2022 Annual Results

March 2023

CONTENT

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About GCL Technology

Established in 2006 and listed on the Hong Kong Stock Exchange in 2007, GCL Technology (3800.HK) is one of the world's largest polysilicon producers. As a forefront of polysilicon producers, it is committed to pushing forward the PV materials technological advancement worldwide.

As the world's leading developer and manufacturer of high-efficiency solar materials, the Company is shouldering the mission of "Focusing on green development and continuously improving the living environment". Through continually creating breakthrough technologies to promote industrial advancement and leading the technological development of high-efficiency solar material, the Company has been a pioneer and gained a strong foothold in the polysilicon industry. After 10 years of relentless research and development, the Company's intellectual property registered fluidized bed reactor (FBR) technology is special for the characteristics of low production cost, high product quality, low carbon footprint as well as other advantages, which has set a record for the lowest silicon carbon footprint at home and abroad, and become an green energy advocate of facilitating the PV industry to further control and reduce carbon emission.

Our Experienced Senior Management

Mr. Zhu Gongshan
Chairman & Executive Director

Mr. Zhu Yufeng
Vice-chairman & Executive Director

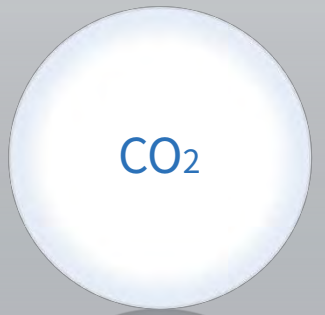
Mr. Zhu Zhanjun
Vice-chairman, Joint CEO & Executive Director

Mr. Lan Tianshi
Joint CEO & Executive Director

Mr. Yeung Man Chung, Charles
CFO, Company Secretary & Executive Director

Industry Overview

The world’s economic development has been highly dependent on oil, coal and other fossil fuels since the industrial revolution. The resources are relentlessly consumed and on the verge of scarcity. The earth’s ecosystem and living environment have been under constant pressure, which has led to a series of problems such as intensified geopolitical conflicts and frequent global extreme climate events, seriously threatening the sustainable development of human society.



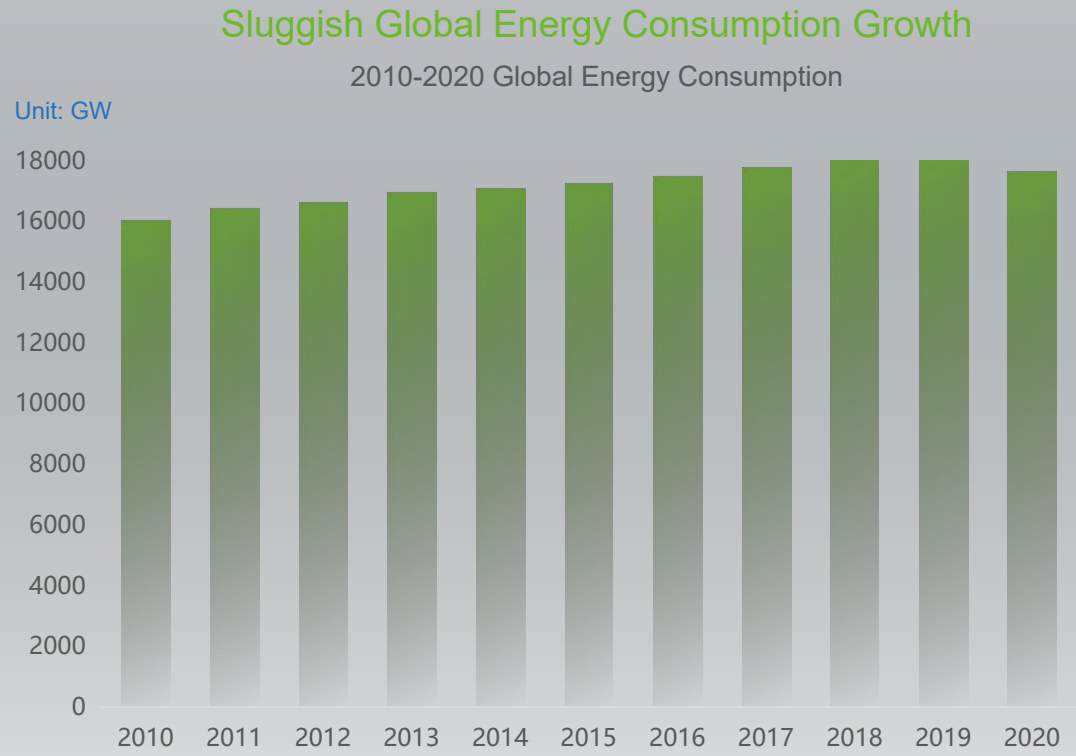
The price of PV system decreased 85% and installation capacity increased 10 times in last decade. At present, CO2 emissions of solar generation is about 33-50g/kWh, while 796.7g/kWh CO2 emissions for coal-fired power generation. Moreover, it is one tenth to one twentieth of CO2 emission for fossil fuel. IPCC claims that global solar systems would decline **about 4.25 billion tons of CO2 emissions annually**.

World's PV New Installation - Annualized new PV installation to exceed

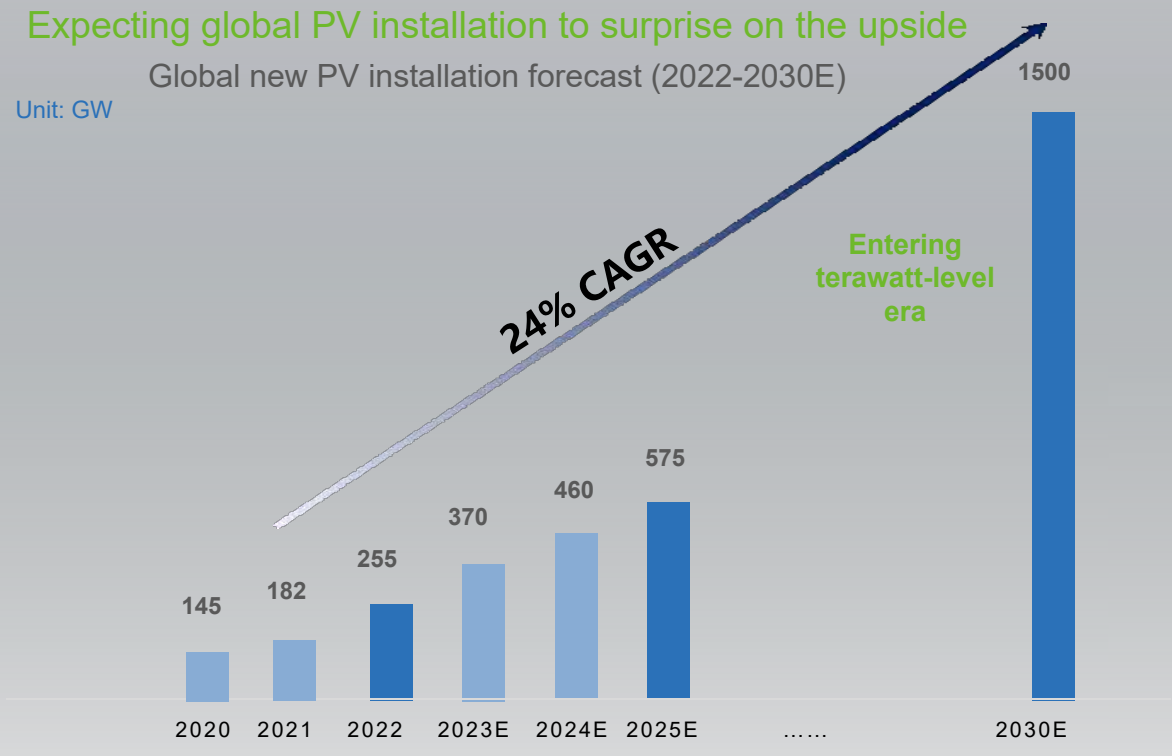
1,500GW by 2030, marking the advent of the terawatt-level era

In recent years, the non-renewable resources consumption has led to weak total energy growth, but the installed capacity of clean energy, represented by PV, continues to grow at a high speed, and becomes the dominant incremental energy supply. In 2022, the global new installed PV capacity was 255GW, up 40% YoY, and the global annual compound growth rate of PV installed capacity reached 23% in 2013-2022. Among them, China contributed 87.4GW of newly installed capacity, accounting for 39%3 of total, with a YoY increase of 59.3% and a 10-year compound growth rate of 26%. In 2023, the global newly installed photovoltaic capacity is expected to exceed 350GW, of which China is forecast to be over 120GW, an expected increase of more than 40%. Under the background of extreme climate change and the long term governments' strategic support for new energy installations, we predict that by 2030, the annual new installed photovoltaic capacity will reach 1 terawatt (i.e. 1000GW) level.

