Solargiga Energy

# Solargiga Energy Holdings Limited
# 陽光能源控股有限公司





## 2017 Annual Results
## 二零一七年度全年业绩

香港聯交所上市股份編號：757，台灣存託憑證代號：9157TT

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# Contents



Solargiga Energy

# Corporate Overview

# Corporate Overview


- Established in 2001, the largest in Northeast China, high ranked photovoltaic manufacturer of the country. Focus on vertical integration for monocrystalline products, providing one-stop solutions from ingots, wafers, cells, modules to the development, design, construction, operation and maintenance of PV System.
- Listed in Hong Kong on 31 March 2008 (757.HK); listed in Taiwan on 11 December 2009 (9157.TT)
- 2017 Global New Energy Top 500 Enterprises (268); Top 50 Enterprises in China's Electronic Materials Industry (17); Top 3 Industrial Enterprises in Jinzhou City, Liaoning Province, China

# Shareholding Structure as at 31 December 2017

**Tan Wenhua and his associates 22.18%**

Hiramatsu International Corp. 11.03%

Wafer Works Corp. 7.75%

Other Directors 0.43%

Public shareholders - Hong Kong 54.96%

Public shareholders - Taiwan (TDR) 3.65%

**Solargiga Energy Holdings Limited**
**阳光能源控股有限公司**

***Number of issued shares 3,211,780,566***

# Manufacturing base

## Mainland China

- Main production base at Jinzhou of Liaoning, Xining of Qinghai and Quijing of Yunnan.
- monocrystalline silicon ingot/wafer capacity 1.2GW (expansion in Qujing in two phases, first phase of 600MW capacity will be commenced production by the end of the 2nd quarter of 2018).
- photovoltaic cell capacity 400MW
- photovoltaic module capacity 1.2GW (expansion of 1GW will be commenced production by the end of the 2nd quarter of 2018).
  *After expansion, the production chain will have 1.8GW capacity of ingot/wafer, 400MW capacity of cell and 2.2GW capacity of module production.
- Group's marketing centers in Shanghai and Beijing.


## Japan, Taiwan, Germany

- Established subsidiaries to enrich our distribution channels of all products and expand customer base.
- A joint venture company DCH Solargiga GmbH with power plant construction company in Germany, which is mainly engaged in photovoltaic systems business

## Others

- Developing EPC business in America, Turkey, Pakistan, Southeast Asia and Africa.

Map note:

- Manufacturing base
- Marketing centers
- Subsidiaries

# Production Capacity and Product Range

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**Ingot**

- 1.2GW at the end of 2017
- Addition capacity of first phase of 600MW will commence mass production by the end of the second quarter of 2018
- After the expansion, production capacity will reach 1.8GW.

**Wafer**

- 1.2GW at the end of 2017
- Addition capacity of first phase of 600MW will commence mass production by the end of the second quarter of 2018
- After the expansion, production capacity will reach 1.8GW.

**Cell**

- 400MW

**Strategic Alliances**

1. Being strategic alliances with the large solar cell-focused manufacturer. Selling wafer products to strategic partners and hence purchase the solar cells from the strategic partners.
2. And thus, it will secure the sales channel of wafer and hence ensure stable supply of solar cells.

**Module**

- 1.2GW at the end of 2017
- Addition capacity of 1GW will commence mass production at the end of the second quarter of 2018
- After the expansion, production capacity will reach 2.2GW.

**System**

- Distributed power plants - Apart from the wholly-owned subsidiaries engaged in construction photovoltaic systems to expand the end-user market, the Group also plans to establish joint venture companies with companies from other industries, in order to share the profits and also provide extra distribution channels for the Group's module sales.
- Centralised power plants - the Group will, through investing as minority shareholders, seek construction opportunities as a EPC service provider and help drive the sales of the Group's modules.

Vertical integration Strategy

# Product Procedure: 1. Monocrystalline Silicon Ingots

- Solargiga Energy focuses on monocrystalline production. So far, it has 20 years of experience in the production of N-type/P-type monocrystalline silicon ingots. The Group is the only monocrystalline silicon manufacturer who has obtained the national product quality exemption certificate. Currently, it has 38 national utility new model patents.
- In recent years, through the transformation and upgrading of the ingot growing furnace (長晶爐), and participated in the research and design of the CL200T ingot growing furnace (單晶爐), the amount of the material put into production has reached more than 300kg and the entire mono crystalline ingot has been drawn to more than 3000mm. This achieved continuous drawing of multiple output resulted in strengthen the advanced electronic liquid level control system, automatic control process, reducing labour costs and being stable quality of the crystalline ingots. During the research and development process, it obtained 1 invention patent, 14 utility new model patents, and 2 software copyrights.
- Through the continuous upgrading and optimization of the ingot growing process in these years, it has altered the traditional finishing style, increased the yield of crystalline ingots, improved production efficiency, and achieved industry lead.
- Monocrystalline silicon ingots are excellent in terms of technical indicators, and oxygen content is controlled to below 16 ppm, forming a strictly reliable crystalline ingot index detection system.
- According to customer's requirements, the Group provides various specifications and sizes of N-type and P-type monocrystalline products, and also provides the highest quality silicon ingots for downstream components.
- The existing 1.2GW monocrystalline silicon ingot/wafer production capacity and products production capacity are among the top five in PRC. The production capacity will be expanded to 1.8GW by the end of 2nd quarter of 2018, and lower electricity fee and other favourable measures will also further reduce costs.

# Product Procedure: 2. Monocrystalline Silicon Wafers

- Solargiga Energy has 13 years of wafer slicing experience and is one of the pioneers of large-size silicon wafers in the industry. According to customer's requirements, the Group provides various specifications and sizes of N-type and P-type monocrystalline products, and also provides the highest quality silicon wafers for downstream modules. Currently, it has 2 national invention patents and 8 national utility new model patents.
- The 180μm thin-slice technology has matured and has been supplying to the market. It has also developed and put thinner silicon wafers into production, effectively increasing the output rate by more than 11%.
- All the technological transformations on diamond saw slicing equipment were completed. The transformation project was the first in the industry to put centralized batch conversion machines into production in China. The performance are comparable to that of a specialized diamond saw machine. The output of wafer increased by more than 26% over the same period that reduced manufacturing costs.
- The research and development of the thin wire technology on the above transformed slicing equipment was completed. The entire production line completed the switch from 70μm electroplated diamond saw wire (金鋼綫) to 65μm electroplated diamond saw wire, and the output increased by more than 10% over the same period of last year.
- The advanced diamond saw cutting fluid recycling technology reduces the cutting fluid cost by 25%.
- The existing 1.2GW monocrystalline silicon ingot/wafer production capacity and products production capacity are among the top five in PRC. The production capacity will be expanded to 1.8GW by the end of 2nd quarter of 2018, and favourable measures will also further reduce manufacturing costs of monocrystalline silicon wafers.

