW的項目已列入第六批／第七批補貼名錄。

Note:

(1) Including a joint venture project (100MW) and self-use distributed projects

附註：

(1) 包含合營項目（100MW）及自用分佈式項目



1. ABOUT US 關於我們

- World's largest solar glass manufacturer

Capacity in operation up to 6,700 tonnes melting capacity per day *(Note 1)*

- China's third largest private solar farm owner and operator

Grid-connected capacity is 2.5 gigawatts ("GW")

- Constituent stock of Hang Seng Corporate Sustainability Benchmark Index

Hong Kong Quality Assurance Agency, an independent professional accreditation body, undertakes the assessment in accordance with its proprietary sustainability assessment and rating framework and provides the ranking according to the company's sustainability performance score. The top 20% of the shares will be selected as constituents of the index. Being selected as a constituent stock is a good proof of the outstanding sustainable development performance of the Group

- Constituent stock of Hang Seng Composite Index, Hang Seng Global Composite Index, Hang Seng SCHK High Dividend Low Volatility Index and MSCI China Index providing shareholders with sustained and stable investment returns and is highly recognised by the capital market

- 全球最大的太陽能玻璃製造商

在產產能日熔量達6,700噸^(附註1)

- 中國第三大民營太陽能發電場擁有人及營運商

併網規模達2.5吉瓦(「GW」)

- 本公司現為恆生可持續發展企業基準指數成份股

由獨立的專業評審機構香港品質保證局按照其設計之可持續發展評級框架進行評級，並依照企業可持續發展表現分數進行排名，評分位列首20%的股份將最終獲選為指數成份股，足證本集團可持續發展表現卓越

- 本公司亦是恆生綜合指數、恆生環球綜合指數、恆生港股通高股息低波動指數、MSCI中國指數成份股，為股東提供持續、穩定的投資回報，獲得資本市場高度認可

Note:

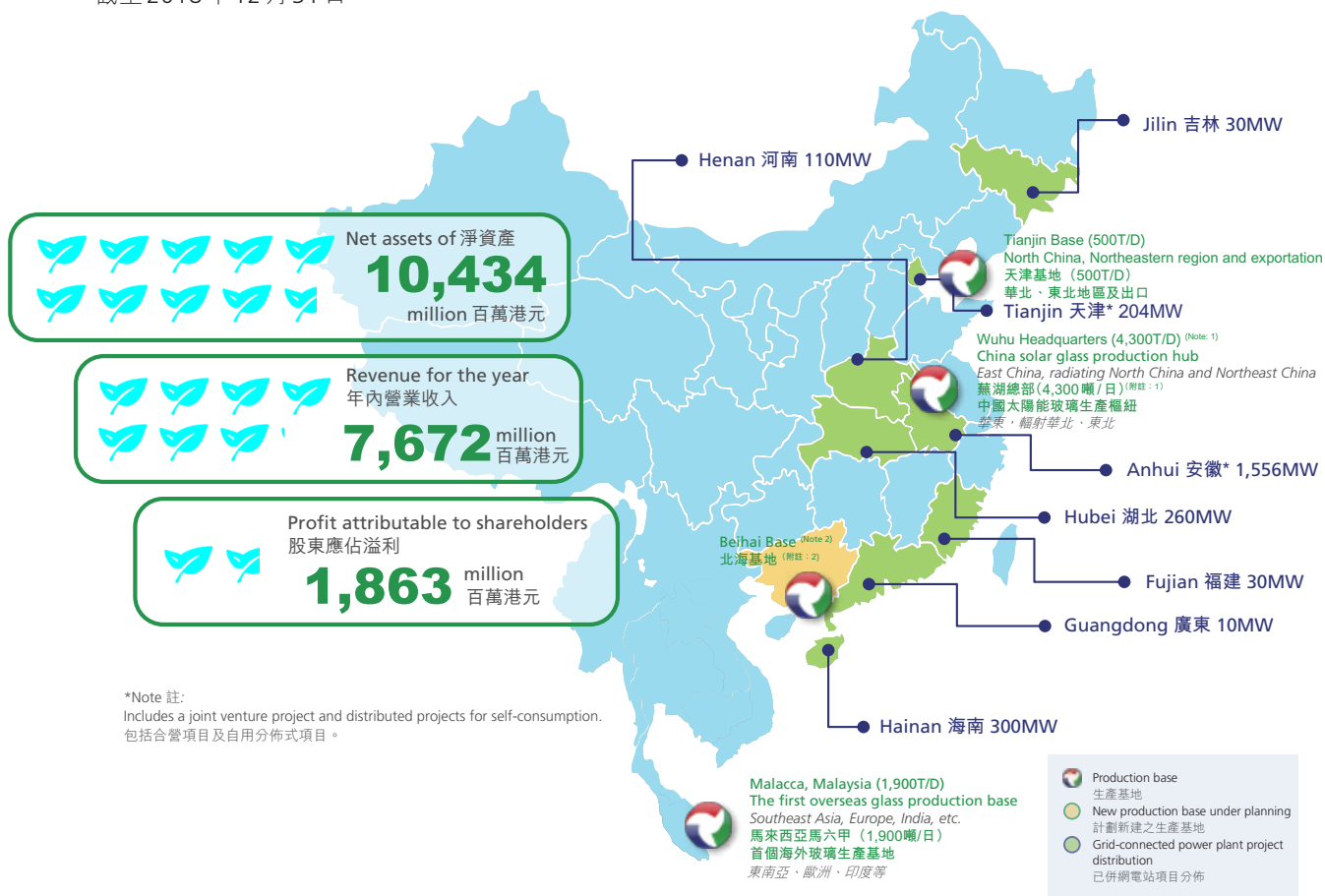
- (1) Including a newly start-up production line and a resumed production line after cold repair as at 31 December 2018

附註：

- (1) 包括於2018年12月31日新點火產線及冷修後剛復產產線

1. ABOUT US 關於我們

As at 31 December 2018
截至2018年12月31日



*Note 註:
Includes a joint venture project and distributed projects for self-consumption.
包括合營項目及自用分佈式項目。

Note:

- (1) Not including the 2 production lines with an aggregate daily melting capacity of 1,100 tonnes which is under cold repair since the second half of 2018.
- (2) It is planned to commence operation in the first half of 2020, including 2 production lines with planned daily melting capacity of 1,000 tonnes each.

Enterprise Vision: Creating an outstanding glass company and establishing a world-class brand

Enterprise Mission: Leading green new energy

Core value: Trust, integrity, passion and people

附註:

- (1) 未包含2018年下半年進入冷修的2條日熔量合共1,100噸的生產線。
- (2) 計劃於2020年上半年投產，計劃產能2條日熔量1,000噸的生產線。

企業願景: 締造傑出玻璃企業，成就世界一流品牌

企業使命: 引領綠色新能源

核心價值觀: 信譽至上 義氣爭榮
自強不息 善待天下



1. ABOUT US 關於我們

1.2 Management Philosophy and Business Development

The 19th National Congress of the Communist Party of China put forward the development concept of “innovation”, “coordination”, “eco-friendliness”, “openness”, and “sharing”, which is coincidentally in line with the Group’s consistently committed **core value, “trust, integrity, passion and people”** and the **enterprise mission of “Leading green new energy”**.

Since its establishment, the Group has devoted itself to the great cause of improving the living environment of human beings with the “artisan spirit” and the hope to introduce green solar energy for thousands of households and contribute to building a resource-saving and environment-friendly society. In terms of production, we insist on “eyeing the big picture and working on the details”. While looking at the global forward-looking layout, we are also concentrating on the details and integrating the concept of “green and sustainable development” into cost control, technology research and development, management and operation, services and cooperation in order to provide customers with efficient and innovative diversified solar glass products with excellent quality and excellent service, gradually building a professional and reliable corporate image and brand reputation and establishing and consolidating a leading market position. In terms of operation, we attach importance to the balance of “how to take one for the team”. Internally, we pay attention to the personal development of employees, provide each employee with sufficient room for growth in the big family of Xinyi Solar; externally, we listen carefully to the opinions of different stakeholders (“**stakeholders**”) through diversified channels and respond positively to their aspirations. We also care for the social well-being and continue to create greater value for shareholders and society with the initial intention of “people”.

1.2 管理理念及業務發展

第十九次全國代表大會報告提出「創新、協調、綠色、開放、共享」的發展理念，與本集團始終堅守的**核心價值觀「信譽至上，義氣爭榮，自強不息，善待天下」**及銘刻於心的**企業使命「引領綠色新能源」**不謀而合。

自成立迄今，本集團便以「匠人精神」投身改善人類生活環境偉大事業，冀望為千家萬戶引進綠色光能，為構建資源節約型及環境友好型社會傾盡綿薄之力。生產上，我們堅持「大處著眼，小處著手」，在縱觀全球前瞻佈局的同時，臻於細節，將「綠色環保，永續發展」的理念融入成本管控、技術研發、管理經營、服務合作等每一個環節，以卓越的品質、優良的服務為客戶提供高效、創新的多元化太陽能玻璃產品，逐步樹立專業可靠的企業形象及品牌信譽，確立及鞏固領先的市場地位。經營上，我們重視「小我」與「大我」的平衡。對內，關注員工個人發展，在信義光能的大家庭中給予每一位員工充足的成長空間；對外，透過多樣化的途徑用心聆聽不同利益相關方（「**持份者**」）的意見並積極回應其訴求，關心社會福祉，以「善待天下」的初心，持續為股東及社會創造更大價值。

1. ABOUT US 關於我們

1.3 Overview of Sustainability Performance

1.3 可持續發展表現概覽

Operational Performance

運營表現

As at 31 December 截至 12 月 31 日	2018 二零一八年
Production line in operation (number) ^(Note1) 在運產線(條) ^(附註1)	8
Daily melting capacity (tonnes) 日熔量(噸)	6,700
Effective annual melting capacity (thousand tonnes) ^(Note2) 有效年熔化量(千噸) ^(附註2)	2,135
Approved grid-connected capacity of solar farm project (MW) ^(Note3) 發電場項目已核准併網規模(MW) ^(附註3)	2,500
Operating revenue (\$ million) 營業收入(百萬元)	7,672
Gross profit (\$ million) 毛利(百萬元)	2,960
Gross profit margin 毛利率(%)	(38.6%)
Net profit (\$ million) 純利(百萬元)	1,863
Net profit margin 純利率(%)	(24.3%)
Net asset value (\$ million) 資產淨值(百萬元)	10,434
Net gearing ratio 淨負債率(%)	(66.2%)
Earnings per share (Hong Kong cents) 每股盈利(港仙)	24.87
Dividends (Hong Kong cents) 股息(港仙)	12.2
Dividend payout ratio 派息比率(%)	(49.1%)

Note:

- (1) Including the newly start-up production line and the resumed production line after cold repair as at the year end of the financial year.
- (2) The impact of the ramp up of newly operated/resumed production capacity has been included in the calculation of effective annual melting capacity for the financial year.
- (3) Includes utility-scale ground-mounted solar farm projects (including a 100MW joint venture project) and distributed projects that have been connected to the grid as at the year end of the financial year.

附註：

- (1) 含於財政年度截止日的新點火產線及冷修後復產產線。
- (2) 已計入新點火／復產產能爬坡的影響，為該財政年度實際的年熔化量。
- (3) 包含截至該財政年度截止日已併網的大型地面發電場項目(含100MW的合營項目)及分佈式項目。



1. ABOUT US 關於我們

Environmental Performance (Note 1)

環保表現 (附註1)

	2018 二零一八年
Saved standard coals (tonnes) 節約標準煤(噸)	840,779
Reduced carbon dust emission (tonnes) 減少碳粉塵排放(噸)	566,069
Reduced carbon dioxide (CO₂) emission (tonnes) 減少二氧化碳(CO ₂)排放(噸)	2,074,892
Reduced sulphur dioxide (SO₂) emission (tonnes) 減少二氧化硫(SO ₂)排放(噸)	62,434
Equivalent to electricity consumed by households in a year (household) 家庭年用電量當量(戶)	1,040,568
Equivalent to planting trees (number) 種植樹木當量(棵)	90,212,682

Note:

(1) Based on the power generated during the year by the Group's grid-connected utility-scale ground-mounted solar farm projects, commercial distributed projects and self-use distributed projects.

附註：

(1) 按本集團已併網的大型地面太陽能發電場項目、商業分佈式項目及自用分佈式項目於年內發電量計算。



1. ABOUT US 關於我們

Direct economic value of Xinyi Solar generated and distributed to stakeholders in 2018

二零一八年信義光能產生及分配予持份者的直接經濟價值

	Economic Value 經濟價值	Stakeholder 持份者	Amount (HK\$'000) 金額(千元)	
Direct economic value produced 產生的直接經濟價值	Operating revenue 營業收入	Shareholder, customer, supplier 股東、客戶、供應商	7,671,632	
	Other revenue, net ^(Note1) 其他收益淨額 ^(附註1)		168,481	
Economic value distributed 分配的經濟價值	Staff cost 員工開支	Staff 員工	337,823	
	Other costs ^(Note2) 其他成本 ^(附註2)	Partner, supplier 合作夥伴、供應商	4,351,598	
	Finance costs 財務費用	Borrower 借款人	255,959	
	Dividend 股息	Shareholder 股東	915,912	
	Tax ^(Note3) 稅項 ^(附註3)	Government 政府	197,280	
	Profit attributable to non-controlling interests 非控股權益應佔盈利	Non-controlling shareholder 非控股股東	178,532	
	Economic value left 留存的經濟價值	Used for sustainable development and operation of Xinyi Solar 用作信義光能可持續發展和經營	Shareholder/investor, customer, employee 股東/投資者、客戶、員工	1,603,009

Note:

附註：

- | | |
|--|--|
| (1) Including other income (rental income, government grants and scrap sales, insurance claim compensation and tariff adjustment income of distributed solar energy installed on the roof-top at the Group's production complex, etc.), and other net loss/profit (including foreign exchange net loss/income and losses on the sale of property, plant and equipment, etc.) | (1) 包括其他收入(租金收入、政府補助金及廢料銷售、保險申索補償及於廠房屋頂安裝的分佈式太陽能的電價調整收入等)，以及其他虧損/盈利淨額，包括外匯虧損/收益淨額以及出售物業、廠房及設備的虧損等。 |
| (2) Including the other costs in 2018, but excluding annual depreciation and amortisation, and staff cost. | (2) 包括2018年內的其他成本，但不包括年度的折舊及攤銷，以及員工開支。 |
| (3) Including current income tax but excluding deferred taxes for the current year. | (3) 包括本期所得稅，但不包括本年度的遞延稅項。 |



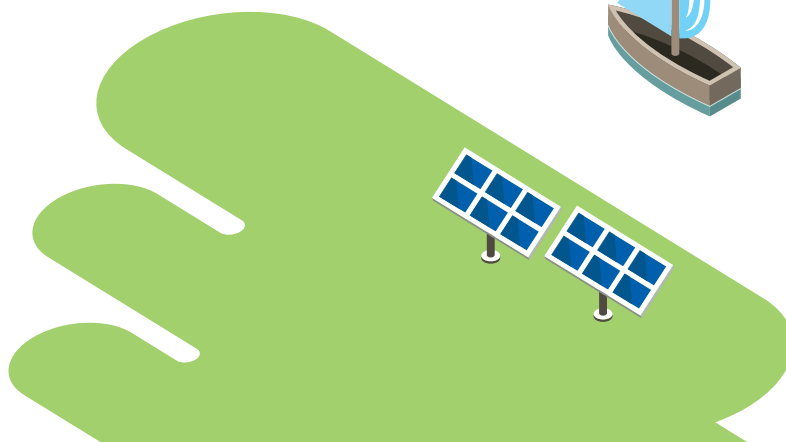
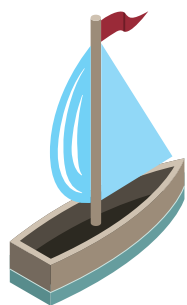
2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

As a member of the renewable energy industry, the Group integrates the concept of sustainable development into its daily operation and management. In addition to its efforts to provide efficient and high-quality green products to global major module manufacturers, the Group is also active in implementing energy saving and emission reduction works in every part of the procedures such as manufacturing and production, daily operations and other aspects. During the reporting period, the Group implemented quality, environmental, occupational health and safety management, and developed and implemented quality monitoring, environmental protection, pollutant emission monitoring and treatment, occupational health, safe production, labour protection and other measures in accordance with “Quality Management Systems Requirements (ISO9001:2015)” (《質量管理體系要求 (ISO9001:2015)》), “Environmental Management Systems – Requirements with Guidance for Use (ISO14001:2015)” (《環境管理體系要求及使用指南 (ISO14001:2015)》) and “Requirements on Occupational Health and Safety Management Systems (OHSAS18001:2007)” (《職業健康安全管理體系要求 (OHSAS18001:2007)》).

In 2018, the Group strictly abided by the laws and regulations in the places in which it operates, ensuring that the daily production and operation activities meet the requirements of green production and operation. The main environmental laws and regulations applicable during the reporting period include:

作為可再新能源行業的一份子，本集團將可持續發展理念融入日常的運營管理中，除了致力為全球主要組件生產商提供高效優質的綠色產品外，亦積極在生產製造、日常經營等各個環節落實節能減排工作。報告期內，本集團根據《質量管理體系要求(ISO9001:2015)》、《環境管理體系要求及使用指南(ISO14001:2015)》和《職業健康安全管理體系要求(OHSAS18001:2007)》實施質量、環境、職業健康安全管理，制訂及執行品質監控、環境保護、污染物排放監測及治理、職業健康、安全生產、勞動防護等方面的措施。

2018年，本集團嚴格遵循業務所在地的法律法規要求，確保日常生產及經營活動符合綠色生產及運營要求，於報告期內適用的主要環保法律法規包括：



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

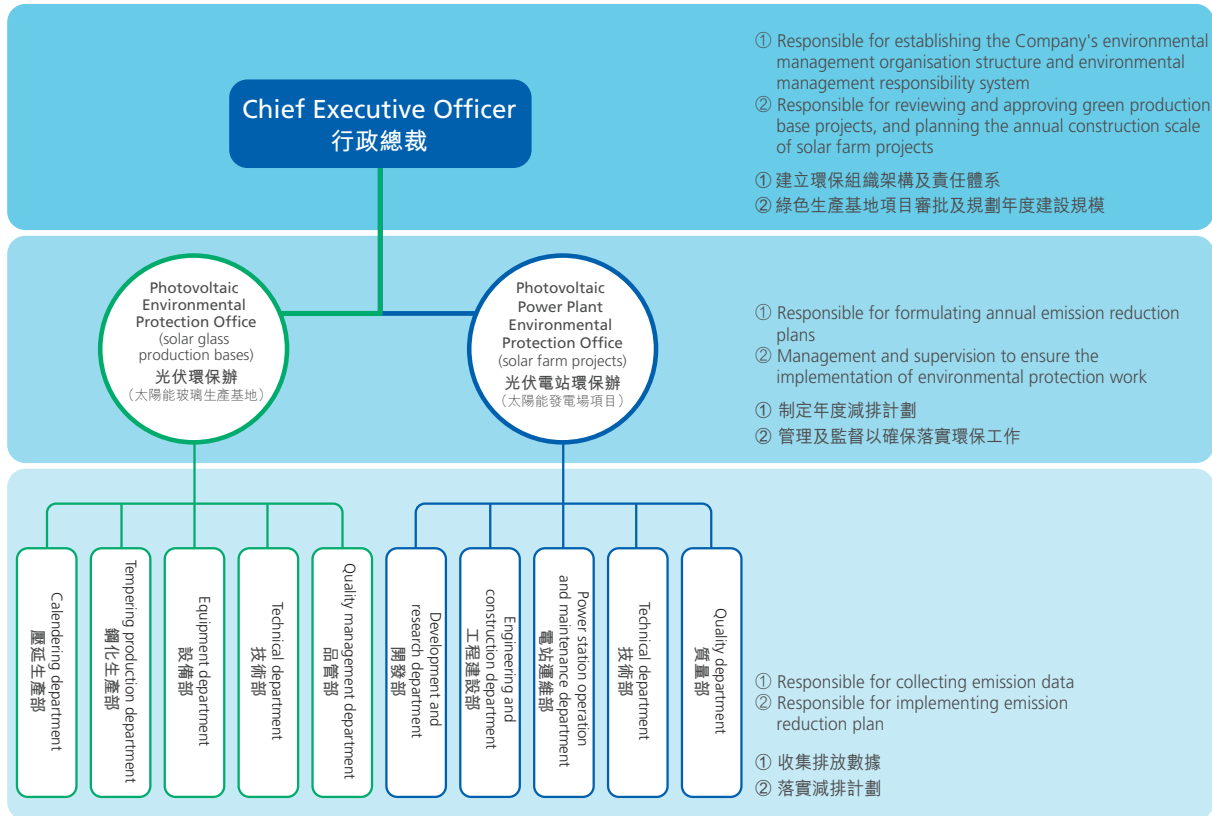
China 中國	Malaysia 馬來西亞
“Environmental Protection Law of the People’s Republic of China” 《中華人民共和國環境保護法》	“Environmental Quality Act 1974” 《1974年環境素質法》
“Law of the People’s Republic of China on Appraising Environmental Impacts” 《中華人民共和國環境影響評價法》	“Environmental Quality Act 1987” 《1987年環境素質法令》
“Law of the People’s Republic of China on the Prevention and Control of Atmospheric Pollution” 《中華人民共和國大氣污染防治法》	“Guidelines for Environmental Impact Assessment 1990 of Malaysia” 《1990年馬來西亞環境影響評估指南》
“Law of the People’s Republic of China on the Prevention and Control of Water Pollution” 《中華人民共和國水污染防治法》	“Guidelines for Environmental Impact Assessment 1994” 《1994年環境影響評估指南》
“Law of the People’s Republic of China on the Prevention and Control of Pollution from Environmental Noise” 《中華人民共和國環境噪聲污染防治法》	
“Law of the People’s Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste” 《中華人民共和國固體廢物污染環境防治法》	
“Law of the People’s Republic of China on Work Safety” 《中華人民共和國安全生產法》	
“Emergency Response Law of the People’s Republic of China” 《中華人民共和國突發事件應對法》	
“National Catalogue of Hazardous Wastes” 《國家危險廢物名錄》	

The Group has successfully established and gradually improved the environmental management organisation structure and environmental management responsibility system of Xinyi Solar Group in accordance with the “Environmental Management Systems – Requirements with Guidance for Use (ISO14001:2015)” (《環境管理體系要求及使用指南 (ISO14001:2015) 》). Under the guidance of the top management, the Photovoltaic Environmental Protection Office and the Photovoltaic Power Plant Environmental Protection Office will manage and supervise the departments of the solar glass business and the solar farm business to ensure the implementation of various environmental protection works.