Sluggish Global Energy Consumption Growth



Expecting global PV installation to surprise on the upside



Source: GCL industry research

*Assumed that average polysilicon use in c-Si decreases from 2.7 g/W to 2.5 g/W in 2021-2030，AC:DC=1 : 1.3 → 1 : 1.2

01

Financial Data and Performance Highlight

2022 Financial Highlights

RMB (million)	2022	2021	Change (%)
Revenue	35,930.5	16,868.4	113.0%
Gross Profit Margin	48.69%	33.04%	+15.65 ppt
Profit for the Year Attributable to Owners of the Company	16,030.3	5,083.9	215.3%
Basic Earnings Per Share (RMB cent)	59.98	20.68	190.0%

*Note: The board of directors proposed to pay a final dividend of HK$0.06 per share for the year ending 31 Dec 2022 (2021: Nil), subject to shareholders' approval at the Company's forthcoming annual general meeting

2022 Segment Results

RMB (million)	Solar Material Business			Solar Generation Business		
	2021	2022	Change (%)	2021	2022	Change (%)
Segment Revenue	16,653.4	35,713.5	114.5%	214.9	217.0	0.98%
Segment Profit	5,350.1	16,535.2	209.1%	46.0	33.9	-26.3%
Gross Profit Margin	32.9%	48.7%	+15.8 ppt	43.7%	52.7%	+9.0 ppt

Solar Material Business – Key Operational Data

Business	Details		2021	2022	Change (%)
Polysilicon	Polysilicon Production (mt)	Granular Silicon	7,142	45,599	537.3%
		Rod Silicon[1]	40,468	59,124	46.1%
	Polysilicon External shipment[2] (mt)		47,804	93,900	96.4%
	Average Selling Price (RMB/kg, VAT excluded)	Granular Silicon	/	228.5	/
	Gross Profit (RMB/KG)[3]		/	183.1	/
Wafer	Wafer production (MW)[4]		38,118	46,661	22.4%
	Wafer Shipment (MW)[4]		38,049	46,312	21.7%

Note:

[1] Excluded the polysilicon production of 64,501 tons in 2022 and 56,896 tons in 2021 by associated companies;

[2] Included domestic sales;

[3] Included the profit of granular silicon by-product;

[4] Sales of wafer was 46,312 MW (included OEM wafer of 27,704 MW), total wafer production was 46,661 MW (included OEM wafer production of 27,789 MW.

2022 Financial Position

RMB (million)	As of 31 Dec 2021	As of 31 Dec 2022	Change (%)	Excluded endorsements and discounted bills as of 31 Dec 2022*
Total Assets	64,098	85,564	33.49%	69,880
Consolidated liabilities	31,796	40,009	25.83%	24,325
Liabilities due within one year with interest	5,839	9,818	68.15%	2,328
Liabilities due after one year with interest	6,676	3,852	-42.30%	3,852
Debt ratio	49.6%	46.8%	-2.8 ppt	34.8%

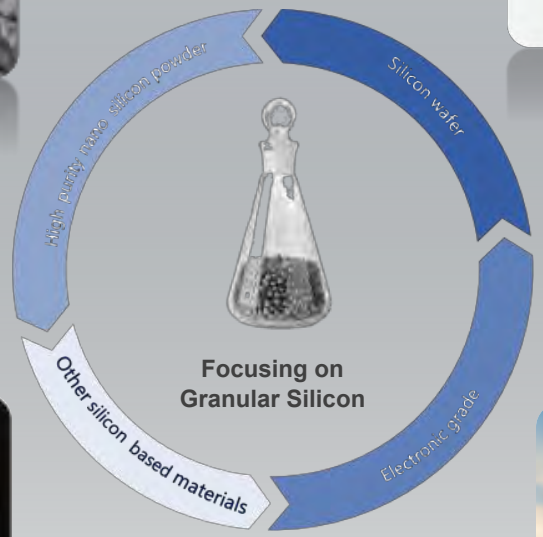
Note:
*The bills received by the Group as at 31 December 2022 were either discounted by banks or endorsed by creditors. The Group considered that the significant risks and values of such bills had been transferred and hence deducted simultaneously from the total assets and total liabilities to reflect the true state of the Group's balance sheet.

02

GCL TECH Business Strategy

Business Strategy – Driven by pioneering technology, leading the world's silicon material industry

- Strategically focus on granular silicon, while extending upstream in high-purity nano silicon powder and aspiring to become a world's leading silicon material supplier with the most advanced technology, lowest production cost, largest production capacity, lowest carbon emission and best customer experience;
- Simultaneously taping into the downstream of PV industrial chain, paving the way for the latest cutting edge Perovskite technology.



Silicon materials ecosystem

Cutting edge PV cell technology

Perovskite solar module

Technology, Digital, Green

Digital

Comprehensively promote digitalization and embrace the magnificent transformation of "Digital GCL"

- Full digital operation, establish dark factory
- Eagle-eye infrared monitoring, strict control of confidential procedures

Technology

Explore the new direction of science and technology, and empower the development of "Technology GCL" with innovation

- Invested RMB 1.686 billion in R&D in 2022, increased 61.96% YoY, accounted for 4.59% of revenue, up 0.69 ppt as of same period last year
- Filed 139 new patent applications in 2022, included 41 invention patents; Obtained 108 authorized patents, included 3 invention patents

Green

Accomplish green manufacturing and through "Green GCL" to achieve industry's green development

- Optimized power consumption of granular silicon production to 13.8 kWh/kg-Si, steam consumption to 15.3 kg/kg-Si, with per capita output of 133 tons/(person-year)
- Based on the granular silicon output of 45,599 mt in 2022, the Company saved 21 kWh of electricity for the country and reduced 118 million tons of carbon emissions for the industry

Technology GCL – Increase investment in technology research to achieve technological fission

- The main developer of polycrystalline silicon industry standards.
- On 29 December 2022, the Company's "FBR Granular Silicon Large-Scale Low-Carbon Production Technology" (硅烷流化床顆粒硅規模化低碳生產技術) was awarded the First Prize of China Non-ferrous Metals Industry Science and Technology Award (中國有色金屬工業科學技術一等獎).
- As a leading technology of cutting-edge silicon-based materials in the world, FBR-based granular silicon has been officially listed as the key task of advanced technology in the "14th Five-Year Plan for Scientific and Technological Innovation in the Energy Sector (《「十四五」能源領域科技創新規劃》)" issued by the Ministry of Science and Technology and the National Energy Administration with clear recognition and authoritative certification from the national level in the form of policy planning documents.


中国有色金属工业协会文件

中色协科字〔2022〕181号

关于颁发2022年度
中国有色金属工业科学技术奖的通知

各有关单位：

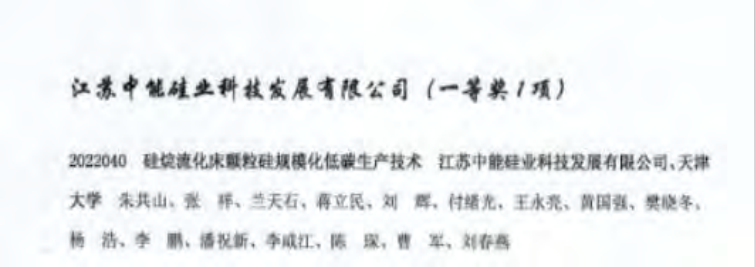
为表彰和奖励在有色金属工业科技进步工作中作出突出贡献的单位和个人，中国有色金属工业协会、中国有色金属学会根据《中国有色金属工业科学技术奖励办法》和《中国有色金属工业科学技术奖励办法实施细则》（以下简称《实施细则》）的规定，决定对204项科技成果授予2022年度中国有色金属工业科学技术奖。其中，一等奖100项、二等奖82项、三等奖22项。同时颁