# Product Procedure: 3. Solar cells

- 8 standard cell production lines, with an annual capacity of 400MW, focusing on the production of monocrystalline N-type and P-type cell.
- Able to produce large-size monocrystalline cells and anti-PID cells with high conversion rate and consistency, and also produces N-type double-sided cells with a power generation efficiency gain of 20%. It has 2 national invention patents, 23 utility new model patents, and 1 appearance patent.
- It also possess the technology of the Passivated Emitter and Rear Cell (PERC) process of P-type monocrystalline cell and the polysilicon cell black silicon process, which are currently gaining in market share. The "black silicon cell project" has been listed in the National Science and Technology Department's 863 Program.
- Cooperating with world-class perovskite research team of university to jointly develop a perovskite superimposed P-type monocrystalline new generation multi-junction solar cell, which will pave the way for the development of solar cell in the next decade, and also keep abreast of the latest development trend in the photovoltaic industry.
- Long-term cooperation with Sharp in Japan for production of cells. A pioneer in development and production of the comprehensive anti-PID technology, while mastered the stringent cell manufacturing process with control requirements and testing methods equivalent to those on Sharp’s own plants.

# Product Procedure: 4. Solar modules

- Highly automated production, with the industry's most advanced automatic splicing welding（拼接焊接), automatic junction box welding（接线盒焊接）and other supporting functions to achieve less labour, low cost, stable and reliable quality.
- The first largest OEM module manufacturer in PRC supplied to Sharp Japan for five consecutive years. Developed the anti-PID technology of module and mastered the design and production of high-end module in the Japanese market. Its OEM module accounted for more than 90% of the Sharp shipments of module in Japan.
- The unique quality control standards for Japanese production include a total of 104 inspection items from the auxiliary materials, process control requirements, and 3 to 10 times the finished module products in the environmental testing system requirements of the IEC standard.
- Master core technologies for the design and production of different modules such as lightweight components, ski components, and high-load components. Mastered the design and production technology of two-sided cell (P-PERC, N-PERT.HIT) module, and shipment for double glass components for four consecutive years.
- Developed and mastered half-slice modules, multi-gate cell modules, double-sided cell modules, high-efficiency ribbon (reflective film) modules, MBB modules, N-type double-glazed glass modules, smart photovoltaic modules, half-cell modules, and Other design techniques related to Super Top Runner Program high-end products.
- One of the first 17 module certified enterprises of Super Top Runner Program.
- Owned 17 national utility model patents.
- Existing 1.2GW module production capacity. Capacity will be expanded to 2.2GW at the end of 2nd quarter of 2018.

# Products: Module Product Certification

- TUV、VDE、UL Certification
- First batch of Photovoltaic Power Generation Top Runner Program (領跑者) certified enterprises


太阳能产品认证证书

证书编号：CQC16024140155

申请人名称及地址

锦州锦德光伏科技有限公司

辽宁省锦州市经济技术开发区赤峰路三段1-1号

制造商名称及地址

锦州锦德光伏科技有限公司

辽宁省锦州市经济技术开发区赤峰路三段1-1号

生产企业名称及地址

锦州锦德光伏科技有限公司（Y0222992）

辽宁省锦州市经济技术开发区赤峰路三段1-1号

产品名称和系列、规格、型号

地面用晶体硅光伏组件

见附件

产品标准和技术要求

IEC61730-2:2004

认证模式

产品型式试验+初次工厂检查+获证后监管

上述产品符合CQC33-471541-2009认证规则的要求，特发此证。

发证日期：2016年03月03日

证书有效期内本证书的有效性依据发证机构的定期监督获得保持

主任：

中国质量认证中心

中国·北京·南四环西路188号3区100070

http://www.cqc.com.cn


太阳能产品认证证书

附录：

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证书编号：CQC15024133622

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TUV认证


Certificate

VDE Prüf- und Zertifizierungsinstitut

ZEICHENGENEHMIGUNG
MARKS APPROVAL

VDE

VDE认证

# Major Customers

Solargiga Energy

SHARP 夏普

国家电投 SPIC

BG北控 北京控股集团有限公司 BEIJING ENTERPRISES GROUP COMPANY LIMITED

中广核 CGN

中国华电集团公司 CHINAHUADIANCORPORATION

信義玻璃 XINYI GLASS 信义玻璃控股有限公司

通威太阳能 TW SOLAR

MOTECH 茂迪新能源有限公司

SUNTECH 尚德太阳能

GINTECH 台湾昱晶能源

Aikosolar 广东爱康太阳能科技有限公司

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# Market Overview

# Market Overview

## China

- China continues leading the global solar market. China's newly installed capacity for photovoltaic power generation in 2017 was 53.06 GW (2016: 34.54 GW), a year-on-year increase of 53.6%. Among which, 33.62 GW was large-scale photovoltaic power plants, distributed photovoltaic power plants accounted for 19.44 GW, an explosive growth of 3.7 times. China's cumulative installed capacity reached 130.25 GW (2016: 77.42 GW), ahead of and exceeding the installation target of 110 GW of solar energy for the "13th Five-Year Plan for Solar Energy Development" (《太陽能發展「十三五」規劃》) by 2020.

- As the scale of the industry continues to expand, production technology has kept its pace in improvement. Production costs has continued to decline and hence the industry gross profit margin has remained stable as a result. It is expected that China market will maintain a good growth trend.

- The National Energy Bureau launched the program of application of advance technology on construction of photovoltaic power generating plants, also known as "Super Runner Program", focusing and promoting large-scale and advanced technology companies. "Super Runner Program" sees efficient product development as its main focus, the main products include the Group's N-type double-sided photovoltaic modules and other high-end products. They are expected to gain attention from the market.

## Japan

- The Japan government's zero-energy residential project "ZEH" is expected to continue to be the main catalyst for growth in the residential solar installation market. ZEH was launched in early 2016 to reduce the energy consumption of residential buildings and enhance its energy efficiency. The target is to have 50% of new residential buildings to be zero-energy housing by 2020.

- The market is expected to shift to rooftops PV systems in 2016. From the Bloomberg New Energy Finance ("BNEF") report, between 2016 and 2040, Japan will add 94GW of new solar, including 65GW of rooftop PV. The Group has focused on Japan market for more than ten years and it is expected that it will receive orders with steady growth.

# Market Overview

## USA

- According to the latest research data from GTM Research and the US Solar Energy Industry Association ("SEIA"), as of the end of 2017, the installed capacity of photovoltaic power in the United States has exceeded 2GW for eight consecutive quarters, and approximately 11.8 GW has been newly connected to the grid in the United States in 2017. According to the photovoltaic projects planned and currently under construction, more than 10GW of photovoltaic capacity will be installed each year. By 2022, it is estimated that the annual newly installed photovoltaic capacity in the United States will exceed 18GW. GTM Research and SEIA estimate that the cumulative US solar market will increase by nearly threefold over the next five years.