本集團依循《環境管理體系要求及使用指南 (ISO14001:2015)》已成功建立並逐步完善信義光能集團環境管理組織架構及環境管理責任體系。在最高管理層的指導下，由光伏環保辦及光伏電站環保辦對應太陽能玻璃業務及太陽能發電場業務各下屬部門進行管理及監督，確保各項環保工作的推行。



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營



Xinyi Solar Environmental Organisation Structure
信義光能環保組織架構

The subsidiaries of the Group have also formulated pollutant discharge monitoring and preventive measures in accordance with the relevant environmental laws and regulations of the places where the business is located to ensure that pollutant discharge and treatment comply with the standards and requirements of the "Emission Standard of Air Pollutants for Flat Glass Industry (GB26453-2011)" 《平板玻璃工業大氣污染物排放標準 (GB26453-2011)》, "Integrated Wastewater Discharge Standard (GB8978-1996)" 《污水綜合排放標準 (GB8978-1996)》, "Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste" 《中華人民共和國固體廢物污染環境治理辦法》, "Standard for Pollution Control on Hazardous Waste Storage (GB18597-2001)" 《危險廢物貯存污染控制標準 (GB18597-2001)》, "Emission Standard for Industrial Enterprises Noise at Boundary (GB12348-2008)" 《工業企業廠界噪聲排放標準 (GB12348-2008)》 and "Management Measures for Hazardous

本集團各附屬公司亦已根據業務所在地相關環保法律法規的要求制訂污染物排放監測及防禦治理措施，以確保污染物排放及處理符合《平板玻璃工業大氣污染物排放標準(GB26453-2011)》、《污水綜合排放標準(GB8978-1996)》、《中華人民共和國固體廢物污染環境治理辦法》、《危險廢物貯存污染控制標準(GB18597-2001)》、《工業企業廠界噪聲排放標準(GB12348-2008)》、《危險廢物轉移聯單管理辦法》等的標準和要求。於報告期內，本集團就

2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

Wastes Movement” (《危險廢物轉移聯單管理辦法》). During the reporting period, the Group mainly adopted the following treatment technologies, disposal methods, monitoring methods and applicable standards to reduce the pollutants produced during the manufacturing process of the ultra-clear solar patterned glass:

減少超白太陽能壓花玻璃生產過程中產生的污染物所採取的主要治理技術、處置方法、監測方法，以及適用的標準歸納如下：

Pollutants 污染物	Treatment and control/Disposal 治理/處置	Monitoring method 監測方法	Applicable standard 適用標準
Sulphur dioxide (SO ₂)	<ul style="list-style-type: none"> Using natural gas as fuel 	Install an online monitoring system for flue gas at the exhaust port and set monitoring points for 24-hour continuous monitoring. The monitored data is uploaded through the CEMS system.	The Wuhu and Tianjin plants: “Emission Standard of Air Pollutants for Flat Glass Industry (GB26453-2011)” (《平板玻璃工業大氣污染物排放標準》(GB26453-2011))
Nitrogen oxides (NO _x)	<ul style="list-style-type: none"> Equipped with facilities for desulphurisation, denitrification and dedusting 		National Standard: SO ₂ ≤400mg/m ³ ; NO _x ≤700mg/m ³ ; smoke and dust ≤50mg/m ³
Particulates (smoke and dust)	<ul style="list-style-type: none"> Adjust the amount of ammonia water used 	The Wuhu and Tianjin plants have been networked to the Department of Ecology and Environment of Anhui Province and Tianjin Ecology and Environment Bureau respectively, and the government implements monitoring to ensure that emissions data are up to standard.	Local emission standards at Wuhu and Tianjin Malaysian Plant: National Standard: SO ₂ ≤800mg/m ³ ; NO _x ≤800mg/m ³ ; smoke and dust ≤50mg/m ³
二氧化硫(SO ₂)	<ul style="list-style-type: none"> 使用天然氣作為燃料 	於排氣口安裝煙氣在線監測系統，並設監測點位進行24小時連續監測，監測數據通過CEMS系統上傳	蕪湖及天津廠房： 《平板玻璃工業大氣污染物排放標準(GB26453-2011)》 國家標準：SO ₂ ≤400mg/m ³ ；NO _x ≤700mg/m ³ ；煙塵≤50mg/m ³
氮氧化物(NO _x)	<ul style="list-style-type: none"> 脫硫脫硝除塵裝置 		
顆粒物(煙塵)	<ul style="list-style-type: none"> 調整氨水用量 	蕪湖及天津廠房已分別與安徽省/天津市生態環境主管部門實現聯網，由政府實施監測，確保排放數據達標	蕪湖及天津地方排放標準 馬來西亞廠房： 國家標準：SO ₂ ≤800mg/m ³ ；NO _x ≤800mg/m ³ ；煙塵≤50mg/m ³
Sewage (Index such as suspended solids (SS), COD _{cr} , ammonia nitrogen, vegetable and animal oils, BOD ₅ and PH)	<ul style="list-style-type: none"> Waste water is recycled after treatment through the sewage treatment and collection system and the efficiency of purification is enhanced by the use of filter presses, water purifier and a water agent, thereby improving the water recycling utilisation rate. Unusable production sewage, rainwater and domestic sewage are discharged after being treated by sedimentation, filtration or septic tank treatment 	Engage qualified third party to carry out quarterly inspection.	“Integrated Wastewater Discharge Standard” (《污水綜合排放標準》) (GB8978-1996)



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

Pollutants 污染物	Treatment and control/Disposal 治理 / 處置	Monitoring method 監測方法	Applicable standard 適用標準
污水 (監測因子包含懸浮物SS、 COD _{cr} 、氨氮、動植物油、BOD ₅ 、 PH等指標)	<ul style="list-style-type: none"> 通過污水處理收集系統對污水處理後循環回用，另加裝壓濾機、淨水器，使用水劑等提升淨化效率，進而提高水循環利用率 無法利用的生產廢水、雨水及生活污水經沉澱 / 過濾 / 化糞池處理後排放 	委託合資質的第三方 每季度進行監測	《污水綜合排放標準(GB8978-1996)》
Noise	<ul style="list-style-type: none"> Plant noise insulation Dust removal fan is equipped with sound insulation cover and basic shock absorption 	Engage qualified third party to carry out yearly inspection.	"Emission Standard for Industrial Enterprises Noise at Boundary (GB12348-2008)" (《工業企業廠界噪聲排放標準 (GB12348-2008)》)
噪聲	<ul style="list-style-type: none"> 廠房隔聲 除塵風機裝配隔聲罩和進行基礎減震 	委託合資質的第三方每年進行監測	《工業企業廠界噪聲排放標準(GB12348-2008)》
Building waste Dust Sludge	<ul style="list-style-type: none"> Manufacturer recycling Engage qualified agencies to handle Engage qualified agencies to handle 	The non-hazardous solid wastes are stored in designated locations before treatment, and the relevant departments are responsible for the statistics and the material control team is responsible for the supervision.	"Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste" (《中華人民共和國固體廢物污染環境防治法》) "National Catalogue of Hazardous Wastes" (《國家危險廢物名錄》)
Waste shattered glass Discarded packaging materials (including timber, paper, etc.) Hazardous waste (including discarded reagent bottles, discarded packing barrels, discarded fluorescent tube, etc.)	<ul style="list-style-type: none"> Reuse in production Recycle/discharge in legal ways Engage qualified agencies to handle 	The material control team is responsible for supervising the disposal and management of hazardous solid waste.	"Standard for Pollution Control on Hazardous Waste Storage (GB18597-2001)" (《危險廢物貯存污染控制標準 (GB18597-2001)》) "Management Measures for Hazardous Wastes Movement" (《危險廢物轉移聯單管理辦法》)
Solid Waste 建材廢料 粉塵 污泥 廢碎玻璃 廢包裝材料(包括木材、紙張等) 危險廢物(包括廢試劑瓶、廢包裝桶、廢燈管等)	<ul style="list-style-type: none"> 廠家回收 委託有資質單位處理 委託有資質單位處理 回用於生產 回收循環利用 / 採取合法途徑處理 委託有資質單位處理 	無害固體廢物在處理前分類存放於指定地點，由相關部門負責統計及物控組負責監督 由物控組負責督查危險固廢處置和管理工作	《中華人民共和國固體廢物污染環境治理辦法》 《國家危險廢物名錄》 《危險廢物貯存污染控制標準(GB18597-2001)》 《危險廢物轉移聯單管理辦法》

Main Pollutant Identification, Disposal & Monitoring Methods and Applicable Emission Standards of Xinyi Solar's Glass Production

信義光能玻璃生產主要污染物識別、處置、監測方法及適用排放標準

2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

During the reporting period, the Group strengthened its effort in environmental protection and the implementation of emission reduction plans with its emission of major pollutants reaching the national and local standards. No illegal activities have been found to have material impact on the environment or the Group in terms of exhaust gas and greenhouse gas emissions, sewage discharge and waste disposal.

報告期內，本集團加大環保力度，著力落實減排計劃，各主要污染物的排放均達國家及地方的標準，在廢氣及溫室氣體排放、污水排放及廢物處理等方面並無發現任何對環境或對本集團造成重大影響的違法行為。

2.1 Create a World of Glass with Smart Green Technology

The Group adheres to the management orientation of “Providing premium glass products, creating a greener world; to establish a trustworthy glass enterprise and achieve a world-class brand”, boosting production with technology. By carrying out measures such as technology optimisation, intelligent technology upgrade, use of clean energy and increase in the use and operational efficiency improvement of environmental protection equipment, waste reduction from the source will be promoted in achieving the goal of recycling resources and saving energy. The Group will lead a new trend of green industry from the traditional industry to a path of low-carbon green development.

2.1 綠色「智造」透明世界

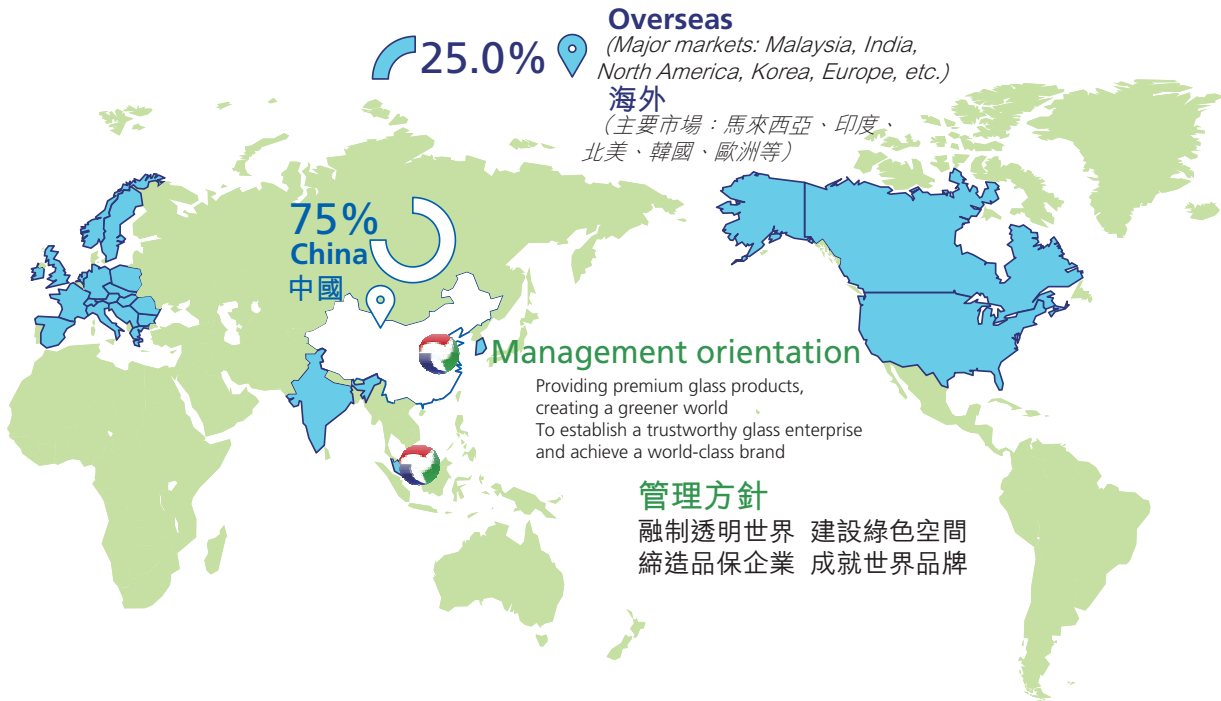
本集團堅持「融制透明世界，建設綠色空間，締造品保企業，成就世界品牌」的管理方針，推進「智造」生產，透過技術優化、智能升級、使用清潔能源、加大環保設備投入及提升運行效率等措施推動源頭減廢，實現資源的循環利用和節能降耗的目標，在傳統工業中走出低碳環保的綠色發展之路，引領綠色工業新風尚。

During the reporting period, the Group provided the module manufacturers around the world with the most prestige ultra-clear solar patterned glass (raw and tempered), coated solar glass and back glass as glass products of their protective layers through three production bases in China (Anhui and Tianjin) and overseas (Malaysia). With the diversified development of overseas market demand, the Group's overseas sales ratio has increased year-on-year, reaching 25% for the first time in 2018.

於報告期內，本集團通過中國(安徽及天津)和海外(馬來西亞)三大生產基地為全球組件商提供最優質的超白太陽能壓花玻璃(原片及鋼化片)、太陽能鍍膜玻璃及背板玻璃等應用於太陽能組件，作為其保護層的玻璃產品。隨著海外市場需求的多元化發展，本集團的海外銷售佔比逐年提升，於2018年首度達至25%。



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營



Distribution of sales revenue of solar glass business in 2018
2018年太陽能玻璃業務銷售收入分佈

As the business grows, the Group does not only focus on the growth of business scale and economic efficiency, but also attaches great importance to the environmental benefits and social impact arising from our business development. We understand that “enterprises are enterprises of the community”. As a member of the community, there will not be any sustainable growth in an enterprise if there is no long-term stability in the community. If the environmental assets of the community cannot be maintained, it will be ridiculous to talk about the sustainability development of an enterprise. The need for environmental protection is urgent. The Group has successfully established and gradually improved the integrated management system of quality, environment and occupational safety in accordance with relevant laws and regulations and applicable national and regional standards, as well as fully promoting the implementation of environmental protection work to achieve green production for the business of solar glass and the green construction and safe operation of solar farms.

隨著業務的壯大，本集團不僅關注業務規模及經濟效益的增長，更高度重視業務發展所產生的環保效益及對社會之影響。我們明白「企業是社會的企業」。作為社會中的一員，若無社會的長治久安，就談不上企業的持續成長，若保不住社會的青山綠水，就妄論企業的永續發展。環保需求緊迫，本集團根據相關法律法規、國家及地區適用的標準要求以成功建立並逐步完善質量、環境、職業安全一體化管理體系，並全力推動環保工作的落實，以實現太陽能玻璃業務的綠色生產及太陽能發電場的綠色建設及安全運營。

2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

The solar farm business is categorised as renewable energy business. It supplies clean and pollution-free electricity to the community with a view to reducing the use of coal-fired electricity as well as emissions. By the end of 2018, the solar farm projects invested by Xinyi Solar had a grid-connected capacity of 2.5GW. The green power generated by these solar farms in 2018 is equivalent to planting 90.2 million trees for the earth. For the innovation and development of the solar farm business, please refer to the "Innovative (Chuang'xin') model" section of this Report.

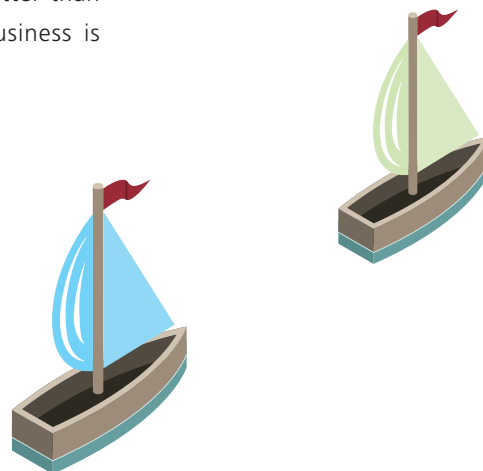
Green production bases

Glass manufacturing is a traditional industry. Since its production requires a large amount of fuel, electricity and water, and involves the mixing of industrial raw materials and high-temperature melting, it will generate exhaust gas, waste water, solid waste and noise pollution. While maintaining efficient production and creating economic benefits for shareholders, the Group bears in mind the corporate social responsibility and builds green production bases to save energy and reduce emissions through the use of clean energy, environmental technology upgrades, investment in environmental protection equipment and increase in the application of environmental protection equipment. This effectively reduces the environmental pollution caused by glass production. At present, the three production bases that the Group is operating are all green production bases, and the following environmental protection devices have been installed. The pollutant discharge of the Group is consistently better than the standards of the cities or countries where our business is located.

太陽能發電場業務屬於可再生能源類別，通過生產潔淨無污染的電力供給社會使用，以降低燃煤火電的使用量，達到減少排放的效果。截至2018年底，信義光能投資建設的太陽能發電場項目併網規模達2.5GW，該等電站2018年所產生的綠色電力相當於為地球種植90.2百萬棵樹木。有關太陽能發電場業務的創新與發展可參考本報告創「信」模式部分。

綠色生產基地

玻璃製造屬於傳統工業，由於其生產需要消耗大量的燃料、電力及水，並涉及工業原材料的混合及高溫熔解，因此會產生廢氣、廢水、固體廢物和噪聲污染。本集團在維持高效生產，為股東創造經濟效益的同時，謹記企業的社會責任，全心打造綠色生產基地，透過使用清潔能源、環保技術升級、環保設備投入以及加大環保設備運行等方式節能減排，有效減少玻璃生產可能對環境造成的污染。目前本集團正在運營的三大生產基地均屬綠色生產基地，並已配備下列環保裝置，污染物排放情況長期優於業務所在的城市或國家之標準。





2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

Conventional environmental protection facilities and energy saving measures at the green production bases
綠色生產基地之常規環保設施及節能減排措施

Energy saving measures 節能減排措施

- ① Desulphurisation equipment
① 脫硫裝置
- ② SCR denitrator
② SCR 脫硝裝置
- ③ Electrostatic precipitator
③ 靜電除塵裝置
- ④ Residual heat power generation equipment
④ 餘熱發電裝置
- ⑤ Rooftop distributed solar power system
⑤ 屋頂分佈式太陽能系統
- ⑥ Waste recycling facilities
⑥ 廢物回收設施
- ⑦ Sewage treatment and collection system
⑦ 污水處理收集系統
- ⑧ Use of clean energy (natural gas)
⑧ 使用清潔能源 (天然氣)
- ⑨ Regular maintenance and energy-saving upgrades
⑨ 定期維修及節能升級

Environmental benefit index 環保效益指標

To reduce the emission of SO₂
減少SO₂排放量

To reduce the emission of NO_x
減少NO_x排放量

To reduce the emission of particulates (smoke and dust)
減少顆粒物 (煙塵) 排放量

To reduce purchased power^(Note 1) and indirect emissions
降低外購電量^(附註1)，減少間接排放

To reduce purchased power^(Note 1) and indirect emissions
降低外購電量^(附註1)，減少間接排放

To reduce hazardous / non-hazardous waste discharge
減少有害/無害廢物排放量

To reduce sewage discharge
減少污水外排量

To reduce greenhouse gas emissions
減少溫室氣體排放量

To improve production efficiency and reduce the energy consumption per unit
提高生產效率，降低單位能源耗用量

Note:

(1) The source of purchased electricity is generally coal-fired power, which causes greater environmental pollution

附註：

(1) 外購電力一般來源為燃煤火電，對環境污染較大

2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營



Pollutant emissions and treatment

The Group established “Management Procedures for Environment and Safe Operations” in accordance with “Environmental Protection Law of the People’s Republic of China” (《中華人民共和國環境保護法》), “Law of the People’s Republic of China on the Prevention and Control of Atmospheric Pollution” (《中華人民共和國大氣污染防治法》), “Law of the People’s Republic of China on the Prevention and Control of Water Pollution” (《中華人民共和國水污染防治法》), “Law of the People’s Republic of China on the Prevention and Control of Pollution from Environmental Noise” (《中華人民共和國環境噪聲污染防治法》) and “Law of the People’s Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste” (《中華人民共和國固體廢物污染環境防治法》). In view of the kiln flue gas, sewage, noise, solid waste and other pollutants generated during the ultra-clear solar patterned glass production and deep-processing procedures, the Group strictly implements relevant pollutant prevention, monitoring and control measures to ensure that the emissions meet the national emission standards and the local emission standards of the places where the business is located, such as the “Emission Standard of Air Pollutants for Flat Glass Industry (GB26453-2011)” (《平板玻璃工業大氣污染物排放標準(GB26453-2011)》), “Integrated Wastewater Discharge Standard (GB8978-1996)” (《污水綜合排放標準(GB8978-1996)》), “Standard for Pollution Control on Hazardous Waste Storage (GB18597-2001)” (《危險廢物貯存污染控制標準(GB18597-2001)》), “Emission Standard for Industrial Enterprises Noise at Boundary (GB12348-2008)” (《工業企業廠界噪聲排放標準(GB12348-2008)》) and “Management Measures for Hazardous Wastes Movement” (《危險廢物轉移聯單管理辦法》).