—1—

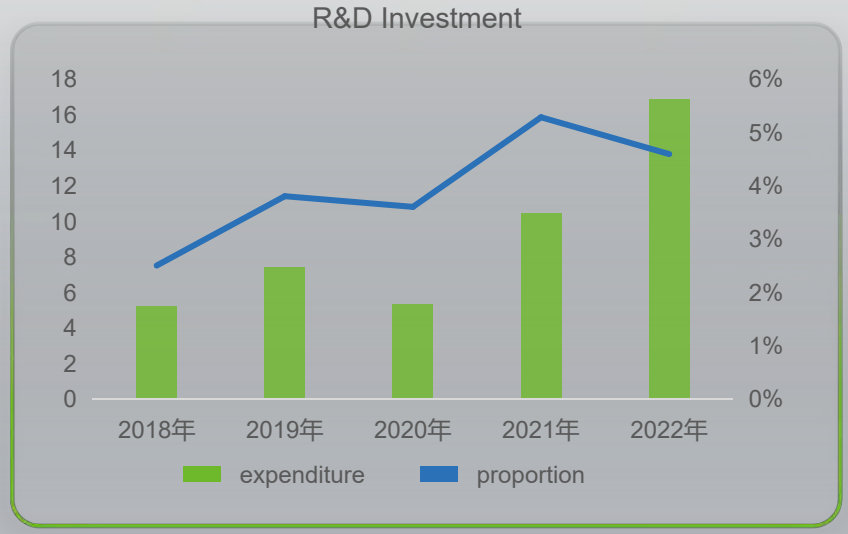
发证书。奖金由获奖单位自行解决（详见《实施细则》第三十八条、第三十九条）。

附件：2022年度中国有色金属工业科学技术奖奖励项目

2022年12月29日


江苏中能硅业科技发展有限公司（一等奖1项）

2022040 硅烷流化床颗粒硅规模化低碳生产技术 江苏中能硅业科技发展有限公司、天津大学 朱共山、张 祥、兰天石、蒋立民、刘 辉、付绪允、王永亮、黄国强、樊晓冬、杨 浩、李 鹏、潘祝新、李成江、陈 琛、曹 军、刘春燕



Program	Main Develop	Participate	2022
SEMI Standard	3	3	/
National Standard	7	15	Leading the formulation of 1 item, which has been approved and will be released soon
Industry Standard	2	4	Leading the formulation of 4 projects, which have been approved, and are expected to be completed and submitted for approval by the end of 2023
Association Standard	3	2	/
(2013-2021) Total		39	

Promote Management Revolution - Optimize Human Resource Management Efficiency

Retain Talent | **Strong Incentive** | **Improve Efficiency** | **Build Culture**

Manage Talent	• Continue to strengthen the recruitment, training, remuneration and retention of four types of core talents, namely, “multi-functional management talents, R&D talents, high-skilled workers and international talents”. Meanwhile, the Company will build an internal talent supply chain through major special projects such as “joint leader system”, “craftsmanship appraisal” and “ global management trainee introduction”, to provide internal talent for key projects and main development areas, so that talent reserves can be prepared in advance for the project implementation.
Value Distribution	• By establishing a fair and impartial assessment, constructing a short-, medium-and long-term combined mechanism and leading salary strategies to incentivize employees’ motivation and promote value creation. For core management, R&D and technical talents, the Company adopts the partnership form and long-term incentive plans such as stocks and options to promote the achievement of organizational goals and realize talent retention. During the year, the Company awarded two times a total of 290 million shares to the core and outstanding personnel for HK$0.86 per share.
Improve Efficiency	• Through building digitalized internal human resources management system, to assign human efficiency improvement goal to production units and carried out vertical benchmarking with historical data, and horizontal benchmarking with leading industry peers, so as to promote organizational efficiency through managerial improvement
Build Culture	• Through improving the working environment, implement employee care plan, optimize welfare system, and enhance employees’ work experience, to make employees feel even “happier” at work, and continue to build a compassionate GCL “family culture”

Increase benefits of human capital investment

Improve the systematic structure of human capital

Raise the efficiency of human capital

Company Milestone – Continues to achieve technological breakthroughs and push forward the industry's technological advancement

Solar Polysilicon

2007 — Listed on the Hong Kong Stock Exchange (Stock Code: 3800.HK)

2009 — Acquired 100% equity interest in Jiangsu Zhongneng Polysilicon Technology Development Co., Ltd. ("Jiangsu Zhongneng") and became China's largest and world's leading polysilicon supplier

2010 — 200K MT capacity of refrigeration and hydrogenation facility commenced commercial production

Leading the world's polysilicon production with 65K MT capacity in 2011

Successfully produced silane gas in 2012, and achieved interim results for FBR granular silicon technology. Set the stage for the thousand tons test and commercial production for granular silicon

2017 — Acquired SunEdison which facilitated the development of CCZ and FBR granular silicon technology in China

2021 — **20k MT capacity of granular silicon commenced operation, officially establishing the basis for replicable mass production**

2022 — Effective capacity of granular silicon reached 260K MT by end of year

PSCs

2013 — Committed to the development of PSCs technology

2020 — Began the construction of 100 MW PSCs module production line

2021 — Successfully produced 1m × 2m PSCs module

2022 — GCL Tech's PSCs module was applied to BIPV demonstration

Electronic grade silicon

2015 — Jiangsu Zhongneng and ICF established a joint venture, Xinhua Semi, to develop electronic grade silicon

2016 — Broke through technological blockade abroad and embarked on the construction of China's first largest 5K MT electronic grade silicon production line

2017 — Launched electronic grade silicon for integrated circuit (IC) with quality reached highest international standard

2018 — Xinhua Semi's electronic grade silicon began mass production

2021 — Xinhua Semi's market share reached 35%, became largest high-tech company in China to provide stable supply of electronic grade polysilicon for IC, and its competitive advantages enabled it to stay at the forefront

2022 — Company's zone melting products were verified and well received by the market

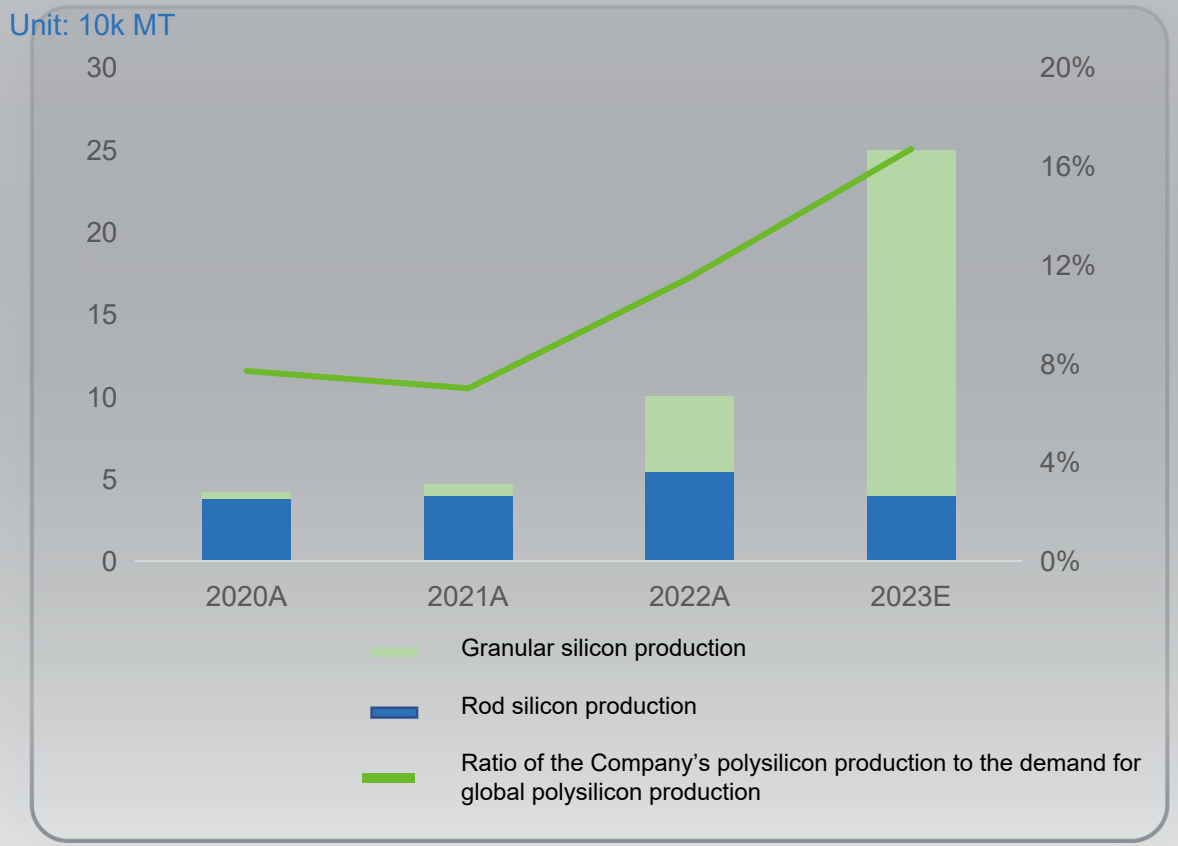
Granular Silicon Market Penetration – Market penetration persistently increases with rising long-term commitment contracts

- Increment of GCL-FBR granular silicon account for 22.7% of the annual industry's effective increased production capacity in 2021, ranking first in the industry. In the medium and long term, the company's silicon material market share will increase to more than 30% of the global demand for photovoltaic silicon materials.

- In-depth strategic cooperation with customers, high demand for long–term commitment contracts.

  Main downstream companies have signed long-term commitment contracts with GCL Tech for purchasing mainly granular silicon, which has been covered until 2026/2027.