## Emerging markets

- The "One Belt One Road" international cooperation strategy has promoted the development of emerging markets. According to predictions by the GTM Research report, compared with only 8 gigawatt countries in 2017, there will be 13 countries reaching gigawatt status in its annual photovoltaic installed capacity in 2018, indicating that emerging market demand for photovoltaic products will lead the rise in overall global demand.

- Energy Trend reported that India has replaced Japan as the third largest market for photovoltaics in the world with the installed capacity of 9.62 GW in 2017. India has been actively developing renewable energy in recent years. The latest research report on the green energy market shows that the Indian cumulative solar power generation currently reaches 20GW, of which public utilities accounted for 18.4GW and rooftop solar accounted for 1.6GW. India has achieved its national solar power planned target of 20GW solar power generation by 2022 well ahead of schedule. Hence, the government has revised the target to 100 GW.

- The two most potential regions in Latin America, Mexico and Brazil, are expected to have double production capacity in this year. By 2020, the Latin American region will increase by 26 GW. The cumulative installations in Mexico, Brazil and Chile are expected to reach 26GW by 2021. The Middle East and Turkey will add 19GW from Algeria, Turkey, Jordan, Egypt and the U.A.E, while Thailand, The Philippines, South Korea, Taiwan and Indonesia will add 23GW in total. The Group's development of the Taiwanese and Southeast Asian markets has been effective and will result in a diversification of sales channels in the terminal markets.

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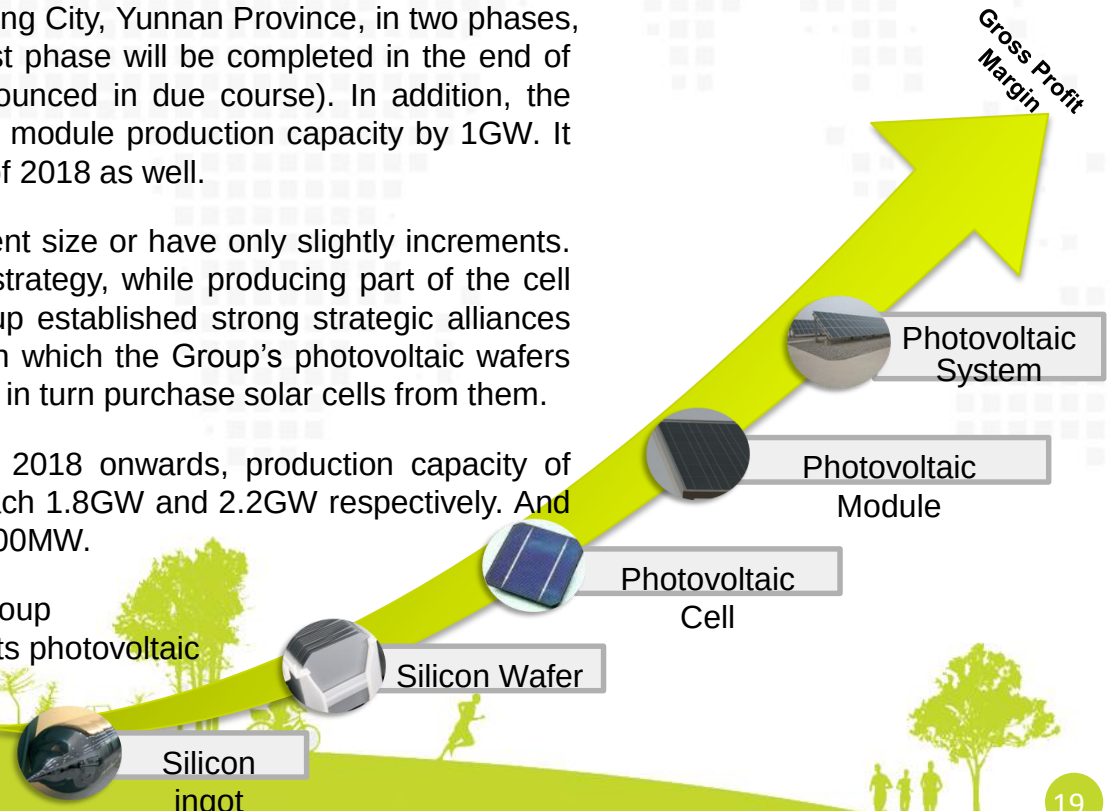
# Business Review

# Group: Operations Strategy

**1. Focus on the vertical integration of monocrystalline products, concentrate internal resources, and strengthen upstream monocrystallie silicon ingot/wafer products and downstream terminal components products sales**