污染物排放及治理

本集團根據《中華人民共和國環境保護法》、《中華人民共和國大氣污染防治法》、《中華人民共和國水污染防治法》、《中華人民共和國環境噪聲污染防治法》、《中華人民共和國固體廢物污染環境防治法》等法律法規的要求建立《環境和安全運行管理程序》。針對超白太陽能壓花玻璃生產及深加工過程中產生的窯爐煙氣、污水、噪聲、固體廢物等污染物，本集團嚴格執行相關的污染物預防、監測及治理措施，確保排放物符合《平板玻璃工業大氣污染物排放標準(GB26453-2011)》、《污水綜合排放標準(GB8978-1996)》、《危險廢物貯存污染控制標準(GB18597-2001)》、《工業企業廠界噪聲排放標準(GB12348-2008)》、《危險廢物轉移聯單管理辦法》等國家排放標準及業務所在地的地方排放標準。





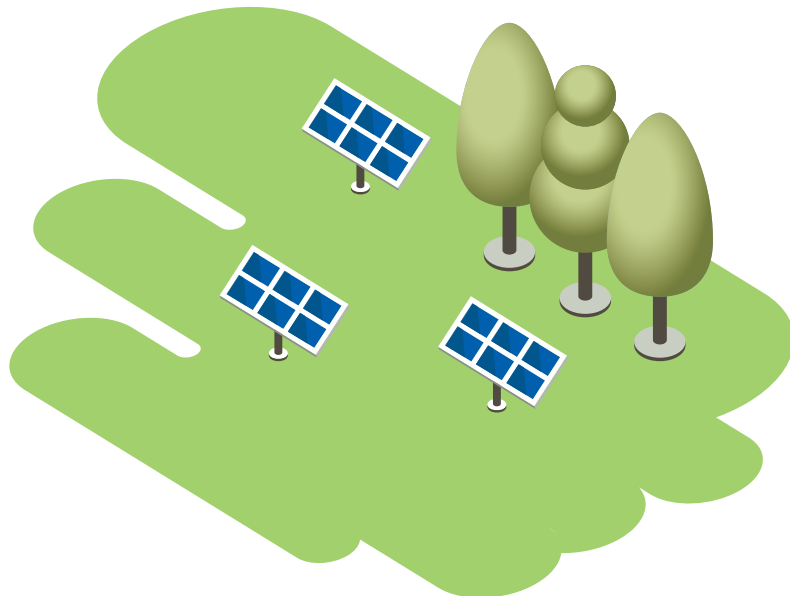
2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

The Group's major production bases in China are located in Wuhu, Anhui and Tianjin, which belong to the Yangtze River Delta and the Beijing-Tianjin-Hebei area, respectively, where the local emission standards are more stringent than the national standards. However, the Group's past emission all met or was even better than the local emission standards, demonstrating the determination of the Group to put high-efficiency and low-carbon green production in place.

In addition to adopting common pollution prevention technologies and advanced pollution prevention technologies in the industry to prevent or reduce the generation of pollutants and to treat the pollutants that have been generated, the Group has also improved the automation level of the production lines through technical transformation so as to reduce the energy consumption per unit of finished products, which will in turn enhance the environmental efficiency of the production lines. By the end of 2018, except for the two production lines under cold repair in Wuhu with an aggregate daily melting capacity of 1,100 tonnes, the others have undergone the connection transformation of the calendaring production lines and tempering production lines. After the connection, processes such as stacking, packaging, robotic gripping, transportation and loading are reduced. By reducing the forklift transport and the robotic gripping process, 5% of electricity consumption and 15-20% of diesel consumption can be saved.

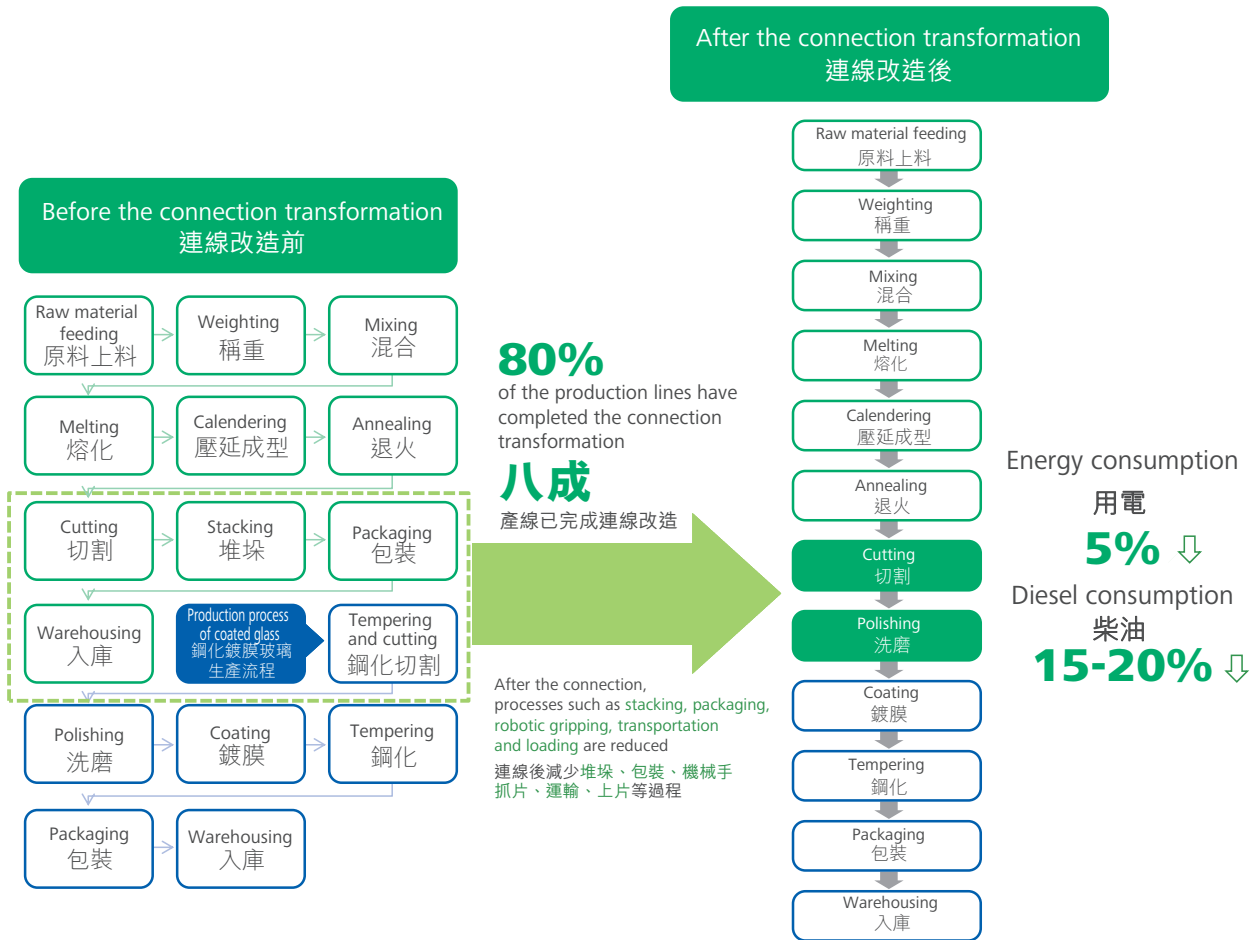
由於本集團於國內的主要生產基地位於安徽蕪湖及天津，分別屬於長三角及京津冀地區，地方排放標準較國家標準更為嚴苛，但本集團歷史以來的排放均符合甚至優於當地排放標準，足見本集團將高效低碳綠色生產落實到位的決心。

除採用行業常見的污染預防可行技術及污染預防先進可行技術預防或減少污染物產生，以及針對已產生的污染物進行治理外，本集團亦通過對生產線進行技術改造，提高生產線的自動化水平，以降低單位產成品能耗的方式提升生產線的環保效益。截至2018年底，除蕪湖正在冷修的兩條日熔量合共1,100噸生產線外，其餘的生產線均已完成壓延生產線和鋼化生產線的連線改造，連線後減少了堆垛、打包、機械手抓片、運輸、上片等工序，僅減少叉車運輸及機械手抓片工序可節約用電5%，柴油耗用量下降15-20%。



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

Comparison of production process before and after connection transformation
連線改造前後生產流程對比圖



Exhaust gas prevention and emission management

Atmospheric pollutants generated by the Group's ultra-clear solar patterned glass production mainly include particulates, sulphur dioxide (SO₂) and nitrogen oxides (NO_x). Particulates are mainly produced in the three production processes, namely raw material feeding, mixing and melting; while sulphur dioxide and nitrogen oxides are mainly generated from the natural gas, electricity and water consumption in the melting process. Greenhouse gases primarily come from the consumption of natural gas and the decomposition of raw materials, as well as electricity consumption other than power generation from residual heat boilers and factory rooftop solar power generation.



廢氣防治及排放管理

本集團於超白太陽能壓花玻璃生產過程中產生的大氣污染物主要包括顆粒物、二氧化硫(SO₂)、氮氧化物(NO_x)。其中顆粒物主要產生於原料上料、混合及熔化工序，二氧化硫及氮氧化物則主要產生於熔化工序，主要來自包括天然氣、電力、水的消耗。溫室氣體則主要來自於天然氣的消耗、原材料的分解，以及除去餘熱鍋爐發電和廠房屋頂太陽能發電外的電力消耗。



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

In respect of reducing atmospheric pollutants and greenhouse gas emissions, during the reporting period, the Group reduced the initial emission concentration of sulphur dioxide mainly by using natural gas as fuel, and reduced the concentration of sulphur dioxide in flue gas through semi-dry desulphurisation. The SCR denitrification, the adjustment of ammonia water amount and the modification of spray guns are used to reduce the concentration of nitrogen oxides in flue gas. The bag type dust collectors and electrostatic precipitators are installed to reduce the concentration of particulates in flue gas. In addition, through the installation of residual heat boilers, the residual heat is utilised to generate electricity. Distributed solar panels are also installed on the factory rooftop to reduce the amount of purchased electricity, thereby reducing the indirect greenhouse gas emission. In 2018, the Group effectively reduced emissions of exhaust gases and greenhouse gases by adopting the following measures to ensure that the amount of emissions meets the “Emission Standard of Air Pollutants for Flat Glass Industry (GB26453-2011)” 《平板玻璃工業大氣污染物排放標準(GB26453-2011)》 as well as the stricter local standards in Wuhu, Anhui and Tianjin:

針對減少大氣污染物及溫室氣體的排放，於報告期內，本集團主要通過使用天然氣作為燃料降低二氧化硫的初始排放濃度，另採用半乾法脫硫降低煙氣中的二氧化硫濃度；採用SCR脫硝、調整氨水用量及噴槍改造等措施降低煙氣中氮氧化物的濃度；配置袋式除塵和靜電除塵裝置降低煙氣中的顆粒物濃霧。此外，通過安裝餘熱鍋爐，利用餘熱發電，以及於廠房屋頂安裝分佈式太陽能，以減少外購電量，進而減少間接排放的溫室氣體量。2018年，本集團通過採取以下措施有效減少廢氣及溫室氣體的排放，確保排放物符合《平板玻璃工業大氣污染物排放標準(GB26453-2011)》，以及安徽蕪湖和天津當地更嚴格的地方標準：



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

Exhaust gas prevention measures and results in 2018 2018年廢氣防治措施及所得成果

Energy conservation and environmental protection measures 節能環保措施	Results achieved in 2018 2018年成效
Desulphurisation, denitrification and dedusting equipment 脫硫脫硝除塵裝置	<p>Reduced emission of SO₂ ^(Note 1), NO_x and smoke and dust in the Wuhu Plant reached approximately 89%, 91% and 90% respectively</p> <p>Reduced emission of SO₂, NO_x and smoke and dust in the Tianjin Plant reached approximately 98%, 90% and 94% respectively</p> <p>Reduced emission of NO_x and smoke and dust in the Malaysian Plant reached approximately 73% and 80% respectively, with total emission of flue gas reduced by 19.6% year-on-year</p> <p>蕪湖廠房 SO₂ 減排量^(附註1)約 89%；NO_x 減排量約 91%；煙塵減排量約 90%</p> <p>天津廠房 SO₂ 減排量約 98%；NO_x 減排量約 90%；煙塵減排量約 94%</p> <p>馬來西亞廠房 NO_x 減排量約 73%；煙塵減排量約 80%；煙氣總排放量同比下降 19.6%</p>
Adjust the amount of ammonia water used and carry out spray gun transformation 調整氨水用量和進行噴槍改造	<p>Emission of NO_x in the Malaysian Plant decreased by 31% year-on-year</p> <p>馬來西亞廠房 NO_x 排放量同比下降 31%</p>
Increase the temperature of flue gas and improve the residual heat power generation efficiency 提高煙氣溫度改善餘熱發電效率	<p>Residual heat power generation accounted for approximately 16% of the total electricity consumption</p> <p>餘熱發電量佔總用電量約 16%</p>
Rooftop distributed solar power 屋頂分佈式太陽能	<p>Photovoltaic power generation accounted for approximately 8% of the total electricity consumption</p> <p>光伏發電量佔總用電量約 8%</p>

Note:

附註：

(1) Reduced emission equals to (emission/amount of gas production-1) × 100%, which is the same for the followings. Taking the Wuhu Plant as an example, since the final emission of SO₂ is only 11% of the gas production, the reduced emission of SO₂ is 89%.

(1) 減排量等於(排放量／產生量-1) × 100%，下同。以蕪湖廠房為例，SO₂ 最終排放量僅為產生量的 11%，故 SO₂ 減排量為 89%。



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

During the reporting period, the air pollutants and greenhouse gas emissions generated by the Group in the production process were as follows:

於報告期內，本集團在生產過程中所產生的空氣污染物及溫室氣體排放數據如下：

Emission index 排放指標	Unit 單位	2018 2018年
Nitrogen oxides (NO _x) emissions 氮氧化物(NO _x)排放量	Tonne 噸	1,606
Sulphur dioxide (SO ₂) emissions 二氧化硫(SO ₂)排放量	Tonne 噸	821
Particulate emissions (Note 1) 顆粒物排放量(附註1)	Tonne 噸	118
Total greenhouse gas emissions 溫室氣體總排放量	Tonne of carbon dioxide equivalent 噸二氧化碳當量	1,593,977
Direct emissions (Scope 1) (Note 2) 直接排放(範圍1)(附註2)	Tonne of carbon dioxide equivalent 噸二氧化碳當量	1,128,864
Indirect emissions (Scope 2) (Note 3) 間接排放(範圍2)(附註3)	Tonne of carbon dioxide equivalent 噸二氧化碳當量	465,113
Greenhouse gas emissions per tonne of finished products (Note 4) 每噸產成品溫室氣體排放量(附註4)	Tonne of carbon dioxide equivalent 噸二氧化碳當量	0.99
Direct emissions (Scope 1) (Note 2) 直接排放(範圍1)(附註2)	Tonne of carbon dioxide equivalent 噸二氧化碳當量	0.70
Indirect emissions (Scope 2) (Note 3) 間接排放(範圍2)(附註3)	Tonne of carbon dioxide equivalent 噸二氧化碳當量	0.29

Note:

- (1) Flue gas emitted from the furnaces during the production of solar glass.
- (2) Scope 1 - Emissions from fuel consumption (mainly natural gas) and the decomposition of carbonates in feedstock ingredients during the production of solar glass.
- (3) Scope 2 - Emissions arising from purchased electricity consumption during the production of solar glass, not including the emissions related to the purchased residual heat electricity generation since such amount was already included in the calculation of direct emissions of fuel consumption.
- (4) Based on the number of tonnes of solar glass production.

附註：

- (1) 源自生產太陽能玻璃過程中窯爐排出的煙氣。
- (2) 範圍1－生產太陽能玻璃過程中因燃料消耗(主要為天然氣)及原材料配料中的碳酸鹽分解的排放。
- (3) 範圍2－生產太陽能玻璃過程中因外購電力而引致的排放。外購電力不含外購餘熱發電，因與其相關的排放已計入燃料消耗的直接排放計算中。
- (4) 以太陽能玻璃生產噸數作計算基準。

2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

During the reporting period, the residual heat boilers at the Malaysian Plant operated stably, effectively reducing the emission of nitrogen oxides. In addition, through the optimisation of the spray gun and the adjustment of the amount of ammonia water used to further enhance the denitrification effect, the nitrogen oxide emissions of the Malaysian Plant decreased by more than 31% year-on-year. Wuhu and Tianjin plants have also continued to improve the monitoring and control measures, strictly implementing applicable pollutant emission standards so as to ensure that the production process complies with the emission standards and green production. The Group's total greenhouse gas emissions during the year were approximately 1.59 million tonnes, which is slightly lower than last year, while the greenhouse gas emissions per tonne of finished products remained stable at a relatively low level.

報告期內，馬來西亞廠房的餘熱鍋爐穩定運行，有效降低氮氧化物排放量，加上通過噴槍的優化改造及調節氨水使用量進一步強化脫硝效果，故馬來西亞廠房氮氧化物排放量同比下降超過31%。蕪湖及天津亦持續完善監測和控制措施，嚴格執行適用的污染物排放標準，確保達標排放和綠色生產。本集團於年內溫室氣體排放總量約159萬噸，略低於去年，而單噸產成品溫室氣體排放量則穩定維持於較低水平。





2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營



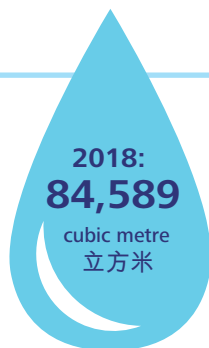
Sewage prevention and discharge management

Water is mainly used as cooling water for the equipment in the raw glass production workshops, water for mixing raw materials, steam for residual heat power generation, and process water for environmental protection facilities in the production of ultra-clear solar patterned glass. Apart from that, the polishing and washing process in the tempering workshops also requires a large amount of water. Therefore, during the reporting period, the sewage treatment system in Wuhu, Tianjin and Malaysian plants was optimised to enhance the use of recycled water. In 2018, recycled water was used in the Wuhu Plant as cooling water for the equipment in the raw glass production workshops, steam for residual heat power generation and polishing water for tempering workshops with an overall water recycling rate of over 90%. In addition, the water consumption decreased by 40%. The raw glass production workshops in Tianjin and Malaysian plants have also increased their use of recycled water. Together with the optimisation of the sewage treatment system in the tempering workshops, the overall water recycling rate of these two plants has exceeded 80% and 90% respectively while the water consumption has also recorded a decrease of 43% and 5% respectively. Thanks to the improvement in the overall water recycling rate, the Group's sewage discharge decreased significantly by over 27% year-on-year during the year.



污水防治及排放管理

超白太陽能壓花玻璃生產主要用水包括原片生產車間的設備冷卻用水、混合原料的用水、餘熱發電的蒸汽用水、環保設施的工藝用水，此外鋼化車間的洗磨和清洗工序亦需要耗用大量的水。故於報告期內，包括蕪湖、天津及馬來西亞均進行了污水處理系統優化，加強循環水的使用。2018年，蕪湖廠房原片生產車間設備冷卻用水、餘熱發電蒸汽用水和鋼化車間洗磨用水全部使用循環水，整體水循環利用率達90%以上，用水量下降40%。天津及馬來西亞廠房原片生產車間亦已加大使用循環水，加上鋼化車間污水處理系統的優化，整體水循環利用率分別超過80%及90%，用水量按年亦分別錄得43%及5%的下降。受惠於整體水循環利用率的提升，本集團於年內污水排放量同比顯著下降愈27%。



Sewage discharge performance
污水排放量

During the reporting period, the major reason for the significant decrease in sewage discharge was the optimisation of sewage treatment system through the increase in sewage treatment equipment in the Wuhu and Malaysian plants, which reduces the loss of reused water.

報告期內污水排放大幅下降主要由於蕪湖、馬來西亞透過增加污水處理設備，優化污水處理系統，以減少重複用水的流失。

2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

In addition to the sewage from production, there is also domestic sewage and rainwater. For domestic sewage, rainwater and production sewage that cannot be recycled, the Group will discharge it to the urban sewage treatment plant after adopting appropriate methods of treatment.

For the discharged sewage, the Group will engage qualified agencies to monitor the pH value (pH), chemical oxygen demand (COD_{cr}), biochemical oxygen demand (BOD₅), and pollutants such as ammonia nitrogen, animal and vegetable oil and suspended solids (SS) in order to ensure its compliance with the "Integrated Wastewater Discharge Standard" (GB8978-1996) (《污水綜合排放標準 (GB8978-1996)》).