Market share of GCL Tech's Polysilicon increasing gradually



Long-term commitment contracts announced by GCL Tech

Clients	Purchase quantity (10K MT)	Note
Zhonghuan	35	2022-2026
Longi	9.14	2021 -2023
Shangji Automation	35	Long-term cooperation (Over 5 years)
JA Solar	14.58	2021 -2026
Shuangliang Eco-Energy Systems	5.28	2022 -2026
others	66.33	2022-2027
Total*	**168.92**	

Note*: Procurement quantity of Shangji is 70% of the annual production of Baotou facility, which amounted to 350,000 tons over a period of 5 years..

03

Development Strategy and Advantage of Granular Silicon

Strategic Highlights of FBR Granular Silicon – Building an Unique

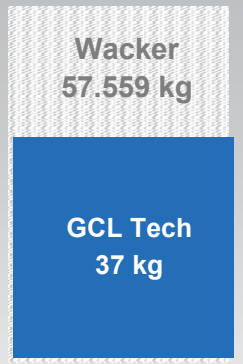
Runway through a Differentiated "Low-Carbon Value Chain"

FBR Strategy | FBR Advantages | FBR Capacity

The outstanding carbon footprint of granular silicon is expected to contribute to carbon neutrality by 2060. The production of every 10K MT of granular silicon will reduce close to 260K MT of CO2 emission as compared to rod silicon production. According to a study by the Swiss Federal Institute of Technology in Zurich, one hectare of tree crown area can consume 205 MT of CO2 per year, and therefore, the amount of CO2 emissions reduction for 1 million MT of granular silicon production is equivalent to planting an additional 146 million of trees per year to achieve CO2 consumption for reaching carbon balance. Riding on the global trends of a low-carbon economy and low-carbon barriers, the differentiation of low-carbon footprint products will enable granular silicon to outperform other products and continue to increase its market share amid the industry down cycle.

FBR Low-Carbon Value Chain

(Demonstration results of 5GW granular silicon application)	(Verify the advantages of applying granular silicon)	(Low-carbon modules open up overseas market)
Granular silicon	**Low-carbon wafer**	**Low-carbon Cells & Modules**
Cost Advantage Continuously maximizing cost advantage	**Accelerating the application of CCZ+FBR** Reflecting the perfect compatibility of CCZ technology and granular silicon	**Quantify Carbon Value** Low-carbon models to be sold at a premium
↓	↓	↓
Excellent quality Better meet the requirements of N-type materials	**Satisfying the N-type era** Increase the application The proportion of N-type materials	**Sale of low-carbon module**



Reduced by 35%

Carbon footprint certificate by International Energy Agency

Low-carbon modules made from granular silicon to reduce carbon footprint by 28%

Granular Silicon – Sensitivity analysis of non-silicon costs to electricity price

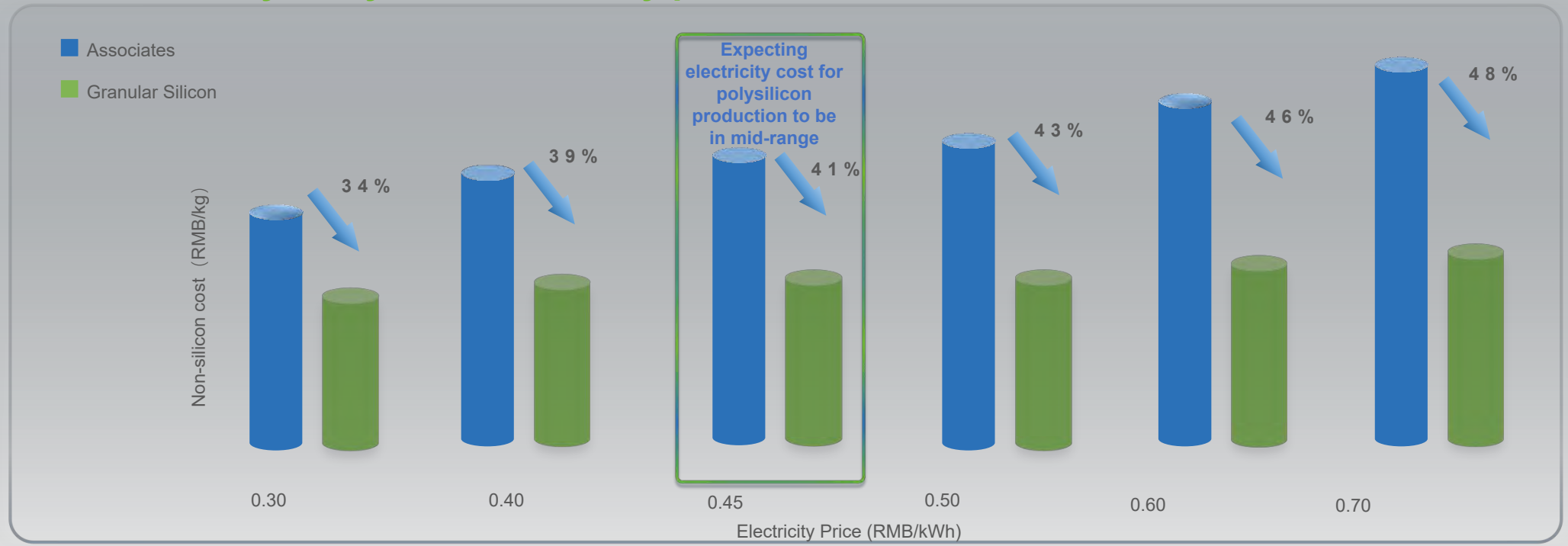
FBR Strategy | **FBR Advantage** | FBR Capacity

In February 2023, the cash cost of granular silicon products in the Company's Xuzhou facility was RMB37.29/kg, while the production cost was RMB43.73/kg, gaining its competitiveness consistently

The electricity price including VAT in Xuzhou was 0.65 RMB/kWh. Riding on its non-silicon costs advantages brought by the low electricity consumption of FBR technology, profitability will continue to shine

Granular silicon costs are less sensitive to electricity prices as compared to the industry's top rod silicon producers. With electricity prices expected to grow in the future, cost advantage will continue to increase

Sensitivity analysis of electricity price to non-silicon costs of silicon materials



Note*: Profits of by-product, silica fume were included

Granular Silicon, the new power of polysilicon – Investment and production costs of rod silicon and granular silicon

FBR Strategy | **FBR Advantage** | FBR Capacity

Simple Production Process

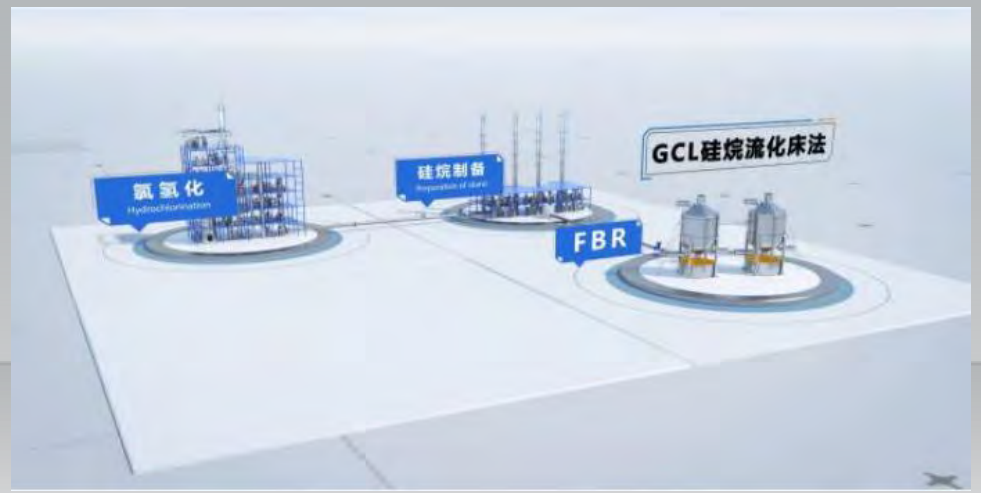
3 vs. 6

Low Core Reaction Temperature

700°C vs. 1100°C

High One-way Conversion Rate

99% vs. 12%

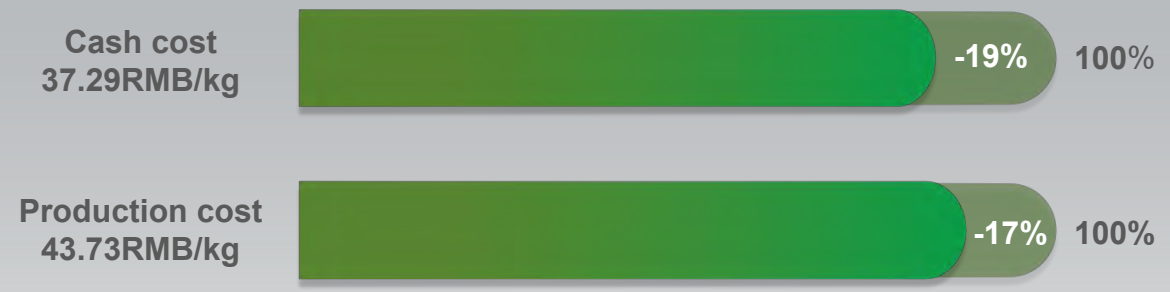


Granular Silicon, the new power of polysilicon – Development

Prospect of GCL Tech's FBR granular silicon

FBR Strategy | **FBR Advantage** | FBR Capacity

- **Green Energy**
- **Quality Control**
- **Costs Reduction**
- **Artificial Intelligence**