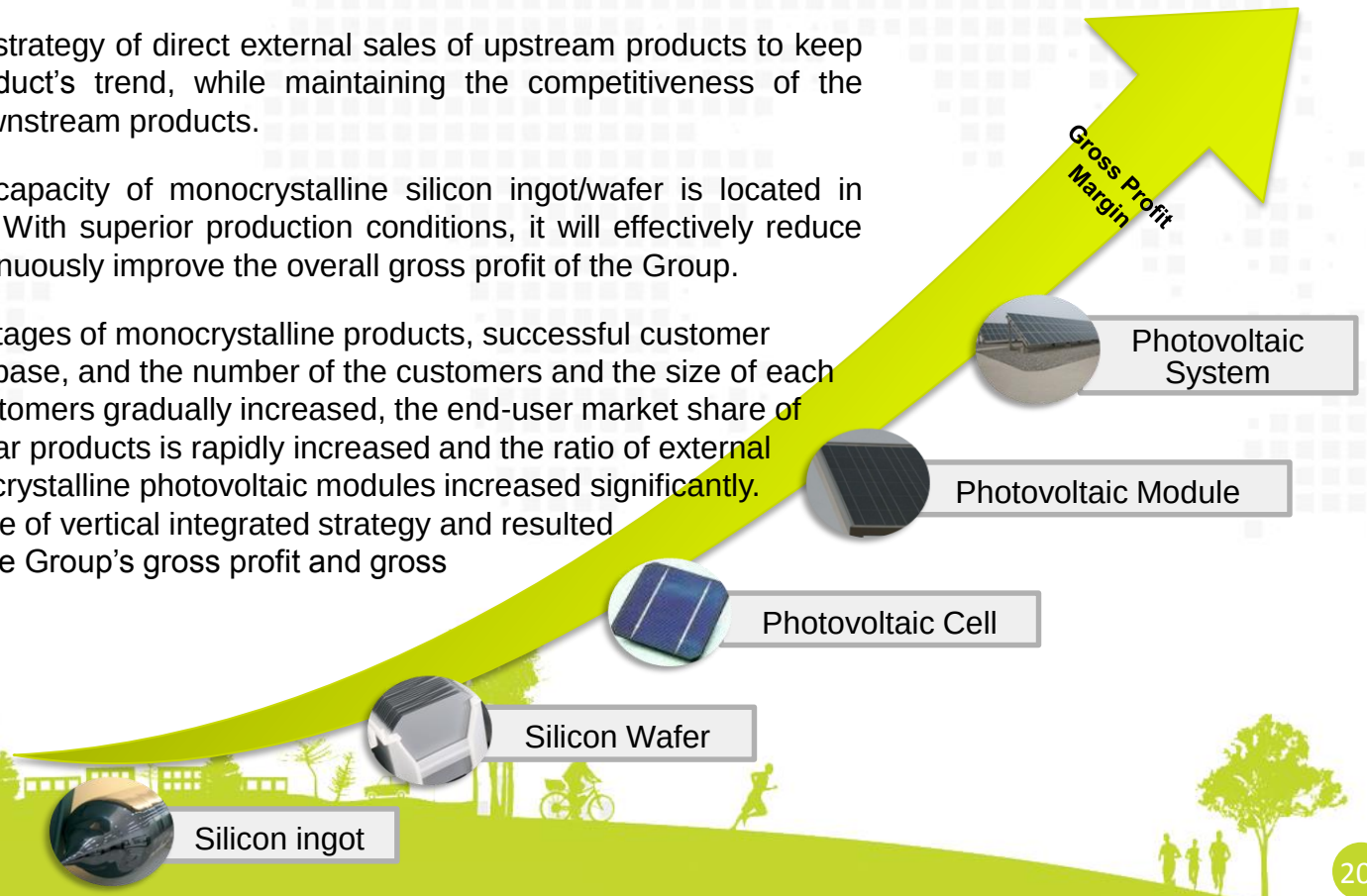
- The Group focuses on the vertical integration of photovoltaic monocrystalline products. Through satisfying external demands for its photovoltaic modules, at the same time, boosting the internal demands for its monocrystalline silicon ingots/wafers.
- The Group will invest in a project located in Qujing City, Yunnan Province, in two phases, each phase representing 600MW capacity. First phase will be completed in the end of second quarter of 2018 (Phase 2 will be announced in due course). In addition, the Group will also expand the annual photovoltaic module production capacity by 1GW. It will be completed in the end of second quarter of 2018 as well.
- For solar cell segment, it will maintain the current size or have only slightly increments. To strengthen the Group's vertical integration strategy, while producing part of the cell products internally, at the same time, the Group established strong strategic alliances with local and overseas manufacturers, through which the Group's photovoltaic wafers are sold to our strategic partners and the Group in turn purchase solar cells from them.
- After the expansion, from the second half of 2018 onwards, production capacity of monocrystalline ingot/wafer and module will reach 1.8GW and 2.2GW respectively. And production capacity of solar cell will remain at 400MW.
- Through this capacity allocation strategy, the Group will be able to satisfy the external demands for its photovoltaic modules, of which the Group has its largest manufacturing capacity, while, at the same time, boost the internal demands for its monocrystalline silicon ingots/wafers.



# Group: Operations Strategy (Continued)

## 2. Improve overall gross profit margin under vertical integration, taking upstream products into account

- The Group is a vertically integrated manufacturer of upstream and downstream monocrystalline products. It is able to effectively utilise the advantages of vertical integration to enhance the Group's gross profit margin of self-manufacturing module products, which drive to increase the profitability of the Group.
- The Group also adopts a strategy of direct external sales of upstream products to keep abreast of upstream product's trend, while maintaining the competitiveness of the Group's upstream and downstream products.
- In addition, the addition capacity of monocrystalline silicon ingot/wafer is located in Qujing, Yunnan Province. With superior production conditions, it will effectively reduce production costs and continuously improve the overall gross profit of the Group.
- In recent years, the advantages of monocrystalline products, successful customer development of customer base, and the number of the customers and the size of each purchase by individual customers gradually increased, the end-user market share of monocrystalline silicon solar products is rapidly increased and the ratio of external shipment volume of monocrystalline photovoltaic modules increased significantly. This realised the advantage of vertical integrated strategy and resulted in significant increase in the Group's gross profit and gross profit margin.