Production and treatment of solid waste and noise

The solid wastes generated in the production process of ultra-clear solar patterned glass include building materials waste, dust collected by dedusting facilities, sludge produced after the production sewage passes through the sedimentation tank, shattered glass produced in the cutting process, discarded packaging materials and hazardous wastes such as discarded reagent bottles, discarded packaging barrels and discarded fluorescent tubes. Among them, building materials waste is mainly recycled by manufacturers, while shattered glass is mainly recycled and reused for production. In terms of dust, sludge and hazardous waste, the Group engaged qualified agencies to strictly follow the relevant required treatment under "Standard for Pollution Control on Hazardous Waste Storage (GB18597-2001)" (《危險廢物貯存污染控制標準 (GB18597-2001)》) and "Management Measures for Hazardous Wastes Movement" (《危險廢物轉移聯單管理辦法》). Discarded packaging materials such as paper, timber and metal, and discarded electronic equipment are recycled while the non-recyclable wastes shall be disposed of in accordance with applicable regulations. By recycling, both total solid waste disposed and waste disposed per tonne of finished products of the Group decreased during the year.

除生產污水外，亦會有生活污水及雨水，針對生活污水、雨水及無法再循環利用的生產污水，本集團對應採取適用方式處理後再向城鎮污水處理廠進行排放。

針對排放的污水，本集團每季度均會委任有資質的單位對酸鹼值(pH)、化學需氧量(COD_{cr})、生化需氧量(BOD₅)、氨氮、動植物油、懸浮物(SS)等污染物進行監測，以確保符合《污水綜合排放標準(GB8978-1996)》。



固體廢棄物及噪聲的產生及治理

超白太陽能壓花玻璃生產過程中產生的固體廢物包括建材廢料、除塵設施收集的粉塵、生產廢水經沉澱池後產生的淤泥、切割工序產生的廢碎玻璃、廢包裝材料，以及廢試劑瓶、廢包裝桶、廢燈管等在內的危險廢物。其中，建材廢料主要由廠商回收，而廢碎玻璃則主要通過回收後重用於生產。對於粉塵、淤泥及危險廢物，本集團委託有資質的單位，嚴格按照《危險廢物貯存污染控制標準(GB18597-2001)》及《危險廢物轉移聯單管理辦法》的要求進行相應的處置，對於紙張、木材、金屬等廢包裝材料以及廢電子設備等回收循環再用，其餘不可循環利用的廢棄物則依照適用法規要求進行處理。通過回收循環再用，本集團於年內固體廢棄物排放總量及單獨產成品排放量雙雙減少。



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

Waste discharge performance 廢棄物排放表現

Waste discharge index 廢棄物排放指標	Unit 單位	2018 2018年
Hazardous waste 有害廢棄物	Tonne 噸	99
Hazardous waste disposed per tonne of finished products ^(Note 1) 每噸產成品有害廢棄物排放量 ^(附註1)	Kilogram 千克	0.06
Non-hazardous waste 無害廢棄物	Tonne 噸	15,469
Non-hazardous waste disposed per tonne of finished products ^(Note 1) 每噸產成品無害廢棄物排放量 ^(附註1)	Kilogram 千克	9.65

Note:

(1) Based on the number of tonnes of solar glass production.

Various industrial complexes and offices have been equipped with recycling facilities to collect recyclable materials. During the reporting period, the Group actively promoted paperless packaging, while continuing to improve the OA system and gradually achieving paperless offices. In addition, the Group encourages customers to replace wooden pallets with steel pallets and recycle the steel pallets afterwards. The use of steel pallets in the Wuhu Plant exceeded 75% in 2018.

The noise generated in the glass production process mainly comes from the fans in the process of raw material feeding, mixing, melting, calendaring and annealing as well as residual heat power generators. By applying sound insulation and shock absorption treatments to the plants and installing sound insulation covers and silencers to the fans, the Group reduced the impact of noise to ensure the compliance with the requirements of "Emission Standard for Industrial Enterprises Noise at Boundary (GB12348-2008)" (《工業企業廠界噪聲排放標準 (GB12348-2008)》).

附註：

(1) 以太陽能玻璃生產噸數作計算基準。

各工業園及辦事處均設有回收設施以收集可回收再用的物料。於報告期內，本集團積極推廣無紙化包裝，同時繼續完善OA系統，逐步實現無紙化辦公。此外，本集團提倡客戶使用鐵托盤取代木托盤，並將鐵托盤回收再用，2018年蕪湖廠房鐵托盤使用率已超過75%。

玻璃生產流程中所產生的噪聲主要來源於原料上料、混合、熔化、壓延成型及退火工序的風機、餘熱發電的發電機組等，本集團通過採取廠房隔聲、減振處理，以及為風機加裝隔聲罩、安裝消聲器等措施降低噪聲的影響，確保滿足《工業企業廠界噪聲排放標準(GB12348-2008)》的要求。

2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營



Use of Resources

In addition to adopting effective pollution prevention technologies to reduce emissions of exhaust gas, sewage, solid waste and noise, the Group has been actively working on reducing pollution from the source in the hope that the energy consumption and the corresponding adverse impact on the environment will be minimised through the technological upgrade. The long-term specialised research and our persistence have achieved remarkable results with the Group's energy consumption per tonne of finished products maintained at an industry-leading level.

During the reporting period, more than 80% of the Group's production lines have completed the connection upgrade of the calendaring production lines and the tempering production lines. Since the connection is not interrupted, intermediate processes such as stacking, packaging, robotic gripping, transportation and loading are reduced, which reduces the usage of forklifts and robots, and the power consumption and diesel consumption are reduced. The Group had three production lines under cold repair in 2018, of which the energy consumption was higher due to the instability of the furnace in the later stage of capacity utilisation.



資源使用

除採取有效的污染防治技術，以降低廢氣、廢水、固體廢物、噪聲的排放外，本集團一直積極從源頭著手，希望通過產生的技術升級，將能源消耗量，以及相對環境產生的不利影響降至最低。長期的專研及堅持成效顯著，本集團單噸產成品的能耗一直維持行業領先水平。

於報告期內，本集團已有八成以上生產線完成了壓延生產線及鋼化生產線的連線升級。由於連線不中斷，可減少堆垛、打包、機械手抓片、運輸及上片等中間流程，對應降低了叉車及機械手的使用量，用電量及柴油耗量因此有所改善。本集團有三條生產線於2018年進行冷修，產能利用後期由於窯爐不穩定導致能耗較高。

Energy consumption index ^(Note 1) 能源消耗指標 (附註1)	Unit 單位	2018 2018年
Total energy consumption 能源消耗總量	MWh 兆瓦時	4,529,532
Total direct energy consumption 直接能源消耗總量	MWh 兆瓦時	3,892,575
Production fuel 生產用燃料	MWh 兆瓦時	3,891,180
Petrol/diesel 汽油/柴油	MWh 兆瓦時	1,395
Indirect energy consumption (electricity purchased) 間接能源消耗量 (外購電力)	MWh 兆瓦時	636,957
Energy consumption per tonne of finished products ^(Note2) 每噸產成品能源消耗量 (附註2)	kWh 千瓦時	2,827

Note:

- (1) The above data only covers the Group's solar glass business. Data about the solar farm business and the EPC business is not included in this Report due to their low energy consumption. The Group will continue to monitor the impact of the relevant operations on the Group. If necessary, relevant data will be added to future reports.
- (2) Based on the number of tonnes of solar glass production.

附註：

- (1) 以上數據僅涵蓋本集團的太陽能玻璃業務。由於太陽能發電場業務及EPC業務的能源消耗量較少，所以並沒有涵蓋在本報告中。本集團會繼續留意相關運作對本集團的影響，如有需要會於日後的報告中加入相關數據。
- (2) 以太陽能玻璃生產噸數作計算基準。



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

During the reporting period, as Malaysia's phase 1 calendaring production line was put into operation at the end of 2016, the corresponding processing workshop was gradually put into operation in March 2017, while in 2018 it operated throughout the whole year. Thus, the water consumption was increased. In addition, the Tianjin production line and the two production lines in Wuhu were under cold repair, which also led to the increase in water consumption. Despite the increase in water consumption, sewage discharge in 2018 recorded a significant decline compared to the same period in 2017, mainly due to the Group's further improvement in water recycling rate in 2018.

報告期間，由於馬來西亞一期壓延生產線於2016年底點火投產，對應加工車間在2017年3月份逐步投入運行，而2018年則為全年運行，所以用水量有所增加。此外，天津生產線及蕪湖兩條生產線於年內進行冷修，亦導致用水量有所上升。儘管用水量有所增加，但2018年污水排放量較2017年同期仍錄得大幅下滑，主因本集團於2018年進一步提升水資源循環利用率。

Water consumption index ^(Note 1) 用水量指標 ^(附註1)	Unit 單位	2018 2018年
Total water consumption 總用水量	Cubic metre 立方米	4,145,388
Production use 生產用水	Cubic metre 立方米	4,079,805
Domestic use 生活用水	Cubic metre 立方米	65,583
Water consumption per tonne of finished products ^(Note 2) 每噸產成品用水量 ^(附註2)	Cubic metre 立方米	2.59

Note:

- (1) The above data only covers the Group's solar glass business. Data about the solar farm business and the EPC business is not included in this Report due to their low water consumption. The Group will continue to monitor the impact of the relevant operations on the Group. If necessary, relevant data will be added to future reports.
- (2) Based on the number of tonnes of solar glass production.

附註：

- (1) 以上數據僅涵蓋本集團的太陽能玻璃業務。由於太陽能發電場業務及EPC業務的用水量較少，所以並沒有涵蓋在本報告中。本集團會繼續留意相關運作對本集團的影響，如有需要會於日後的報告中加入相關數據。
- (2) 以太陽能玻璃生產噸數作計算基準。

2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營



Use of packaging materials

In 2018, a total of approximately 31,000 tonnes of packaging materials were consumed by all production bases of Xinyi Solar. Wooden boxes and wooden pallets were the main packaging consumables, and they were basically not recyclable. Thus, with a view to protecting the earth's forest resources, the Group actively promotes the replacement of the wooden pallets by steel pallets. Currently, it has been gradually recognised and accepted by most customers. In 2018, the use of steel pallets in the Wuhu Plant exceeded 75%. In addition, to reduce paper usage, the Group continued to promote paperless packaging during the reporting period, and the new packaging gradually earned the support of many customers. In 2018, the paperless rate of the Wuhu Plant exceeded 35%.



包裝材料使用

2018年，信義光能各生產基地合共消耗約3.1萬噸的包裝材料，其中木箱及木托盤為主要的包裝耗材，而且基本無法回收利用。故從保護地球森林資源的角度，本集團積極推廣以鐵托盤取代木托盤，目前已經逐漸被大部分的客戶認可及接受，2018年蕪湖廠房鐵托盤使用率已超過75%。此外，為減少用紙量，本集團於報告期內繼續推廣無紙化包裝，新包裝逐漸得到不少客戶的支持。於2018年，蕪湖廠房無紙化使用率已超過35%。

Packaging material consumption index 包裝材料使用量指標	Unit 單位	2018 2018年
Total consumption of packaging materials for finished products 製成品包裝材料總使用量	Tonne 噸	30,650
Plastic, plastic strips, plastic bags 塑料、膠條、膠袋	Tonne 噸	3,898
Timber, wooden strips, wooden pallets 木材、木條、木托盤	Tonne 噸	22,129
Paper, paper boxes, corrugated boxes 紙張、紙盒、瓦通紙盒	Tonne 噸	4,595
Others (labels, sealing adhesive tapes) 其他(標籤、封箱膠紙)	Tonne 噸	28
Consumption of packaging materials per tonne of finished products ^(Note1) 每噸產成品包裝材料使用量 ^(附註1)	Tonne 噸	0.019

Note:

(1) Since the solar farm business and the EPC business do not involve the use of packaging materials, the calculation is based on the number of tonnes of solar glass production.

附註：

(1) 由於太陽能發電場業務及EPC業務不涉及包裝材料使用，因此以太陽能玻璃生產量噸數作計算基準。



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

Despite the Group's more environmental-friendly packaging approach and good promotion progress with the support of customers, the consumption of packaging materials still increased this year mainly due to the full-year operation of the Malaysian deep-processing lines during the reporting period which led to the increase in production. As the packaging method in Malaysia is not consistent with that used in the PRC, the consumption of packaging materials has increased.

儘管本集團採取了更綠色環保的包裝方式，並在客戶的支持下推廣進度良好，但今年包裝材料的耗用量仍有所增長主要由於馬來西亞深加工產線於報告期內全年運行，令產量有所增加，而其包裝方式與國內不相一致，故包裝材料耗用量有所提升。



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營



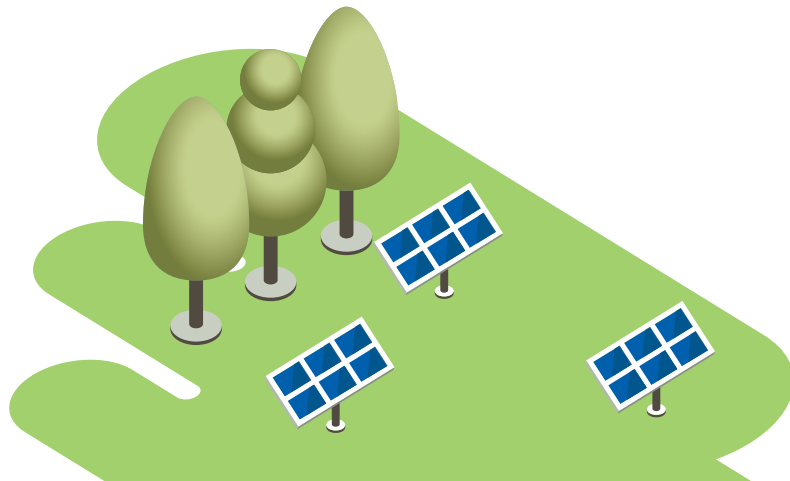
The Environment and Natural Resources

With reference to the “Environmental Management Systems – Requirements with Guidance for Use (ISO14001:2015)” 《環境管理體系要求及使用指南 (ISO14001:2015) 》, the Group has established and implemented the “Environmental Factors Identification and Risk Assessment Procedures”. Before the construction of solar glass production bases, production lines and solar farms, the environmental assessment of the project will be reported and the natural environment (such as water resources, soil and other natural resources) and the environmental qualities (such as air quality, surface water environmental quality and regional acoustic environmental quality) of the place where the project is located will be analysed according to the requirements of the national or local ecology and environment authorities so as to identify the protection objectives and protection levels of the surrounding of the project location. The report will also include a detailed environmental impact analysis to analyse the impact of the construction and operations afterwards on the atmospheric environment, acoustic environment, water environment and light pollution. Preventive measures will be adopted in accordance with the analysis results and investment will be made in the environmental protection equipment. In addition, at the stages of report preparation, construction and operations afterwards, there will be continuous communication with the primary stakeholders of the project so that their demands can be understood and answered in a timely manner.



環境及天然資源

參照《環境管理體系要求及使用指南 (ISO14001:2015)》，本集團已建立並實施《環境因素識別與風險評價程序》，在開展太陽能玻璃生產基地、生產線以及太陽能發電場建設之前，均會按照國家或地方生態環境主管部門的要求，進行項目環境評審的申報，對項目所在地的自然環境如水源、土壤及其他自然資源；環境品質狀況如空氣品質、地表水環境品質、區域聲環境品質等作出分析，以鎖定項目周邊主要環節保護目標及保護級別。報告亦會作出詳盡的環境影響分析，就工程施工期及建設完成後的運營期在大氣環境、聲環境、水環境、光污染等方面進行影響分析，並會依據分析結果對應採取防止措施及進行環保設備設施的投資配套。此外，於報告編寫、工程建設以及完工運營階段，均會保持與項目的主要持份者進行溝通，以更及時地了解及回應他們的訴求。





2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

5 Construction and follow-up monitoring 建設及後續監測

The project will be constructed after approval by the Municipal Bureau of Ecology and Environment. After the production base is put into production, continuous monitoring of pollutants such as exhaust gas, sewage and noise will be carried out to ensure its compliance with national/local standards

項目通過市生態環境局審批後進行建設。在生產基地投入生產後，針對廢氣、廢水、噪聲等污染物進行持續監測，確保符合國家/地方標準

3 Submission of materials 遞交材料

Submit paper or electronic application materials to the Municipal Bureau of Ecology and Environment
向市生態環境局提交紙質或電子申請材料

1 Submit to the Municipal Bureau of Ecology and Environment for the environmental impact assessment 向市生態環境局申請辦理環評審

4 Review and approval 評審及批覆

Municipal Bureau of Ecology and Environment reviews application materials and issues review opinions
市生態環境局評審申請材料，並出具審批意見

2 Preparation of environmental impact report for the project 準備項目環境影響報告書

Qualified technical agencies are engaged for preparing the environmental impact report
委託具備資質的技術單位編寫項目環境影響報告書

Solar Glass Production Base Environmental Impact Assessment and Monitoring Process 太陽能玻璃生產基地環評及監控流程

5 Environmental protection acceptance 環保驗收

After the solar farm project is completed, the Municipal Bureau of Ecology and Environment will conduct on-site inspection, assessment, and issue environmental protection completion acceptance and approval documents.

太陽能發電場項目完成建設後，市生態環境局進行現場驗收，並出具環境保護竣工驗收批覆文件

3 Review and approval 評審及批覆

Municipal Bureau of Ecology and Environment reviews application materials and issues review opinions
市生態環境局評審申請材料，並出具審批意見

1 Engage qualified technical agencies to prepare the project environmental impact report 委託具資質技術單位編寫項目環境影響報告

4 Construction 建設

The project will be constructed upon the receipt of approval by the Municipal Bureau of Ecology and Environment
項目通過市生態環境局審批後進行建設

2 Submission of materials and application for approval 遞交材料及申請審批

Submit application materials to the Municipal Bureau of Ecology and Environment, and apply for approval of the environmental impact document for the proposed solar farm project
向市生態環境局遞交申請材料，申請辦理擬建設太陽能發電場項目環境影響文件審批

Solar Farm Environmental Impact Assessment and Monitoring Process 太陽能發電場環評及監控流程

During the reporting period, in respect of the solar glass business, the Group completed the environmental assessment and acceptance of the desulphurisation and denitrification equipment for the Wuhu Phase 3 and Phase 5 projects and the environmental assessment and acceptance of the Wuhu Phase 5 project. In terms of solar farm business, the Group completed the environmental inspection and acceptance of Wuwei Phase 2 and Shouxian Phase 3 projects. The Hainan project and the Zhanjiang project also passed the environmental impact assessment review and the construction was approved.

於報告期內，太陽能玻璃業務方面，本集團已完成蕪湖三期及五期項目脫硫脫硝設備環評驗收工作、蕪湖五期項目環評驗收工作。太陽能發電場業務方面，本集團完成了無為二期及壽縣三期項目環保驗收工作。海南項目及湛江項目也順利通過了環評評審獲准建設。

2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營



2.2 Supply Chain Management

Adhering to the core value of “trust”, the Group conducts business with trust and maintains long-term relationship with suppliers which is characterised by fair negotiation, honest cooperation, mutual benefits and friendliness. During the reporting period, the Group maintained its economic contract performance rate at 100%. By establishing a standardised mechanism for supplier management, which includes an open and transparent tendering and procurement system, and a comprehensive supplier assessment system, a fair and just competition environment for suppliers is created.

According to the requirements of the “Integrated Management Manual”, suppliers are selected by the procurement team to confirm qualified suppliers and form a list of suppliers. At the same time, in order to reduce the risk of suppliers and avoid dependence on a single supplier, the Group has already established long-term cooperative relationships with many domestic and overseas suppliers for raw materials, fuels, production equipment, solar modules and other parts, auxiliary materials and other commonly used materials. The Group’s diversified procurement channels from the large number of quality suppliers are beneficial to the Group’s control of procurement risks and procurement costs, as well as guaranteeing the quality and quantity of key raw materials and production equipment with consistent and stable supply.



2.2 供應鏈管理

本集團以信立業，堅定踐行「信譽至上」的核心價值觀，長期與供應商維持平等協商、誠信合作、互惠互利的友好合作關係。報告期內，本集團保持經濟合同履約率100%。通過建立規範的供應商管理機制，包括公開透明的招標採購、完善的供應商評價體系等，為供應商營造公平公正的競爭環境。

本集團依據《一體化管理手冊》的要求，由採購組組織供應商評選，確立合格供應商，並形成供應商名冊。同時為降低供應商風險，避免對單一供應商的依賴，在原材料、燃料、生產設備、太陽能組件及其他零部件、輔助材料等常用物資物料方面，本集團均已與國內及海外的多家供應商建立長期合作關係。海量優質的供應商為本集團提供多元化的採購渠道，有利於本集團控制採購風險及採購成本，並可保障關鍵原材料及產品設備保質保量、持續穩定的供應。





2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

In addition to meeting the stringent requirements of the Group in terms of product quality, price, capacity, experience, industry qualifications and certification, market reputation and after-sales service, qualified suppliers also need to have similar concepts to the Group's in terms of business ethics, integrity management and social responsibility, as well as certification for environmental, occupational health and safety related systems. The Group manages suppliers in accordance with the "External Supplier Management Procedures" and confirms the qualifications of suppliers through field visits, assessments, and management visits. Regular annual assessment is carried out to promptly eliminate substandard suppliers so as to ensure the quality of products and services, and that the suppliers continuously meet the requirements of the Group for environmental protection, social responsibility and corporate governance.

During the reporting period, the Group carried out procurement in strict accordance with the "Procurement and Outsourcing Management System". All purchases are required to have at least two suppliers' quotations and urgent purchases are avoided except for special circumstances. "Applicable Principles" are adopted to select purchase targets. Suppliers are also required to sign agreements such as "Supplier Integrity Commitment Agreement" and "Related Party Interest Declaration", so as to prevent potential acceptance of benefits in the procurement process. The Group confirms procurement by signing a contract and performs the obligations and controls the payment in strict compliance with the contract. In addition, the Group monitors the inventory to accurately get hold of the inventory situation and carry out the most appropriate procurement, avoiding the high price that may be caused by emergency procurement, and avoiding the impact of insufficient inventory on production operations. Comprehensive supply chain management and standardised and professional procurement activities do not only provide protection for the Group's supply chain security, but will also achieve the purpose of resource sharing and internal material allocation. This will further reduce procurement costs and increase the competitive edges of the Group.