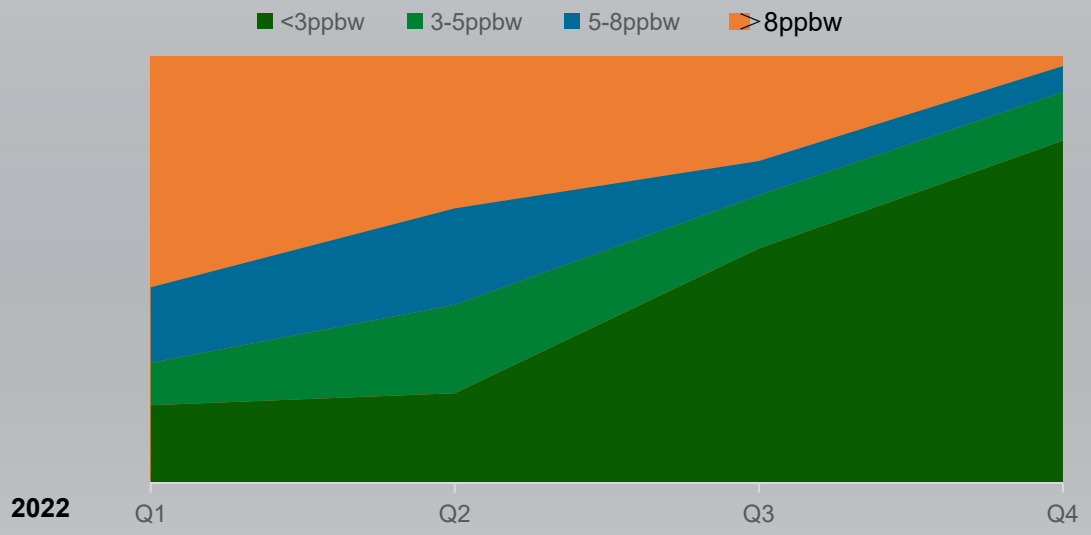


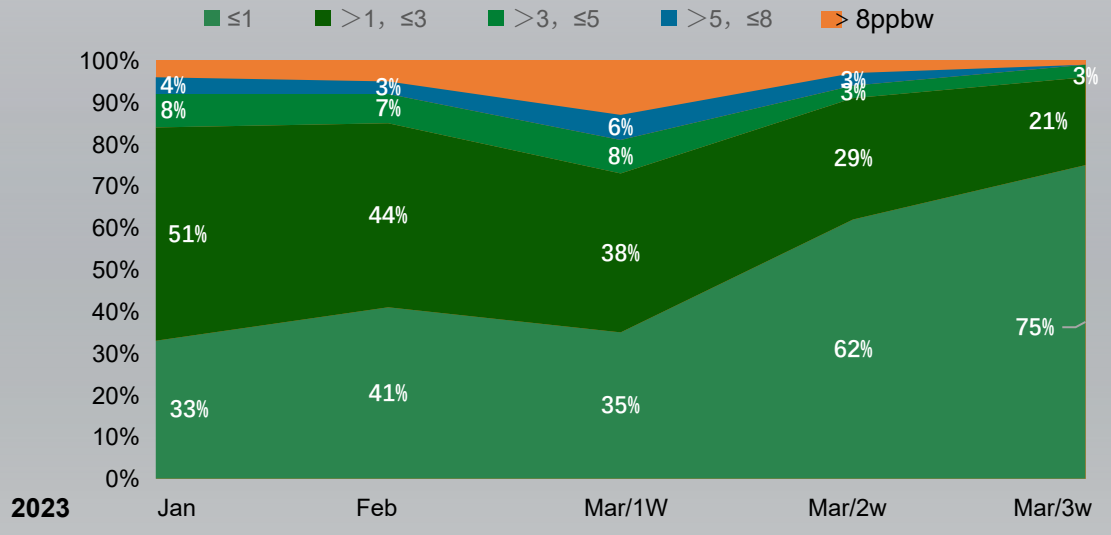
*Source: Actual production cost of granular silicon from Xuzhou facility and rod silicon joint venture company located in low electricity price area in February 2023.

Granular Silicon, the new power of polysilicon – Outstanding Quality

FBR Strategy | **FBR Advantage** | FBR Capacity

With the granular silicon effective output continuing to increase, the product quality has also improved rapidly. The proportion of granular silicon metallic impurity content < 3ppbw increased from 18.3% in the 1st quarter to 80.3% in the 4th quarter and increased to 96% recently. The proportion of metallic impurity content < 1ppbw exceeded 75%.





2022	<3ppbw	3-5ppbw	5-8ppbw	>8ppbw
Q1	18.25%	9.96%	17.69%	54.10%
Q2	21.07%	20.74%	22.60%	35.59%
Q3	55.02%	12.45%	8.04%	24.49%
Q4	80.29%	11.42%	6.07%	2.21%

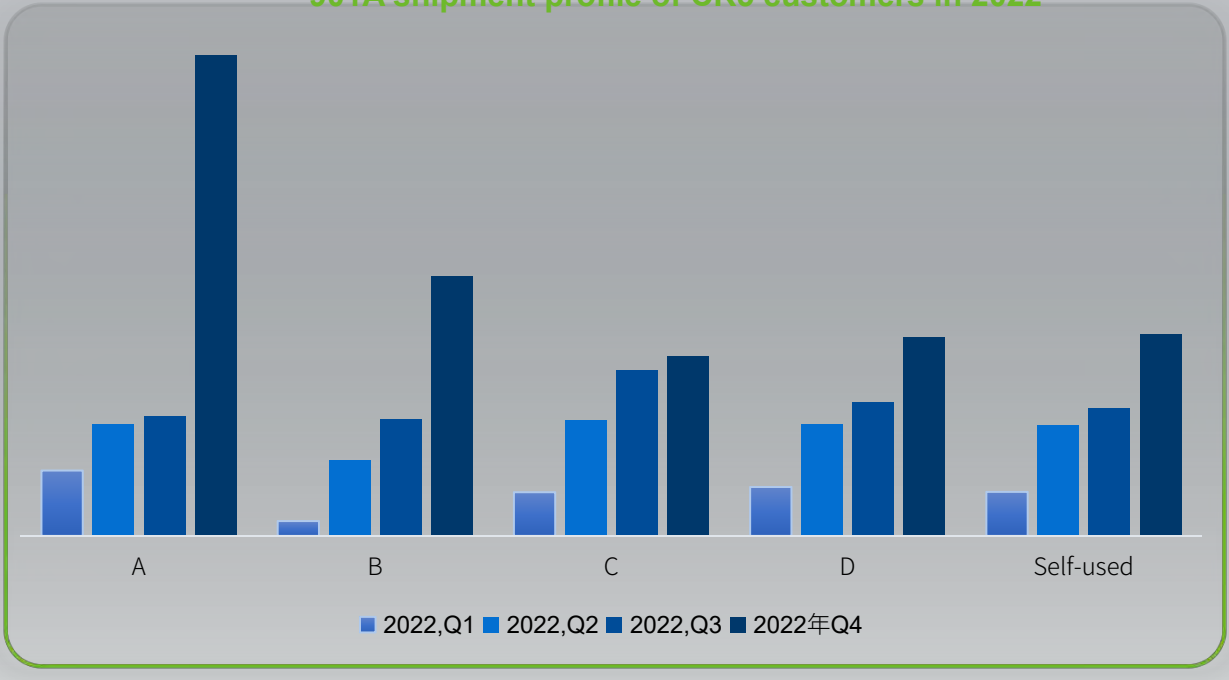
Products with metallic impurity content of less than 1ppbw produced in the week when this presentation was published increased by 13% compared to the previous week, and the ratio of other contents was also better than the optimal value in the same period.