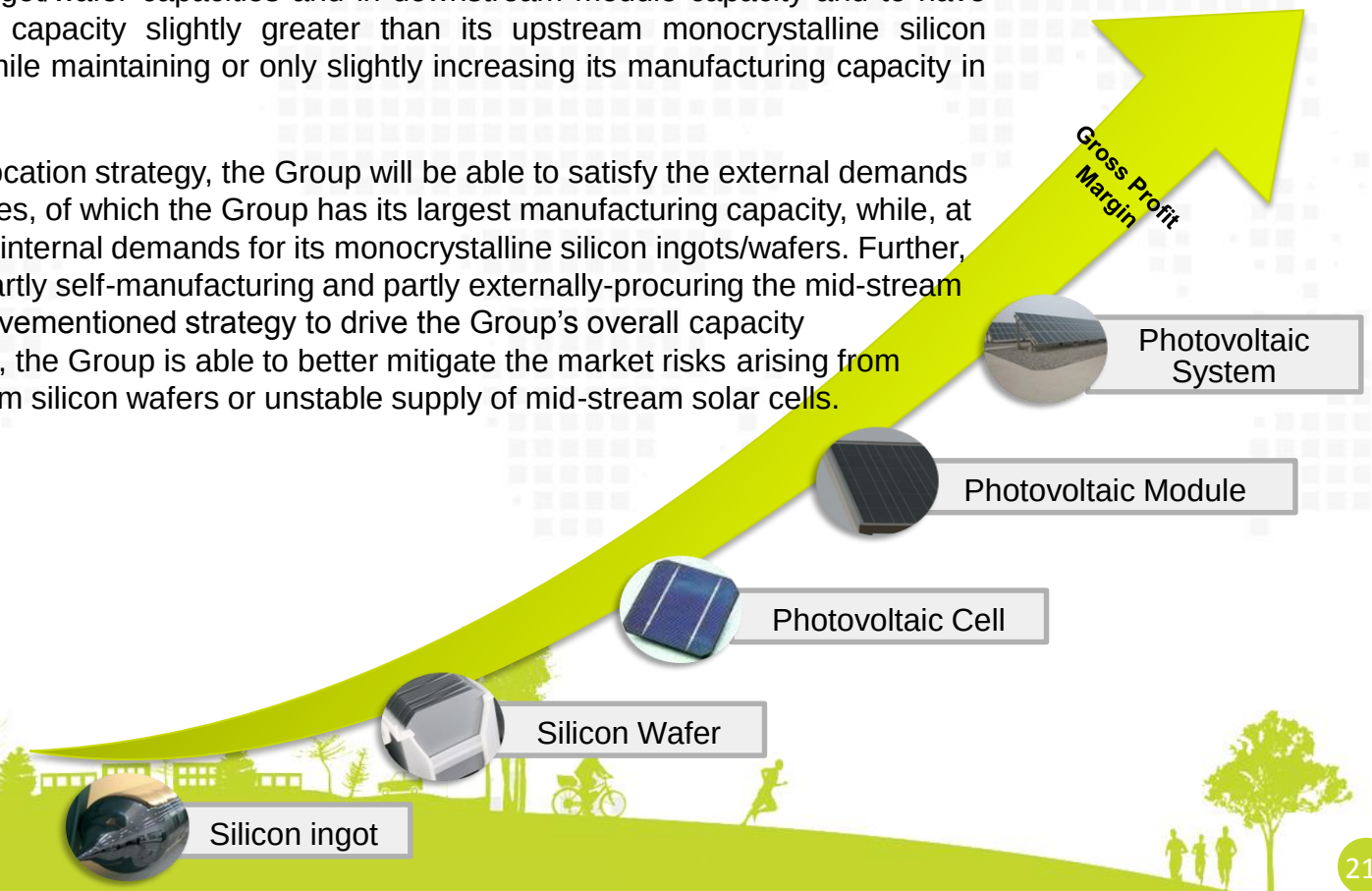


# Group: Operations Strategy (Continued)

**3. Under capacity allocation strategy, downstream production capacity is slightly larger than upstream production capacity, and through the natural integration mechanism of vertical integration, to reduce the risk of market fluctuations.**

- Regarding the capacity allocation strategy, the Group is to focus its investments in upstream monocrystalline silicon ingot/wafer capacities and in downstream module capacity and to have its downstream module capacity slightly greater than its upstream monocrystalline silicon ingot/wafer capacities, while maintaining or only slightly increasing its manufacturing capacity in solar cells.

- Through this capacity allocation strategy, the Group will be able to satisfy the external demands for its photovoltaic modules, of which the Group has its largest manufacturing capacity, while, at the same time, boost the internal demands for its monocrystalline silicon ingots/wafers. Further, through the strategy of partly self-manufacturing and partly externally-procuring the mid-stream solar cells, under the abovementioned strategy to drive the Group's overall capacity utilisation from bottom up, the Group is able to better mitigate the market risks arising from fluctuant sales of upstream silicon wafers or unstable supply of mid-stream solar cells.



# Group: Operations Strategy (Continued)

**3. Under capacity allocation strategy, downstream production capacity is slightly larger than upstream production capacity, and through the natural integration mechanism of vertical integration, to reduce the risk of market fluctuations. (continued)**

- Example of our strategy at work is the recent decline in wafer prices. By satisfying orders from downstream module customers with the Group's self-manufactured silicon wafers, we did not have to follow the market trend of slashing wafer prices. We consequently were able to effectively mitigate risks arising from market fluctuation, and protect the interests of all manufacturing segments of the Group.

- *Scenario A: Price of wafers drops*

| | | |
|---|---|---|
| *A. Price of wafers drops* | *Group's strategy :*<br>*- Wafer not sold externally, subcontract production into solar cells, and to be used for Group's modules.* | *Benefit:*<br>*- Risk of wafer price drop no longer exists in the natural defense mechanism of vertical integration. profitability can still be maintained from the sales of modules end products.* |

- *Scenario B: Price of wafers rises*

| | | |
|---|---|---|
| *B. Price of wafers rises* | *Group's strategy :*<br>*- Wafer sold externally, procure solar cells externally* | *Benefit:*<br>*- Rise in wafer prices, under vertical integration, both wafer and module sales will drive overall gross profit and maximise bottom line* |

# Business Overview: Ingot & Wafer Segment

- With the continued realisation of advantages in better improvement in conversion efficiency, more stable decay rate in its photovoltaic systems, continued reduction in unit costs, etc. of monocrystalline products, it is expected that the advantages of monocrystalline products will become more obvious in the field of photovoltaic power generation, and the market share of monocrystalline silicon products will further increase significantly.
- Through long-term strategic partnerships with well-known solar cell-focused manufacturers, the Group may enjoy priority distribution channels for the sales of its monocrystalline wafers, and ensure long-term stable utilisation of the Group' s capacity and shipment volume.
- During the year, gross profit margin and shipment volume increased significantly compared to the same period of last year, mainly due to the Group' s technological upgrading of relevant equipment has been completed and the Group recognised its economic of scale advantage. In addition, the Group' s efforts to R&D for continuously improvement of existing production processes and existing and new products also demonstrated achievment.
- The company will invest a total of 1.2GW newly added monocrystalline silicon ingots/wafers in two phases in Qujing City, Yunnan Province, the PRC. The first phase of 600MW production capacity is expected to commence mass production by the end of 2nd quarter of 2018. The second phase of 600 MW will be timely commenced.
- External sales mainly included sales to huge state-owned enterprises in China, such as State Power Investment Corporation (中國國家電力投資集團公司) ("SPIC"), TW Solar Group (通威太陽能集團), Motech Industries, Inc. (MOTECH), etc.

# Business Overview: Cell Segment

- The Group's solar cell production line is located at the production base in Jinzhou, Liaoning. The annual production capacity increased slightly from 350 MW in 2016 to 400 MW in 2017.
- Focusing on the implementation of the vertical integration strategy on monocrystalline products, most of the solar cells being main products are mainly provided to the Group' s downstream solar modules companies for supplying the best quality raw materials. In addition, a small portion is also sold to customers in China and Japan, providing customised unique specifications cells.
- Under the Group' s vertical integration strategy, solar cell is the segment with less production capacity. The Group hence formed strong long-term strategic partnerships with local and overseas well-known solar cell-focused manufacturers, which strengthens the mutual working relationship. As a result, the Group will sell its upstream wafers to the strategic partners and in turn the strategic partners will provide the Group with the solar cells needed for module manufacturing. To the solar cell-focused manufacturers, they will be able to obtain a stable supply of monocrystalline wafers and also a stable sales channel of solar cells, and achieving a win-win target.

# Business Overview: Module Segment

- During the year, external shipment of module products of the Group reached 1,252MW, compared to 769MW for 2016, representing an increase of 62%. The increase in external shipment was mainly the result of the successful development of the client base, reflected in the significant growth in both the number of customers and in the quantity of their purchases. External sales was mainly made to huge Chinese state-owned enterprises and Japanese multinational composite enterprises, such as CGN New Energy Holdings Co., Ltd. (中國廣核新能源控股有限公司) (“CGN”), China Huadian Corporation (中國華電集團公司) (“Huadian”), Beijing Enterprises Holdings Limited (北京控股集團有限公司) (“BEGCL”), SHARP Corporation and SANSHIN ELECTRONICS CO., LTD. etc..

- Currently, the strategy of the Group is to drive the demand of upstream silicon ingot and wafers from the downstream module customer needs to demonstrate the advantages of economies of scale. By the end of 2nd quarter of 2018, the production capacity expanded to 2.2 GW.