合資格的供應商除需滿足本集團在產品質量、價格、產能、經驗、行業資格及認證、市場信譽及售後服務等方面的嚴格要求外，亦需在商業道德、誠信經營及社會責任上與本集團秉持相近的理念以及獲得環境、職業健康安全相關體系的認證。本集團按照《外部供方管理程序》對供應商進行管理，通過實地考察和評估，以及管理層拜訪等方式確認供應商的資質，並會每年進行定期考核，及時剔除不達標的供應商，以確保產品和服務質量，以及供應商在環保、社會責任和企業管治上持續符合本集團的要求。

於報告期內，本集團嚴格按照《採購和外包管理制度》執行採購。所有採購均要求至少提供兩家供應商報價、除特殊情況外應避免緊急採購、採取「適用原則」選定採購對象，並要求供應商簽署《供應商廉潔承諾協議》、《相關方利益申報》等協議，防止採購過程中潛在的收受利益行為。本集團以簽訂合同的方式確認採購，並嚴格按照合同履約和控制資金的支付。此外，本集團對庫存實施監控，以準確把握庫存情況，對應作出最合適的採購行為，既避免緊急採購可能引致的高價，亦避免過低庫存對生產運營的影響。完善的供應鏈管理、規範化及專業化的採購活動，不僅為本集團的供應鏈安全提供保障，更可達到資源共享、內部物資互相調配使用的目的，令採購成本進一步降低，擴大本集團之競爭優勢。

2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營



2.3 Insistences on Quality

Regarding to the quality of products, the Group never hesitates to always implement the highest standards in the industry and constantly pursue breakthroughs. Based on the initial objective to be responsible for our customers, we are committed to providing customers with the highest quality solar glass so as to offer better protection for modules and guarantee for the long-term use by the power plant operators. The Group strictly abides by the requirements of the "Product Quality Law of the People's Republic of China" (《中華人民共和國產品質量法》) and the relevant local laws and regulations in Malaysia, as well as implementing the ISO9001:2015 quality management system. The products have also obtained the China Compulsory Certification (CCC), and have met the standards of Europe, the United States, Japan, South Korea and other countries, thereby being widely recognised and selected by the major solar module manufacturers around the world.

To ensure that the quality of solar glass products meets the Group's established standards, Xinyi Solar consistently implements strict quality control procedures:



2.3 信守品質

對待產品品質，本集團未有片刻怠慢，一向以行業最高標準執行並不斷追求突破，立足於對客戶負責的初心，務求為客戶提供最優質的太陽能玻璃，以更好地為組件提供保護，為電站運營商長期使用需求提供保障。本集團嚴格遵守《中華人民共和國產品質量法》及馬來西亞當地相關法律法規的要求，推行ISO9001:2015質量管理體系，產品已獲得中國國家強制性產品認證(CCC)，並符合及歐洲、美國、日本、韓國等多個國家的標準，被全球主要太陽能組件生產商的廣泛認可及選用。

為確保太陽能玻璃產品質量達到集團的既定標準，信義光能貫徹執行嚴格的品質監控程序：

Quality monitoring

The Group implements strict quality control procedures to ensure the quality of the solar glass products meets the standards.

品質監控

本集團貫徹執行嚴格的品質監控程序以確保太陽能玻璃產品質量達標。



Quality checks are conducted on raw materials supplied by our suppliers. Various supply sources are checked and compared to ensure the raw materials purchased are of the best quality.

After the raw materials are mixed, sampling tests are carried out before the production to ensure the quality of the production materials.

對供應商供應的原材料進行質量檢查，並通過橫向對比獲取質量最佳的原材料。

原材料混合後準備生產前再進行抽樣測試，確保生產材料品質。



Automated monitoring system has been established in our production process to check and report key production parameters in real time. If irregularity is found, correction will be made by the control staff immediately.

生產流程設有自動監測系統，實時監測及呈報生產過程的主要參數，如發現異常情況，監控人員立即採取措施作出修正。



Quality control staff follow the procedures and standards listed in the quality control manual to implement strict quality control and assurance standards and testing procedures for production processes and key processes.

品質監控人員遵循品質監控手冊中列明的程序及標準對生產流程及關鍵工序實施嚴謹的品質監控及保證標準和檢測程序。



The Group has a quality control department and a quality control laboratory in each production plant for functional testing. The finished product needs to be packaged and sold after passing the specified quality monitoring steps (including bubble inspection, mechanical strength inspection, etc.).

本集團設品質部，並於各生產廠房設品質監控實驗室進行功能測試。產成品需通過指定的品質監控步驟（包括氣泡檢查、機械強度檢查等）進行檢測後進行包裝出售。



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

The Group strictly implements the “Substandard Product Management Procedures”, and the quality control department is responsible for monitoring and controlling the substandard products and services, so as to prevent the unintended use or delivery of such products. The Group attaches great importance to customer feedback on products and services. Therefore, after the product is delivered, the sales department collects customer satisfaction information on products and services according to the requirements of “Product Storage and Delivery Management Procedures” and “Customer Satisfaction Management Procedures”. If customer complaints about product quality are received, “Quality Complaint Management Procedures” and “Return Management Procedures” will be followed promptly to ensure that the customer’s interests are not compromised.

During the reporting period, no products which the Group sold or shipped were subject to recalls for safety and health reasons.

In terms of the construction, operation and maintenance of solar farms, the Group strictly complies with the relevant laws and regulations, industry standards and regulations for its power system, as well as following the unified dispatch by power grid dispatching agencies to ensure the safe operation of the power system. During the service period, the Group has a centralised monitoring system to monitor the operation of each solar farm in real time and check for abnormal conditions in time. In order to ensure a safe operation, it also conducts special and professional safety inspections for power grid safety on a regular basis. Meanwhile, accident drills are organised regularly so as to improve employees’ safety awareness and accident response skills.

本集團嚴格執行《不合格品管理程序》，由品管部負責監測及管控不符合要求的產品和服務，防治該等產品非預期的使用或交付。本集團高度重視客戶對產品及服務的反饋，因此於產品交付後按照《產品儲存和交付管理程序》及《顧客滿意度管理程序》的要求，由銷售部收集客戶對產品及服務的滿意度信息，若接到客戶對產品質量的投訴則按照《質量投訴管理程序》及《退貨管理程序》及時跟進處理，確保客戶的利益不受損。

於報告期內，本集團沒有因安全或健康理由而須回收已出售或已付運的產品。

在太陽能發電場的建設及運維上，本集團亦嚴格遵守相關的法律法規、行業標準及所屬電力系統的規程規範，服從電網調度機構的統一調度，以確保電力系統安全運行。於服務期內，本集團通過集中監控系統，實時監測每個太陽能發電場的營運情況，及時排查異常狀況，並定期開展各項涉及電網安全的專項和專業安全檢查，確保安全運營。同時，本集團定期組織事故演習，提高員工的安全生產意識及事故應對技能。

2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

2.4 Corporate Governance

Sound governance structure

Sophisticated and stable management structure as well as comprehensive and effective risk control and internal control system are the key to maintaining a high level of corporate governance. This will ensure that all of the Group's business activities and decisions fully comply with applicable laws and regulations, thereby safeguarding the interests of the Group and its shareholders and continuously enhancing the Company's value. In view of this, the Group strictly abides by the corporate governance code set out in Appendix 14 to the Rules Governing the Listing of Securities of the Hong Kong Stock Exchange, which regulates the operation of the Company and puts good corporate governance practices and procedures in place.

The Board of Directors (the "Board"), comprised of four executive directors, two non-executive directors and three independent non-executive directors, is the highest governing body of our Group. During the year, the Board continued to abide by the strict principles of corporate governance, implement the segregation of duties and duly perform its responsibilities. The Chairman is responsible for managing and leading the Board to ensure that the Group maintains sound and effective corporate governance practices and procedures. The Chief Executive Officer is responsible for the day-to-day management of the business of the Group. With the assistance of other members of the Board and other senior management, the Chief Executive Officer closely monitors the operating and financial results of the Group, identifies any weakness in the operation and takes all necessary and appropriate steps to remedy such weakness. Meanwhile, he is also responsible for formulating the future business plans and strategies of the Group for the Board's approval and subsequent implementation. In addition, the Board has a Remuneration Committee, an Audit Committee and a Nomination Committee. Each committee evaluates and reviews relevant work according to its terms of reference to provide effective suggestions and advice for the decision-making of the Board.

2.4 企業管治

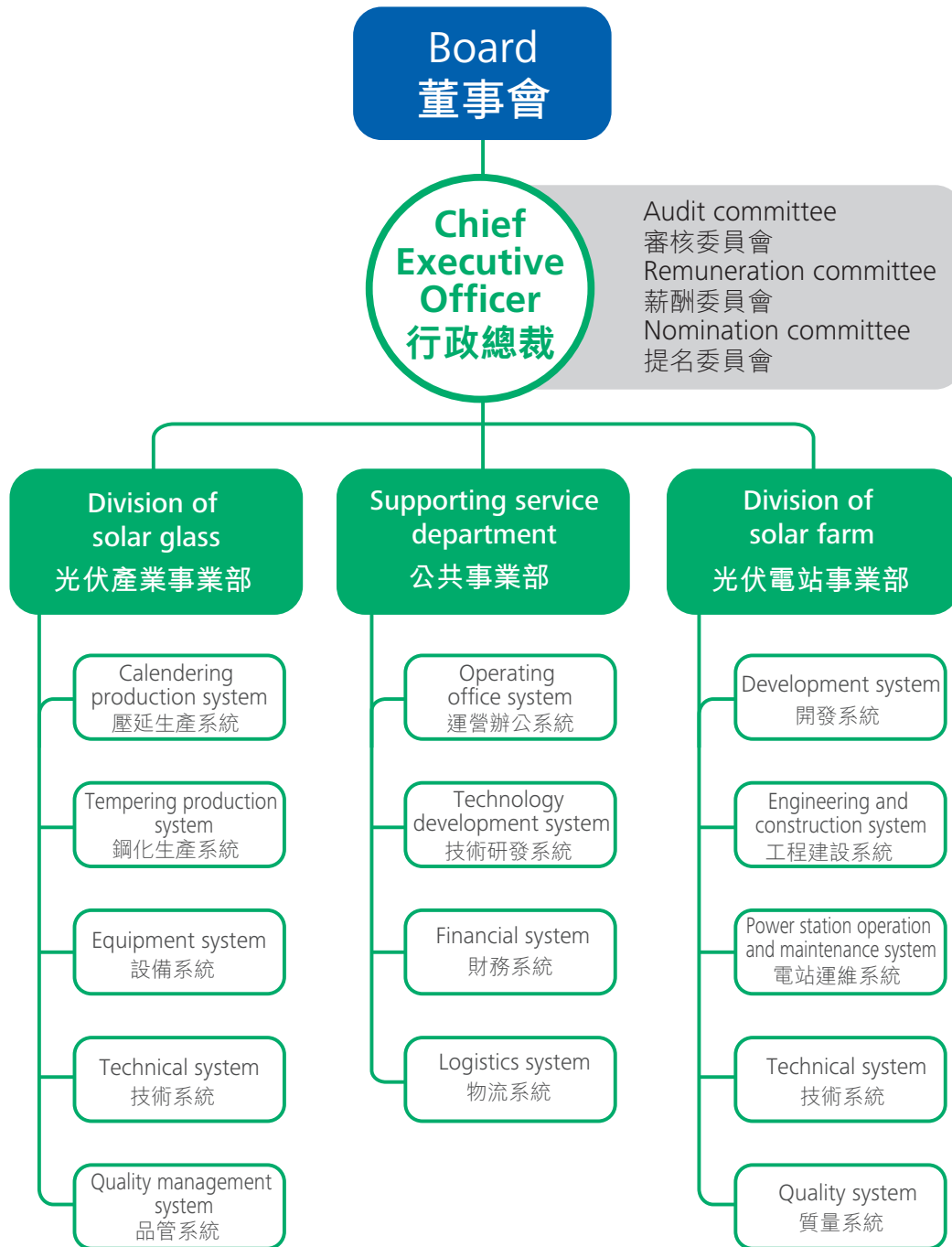
良好管治架構

成熟穩定的管理架構、全面有效的風險控制和內部監控系統是維持高水平的企業管治之關鍵，有助確保本集團之所有業務活動及決策全面遵守適用法律法規，從而保障本集團和股東的利益，持續提升公司價值。有見及此，本集團嚴格遵循香港聯交所證券上市規則附錄十四所載的企業管治守則，規範公司運作及貫徹良好的企業管治常規及程序。

董事會（「董事會」）是本集團的最高管理機構，由四名執行董事，兩名非執行董事及三名獨立非執行董事組成。董事會於年內繼續恪守嚴謹的企業管治原則，明確分工，盡職履責。主席負責管理及領導董事會，確保本集團維持強而有效的企業管治實務及程序。行政總裁負責本集團業務之日常管理運作，在董事會其他成員及其他高級管理層之協助下，緊密監控本集團之營運及財務業績，關注經營細節，精益求精，以必要及適當的行動持續提升經營績效，其亦同時負責訂立本集團未來業務計劃及策略，由董事會批准後貫徹執行。此外，董事會下設薪酬委員會、審核委員會及提名委員會，各委員會根據其所屬職權範圍，評估及審查相關工作，為董事會之決策提供有效建議及意見。



2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營



Organisation Structure of Xinyi Solar
信義光能組織架構

2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

The Group reviews the governance code in a timely manner to strengthen the internal control and improve the prevention and management of risks. Compliance with the latest regulatory requirements is thus ensured. For the more detailed corporate governance policies and procedures of the Group and other information, please refer to the Corporate Governance Report set out in the Annual Report 2018 of the Company.



Anti-corruption, operating with integrity

With “trust” as our core value, the Group adheres to the operating philosophy of “law-abiding, honest and equal”, strictly abiding by the standards for production operation and staff management. Meanwhile, we actively guide employees to practice the idea of “aligning actions with conscience to become someone of integrity and honesty”. The Group adopts a zero-tolerance attitude towards corruption and fraud. During the reporting period, the Group was not aware of any serious violations of the law that have had a material impact on the Group in terms of corruption and fraud.

Xinyi Solar conducts anti-corruption work through the Xinyi Group’s internal control centre to organise regular anti-corruption education, continuously advocating a sincere, pragmatic and honest working attitude. This enhances employees’ awareness of legal compliance. Meanwhile, the requirements of the “Xinyi Group’s Integrity Management System” are strictly followed, which puts anti-corruption into practice and creates a clean corporate environment.

集團會適時檢視管治守則，強化內部監控、完善風險防範與管理，確保符合最新的監管要求。有關本集團更詳盡的企業管治政策和程序，以及其他資料，請參閱本公司2018年年報內所載之企業管治報告。



反貪防腐，陽光經營

「信譽至上」為本集團企業價值觀的首要核心，故本集團於生產經營及員工管理上嚴守規範，堅定「遵紀守法，誠信平等」的經營理念，同時積極引導員工在工作及生活中實踐「知行合一，正直誠實」的思想。對待貪污及欺詐行為，本集團採取零容忍的態度。於報告期內，本集團並不知悉在貪污及欺詐方面有任何對本集團造成重大影響的嚴重違法違規情況。

信義光能透過信義系內控中心開展廉潔工作，定期進行廉潔教育，持續倡導誠懇、務實、正直的工作態度，以增強員工遵紀守法的自覺性，同時嚴格遵循《信義集團廉潔管理制度》的要求將廉潔督導工作落到實處，創建清廉陽光的企業環境。





2. TRUSTWORTHY (CHENG'XIN') OPERATION 誠「信」經營

The Group has developed standardised internal codes, conduct guidelines and strict reward and punishment systems so that all staff will actively avoid any circumstances which may cause actual or potential conflicts of interest. Through regular integrity inspections and by dispatching working groups to carry out on-site inspections, we will promptly detect potential corruption risks and carry out timely control and governance. In view of staff's violation of "Xinyi Group Integrity Management System" with corruption-related behaviours such as breach of duty, dereliction of duty, receiving bribes, bribing, abusing power for personal gains and converting company assets, the Group has set up multiple whistleblowing channels such as letters, emails and telephone calls for staff, business partners and suppliers. After receiving a report or discovering a violation, the internal control investigation team will carry out investigations, interviews, evidence collection and verification. Then, such matter will be handled in accordance with regulations based on the investigation results.

In addition, since January 2019, the Group has been implementing new regulations on a trial basis such as "Investigation and Handling Methods for Anti-corruption Incidents", "System for Reporting Anti-corruption Matters by Real Name" and "Trial Measures for Rewarding the Rejection of Bribery" to continuously optimise the bribery prevention, anti-corruption and integrity promotion work and to ensure the business operations comply with the standards set out in the relevant local laws and regulations, such as anti-corruption and bribery regulations in China and "Prevention of Bribery Ordinance" in Hong Kong.

本集團已建立規範的內部守則、行為指南與嚴明的獎懲制度，令員工主動規避可能導致實際或潛在利益衝突的情況，並透過定期的廉潔巡視和派出工作組的駐點考察，及時覺察潛在的廉潔風險，及早管控及治理。針對員工存在違反《信義集團廉潔管理制度》的失職、瀆職、受賄、行賄、以權謀私、侵佔公司財產等廉潔相關的違規行為，本集團向員工、合作夥伴及供應商提供信函、電子郵件及電話等多個舉報渠道。在接獲檢舉或發現違規個案後，內控調查小組會進行調查，訪談、取證及核實，並依調查結果按章處理。

此外，本集團自2019年1月起試行《廉潔類事件的調查及處理方法》、《廉潔事項實名制通報制度》、《關於拒收行賄獎勵試行辦法》等新規，以持續完善反貪、防腐、倡廉工作，確保業務運營符合所在地的相關法規，如中國內地反貪污賄賂相關的法規、香港《防止賄賂條例》等，所訂立之行為標準。





3. INNOVATIVE (CHUANG'XIN') MODEL 創「信」模式

3.1 Five Years: the Breakthrough Development from Zero to the Top Three in the PRC

The 19th National Congress proposed “building a clean, low-carbon, safe and efficient energy system”. As an unlimited, clean and pollution-free new energy with advanced technology and continuous improvement, solar power becomes the key direction for the future energy ecological structure.

The current contradiction between the strong demand for electricity brought by the rapid development of the social economy and the environmental protection for our next generation has become more serious. Thus, accelerating the development of renewable energy sources to reduce the consumption of traditional energy sources has become the necessary way to resolve the conflicts. The Group adheres to the mission of “Leading green new energy”, paying attention to the sustainable development of society. Since expanding the grid-connected capacity of solar farms and increasing the proportion of solar power generation is one of the most direct and effective ways to reduce traditional energy consumption, reduce environmental pollution and respond to the country’s “green and low-carbon” initiative, the Group has been exploring solar power generation business since 2012. In 2012, the Group built solar power systems on the rooftops of the Wuhu production base and successfully connected them to the grid. All of the power generation was supplied to the Wuhu production base for its own use. In 2014, the first utility-scale ground-mounted solar farm project invested and constructed by the Group was successfully connected to the grid, which symbolised the Group’s success in extending its business to the downstream and engaging in the development, construction and operation of solar farms.