Granular Silicon, the new power of polysilicon – Outstanding Quality

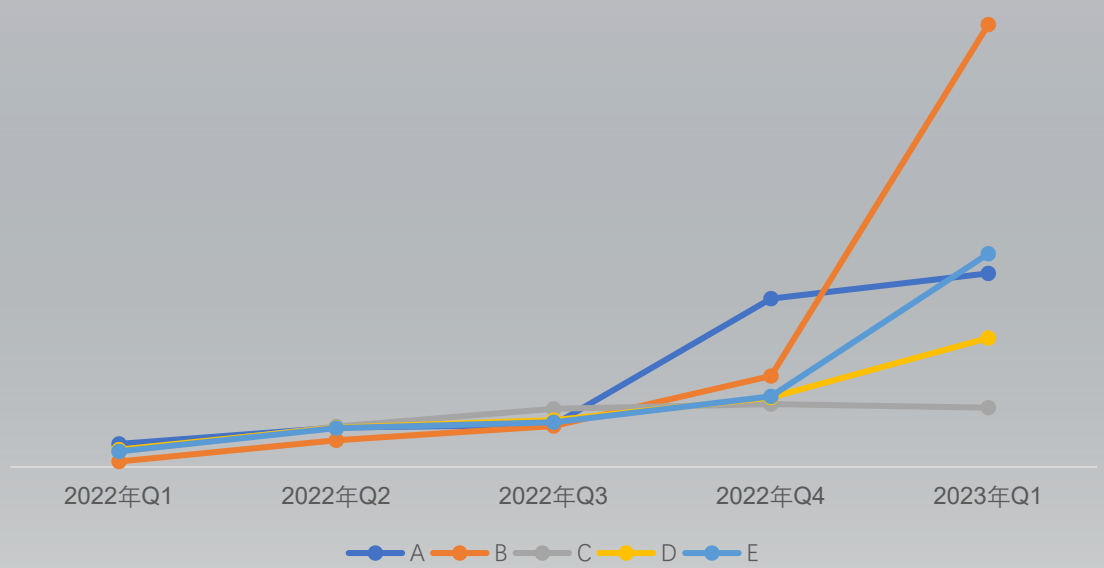
FBR Strategy | **FBR Advantage** | FBR Capacity

Growth of 901A procurement from top five customers increased significantly in 2022.

901A shipment profile of CR5 customers in 2022



Shipment growth of CR5 customers in 2022



* Shipments of the top five customers in Q2, Q3, and Q4 of 2022 were listed with the shipments in Q1 as the base period data

Granular Silicon, the new power of polysilicon – Outstanding Quality

FBR Strategy | **FBR Advantage** | FBR Capacity

Metallic Impurity Content

- Producing products that are comparable to domestic electronic grade standards
- Total metallic impurity content is basically controlled within 3ppbw

Carbon Content

- Able to stably maintain carbon conent within 0.3ppma

Fine-grained Powder Content

- Through new dust removal technology, to solve dust problems without a significant rise in cost
- Lowering fine-grained powder content from 8mg/g to 1mg/g

Hydrogen Hopping

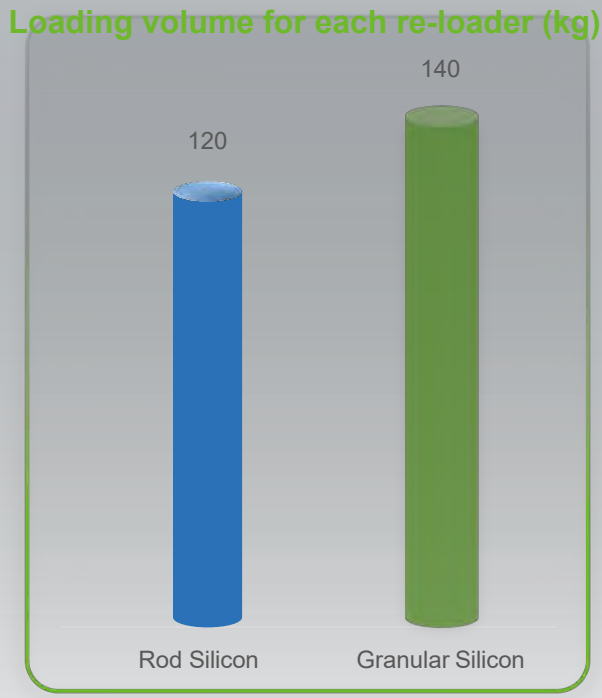
- Resolve the problem of hydrogen hopping by making technological adjustments in feeding method, controlling thermal field, controlling airflow, expanding equipments, dehydrogenation and etc.;

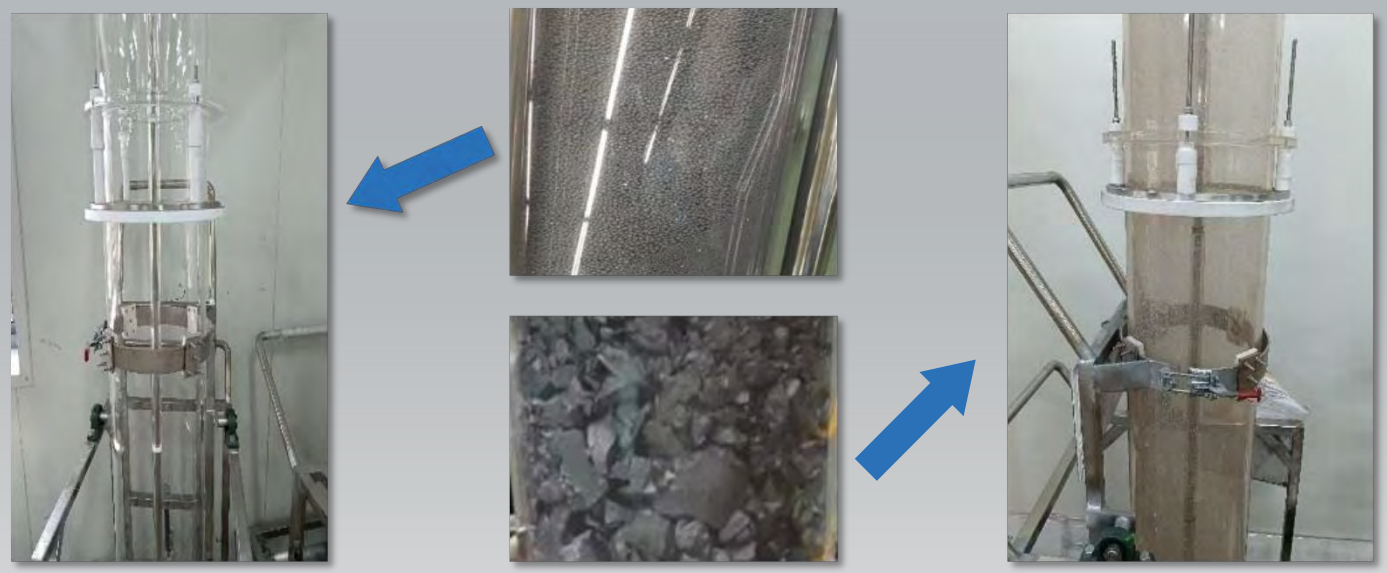
Items	N-type Material Requirements	Electronic Grade Polysilicon – Level 2	Rod Silicon - Premium Grade	Granular Silicon
Total Metal Content (ppbw)	≤2	≤5	≤15	**≤1**
Surface Metal Content (ppbw)	≤5	≤1.5	≤30	
Carbon (ppma)	≤0.3	≤0.2	≤0.4	≤0.3
Donor Impurities (ppba)	≤0.3	≤0.25	≤0.68	≤0.2
Acceptor Impurities （ppba）	≤0.1	≤0.05	≤0.26	≤0.1

Granular Silicon, the new power of polysilicon – Downstream Advantage

FBR Strategy | **FBR Advantage** | FBR Capacity

As every single loading of granular silicon is denser than rod silicon, the melting rate is faster. Therefore, it can improve the efficiency of crystal pulling when a large amount of granular silicon is being used. For example, when filling 510g of polysilicon, only 4 loadings are needed for granular silicon, compared with 5 loadings for rod silicon. Due to the difference in the appearance of the two silicon materials, the wear of the loading cylinder after long-term use (more than 500 times of feeding) is quite different.