- Strengthen the development and sales of monocrystalline silicon high-efficiency module products such as N-type double-sized glass photovoltaic modules, half-cell photovoltaic modules, P-type monocrystalline solar cell Passivate Emitter and Rear Cell (PERC), smart photovoltaic modules, and Super Runner Program-related high-end products. From the market's awareness of the advantages of monocrystalline photovoltaic products, the Group's sales of monocrystalline module accounted for the total sales of module increased yearly.

# Business Overview: Addition of production capacity

## *Jinzhou Chuanghui Module Project (Addition of 1 GW)*

- The module production capacity of the project is 1GW, which is expected to commence mass production at the end of the second quarter of 2018. After the expansion, the module capacity will reach 2.2 GW.
- After expansion, the Group will be able to cope with the substantial growth of customer demand for the Group's photovoltaic modules. By driving from the demand for downstream monocrystalline photovoltaic modules, it helps to strengthen the benefits of the Group' s competitive advantage of its vertical integration.

## *Yunnan Qujing Monocrystalline Ingot/wafer Project Phase I (Addition of 600 MW in Phase I)*

- There are two phases of the Qujing project in Yunnan. The first phase will annually produce 3,000 tons of silicon ingots and 120 million pieces of wafers, each representing 60MW. It is expected to commence mass production by the end of the second quarter of 2018. The second phase of the 600 megawatts will be announced timely.
- Qujing, Yunnan has better production conditions. There is local suppliers for raw material, polysilicon, required for the project, which will significantly reduce the cost involved in raw material transportation; the local water and electricity costs at the new plant has to be lower than that at our major production base, to facilitate the lowering of manufacturing cost of ingots and wafers.

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# Financial Performance

# Officially turned around and returned to profitability

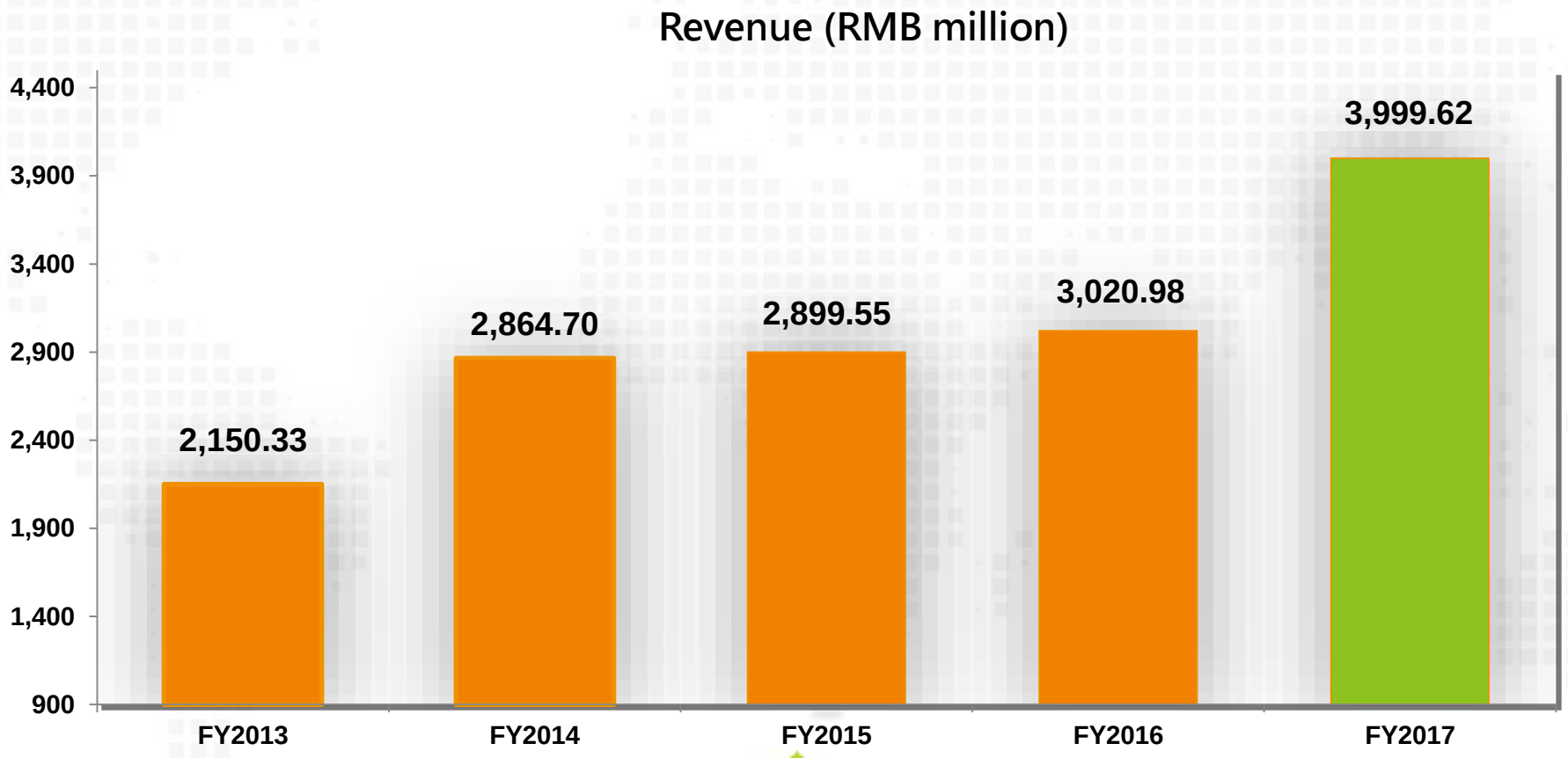
- In 2017, upgrade and transformation work on manufacturing capacities has improved efficiencies and resumed normal operations, along with successful development of the client base of downstream photovoltaic modules, and external shipment volume increased from 1,543.6MW in last year to 2,427.8MW in this year, representing an increase of 57%. The proportion of sales of the Group's monocrystalline silicon photovoltaic modules to mono-to-multi-crystalline climbed to 75%:25%. This boosts production of its upstream self-manufacturing ingots/wafers from upstream products and thus improving integrated gross profit by vertical integration.

- Long-term procurement contracts for high-priced raw materials, polysilicon have mainly been completed. By improving bargaining power, The Group recorded a gross profit margin of 16.4%, as compared to a a gross profit margin of 10.9% in last year, representing an increase of over 50%.

- Due to the aforementioned reasons, an operating profit of RMB251.595 million and net profit of RMB123.757 million were recorded for the year of 2017. The Group has officially turned around its losses, returned to profitability.