3.1 五年：從零至全國三甲的跨越式發展

第十九次全國代表大會提出「構建清潔低碳、安全高效的能源體系」，而太陽能作為取之不盡，用之不竭、潔淨無污染、技術成熟且日臻完善的新能源，儼然成為未來能源生態結構的重要方向。

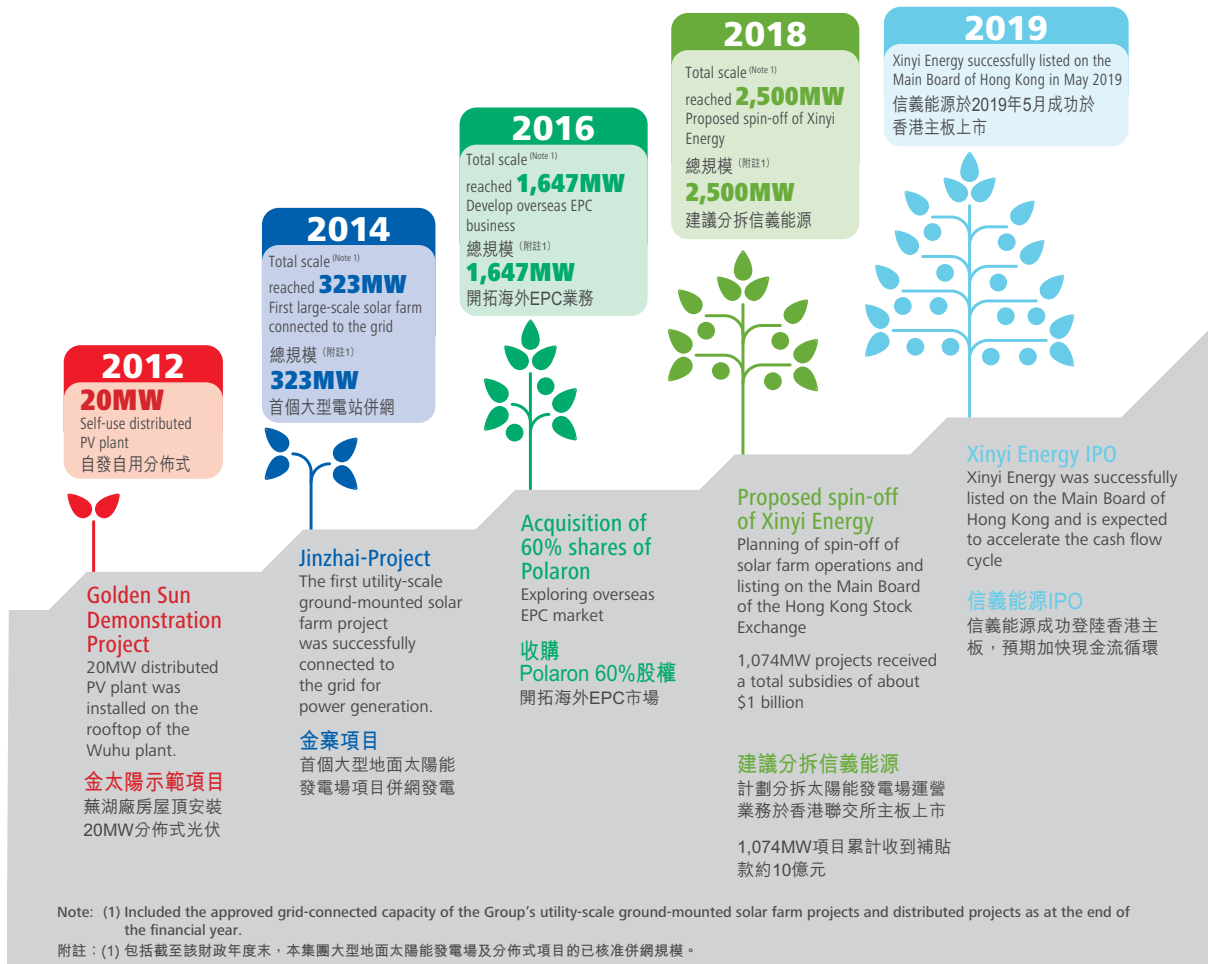
當下社會經濟快速發展帶來的旺盛電力需求與為後代守護藍天白雲、青山綠水之間的矛盾日趨尖銳，因此，加速可再生能源發展，以降低傳統能源的消耗量成為解決矛盾的必要途徑。本集團秉承「引領綠色新能源」的使命，關注社會的永續發展。由於擴大太陽能發電場併網規模，提升太陽能發電佔比是降低傳統能源消耗、減少環境污染，響應國家「綠色低碳」的倡導最直接有效的方式之一，本集團自2012年起探索太陽能發電業務。2012年，本集團於蕪湖生產基地屋頂安裝太陽能發電系統並成功併網發電，全部發電量供給蕪湖生產基地作自用。2014年，本集團投資建設的首個大型地面太陽能發電場項目成功併網發電，象徵本集團成功將業務延伸至下游，涉足太陽能發電場開發、建設及運營。



3. INNOVATIVE (CHUANG'XIN') MODEL 創「信」模式

In 2018, the Group increased its grid-connected capacity by 528MW, with total grid-connected capacity reaching 2.5GW. Based on the grid-connected capacity as of the end of 2018, the Group ranked third among the privately owned solar farm owners and operators in China. The five-year stable operation and orderly expansion enabled the Group to successfully achieve a breakthrough development from zero to the national leading level. In May 2019, it completed the spin-off and separate listing of its solar farm operation business on the Main Board of the Hong Kong Stock Exchange.

2018年，本集團新增併網量為528MW，累計併網總量達2.5GW。以截至2018年底的併網容量計，本集團在中國民營的太陽能發電場擁有人及運營商中位列第3名。五年的穩健經營及有序擴張，令本集團成功實現從零到全國領先的跨越式發展，並於2019年5月成功將太陽能發電場運營業務分拆及於香港聯交所主板獨立上市。



Solar Farm Business Development Milestone of Xinyi Solar
信義光能太陽能發電場業務發展里程

3. INNOVATIVE (CHUANG'XIN') MODEL 創「信」模式

The Group believes that the spin-off of solar farm operation business would help accelerate cash recovery and promote a virtuous cycle of solar farm business to move towards a rapid development stage. In the future, the Group will continue to build a low-carbon and high-efficiency energy comprehensive utilisation system to enhance the well-being of the human by increasing the grid-connected capacity of solar farm projects, thereby making contribution to the achievement of the good, green life.

本集團相信通過分拆太陽能發電場運營業務將有助加快現金回籠，推動太陽能發電場業務形成良性循環並邁向高速發展階段。未來，本集團將繼續透過提升太陽能發電場項目併網規模，為增進人類福祉，構建低碳高效能源綜合利用體系，實現綠色美好生活盡己之力。

3.2 Exploring an environmental-friendly power plant application model

3.2 探索環境友好型電站應用模式



The Group hopes to accelerate the development and construction of solar farms, contributing more green and clean energy to the world. Meanwhile, the Group pays attention to the harmonious coexistence of the projects and the original ecological environment. Thus, the Group strives to explore innovative models of combining photovoltaics with modern agriculture, aquaculture and poultry farming. Through scientific and rational space allocation and application of new technologies, the value of limited resources can be maximised and the “three harmless” (including “harmless to power generation efficiency, harmless to agricultural production and harmless to land use”) agricultural-PV power plant projects can be developed successfully, as well as leveraging the three-dimensional space in fishery-PV and floating power plant projects.

本集團冀望加快太陽能發電場的開發建設，為全球貢獻更多的綠色清潔能源，同時關注項目與原生態環境的和諧共存，因此本集團努力探索光伏與現代農業、水產及家禽養殖業相結合的創新模式，透過科學合理的空間分配、新技術的應用，實現有限資源的價值最大化，成功發展「不誤發電效益、不誤農業生產、不誤土地利用」的「三不誤」農光互補電站項目，以及充分利用立體空間的漁光互補及漂浮電站項目。



3. INNOVATIVE (CHUANG'XIN') MODEL 創「信」模式

The Hainan project, with approved grid-connected capacity of 300MW, is one of the newly added grid-connected projects in 2018 and is a typical “three-harmless” agricultural-PV solar farm project. The project is located on a formerly unutilised wasteland, which was then developed into an “agricultural-PV” power plant. By elevating the supporting frames, it will ensure sufficient sunlight and space for crop cultivation while the power generation capacity is not affected. The project successfully realised mechanised farming and re-cultivation operations under solar modules and obtained the unanimous approval of the local government through the rational use of land resources to restore crop growth. In addition to ordinary crops, the Group will also adjust to the local crops of the project location to achieve better economic benefits through planting crops with higher added value, thereby increasing the added value of the power plants. Under the solar modules of the Jinzhai project, the Chinese famous tea “Lu’an Guapian Tea” was planted, while a large number of Chinese herbal medicines were planted in the Bozhou project.

2018年新增併網項目中的海南項目，核准併網規模300MW，為典型的「三不誤」農光互補電站項目。該項目原為未利用的荒坡，最終開發為「農光互補」電站，通過增加支架高度，在為農作物種植留出充足的光照和生長空間的同時確保發電能力不受影響。項目順利實現太陽能組件下機械化農耕和復耕作業，透過合理利用土地資源恢復農作物生長，獲得當地政府一致認可。除普通農作物外，本集團亦會根據當地的特色農作物而作調整，通過種植更高附加值的農作物取得更好的經濟效益，提升電站附加值。金寨項目太陽能組件下種植的為中國名茶「六安瓜片」，亳州項目則種植了大量中藥材。



Innovative (Chuang'xin') model: Lu'an Jinzhai Project
創「信」模式：六安金寨項目

3. INNOVATIVE (CHUANG'XIN') MODEL 創「信」模式



Hainan Agricultural-PV Power Plant
海南農光互補電站



Fanchang Fishery-PV Power Plant
繁昌漁光互補電站



Jinzhai Mountain-PV Power Plant
金寨山地電站



Shouxian Fishery-PV Power Plant
壽縣漁光互補電站

Innovative (Chuang'xin') model: agricultural-PV/fishery-PV projects

創「信」模式：農光互補／漁光互補項目

In addition to the agricultural-PV power plant projects, the Group has also successfully commenced a photovoltaic agricultural smart greenhouse power plant project that further integrates new energy with modern agriculture, including the photovoltaic agricultural smart greenhouses established at the Sanshan, Jinzhai, Shouxian, Tianjin and Hong'an projects. Photovoltaic power generation system that integrates solar power generation, intelligent temperature control and modern high-tech cultivation can realise power generation on the roof and indoor cultivation. The photovoltaic smart greenhouse can cope with adverse weather conditions, shorten the crop production cycle and effectively improve the quality of agricultural products. In addition, greenhouses fully utilise the space to carry out three-dimensional planting and soilless cultivation, achieving increase in production, sound economic benefits as well as social benefits and ecological benefits. As a new high-tech agro-ecological project integrating low-carbon, energy-saving, environmental protection and tourism, the photovoltaic smart greenhouse power plant is a photovoltaic application model that the Group has vigorously promoted in recent years. It has also been supported by many governments because it helps increase farmers' income and tax revenue.

除農光互補電站項目外，本集團亦成功開闢新能源與現代農業進一步結合的光伏農業智能溫室電站項目，包括三山、金寨、壽縣、天津及紅安項目均建設有光伏農業智能溫室大棚，為集太陽能發電、智能溫控、現代高科技種植於一體的光伏發電系統，可實現屋頂發電，屋內種植。光伏智能溫室可應對惡劣的天氣環境，縮短農作物生產週期及有效提高農產品品質。此外，溫室大棚充分利用空間，進行立體種植和無土栽培，實現增產，具備良好經濟效益兼具社會及生態效益。作為集低碳、節能、環保、旅遊於一體的新型高科技農業生態項目，光伏智能溫室電站為本集團近年大力推廣的光伏應用模式，由於有助增加農民收入及稅收，亦獲得多地政府的支持。



3. INNOVATIVE (CHUANG'XIN') MODEL 創「信」模式



Innovative (Chuang'xin') model: photovoltaic agricultural smart greenhouse power plants
創「信」模式：光伏農業智能溫室電站



The Group has also developed fishery-PV projects and floating projects to make full use of the three-dimensional space in the unused water surface or coal mining subsidence area to achieve “power generation above and breeding below”, effectively increasing the revenue of the power plant projects and setting new examples for modern and efficient farming of aquatic products/poultry. The fishery-PV and floating power plant projects that the Group has developed include Fanchang Project, Huainan Project, Shouxian Project and Huaibei Project, etc.

本集團亦有開發漁光互補項目及水上漂浮項目，在未利用水面或採煤場陷區善用立體空間，實現「上發電，下養殖」，有效提高電站項目的收益，開啟現代高效水產／家禽養殖新範例。本集團已開發的漁光互補及水上漂浮電站項目包括繁昌項目、淮南項目、壽縣項目、淮北項目等。

3. INNOVATIVE (CHUANG'XIN') MODEL 創「信」模式

The Group does not only pay attention to its own development and construction of solar farm projects as well as their economic benefits, but also focuses on the protection, transformation and improvement of the surrounding environment. During the development of the projects, we listen carefully to the demands of stakeholders, and ensure that apart from meeting the national and local environmental protection regulations, the possible impact on the local environment and surrounding community groups brought by the project development will be taken into account. Besides, we actively respond to the suggestions for improvement and take the initiative to improve, such as the repair of road and optimisation of the surrounding area while constructing the Shouxian power plant and the conversion of the loess slopes in the vicinity into parks while constructing the Fanchang project.



本集團不僅關注太陽能發電場項目自身的開發建設以及經濟效益，同樣重視周邊環境的保護、改造與完善。在項目開發中認真聽取利益相關者的訴求，在確保項目開發符合國家及地方的環保規定基礎上，關注對當地環境及周圍社區群體可能造成的影響，並積極應對及主動優化改善，如在修建壽縣電站時修建道路及美化周邊環境；在建設繁昌項目時，將附近未利用的黃土荒坡建設為公園等。

Since Hong Kong's average carbon emissions per kWh of electricity are higher than other international cities, and the power industry is Hong Kong's largest source of carbon emissions which accounts for more than half of Hong Kong's carbon emissions, the energy conservation and emission reduction for power industry has become a necessity for Hong Kong to move towards a green future. Therefore, the new "Scheme of Control Agreement", which came into effect in 2018, encourages the two local power companies in Hong Kong to develop renewable energy. The Government has proposed the two measures of "Feed-in Tariff" and "Renewable Energy Certificate" to promote the development of distributed renewable energy. The "Feed-in Tariff" encourages the private sector to invest in the construction of distributed power plants. The purchase price of electricity generated is 4-5 times higher than the market price, making the return of renewable energy systems attractive.

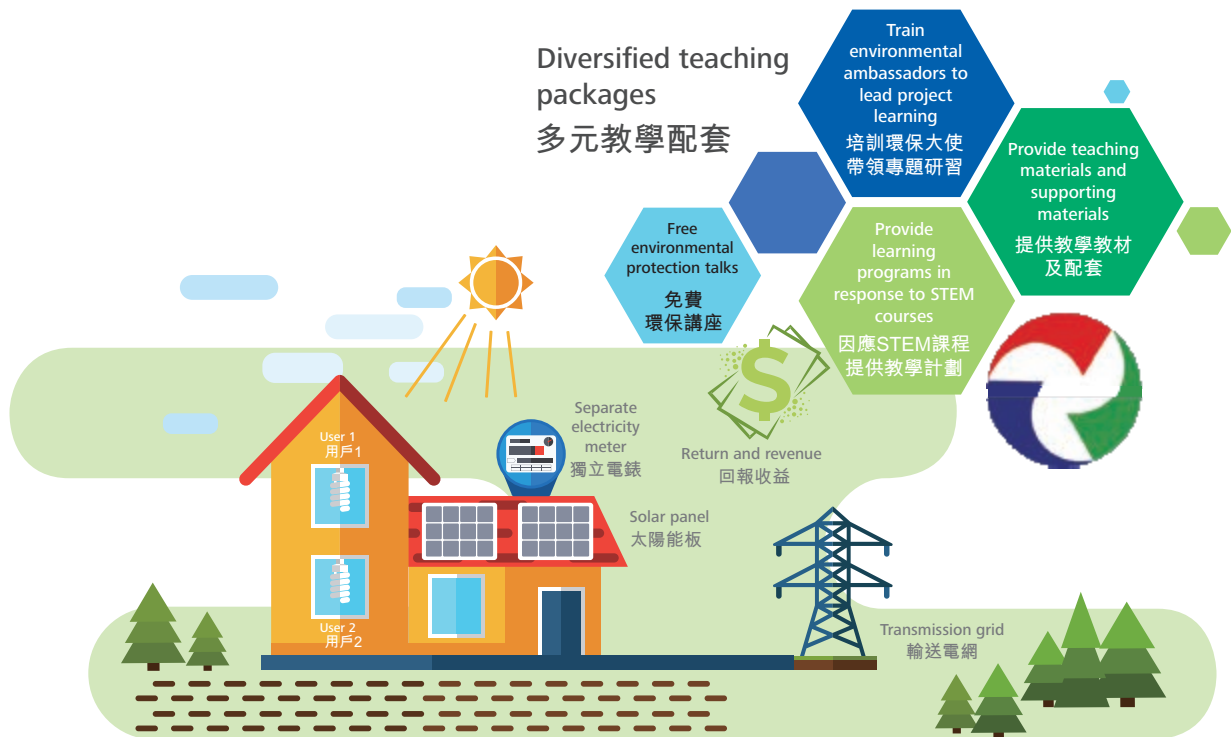
由於香港度電平均碳排放高於其他國際城市，而電力行業為香港最大的碳排放源，承擔香港超過半數的碳排放量，因此電力行業的節能減排成為香港邁向綠色未來的必要條件。因此，在2018年生效的新《管制計劃協議》，鼓勵香港本地兩間電力公司發展可再生能源，政府提出「上網電價」和「可再生能源證書」兩項推行分佈式可再生能源發展的新措施。「上網電價」鼓勵私營機構投資建設分佈式電站，所產生之電力回收價格高於市場價4-5倍，令可再生能源系統回報具備吸引力。



3. INNOVATIVE (CHUANG'XIN') MODEL 創「信」模式

The Group seized the opportunities brought by the Hong Kong's policies to promote one-stop services for the installation, construction, operation and maintenance of distributed solar power systems in Hong Kong. The promotion of distributed business in Hong Kong mainly aims to promote the development of renewable energy in Hong Kong through its extensive experience. In terms of the promotion of business in Hong Kong, the Group pays more attention to its social benefits and social significance. For school customers, the Group creatively proposes diversified teaching packages, which will add educational significance to the installation, construction, operation and maintenance services of solar power systems in the hope of enhancing the next generation's awareness of solar power generation, strengthening their environmental awareness, and encouraging them to actively accept and promote renewable energy.

本集團把握香港的政策契機，於香港推廣分佈式太陽能系統安裝、建設及運維一站式服務。於香港推廣分佈式業務主要是希望透過自身豐富的經驗助力香港可再生能源發展，於香港的業務推廣，本集團更注重其社會效益及社會層面的意義。針對學校客戶，本集團創新提出多元教學配套，為太陽能發電系統安裝、建設及運維服務增添教育意義，冀望可提高下一代對太陽能發電的認知，加強環保意識，主動接受和推廣可再生能源。



Innovative (Chuang'xin') model: one-stop services for the installation, construction and operation of distributed solar systems in Hong Kong

創「信」模式：香港分佈式太陽能系統安裝、建設及運維一站式服務

4. FORTUNATE ('XIN'FU) TEAM 「信」福團隊

If the staff do not agree with the corporate philosophy and are not willing to grow together with the Company, there will be no power for the growth and development of the Company. Thus, the Group regards employees as our greatest asset and pays attention to the growth, feeling and demand of every staff member. We also create a safe and comfortable working environment for each employee, as well as sufficient space for their growth with rich education and training resources. Apart from these, we protect the vital interests of employees with a sound remuneration and welfare system so that they will develop a strong sense of belonging with our care.

We hope and continue to work hard to create more happiness and satisfaction for our employees. We hope that "Xinyi People" will not only be part of the most efficient team, but also the most fortunate ('Xin'fu) team.

若無與企業理念一致，願與企業共成長的員工，那麼想要企業的壯大與發展就成無源之水，無本之木，因此本集團視員工為我們最大的財富，關注員工個體的成長、感受與訴求，為每一位員工創造安全舒適的工作環境，以豐富的教育培訓資源為員工的成長創造充足空間，以健全的薪酬福利制度保障員工的切身利益，以真情實感關懷員工增強歸屬感。我們希望並持續努力，為員工創造更多的幸福與滿足感，希望「信義人」不僅是最高效的團隊，更是最「信」福的團隊。



4.1 Employment and Labour Practices

Xinyi Solar strictly abides by the "Labour Law of the People's Republic of China" (《中華人民共和國勞動法》), the "Labour Contract Law of the People's Republic of China" (《中華人民共和國勞動合同法》), and local labour laws in Hong Kong, Malaysia and Canada to conduct employee recruitment in a fair, just and open manner. Adhering to the principle of integrity and equality, the Group confirms the employment relationship with "Labour Contract" and clarifies the relevant terms, such as compensation and benefits, training mechanism and production safety, in the contract to ensure the protection of employees' rights and interests. The Group's rights and interests are also protected by reasonable restrictions on the non-competition agreements, confidentiality and termination of contract terms.



4.1 僱傭及勞工常規

信義光能嚴格遵守《中華人民共和國勞動法》、《中華人民共和國勞動合同法》，以及香港、馬來西亞和加拿大當地的勞工法例，以公平、公正、公開的方式進行員工招聘。秉著誠信平等的原則，本集團以《勞工合同》確認僱傭關係，並會於合同中明確薪酬福利、培訓機制、生產安全等與員工切身相關的條款，以確保員工的權益受到保障，同時合同通過不競爭協定、保密及終止合同條款等進行合理約束，以保障本集團的權益。



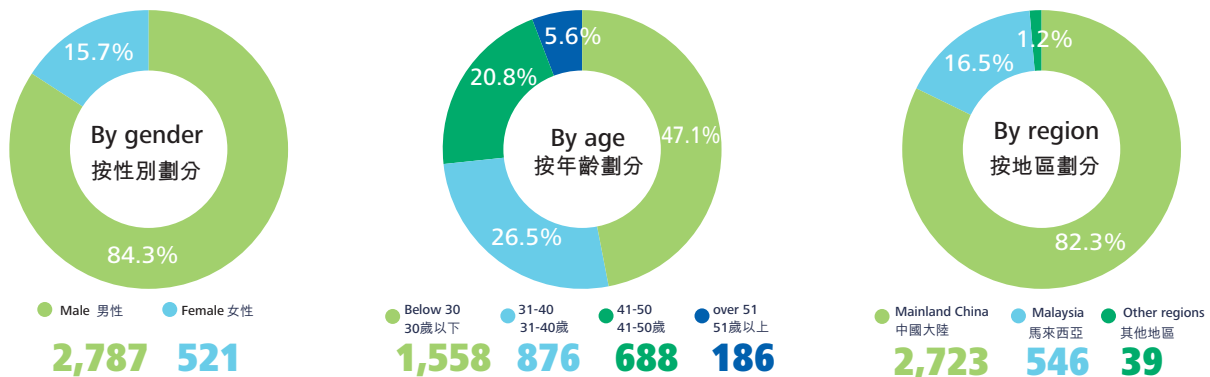
4. FORTUNATE ('XIN'FU) TEAM 「信」福團隊

The Group has established a mature talent selection and training mechanism. New employees would be able to understand the basic situation of corporate culture, rules and regulations, safety production, job responsibilities and other aspects through induction training, so as to integrate into the family at a faster pace. At the same time, through the systematic training and engaged external training in the Group's system, their professional knowledge and skills can be comprehensively improved, which will enhance their performance rapidly. Thus, their satisfaction will be enhanced, together with the gradual formation of their sense of belonging to the Group.