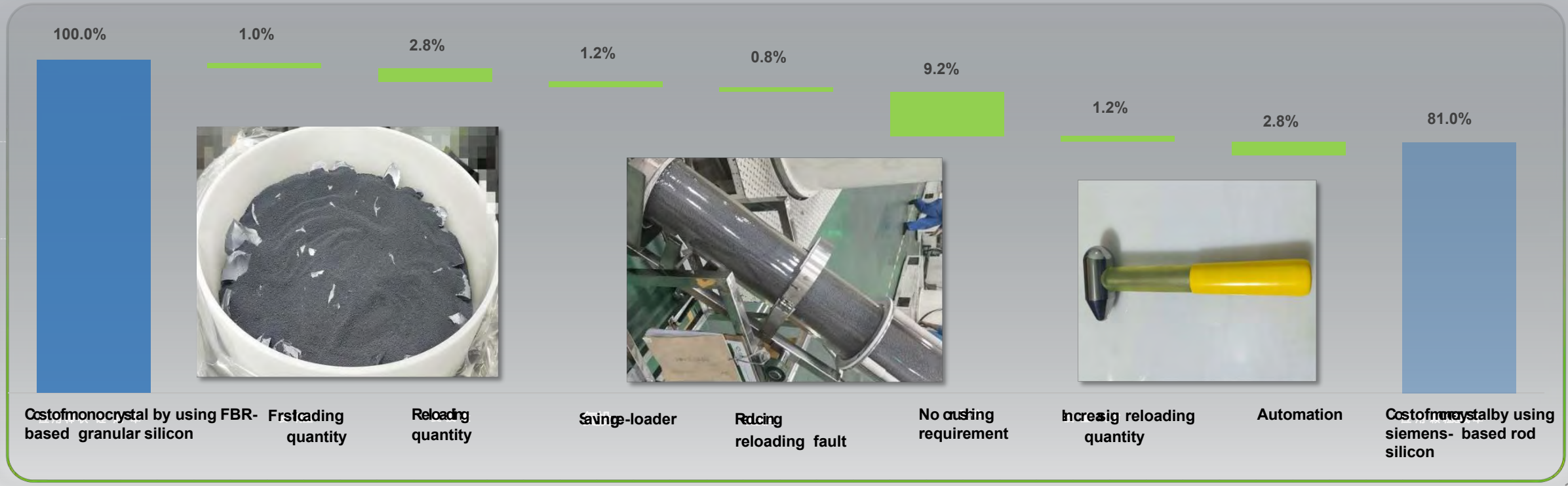




Granular Silicon, the new power of polysilicon – Downstream Advantage

FBR Strategy | **FBR Advantage** | FBR Capacity

- **Granular silicon product enables downstream customers to reduce non-silicon costs by nearly 19%:** cost-reduction factors in the application of granular silicon include: increase crucible loading, lower reloading abnormality, avoiding crushing requirement, and automatic lifting. In addition, granular silicon has no losses material;
- The application of granular silicon not only can avoid the cost of crushing, but also reduce the quality interference caused by human factors and the introduction of impurities in the external environment.



Granular Silicon, the new power of polysilicon – Downstream Advantage

FBR Strategy | **FBR Advantage** | FBR Capacity

- Granular silicon's spherical silicon material of about 2mm has good fluidity, making it perfect as a substitute for monocrystalline reinjection polysilicon material.
- As a result, granular silicon can be applied to a higher automatic transportation mode.

Transportation mode - reduce packaging and manual work & realize automatic feeding

Side feeding mode – reduce 3.5h waiting time & improve the efficiency

Take out the Silicon monocrystalline silicon and then feed in raw material on top

Side feed in raw material while taking out the monocrystalline silicon, which can effectively reduce the waiting time.

Granular Silicon, the new power of polysilicon –

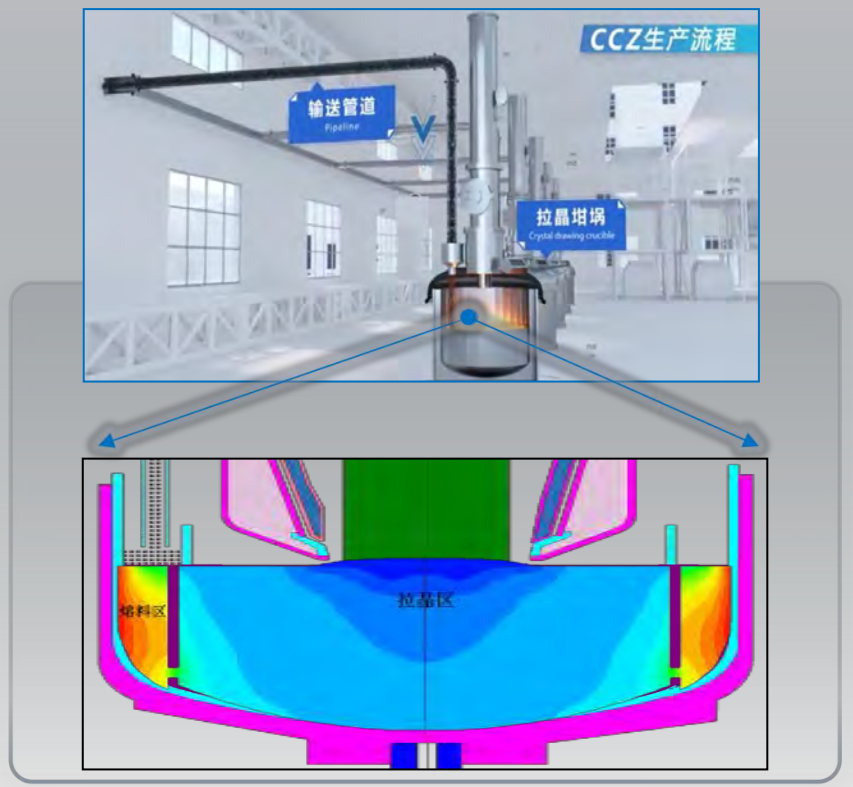
A key driving force of CCZ Technology

FBR Strategy | **FBR Advantage** | FBR Capacity

- CCZ technology, a significant breakthrough in monocrystalline silicon technology: CCZ continuous Czochralski pulling method utilizes a special Czochralski crystal growth furnace in which crystal pulling and feeding melting occur simultaneously. The crucible is a double-layer crucible, and the granular silicon is added to the outer crucible through a feeder. The quartz baffle can effectively isolate the flow disturbance caused by feeding, preventing the pulling process of the inner crucible from being affected by the feeding process.

- GCL Tech has made significant progress in CCZ project: At present, GCL Tech's pulling furnace can reach a yield of 185kg/d (kg/day), and has realized the pilot production capacity of 400MW (megawatts). With the large-scale promotion of N-type monosilicon and large-diameter monosilicon, CCZ will show more prominent technical advantages.

CCZ separates the melting material from crystal pulling, which can be adapted for feeding granular silicon continuously



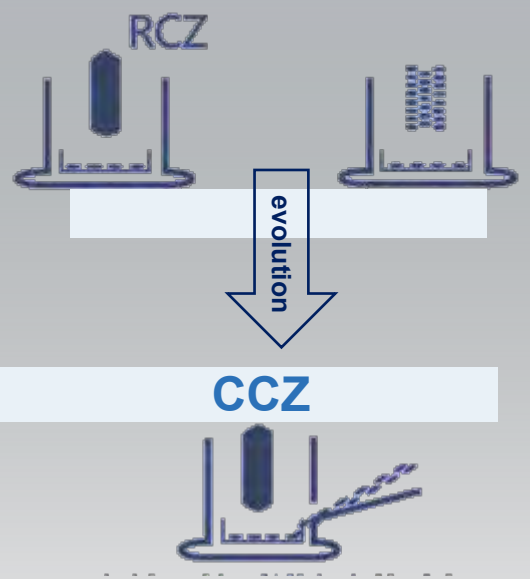
Granular Silicon, the new power of polysilicon –

Granular Silicon + CCZ is perfectly compatible with the requirements of N-type cells

FBR Strategy | **FBR Advantage** | FBR Capacity

High fluidity of granular silicon + High yield and quality of CCZ= the technology which perfectly matching for N-type cells

Automation – Reducing the manual loading processes



High yield - Saving loading and melting time of polysilicon

Capacity Improved

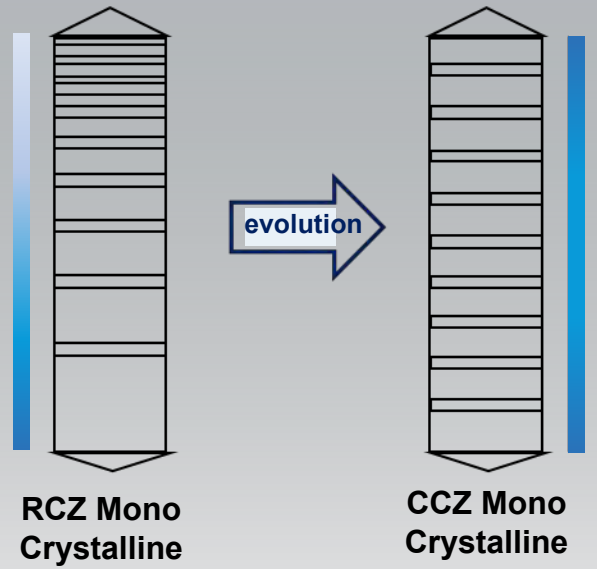
……

RCZ monosilicon crystal pulling furnace:
150-170 kg/d(now)

CCZ monosilicon crystal pulling furnace:
200-220kg/d(expect)

High quality – Meeting the requirements of N-type cells

CCZ: Uniform distribution of resistivity



Granular Silicon, the new power of polysilicon – Build a new PV industry cooperation approach to achieve win-win situation

FBR Strategy | FBR Advantage | **FBR Capacity**

The Company has adopted a unique way to focus on breaking the industry bottleneck, promoting differentiated competition with technological progress, and building an open industrial ecosystem with an open, cooperation and win-win attitude.