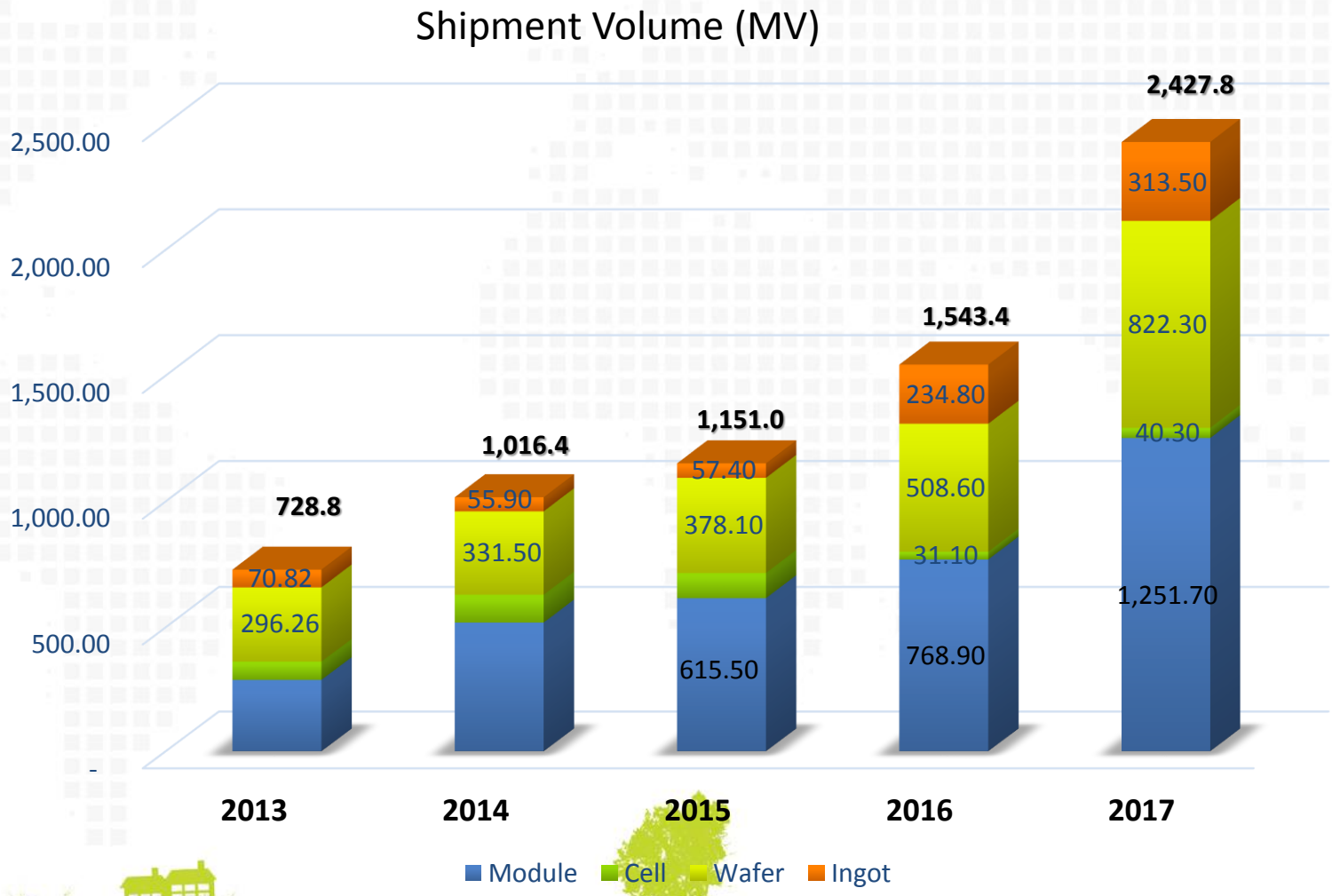
- In 2018, the Group will focus on its investments in upstream monocrystalline silicon ingot/wafer capacities and in downstream module capacity and to have its downstream module capacity slightly greater than its upstream monocrystalline silicon ingot/wafer capacities, while maintaining or only slightly increasing its manufacturing capacity in solar cells. Therefore, through this capacity allocation strategy, the Group will be able to satisfy the external demands for its photovoltaic modules, of which the Group has its largest manufacturing capacity, while, at the same time, boost the internal demands for its monocrystalline silicon ingots/wafers. Further, through the strategy of partly self-manufacturing and partly externally-procuring the mid-stream solar cells, under the abovementioned strategy to drive the Group's overall capacity utilisation from bottom up, the Group is able to better mitigate the market risks arising from fluctuant sales of upstream silicon wafers or unstable supply of mid-stream solar cells.

# Yearly Revenue
## Rapid growth in 2017



# Yearly Shipment Volume

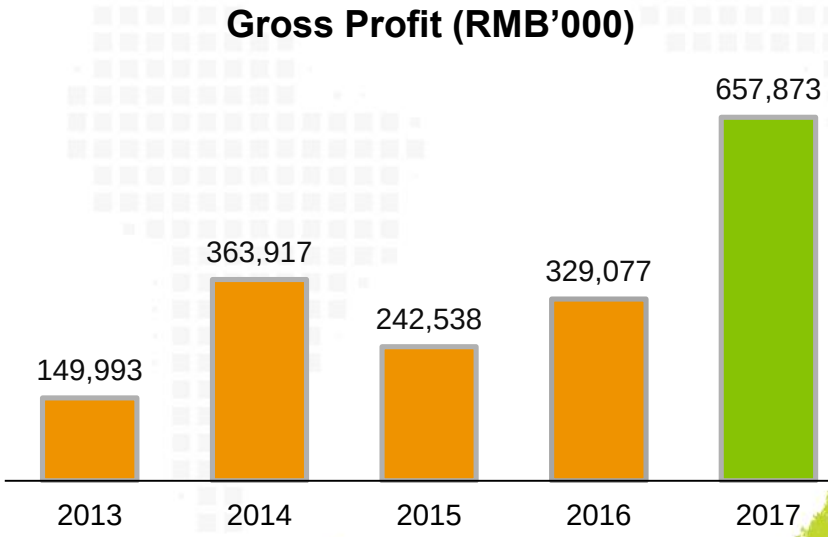
## Increase in shipment volume driven by monocrystalline silicon photovoltaic modules