As of 31 December 2018, the number of employees of Xinyi Solar was 3,308, including solar glass production, research and development, sales, quality control and management teams, solar farm development, construction, operation, maintenance and management teams, and EPC project operation and management teams. The Group adheres to the strategy of talent diversification. In terms of talents, we do not set any limit or bias. Regardless of age, gender, ethnicity, nationality and region, religious beliefs and political beliefs, we only choose the right candidate by his/her talent. Our one and only one focus is individual talent and professionalism. The Group consistently adheres to the principle of "Everyone is treated equally". With the improvement of the Group's promotion mechanism, it will better protect the rights of all employees to equal opportunities in various aspects such as work, remuneration and benefits, as well as career growth.

本集團已建立成熟的人才選用及培訓機制，新入職員工可透過入職培訓了解企業文化、規章制度、安全生產、崗位職責等方面的基本情況，以更快融入集體，同時通過集團體系內的系統培訓及委外培訓，全面提升專業知識與技能，令績效快速提升及增強員工的滿足感，並逐步形成對企業的歸屬感。

於2018年12月31日，信義光能的僱員數目達3,308人，包括太陽能玻璃生產、研發、銷售、質控及管理團隊，太陽能發電場開發、建設、運維及管理團隊，以及EPC項目經營及管理團隊。本集團堅持人才多元化的戰略，面對人才，我們不設限、無偏見，不論年齡、性別、民族、國籍和地區、宗教信仰和政治理念，真正做到「唯才是用」，我們關注且唯一關注的是個體的技能與專業。「一視同仁」是本集團一貫的堅持，隨著本集團晉升機制的日益完善，將更好地保障所有僱員在工作、薪酬福利、職業成長等多個方面享有平等機會的權利。

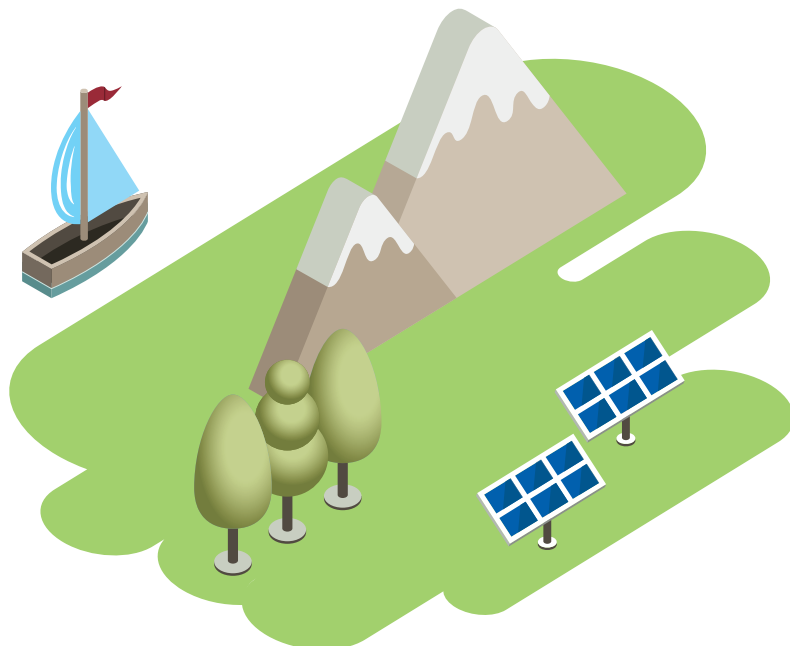


Employment of Xinyi Solar by Demographics in 2018
信義光能2018年僱傭分佈

4. FORTUNATE ('XIN'FU) TEAM 「信」福團隊

The Group has developed an attractive compensation and incentive system, which is managed in accordance with the "Human Resources Management Process". Staff remuneration, comprised of basic salary, performance-based salary and incentives/penalties, is adjusted for factors such as the Company's results, the staff member's position and job requirements, personal performances, etc. In order to attract more high-quality talents, the Group provides employees with cash allowance and benefits including housing benefits, utilities and meals subsidies, transportation and communication allowances, high temperature subsidies, as well as protections such as medical examinations and holiday benefits on the basis of maintaining its competitive and attractive compensation in the industry. In addition, through the internal selection and evaluation, qualified employees can participate in the Group's share option scheme. The Company also conducts excellent employee evaluation every year, and correspondingly awards medals and bonuses for the staff. As for the outstanding employees who have made long-term contributions to the Group, the Group presents "service awards" to its employees. Staff members will be awarded relevant medals and bonuses as an incentive after the completion of their first and second 5-year contract terms. For staff members who work for Xinyi Solar for 10 consecutive years, the Company will additionally consider granting share options as an incentive.

本集團已形成具備吸引力的薪酬及激勵制度，並依據《人力資源管理程序》進行管理。員工的薪金主要由基本工資、績效工資和獎罰額度構成，受到公司業績、員工的崗位及職能要求、個人績效等因素的影響。為吸引更多優質人才，本集團在保持薪酬待遇在行業內具備相當的競爭力和吸引力的基礎上，為員工提供包括住房福利、水電費及餐費補貼、交通及通訊補助、高溫補貼等多項現金津貼福利，以及提供體檢、節假日福利等多重保障。此外，通過內部評選考核，具備資質的優秀員工可參與本集團的購股權計劃；公司每年亦會進行優秀員工評比，並對應予以獎牌及獎金獎勵。而對於為本集團作出長期貢獻的優秀員工，本集團設立「就業服務獎」進行嘉許，在員工第一個及第二個五年期合同期滿後均會頒發相關獎項及獎金，以茲鼓勵。而對於在信義光能連續工作屆滿十年的員工，可獲得額外授予購股權以作鼓勵。





4. FORTUNATE ('XIN'FU) TEAM 「信」福團隊

In addition to motivating employees through the compensation system and welfare system to fully motivate their initiative and enthusiasm, the Group also organises rich cultural and recreational activities through trade unions, including monthly birthday parties and large-scale evening parties for important festivals (such as the Spring Festival, Mid-Autumn Festival, National Day), cultural/sports competitions, etc., so as to promote communication among employees and enhance team cohesion. In terms of holiday policy, the Group follows the standard for working hours and statutory holidays as stipulated by the laws and regulations of each business location to ensure that employees enjoy their vacations according to local statutory holidays, and there are paid leaves such as marriage leave, maternity leave, paternity leave and bereavement leave. In addition, the Group also regularly collects feedback from employees and pays attention to employees' satisfaction and demands in various aspects such as work, training and group activities.

In view of the increasing demand for overseas markets, trade barriers have become more frequent. The Group launched the Malaysian solar glass production base in 2016. Compared with domestic production bases, the Malaysian factory has a more diverse workforce with employees from different countries and different religions. The Group respects the religion of each employee. Therefore, there is a prayer room in the park to meet their needs. The Group also has different restaurants in response to different living habits and eating habits. In addition, various sports activities are organised to strengthen the exchange of employees from different countries and religious backgrounds. Moreover, our regular home visits provide timely information on the family situation of employees and express our care for our employees.

除通過薪酬制度及福利制度激勵員工，充分調動其工作主動性及熱情外，本集團亦通過工會組織豐富的文化娛樂活動，包括每月舉辦的集體生日會，重要節日(如春節、中秋、國慶等)時安排的大型晚會、文化／體育類競技活動等，以促進員工之間的溝通，增強團隊的凝聚力。假期政策方面，本集團遵循各業務所在地法律法規明文規定的工作時限及法定假期，確保員工按當地法定節假日獲得休假，另設有婚假、產假、侍产假、喪假等有薪假期。此外，本集團亦會定期收集員工的反饋，關注員工對工作、培訓、集體活動等多方面的滿意度及訴求。

有見海外市場需求多地開花，但貿易壁壘問題日趨頻繁，本集團於二零一六年啟動馬來西亞太陽能玻璃生產基地。相較於國內的生產基地，馬來西亞廠房的員工組成更多樣化，有來自不同國家，持不同信仰的員工。本集團尊重每位員工的信仰，故於園區內設祈禱室方便滿足其需求，而因應不同的生活習慣及飲食習慣，本集團亦設有不同的餐廳。此外，亦組織各類體育活動，加強不同國家、信仰背景的員工交流，另通過定期家訪及時了解員工的家庭情況，表達對員工的關懷。

4. FORTUNATE ('XIN'FU) TEAM 「信」福團隊

male staff
男性員工
2,787
佔比84.3%
amounted to 84.3%

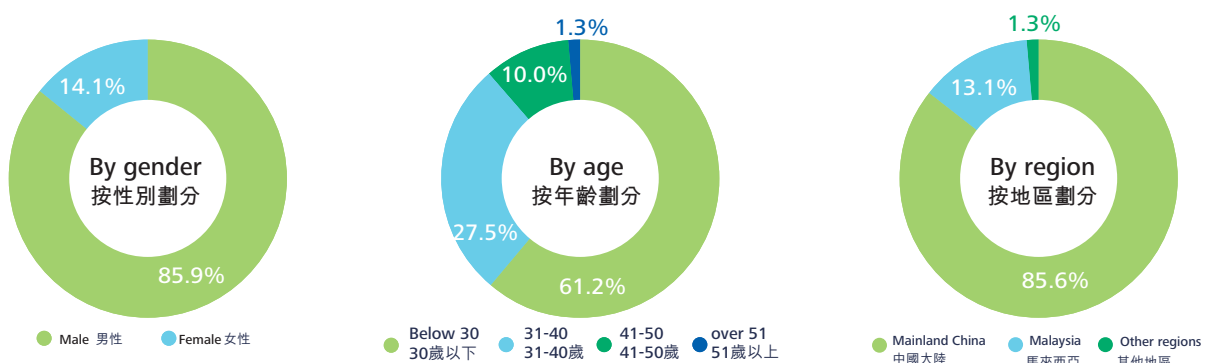
female staff
女性員工
521
佔比15.7%
amounted to 15.7%

Similar to the general power generation industry and large industrial enterprises, due to the work attributes, the Group's male employees account for more than 80%. However, the Group has long been concerned about the growth of female employees and strives to create a more equal and warm working environment for them, including ensuring equal learning opportunities and room for promotion, carrying out Women's Day "Red Flag Bearer" selection and preparation of ingenious gifts and protection of pregnancy rights, including adequate maternity leave and guarantee to return to work after maternity leave.

與一般的電力行業及大工業企業相似，因為工作屬性使然，本集團男性員工佔比超過80%，但本集團長期關注女性員工的成長，竭力為其營造更平等、溫暖的工作環境，包括確保平等的學習機會與晉升空間、婦女節進行「三八紅旗手」評比及準備巧思禮物、保障孕期權益，包括充足的產假及產後復工保障等。

During the reporting period, the Malaysian factory actively carried out localisation in Malaysia, including allowing Malaysian employees to adjust the sequence of their shift freely, providing one-on-one targeted training and offering local staff more room to grow in order to fully light up the enthusiasm of local employees and lower the turnover rate. The employee turnover rate of the Group in 2018 is presented in the following graphs:

報告期內，馬來西亞工廠積極推行馬來西亞本地化，包括讓馬來西亞員工自由調節排班次序、提供一對一針對性培訓以及給予本地員工更多成長空間，全面調動本地員工的積極性，以降低員工流失率。本集團2018年員工流失情況如下圖所示：



Employment Turnover of Xinyi Solar by Demographics in 2018
信義光能2018年離職人員分佈



4. FORTUNATE ('XIN'FU) TEAM 「信」福團隊



4.2 Health and Safety

Health is the foundation of life and work. Therefore, the Group has always attached great importance to the health of employees and provides employees with health checkups and occupational medical examinations, such as hearing tests. At the same time, the Group is committed to creating a safe working environment for its employees and cultivating and strengthening employees' safety awareness through professional skills training, emergency response education and talk on safety awareness. We have established a safety development concept of "safety first with life as our top priority", fully achieving "safe production" and "zero-accident" production and operation.

According to the requirements of occupational health and safety management in the "Law of the People's Republic of China on Work Safety" (《中華人民共和國安全生產法》) and "Integrated Management Manual" (《一體化管理手冊》), Xinyi Solar adopts a "two-headed" strategy to implement safety management. At the group level, there are safety management and execution departments, with professional staff responsible for formulating and improving health and safety management systems and operational standards. They are also responsible for supervising and guiding the implementation of various production bases and solar farms. For the implementation at the operational level, there are monthly safety inspection on the production workshops and rectification of existing safety hazards in order to prevent any small problems from gradually becoming serious and eliminate problems from the very beginning; provision of professional labour protective equipment for employees to strengthen the protection of employees, such as providing specialised earbuds for employees working at high noise areas of the production line; continuous optimisation of the health and safety environment in the workplace which includes the construction of labour protection facilities, the establishment of strict labour protection measures, full implementation of smoke banning at production workshops and power stations; organisation of regular training, safety knowledge seminars and setting up of safety warnings and signs, banners and slogans in the workplace to improve the supervisory awareness and execution ability of safety management staff, as well as to cultivate health and safety occupational concepts and improve the related skills of the staff; and regular maintenance and repair of production equipment to ensure safe production.



4.2 健康及安全

健康是生活及工作的基礎，因此本集團一直高度重視員工的健康狀況，每年為員工提供健康體檢和職業病體檢，如聽力檢查等。同時，本集團致力為員工營造安全的工作環境，並通過專業技能培訓、突發事件應對教育、安全意識宣講等培養及強化員工的安全意識，樹立「安全為重，生命至上」的安全發展觀，切實做到「不安全不生產」，實現「零事故」生產及經營。

根據《中華人民共和國安全生產法》以及《一體化管理手冊》中有關職業健康安全管理的規定，信義光能採取「抓兩頭」的策略落實安全管理工作。集團層面設有安全管理及執行部門，並有配備專業人員，負責制定及完善健康安全管理制度和操作標準，同時肩負監督及引導各生產基地及太陽能發電場執行落實的責任。基層「抓落實」，包括每月對生產車間進行安全排查，對存在的安全隱患進行整改，以防微杜漸，將事故扼殺在源頭；為員工配置專業的勞動防護設備加強對員工的保護，如在生產線噪音較大的區域，配置專用耳塞；持續優化工作場所的健康和安全環境，包括建設勞動保護設施、建立嚴密的勞動保護措施、生產車間及電站全面禁煙等；組織定期培訓、安全知識講座及於工作場所設立安全警示標識、橫幅及標語，提高安全管理人員的督管意識及執行能力，以及培養員工的健康安全工作理念和提高相關技能；生產設備進行定期的維護檢修，以確保安全生產。

4. FORTUNATE ('XIN'FU) TEAM 「信」福團隊



Occupational health and safety management activities of the Group's ultra-clear solar patterned glass production have fulfilled OHSAS18001: 2007 Standards for Occupational Health and Safety Management Systems.

本集團超白太陽能壓花玻璃生產有關的職業健康安全管理活動符合 OHSAS18001:2007 職業健康安全管理體系標準。



4.3 Development and Training

"Passion" is not only an obligation and requirement of the Group but also an expectation towards each employee. The Group hopes that every employee can obtain diversified and multi-level training opportunities at Xinyi Solar, not only to achieve breakthroughs in professional knowledge and skills, but also to train their innovative thinking, analysis and problem solving, management skills, etc. so as to achieve an overall improvement in the individual's comprehensive ability. Thus, the Group will arrange training from time to time, and continue to improve the training system and learning environment to provide employees with targeted and extensive training activities.



4.3 發展及培訓

「自強不息」既是本集團對自身的約束和要求，亦是對每一位員工的期許。本集團希望每一位員工均可以在信義光能獲得多元化、多層次的培訓機會，不僅在專業知識及技能上實現突破，更可以鍛煉創新思維、分析與解決問題、管理技巧等多方面的能力，實現個人綜合能力的全面提升，因此本集團會不時安排培訓，並持續完善培訓體系及學習環境，為員工提供針對性強、覆蓋面廣的培訓活動。



4. FORTUNATE ('XIN'FU) TEAM 「信」福團隊

In 2018, the Group provided 41,025 hours of training to employees through a combination of internal training and engaged external training, with a total of 20,769 participants. The training covers the Company's integrity, safe production, environmental protection, quality management and monitoring system process training; professional skill training such as daily operation skills, emergency response operations, common mechanical equipment working principle, daily operation and maintenance, product technology theory and defect processing; individual skill enhancement training such as human resources, project management, sales and negotiation skills, leadership development.

The Group encourages employees to pursue a balance between work and life. Therefore, on the basis of continuously improving the skills training mechanism for employees and creating sufficient room for employees' career growth, the Group enriches the after-work cultural life of employees through various cultural and sports activities, effectively fostering the communication and exchanges among employees and departments outside of work. This further strengthens teamwork spirit and solidarity, as well as corporate cohesion. Due to the remoteness of the solar farm project locations, the Group has established a new energy branch to organise employee gatherings and interesting activities regularly to increase communication so that the employees feel the care and warmth of the Company.

本集團於2018年通過內部培訓和委外培訓結合的方式，為員工提供41,025小時的培訓，合共獲得20,769人次參與。培訓內容覆蓋公司廉潔、安全生產、環保、品質管理與監控等體系流程培訓；日常操作技能、突發事件應急操作、常用機械設備工作原理、日常操作及維修、產品工藝理論及缺陷處理等工作專業技能培訓；人力資源、項目管理、銷售及談判技巧、領導力培養等個人技能提升類培訓。

本集團鼓勵員工追求工作與生活的平衡，因此在不斷完善員工的技能培訓機制，為員工創造充足的職業成長空間的基礎上，透過舉辦多樣化的文娛活動及體育活動，豐富員工的業餘文化生活，有效促進員工之間及部門之間工作外的溝通交流，以進一步加強團隊合作及團結意識，提升企業凝聚力。由於太陽能發電場項目地處偏遠，本集團通過成立新能源分會，定期組織員工聚會及趣味活動，以增加交流，令員工感受到企業的關懷與溫暖。



4. FORTUNATE ('XIN'FU) TEAM 「信」福團隊





4. FORTUNATE ('XIN'FU) TEAM 「信」福團隊



4.4 Labour Standards

Xinyi Solar strictly complies with the local labour laws and regulations in the places where its businesses are located, including “Labour Law of the People’s Republic of China” (《中華人民共和國勞動法》), “Labour Contract Law of the People’s Republic of China” (《中華人民共和國勞動合同法》), “Employment Act 1955 of Malaysia”, Hong Kong’s “Employment Ordinance”, “Provisions on the Prohibition of Using Child Labour” (《禁止使用童工規定》), “Special Rules on the Labour Protection of Female Employees” (《女職工勞動保護規定》) and “Law of the People’s Republic of China on Work Safety” (《安全生產法》), follows the requirements of laws and regulations to regulate employment behaviours, respects and protects employees’ labour rights, protects employees’ health, safety and personal legal rights and interests, and adopts a zero-tolerance attitude towards child labour, forced labour and discrimination and unequal treatment in employment. In addition, to ensure the safety of the staff, only staff equipped with relevant knowledge and skills upon completion of training can engage in relevant jobs.

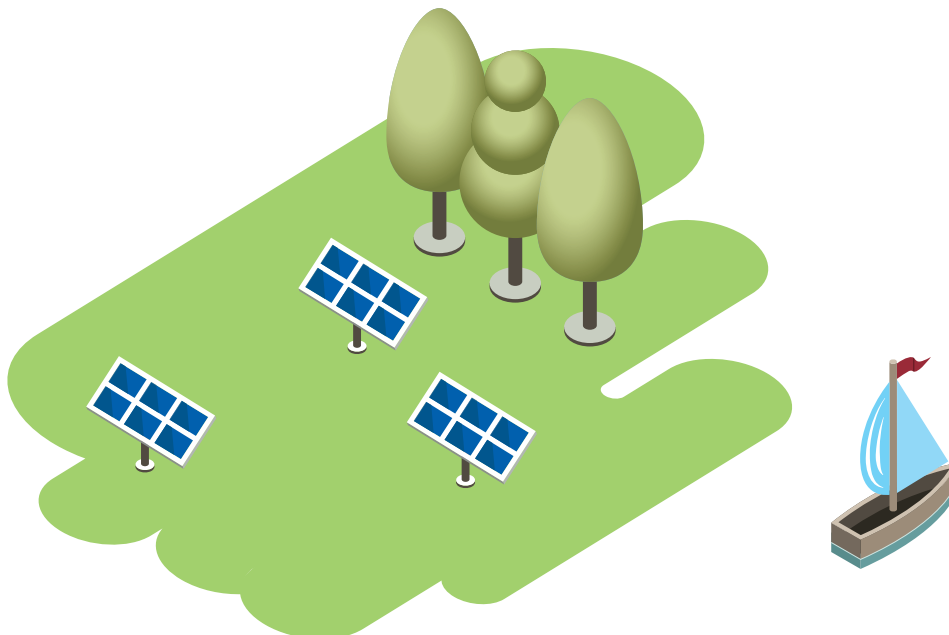
During the reporting period, the Group did not discover any major incidents that violated laws and regulations related to the prevention of child labour or forced labour.



4.4 勞工準則

信義光能嚴格遵守各業務所在國家及地區的勞工法律法規，包括《中華人民共和國勞動法》、《中華人民共和國勞動合同法》、《馬來西亞勞工法令》(Employment Act 1955)、《香港僱傭條例》、《禁止使用童工規定》、《女職工勞動保護規定》、《安全生產法》等，按照法律法規的要求規範用工行為，尊重及保護員工的勞動權利、保障員工的健康、安全及個人合法權益，對童工、強迫勞動以及僱傭中的歧視和不平等對待採取零容忍的態度。此外，為確保員工的安全，員工需要經過培訓，具備相應知識及技能後方可從事相關工作。

報告期間，本集團並未發現任何違反防止童工或強迫勞動相關的法律法規的重大事件。



5. BONDING ('XIN'XI) AROUND THE WORLD 「信」繫天下

"People" is the unchanging sentiment and value pursuit of Xinyi Solar passed along by the Xinyi Group. As a subsystem of society, the Group depends on social support from day-to-day management to long-term development. Therefore, while pursuing economic benefits, the Group also pays great attention to the demands and social well-being of various stakeholder groups, taking the initiative to assume social responsibilities, and realises the co-prosperity development of itself and its stakeholders, as well as the whole society.