In 2021, granular silicon officially entered the first year of reproducible modular expansion and mass production. Facilities in Sichuan and Inner Mongolia accelerated the replication and quickly released its production capacity. Current total production capacities plus planned capacities reach 700K MT.

Following the deep cooperation of the Baotou granular silicon project with industry and capital players, the Company joined hands with its associated companies Xinhua Semiconductor, TCL Technology and Tianjin Zhonghuan Semiconductor in April 2022 to build a production base of 100,000 tons of granular silicon and 10,000 tons of semiconductor-grade polysilicon in Hohhot, to jointly explore a new cooperation mode and collaborate to build a new photovoltaic industry ecosystem.

Inner Mongolia

Baotou
- 300K MT granular silicon: First phase of 100K MT has been put into operation
- 150K MT silicon metal: Put into operation

Hohhot
- 100K MT granular silicon: Under construction

Wuhai
- 100K MT granular silicon: Planned
- 150K MT silicon metal: Planned

Jiangsu

Xuzhou
- 100K MT granular silicon: 60K MT has been put into operation, and current rod silicon capacity will be replaced by 40K MT granular silicon capacity

Sichuan

Leshan
- 100K MT granular silicon: Put into operation

Xuzhou 10K MT
Start: 2020.03
Production: 2021.02
Construction: 11 months

Xuzhou 20K MT
Start: 2021.02
Production: 2021.11
Construction: 9 months

Xuzhou 30K MT
Start: 2021.10
Production: 2022.06
Construction: 8 months

Xuzhou 40K MT
Start: 2022.06
Construction: under construction

04

Environmental, Social and Governance(ESG)

2022 ESG Development Highlights

01

Developing quantitative environmental targets

Developing quantitative environmental targets centered around four key indicators: **greenhouse gas emissions, energy consumption, water consumption, and waste generation**, and continuously monitoring progress and achievement of goals in plan implementation.

02

Identifying climate change risks

Actively **referring to the Task Force on Climate-related Financial Disclosures (TCFD) disclosure framework to address climate change,** identifying and analyzing climate risks and opportunities, forming a climate risk list, and quantifying them based on their importance, developing targeted measures to enhance our adaptability and resilience to climate change.

03

Promoting water recycling

Prioritizing substituting and recycling water resources in the photovoltaic industry, reducing freshwater consumption and promoting sustainable water use through measures such as **reclaimed water utilization, water circulation device construction, sewage, concentrated water recovery,** and optimized wastewater treatment facilities in a responsible manner.

2022 ESG Development Highlights

Setting up ESG governance structure and enhancing management system

In May 2022, **ESG Committee was officially established** to advise on ESG strategy, identify major ESG risks and opportunities, review ESG policies and guidelines, monitor the effectiveness of ESG risk management, and review ESG reports. This further **clarifies the responsibility for ESG work and accelerates the management progress of ESG work.**

Establishing risk indicator system to improve risk assessment

Used an indicator system to collaborate with departments and business units to track risk rectification, and achieved **classified, professional, and company-wide risk management** throughout the risk management process.

Enhancing ESG governance and identifying significant issues

Identified **24** significant ESG issues, including **12** highly important ones, by considering the company's development strategy, industry trends, ESG disclosure standards, stakeholder communication priorities, and business operations, and provided targeted responses in the report.

2022 ESG Development Highlights

Social

01

Prioritizing innovation and having achieved rich R&D results

Having completed over 180 technology R&D and technological transformation projects, focusing on improving product quality and reducing material/energy consumption.

Our R&D innovation capabilities have been widely recognized within and outside the industry, and we have won multiple technology awards and honorary.

02

Prioritizing employee development through comprehensive training

Empowering employee long-term development through comprehensive evaluation mechanisms and clear career paths. We conduct talent inventory work and carry out employee training programs, with 15,329 employees participating in programs such as the "Five Aviation Plans" and an average training time of 77.16 hours.

03

Taking on social responsibility actively

Actively focusing on green development and social welfare, investing in social welfare and community initiatives, with a total investment of over RMB 8.647 million by the end of 2022.

We have been recognized on the 2022 Fortune China ESG Influence List.

05

New Business Guidance

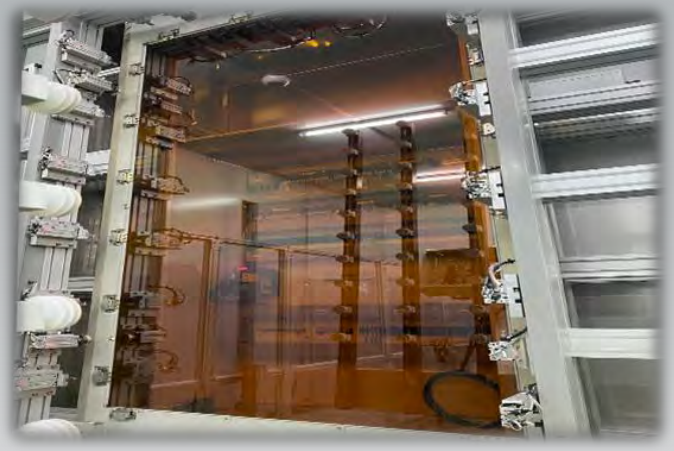
Perovskite Technology Reserve – GCL Perovskite

GCL Perovskite – A leading enterprise of large-size perovskite modules

- Established at the end of 2019, dedicated to the R&D and production of perovskite solar modules, providing 1m x 2m perovskite solar modules to the market. The company's technical team, led by Dr. Fan Bin from EPFL, has over 10 years of perovskite research experience and possesses over 100 related patents.
- Has successfully built the world‘s first 100MW trial production line. Currently, it has achieved a conversion efficiency of 16%, and it is expected to reach 18% in 2023.

GCL Perovskite Base

Large size perovskite production line



BIPV scene application

Perovskite Technology Reserve – GCL Perovskite

GCL Perovskite – Top capital helps the company's industrialization process

- GCL TECH acquired Xiamen Weihua to advance perovskite R&D in 2016. As of now, GCL TECH holds 51.89% of GCL Perovskite.
- GCL Perovskite has gained recognition from top investors; and major shareholder continues to increase investment.

Xiamen Weihua was founded in August 2010

Xiamen Weihua became the first company to build a perovskite production line in 2015

GCL acquired Xiamen Weihua and established GCL Nano in Suzhou by the end of 2016

In October 2017, GCL Nano invested 70 million to establish a 10 MW perovskite trial production line

In November 2019, became the first to obtain TÜV certification with a conversion efficiency of 15.31% and an area of 1241.16 cm^2

In mid-2021, completed the construction of a 100 MW perovskite production line and carried out trial production

Electronic-grade polysilicon business – Jiangsu Xinhua Semiconductor Material Technology Co., Ltd.

Xinhua Semiconductor – Jiangsu Zhongneng* is the largest shareholder, holding 28.05% of equity stakes

- Jiangsu Xinhua Semiconductor Material Technology Co., Ltd. was founded on December 11, 2015, which is a joint venture between Jiangsu Zhongneng and National Integrated Circuit Industry Investment Fund, mainly engaged in the research and development, production and sales of electronic-grade polysilicon for the semiconductor industry.
- Xinhua Semiconductor is the largest electronic-grade polysilicon manufacturer in China, and is also the first enterprise in China to systematically produce high-purity electronic-grade polysilicon. Xinhua Semiconductor's electronic-grade polysilicon for large-scale integrated circuits has broken the monopoly of foreign technology and market and filled the domestic gap.

Electronic-grade Polysilicon

**Jiangsu Zhongneng*
Polysilicon Technology Development Co., Ltd**

**Xinhua Electronic Grade
Polysilicon Production Plant**

Note：Jiangsu Zhongneng is a wholly owned-subsidiary of GCL Technology

Electronic-grade polysilicon business – Jiangsu Xinhua Semiconductor Material Technology Co., Ltd.

Product quality highly recognized by downstream customers, meeting the requirements of semiconductor silicon test and recognized by a number of quality system certifications

- In 2022, the National Silicon Industry Group (沪硅产业, SH 688126) announced that it has signed an electronic-grade polysilicon purchasing framework contract with Xinhua Semiconductor, which is valid for 4 years and the total amount of the contract is expected to be RMB 889 million;
- GCL Technology announced in April 2022 that Xinhua Semiconductor signed a framework agreement with TCL Zhonghuan to jointly invest a total of RMB 3 billion to establish a 10kMT electronic-grade polysilicon project in Hohhot, for which Xinhua Semiconductor is proposed to hold 60% of equity stakes

Xinhua has obtained three standard management system certification ISO9001, ISO14001, ISO45001

The IATF16949 certification

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