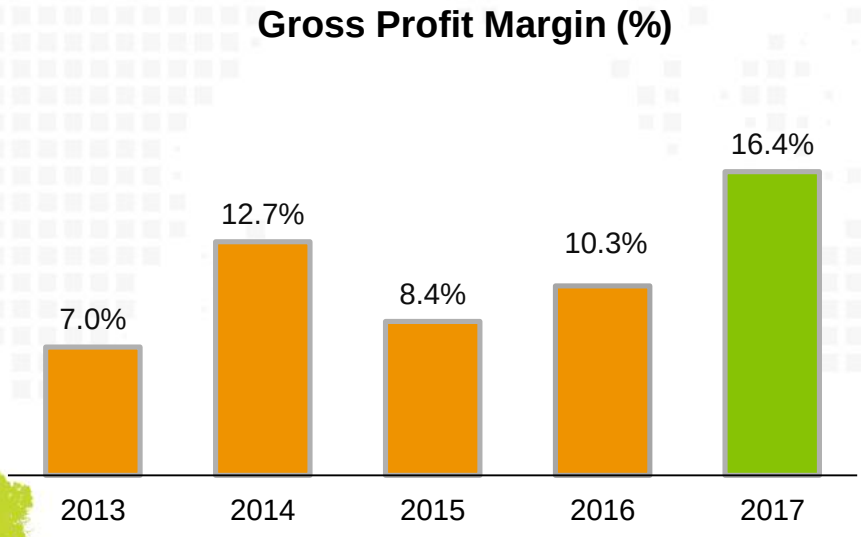


# Gross Profit and Gross Profit Margin
## Significantly growth

- The technological transformation and renovation of production equipment of the Group has completed. Production is returning to normal operations and the benefits of economies of scale is resuming. The ratio of revenue in sales of monocrystalline solar products has rapid growth. The gross profit margin has growth continuously by increasing in the shipment volume of the Group's vertical integration strategy in upper and lower stream monocrystalline silicon products.

- The Group recorded a gross profit of RMB657.873 million and a gross profit margin of 16.4% in 2017, as compared to a gross profit of RMB329.077 million and a gross profit margin of 10.9% in 2016, which improved significantly.



# Financial Results Highlight

- In 2017, upgrade and transformation work on upstream ingot and wafer manufacturing capacities has improved efficiencies and resume normal production, along with successful development of the client base of downstream photovoltaic modules, and external shipment volume increased from 1,543.6MW in last year to 2,427.8MW in this year, representing an increase of 57%.
- With long-term procurement contracts for high-priced polysilicon have mainly been completed, high utilisation of production capacity coupling with the improved bargaining power, they gross profit margin improved significantly by over 60% from 10.3% to 16.4%. The Group was able to enjoy the full benefit of economy of scale and has officially turned around its losses. Due to the aforementioned reasons, an operating profit of RMB251.595 million and net profit of RMB123.757 million were recorded for the year of 2017.

| (RMB'000) | 2017年 | 2016年 | Change |
|---|---|---|---|
| **Revenue** | **3,999,616** | 3,020,976 | 32% |
| **Gross Profit** | **657,873** | 329,077 | 100% |
| **Gross Profit Margin (%)** | **16.4%** | 10.9% | 5.5pp |
| **Profits/(loss) from Operations** | **251,595** | (74,289) | n/a |
| **Profit/(Loss) Attributable to Equity Shareholders of the Company** | **107,462** | (239,149) | n/a |
| **Basic earnings/(loss) per share (RMB cents)** | **3.35** | (7.45) | n/a |
| **EBITDA** | **433,734** | 130,914 | 231% |

# Financial Results Highlight

| (RMB'000) | As at 2017.12.31 | As at 2016.12.31 | Change |
|---|---|---|---|
| **Current Assets** | **2,821,891** | 2,284,503 | 537,388 |
| **Current Liabilities** | **3,170,491** | 2,937,233 | 233,258 |
| **Total Assets** | **4,611,210** | 4,274,548 | 336,662 |
| **Total Liabilities** | **3,575,781** | 3,395,860 | 179,921 |
| **Net Assets** | **1,035,429** | 878,688 | 156,741 |
| **Net asset per share (RMB)** | **0.30** | 0.25 | 20% |
| **Net asset per share (HKD)** | **0.37** | 0.31 | 19% |

Note: RMB 1 = HKD 1.2375

# Financial Ratios

- The Group put enormous effort toward maintaining a level of lower inventory turnover days. the Group has been focusing its efforts in raising inventory turnover and lowering the inventory turnover days in order to mitigate the risk of a sudden decline in inventory prices, help reduce committed capital and, at the same time, further strengthen the Group' s operation working capital. As a result, the Group' s inventory turnover days has been lowered.
- Increase in AR turnover days mainly due to the solar modules sales, which accounted for over 70% of the Group' s overall sales. According to the terms of the industry' s general module sales contract, the recovery of module receivable depends on the construction progress of the photovoltaic power plant. For instance, some trade receivables can only be recovered after the customer' s photovoltaic power plant is connected to the grid. In addition, 10% of the total amount of receivable are retained as a warranties. This warranty will generally be recovered in around one year. As a result, the trade receivables turnover days of module business are generally longer. From the rapid growth of the ratio of revenue in modules sales of the Group, the trade receivables turnover days of the Group increased to 96 days (2016: 63 days) in 2017.
- Compared with AP turnover days of last year, the turnover days of 2017 was kept at around the same level.

| | **2017** | 2016 | Change |
|---|---|---|---|
| **Turnover Day Analysis** | | | |
| Trade Receivables Turnover (Days) | **96** | 63 | 33 |
| Trade Payable Turnover (Days) | **96** | 102 | (6) |
| Inventory Turnover (Days) | **58** | 86 | (28) |
| **Gearing Analysis** | | | |
| | **As at 2017.12.31** | As at 2016.12.31 | Change |
| Current Ratio (Times) | **0.89** | 0.78 | 0.11 |
| Net Debt to Equity Ratio (%) | **158%** | 175% | (17pp) |

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# Future Plans and Strategies

# Action Plans

Plans

- In 2018, Group will focus on its investments in upstream monocrystalline silicon ingot/wafer capacities and in downstream module capacity and to have its downstream module capacity slightly greater than its upstream monocrystalline silicon ingot/wafer capacities, while maintaining or only slightly increasing its manufacturing capacity in solar cells. Therefore, through this capacity allocation strategy, the Group will be able to satisfy the external demands for its photovoltaic modules, of which the Group has its largest manufacturing capacity, while, at the same time, boost the internal demands for its monocrystalline silicon ingots/wafers. Further, driving the Group's overall capacity utilisation from bottom up, the Group is able to better mitigate the market risks arising from fluctuant sales of upstream silicon wafers or unstable supply of mid-stream solar cells.

- Regarding our solar cell segment with a lower internal capacity, under the vertical integration strategy of the Group, the Group has established strong strategic alliances with local and overseas manufacturers, through which the Group's photovoltaic wafers are sold to our strategic partners and the Group in turn purchase solar cells from them. According to our needs, this arrangement provides a stable sales channels for our photovoltaic wafers and a secure source for our solar cells if there is any turbulence in the market.

- By continually uplifting product quality and refining the structure of its full-industry chain businesses, the Group will, as always, provide the best product application development and one-stop services to the customers along its fully integrated photovoltaic industry chain, and aim at becoming a globally leading supplier of one-stop services in solar power generation.

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# Q & A