「善待天下」是信義光能自信義集團一脈相承、扎根於心的不變情懷和價值追求。作為社會的子系統，企業從日常經營到長遠發展無一不依賴社會的支持。因此，在追求經濟效益的同時，本集團亦高度關注各利益相關方群體的訴求及社會福祉，主動承擔社會責任，實現自身與利益相關方乃至全社會的共榮發展。



5.1 Social Responsibility

Sharing the happiness ('Xin'fu) expresses the simple pursuit that we enjoy sharing with our stakeholders in developing with them. The Group attaches great importance to the needs of all parties which are closely related to our production, operation and development, and we actively communicates and listens to them as well as positively responding to their need. The Group identifies stakeholders based on factors such as relevance, influence and proximity, and then provides diverse communication channels in accordance with the characteristics of each stakeholder with reference to "Communication Policy with Stakeholders", as well as continuously improving the communication mechanism so as to ensure continuous communication and timely response to their expectations and requirements.



5.1 社會責任

「信」福共榮表達我們樂與利益相關方分享，希望攜手成長的樸實追求。本集團高度重視與我們的生產、經營及發展密切相關的各方需求，做到主動溝通、用心聆聽、積極回應。本集團基於相關性、影響力、鄰近原則等因素明確持份者，而後參照《與持份者溝通政策》的規定，因應各持份者的特點提供多樣化的溝通渠道，並不斷完善溝通機制，保障無間溝通，及時回應他們的期望與要求。

Major shareholders 主要持份者	Concerns (expectations and demands) 關注事項 (期望與要求)		Main communication channels 主要溝通渠道	
Staff 員工	<ul style="list-style-type: none"> Career development 職業發展 Business growth 企業成長 	<ul style="list-style-type: none"> Health and safety 健康與安全 Compensation and benefits 薪酬福利 Humanistic care 人文關懷 	<ul style="list-style-type: none"> Staff meeting 員工大會 Performance appraisal 績效考核 Staff activity 員工活動 Educational training 教育培訓 	
Government 政府	<ul style="list-style-type: none"> Corporate responsibility 企業責任 Environmental compliance 環保合規 	<ul style="list-style-type: none"> Charity work 公益慈善 Economic benefit 經濟效益 	<ul style="list-style-type: none"> Environmental impact assessment report/progress report 環評報告/進度報告 Phone/email/meeting 電話/電郵/會談 Site visit/online monitoring 實地考察/在線監測 	
Local community 當地社區	<ul style="list-style-type: none"> Environmental governance 環保管治 Operational safety 運營安全 	<ul style="list-style-type: none"> Corporate responsibility 企業責任 Community participation 社區參與 	<ul style="list-style-type: none"> Environmental impact assessment report 環境評估 Site visit 實地考察 Phone/email/meeting 電話/電郵/會談 	
Partner/supplier 合作夥伴/供應商	<ul style="list-style-type: none"> Public procurement 公開採購 Operational efficiency 營運效率 	<ul style="list-style-type: none"> Compliance requirements 合規要求 Resource sharing 資源共享 	<ul style="list-style-type: none"> Site visit 實地考察 Phone/email/meeting 電話/電郵/會談 Tendering 招標 	
Shareholder/ investor 股東/投資者	<ul style="list-style-type: none"> Financial performance 財務表現 Business development 業務發展 	<ul style="list-style-type: none"> Corporate governance 企業管治 Revenue and return 收益回報 	<ul style="list-style-type: none"> Shareholders' general meeting 股東大會 Investor conference /site visit /phone/email 投資者會議/參觀調研/電話/電郵 Interim/annual results announcement 中期/全年業績發佈 Major events announcement /press release 重大事項公告/新聞稿/press release 	
Customer 客戶	<ul style="list-style-type: none"> Honest performance 誠信履約 Product quality 產品質量 	<ul style="list-style-type: none"> Production scale 生產規模 Technical barrier 技術壁壘 	<ul style="list-style-type: none"> Site visit 實地考察 Phone/email/meeting 電話/電郵/會談 Questionnaire and feedback 問卷及意見反饋 	



5. BONDING ('XIN'XI) AROUND THE WORLD 「信」繫天下



5.2 Community Participation

“Not to forget the initial intention with determination”. Even though Xinyi Solar came from the traditional industry, it has made unremitting efforts to contribute more abundant green energy to the society since its establishment. Adhering to the concept of creating a better green and new life for human beings, we do not only strive to save energy and reduce consumption in production and operation but also export green products of higher quality to the world in a more environmentally friendly production mode. We are thankful to the society, paying attention to the needs of the underprivileged, actively participating in public welfare undertakings and giving back to the society through donations for scholarship, as well as assisting the underprivileged. At the same time, the Group also encourages the staff to participate in various public welfare activities by guiding them about “sparing time for voluntary work”. We wish our staffs to spread the positiveness and warmth they feel in Xinyi Solar to more needy people as to create a virtuous cycle of love and caring.



5.2 社區參與

「不忘初心，方得始終」，信義光能從傳統工業中誕生，但自誕生之初就為社會貢獻更充沛的綠色能源不懈努力。秉承為人類創造更美好的綠色新生活的理念，我們不僅在生產經營上努力節能降耗，以更綠色的生產模式向全球輸出更優質的綠色產品，對社會更始終心懷感恩，關注弱勢群體的需求，積極投身公益事業，透過捐資助學、幫扶弱勢群體等實際行動回饋社會。同時，本集團亦透過循循引導員工「做好事，行善心」，鼓勵他們參與各類公益活動，將從信義大家庭中獲取積極向上的正能量傳達予社會更多的群體，以形成溫暖接力，讓善循環。

5. BONDING ('XIN'XI) AROUND THE WORLD 「信」繫天下



01/2018

Caring for Empty Nester

關愛空巢老人

Wuhu Trade Union visited lonely old people in the nursing home at Longshan Street, giving them daily necessities.

蕪湖工會組織員工慰問龍山街道敬老院孤寡老人，為其送贈生活慰問品



06/2018

Visiting Xijuehe Nursing Home

西掘河養老院慰問

Tianjin Trade Union formed voluntary team to visit Xijuehe Village nursing home.

天津工會組織了義工隊前往西掘河村敬老院進行慰問



07/2018

Visit to Shepherd's Field Children's Village

牧羊地兒童村探訪

Tianjin Trade Union formed voluntary team to visit disabled children at Shepherd's Field Children's Village

天津工會組織了義工隊前往牧羊地兒童村探望殘疾兒童



善待
天下



福滿滿，
樂分享

People – Sharing the
happiness ('Xin'fu)



10/2018

Donation to Shishi Public Welfare

捐助石獅公益事業

Dr. Lee Yin Yee, Chairman of the Board of Xinyi Solar made a donation of RMB100 million to Shishi Public Welfare in support of the charity work to develop the local education and hygiene.

信義光能董事會主席李賢義博士向石獅公益事業捐贈人民幣1億元，以支持當地發展教育衛生慈善事業



10/2018

Dress Causal Day of The Community Chest

公益金便服日

The Hong Kong office participated in the "Wear I am" Dress Causal Day of The Community Chest to raise money for The Community Chest in support of its social welfare services.

香港辦公室參與香港公益金舉辦的「(色)得著做自己」主題便服日，為香港公益金籌募資金以支持其社福服務



11/2018

Clothes donation activity

「一家衣善」捐助活動

Tianjin Trade Union actively participated in the clothes donation activity organised by the Wuqing District Women's Federation, collecting old clothes for the underprivileged

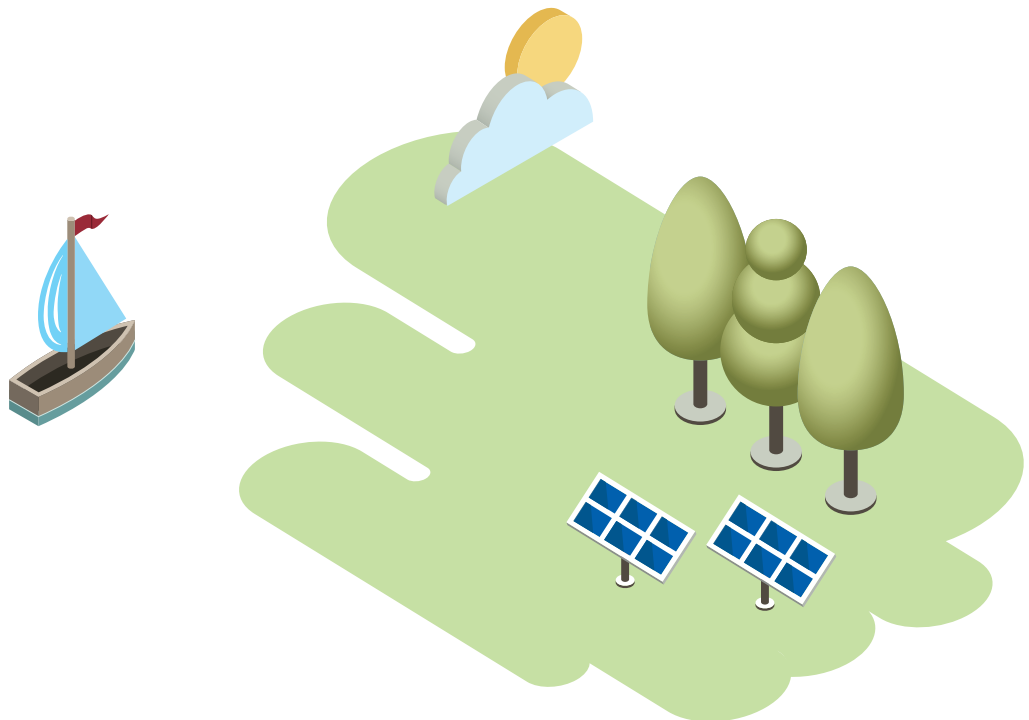
天津工會積極參與武清區婦聯舉辦的「一家衣善」扶貧日捐助活動，進行舊衣回收，轉贈需要人士



6. BELIEVE ('XIN'YU) IN THE FUTURE 「信」予未來

In 2018, the winter of the industry has passed. Looking forward to 2019, under the environment of the national regulatory agency specifically supporting the development of the photovoltaic industry, the rational policy supporting the construction of subsidised projects, and the whole industry chain striving to innovate and reduce costs, the Group is confident that the photovoltaic industry will accelerate toward grid-parity era. We will continue to enhance our core competitiveness in solar glass production technology, cost control, customer base, and capacity scale to strengthen our leading position in the industry and increase the market share through active capacity expansion and providing the best quality green products to global solar module manufacturers. While growing rapidly and continuing to create direct economic value for stakeholders, we will always keep in mind the social responsibilities we shoulder, continue to optimise production processes in solar glass production, reduce emissions at source, and achieve the long-term goal of energy-saving, consumption reduction and green production. Moreover, we will accelerate the accumulation of high-quality solar farm projects, contribute more new green energy that is pollution-free to the world, as well as the long-term well-being of mankind so that the natural environment can be retained for our next generation.

2018年行業的寒冬已過，展望2019年，在國家管理機構明確支持光伏行業發展、合理政策支持需補貼項目的建設、全產業鏈竭力創新降成本的環境下，本集團對光伏產業加速邁向平價時代充滿信心。我們仍將繼續提升在太陽能玻璃生產技術、成本管控、客戶基礎、產能規模等方面的核心競爭力，以鞏固行業領導地位，並透過積極的產能擴張，持續提升市場佔有率，為全球太陽能組件生產商提供最優質的綠色產品。在高速成長，持續為持份者創造直接經濟價值的同時，我們亦會時刻謹記自身所肩負的社會責任，在太陽能玻璃生產上繼續優化生產工藝，源頭減排，實現節能降耗綠色生產的長期目標，並會加快儲備更多優質的太陽能發電場項目，為世界貢獻更多無污染的綠色新能源，為人類的長期福祉出力，為下一代留住青山綠水、碧海藍天。



6. BELIEVE ('XIN'YU) IN THE FUTURE 「信」予未來

Energy-saving

- An insulation baffle is planned to be installed in the Malaysian kiln and the installation is expected to complete in the first half of 2019. After the installation, natural gas consumption is expected to fall by 0.6% year-on-year under the same process.
- Residual heat boiler for Malaysia's second production line is expected to be put into use at the end of May 2019, which will reduce purchased power and reduce indirect emissions.
- Wuhu increases the production capacity of tempering furnaces through equipment replacement and aims to further reduce the electricity consumption per unit of finished products by 5%.
- Reduce the frequency of interruptions by regularly cold-repairing and further optimising the connection modification to further reduce the energy consumption and electricity consumption per unit of finished products.

節能

- 馬來西亞密爐計劃安裝保溫擋板，預計2019年上半年完成安裝。安裝後，在同樣工藝下，天然氣耗量同比預期可下降0.6%。
- 馬來西亞二線餘熱鍋爐預計2019年5月底投入使用，將可降低外購電力，減少間接排放。
- 蕪湖通過設備置換提高鋼化爐生產量，目標進一步降低產成品單位用電量5%。
- 通過定期冷修及進一步優化連線改造，減少中斷頻次，以進一步降低產成品單位能耗及用電量。

Fortunate Team

- Continue to enhance employees' professional skills and personal abilities through internal and external training, strengthen their awareness in environmental protection, safe production, anti-corruption and law-abiding
- Continue to standardise the management system and adapt to local conditions to achieve effective management to reduce the turnover of employees
- Continue to organise diversified activities that benefit employees' solidarity, physical and mental health, and continuously enhance team cohesion and employees' sense of belonging

幸福團隊

- 繼續透過系統內部及委外培訓提升員工的工作專業技能和個人能力，強化環保、安全生產、廉潔守法意識。
- 繼續規範管理體制，並因應各地情況靈活調整達到有效管理，以降低員工流失率。
- 繼續組織有益員工團結交流、身心健康的多元化活動，持續提升團隊凝聚力和員工歸屬感。

Explore Green Finance

- In March 2019, the Group passed the Green Finance Certification of the Hong Kong Quality Assurance Agency and was awarded the **Pre-issuance Stage Certificate for Green Finance**, confirming that the Group's solar glass production base projects and solar farm projects meet the requirements of green projects. The Group will actively promote financial innovation, increase the exploration of green finance, expand the Group's funding channels through green financing, and ensure our sustainable development.

探索綠色金融

- 本集團於2019年3月通過香港品質保證局綠色金融認證，獲頒發**綠色金融發行前證書**，確認本集團的太陽能玻璃生產基地項目及太陽能發電場項目符合綠色項目的要求。本集團將積極推動金融創新，加大綠色金融的探索，通過綠色融資擴大本集團的資金渠道，保障公司的可持續發展。



Emission Reduction

- Residual heat boiler for Malaysia's second production line has been equipped with desulfurisation, denitrification and dedusting equipment. It is believed that the emission of nitrogen oxides, sulphur dioxide and particulates will be further reduced and continue to be at a level lower than the Malaysian local standards.
- Optimise the desulfurisation and denitrification process by partially replacing the environmental facilities and accessories to further reduce pollutant emissions
- Optimise the tempering workshop sewage treatment system, improve treatment efficiency, maximise the use of recycled water for production, reduce water withdrawal, and strive to achieve zero discharge of wastewater
- Continue to promote steel pallets and paperless packaging to further reduce wood and paper consumption
- Ensure that the emissions of finished products are maintained at an ideal level through cold-repairing and energy-saving upgrades to two production lines in Wuhu
- Implement the improvement of the OA system, continue to implement paperless office, and reduce the amount of office paper

減排

- 馬來西亞二線餘熱鍋爐已配置脫硫、脫硝及除塵裝置，相信氮氧化物、二氧化硫及顆粒物排放量將進一步減少，持續維持優於馬來西亞當地標準。
- 通過局部更換環境設施配件，優化脫硫脫硝工藝，進一步減少污染物排放。
- 優化鋼化車間污水處理系統，提升處理效率，最大化利用循環水進行生產，減少取水量，爭取實現污水零排放。
- 繼續推廣鐵托盤及無紙化包裝，進一步降低木材及紙張耗用量。
- 通過對蕪湖2條生產線冷修及節能升級，確保產成品污染物排放量維持理想水平。
- 落實OA系統的完善，繼續推行無紙化辦公，減少辦公用紙量。

Storage of High-quality Subsidy-free Project

- The Group will actively reserve high-quality subsidy-free projects in 2019 and continue to monitor the trend of the cost and complete the installation and grid connection in due course. The Group will continue to increase its installed capacity and intend to accelerate its pace to contribute more clean energy to the world.

儲備優質平價項目

- 本集團於2019年將積極儲備優質的平價項目，並會持續監測成本趨勢，適時完成裝機併網。本集團會持續提升裝機規模，並有意加快步伐，以為全球貢獻更多潔淨能源。

7. APPENDIX 附錄

7.1 Awards and Certifications

7.1 榮譽與資質

Awards 榮譽



2018 Top 100 Private Enterprises in Anhui Province (in terms of revenue) (Anhui Provincial Department of Commerce)
2018年度安徽省民營企業營收百強 (安徽省商務廳)



2018 Top 100 Import and Export Private Enterprises in Anhui Province (Anhui Provincial Department of Commerce)
2018年度安徽省民營企業進出口百強 (安徽省商務廳)



2018 Top 100 Taxpaying Enterprises in Anhui Province (Anhui Provincial Department of Commerce)
2018年度安徽省民營企業納稅百強 (安徽省商務廳)



2017 National Federation of Industry and Commerce Private Enterprise in Scale (All-China Federation of Industry and Commerce)
2017年度全國工商聯上規模民營企業 (中華全國工商業聯合會)



Water-saving Enterprise (The People's Government of Tianjin)
節水型企業 (天津市人民政府)



Enterprise with Credit Rating of AAA (Development and Reform Commission of Anhui Province)
AAA級信用企業 (安徽省發展和改革委員會)



Qualified and Safe and Trustful Product for Consumer under National Supervision and Inspection (China High-tech Industrialisation Association)
全國監督抽查質量合格·消費者放心產品 (中國科技產業化研究會)

7. APPENDIX 附錄

Certifications 資質



ISO9001:2015
Standards for Quality
Management Systems
(China Building
Material
Test & Certification
Group Company
Limited)
ISO9001:2015
質量管理體系標準
(中國建材檢驗認證集團
股份有限公司)



ISO14001:2015
Standards for
Environmental
Management Systems
(China Building
Material
Test & Certification
Group Company
Limited)
ISO14001:2015
環境管理體系標準
(中國建材檢驗認證集團
股份有限公司)



OHSAS18001:2007
Standards for
Occupational Health and
Safety
Management Systems
(China Building Material
Test & Certification
Group Company Limited)
OHSAS18001:2007
職業健康安全管理體系標準
(中國建材檢驗認證集團
股份有限公司)



China Compulsory Certification
(CCC)
(China Building Material Test
& Certification Group Company
Limited)
中國國家強制性產品認證 (CCC)
(中國建材檢驗認證集團有限公
司)



RoHS Product Certificate for
Tempered Coated Glass
(SGS-CSTC Standards
Technical Services (Shanghai)
Co., Ltd.)
鋼化鍍膜玻璃RoHS產品認證
(SGS 通標標準技術服務(上海)
有限公司)



7. APPENDIX 附錄

7.2 Stock Exchange ESG Reporting Guide Content Index

7.2 聯交所《環境、社會及管治 報告》內容索引

Subject areas 主要範疇	General disclosure requirements 一般披露要求	Page 頁數
A1 Emissions 排放物	Policies and information relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste. 有關廢氣及溫室氣體排放、向水及土地的排污、有害無害廢棄物的產生等的政策及資料。	12-30
A2 Use of Resources 資源使用	Policies for the effective use of resources, including energy, water and other raw materials. 有效使用資源(包括能源、水及其他原材料)的政策。	31-34
A3 The Environment and Natural Resources 環境及天然資源	Policies on minimising the issuer's significant impact on the environment and natural resources. 減低發行人對環境及天然資源造成重大影響的政策。	35-36
B1 Employment 僱傭	Policies and information relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare. 有關薪酬及解僱、招聘及晉升、工作時數、假期、平等機會、多元化、反歧視以及其他待遇及福利的政策及資料。	53-57
B2 Health and Safety 健康與安全	Policies and information relating to providing a safe working environment and protecting employees from occupational hazards. 有關提供安全工作環境及保障僱員避免職業性危害的政策及資料。	58-59
B3 Development and Training 發展及培訓	Policies on improving employees' knowledge and skills for discharging duties at work. 有關提升僱員履行工作職責的知識及技能的政策。	59-61
B4 Labour Standards 勞工準則	Policies and information relating to preventing child and forced labour. 有關防止童工或強制勞工的政策及資料。	62
B5 Supply Chain Management 供應鏈管理	Policies on managing environmental and social risks of the supply chain. 管理供應鏈的環境及社會風險政策。	37-38
B6 Product Responsibility 產品責任	Policies and information relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress. 有關所提供產品和服務的健康與安全、廣告、標籤及隱私事宜以及補救方法的政策及資料。	39-40
B7 Anti-corruption 反貪污	Policies and information relating to bribery, extortion, fraud and money laundering. 有關防止賄賂、勒索、欺詐及洗黑錢的政策及資料。	43-44
B8 Community Investment 社區投資	Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests. 有關以社區參與來了解營運所在社區需要和確保其業務活動會考慮社區利益的政策。	63-65



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

