



GCL Technology Holdings Limited  
协鑫科技控股有限公司

(Incorporated in Cayman Islands with limited liability)  
(Stock Code: 3800)

GCL Technology Holdings Limited



2022

Environmental, Social and  
Governance Report



Environmental, Social and Governance Report in 2022



Technology

Digital

Green

Strive to become a leading silicon material supplier with the lowest carbon emissions, lowest production cost, largest production capacity and best customer experience



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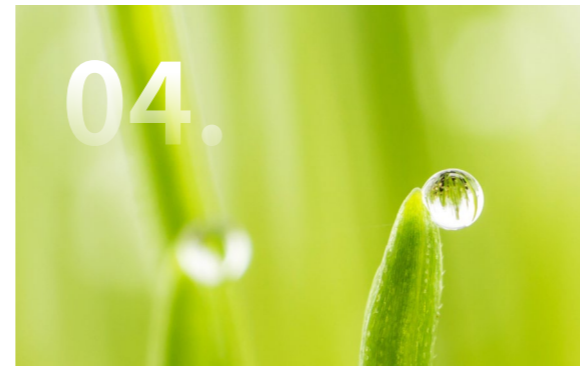
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# Chairman's Statement



*GCL Technology Holdings Limited shoulders the mission of "focusing on green development and keep on improving the environment we live in"*

GCL Technology Holdings Limited  
Chairman

**Zhu Gongshan**

In 2022, we witnessed the surging enthusiasm for decarbonization across the globe and the ongoing "dual carbon" initiative in China. Having seen multiple ups and downs over the past years we remain more clear-headed, more determined, and more appreciative of opportunities ahead. In 2022, with climate change and frequent occurrences of extreme hot weather, along with the increasing demand for electric power, major countries considered building a diversified energy supply structure as a strategic priority. With the mission of "focusing on green development and keep on improving the environment we live in", GCL Technology seizes unprecedented development opportunities. The granular silicon bases in Xuzhou, Leshan and Baotou are rapidly expanding, accelerating the replication of the production modules in Hohhot and Wuhai. In 2022, GCL Technology witnessed the effective capacity of polysilicon and silicon wafer reaching 185,000 tonnes and 55GW respectively, hitting a new record, with annual revenue of RMB35.9 billion, a year-on-year increase of 113% and a net profit of RMB16.03 billion.

GCL Technology insists on the production of green and low-carbon products to create a green ecosystem. In an effort to safeguard the environment and foster ecological progress, we have established an environmentally compliant and transparent management system. This enables us to proactively address energy conservation, massively invest in low-carbon products, and significantly reduce the carbon emissions of products during production and use. With the world's lowest carbon footprint certified by Chinese and French institutions, granular silicon helps the Company enhance its climate resilience and steer the low-carbon development of the industry. By doing so, we make our own contributions to protecting the environment we live in.

As the world's leading developer and intelligent manufacturer of high-efficiency PV materials, GCL Technology believes that technology is essential to brand value, market value and market share, as well as the representation of quality, cost, and brand. We strive to become a leading silicon material supplier with the most cutting-edge technology, lowest production cost, largest production capacity, lowest carbon emissions, and best customer experience. In terms of product, we focus on FBR-based granular silicon featuring

low cost, high quality and low carbon footprint. We also expand technology investment to improve product quality and intelligent production. As the capacity of granular silicon is gradually released, we will empower the photovoltaic (PV) industry in effectively controlling carbon emissions and reducing the global cost of energy transition.

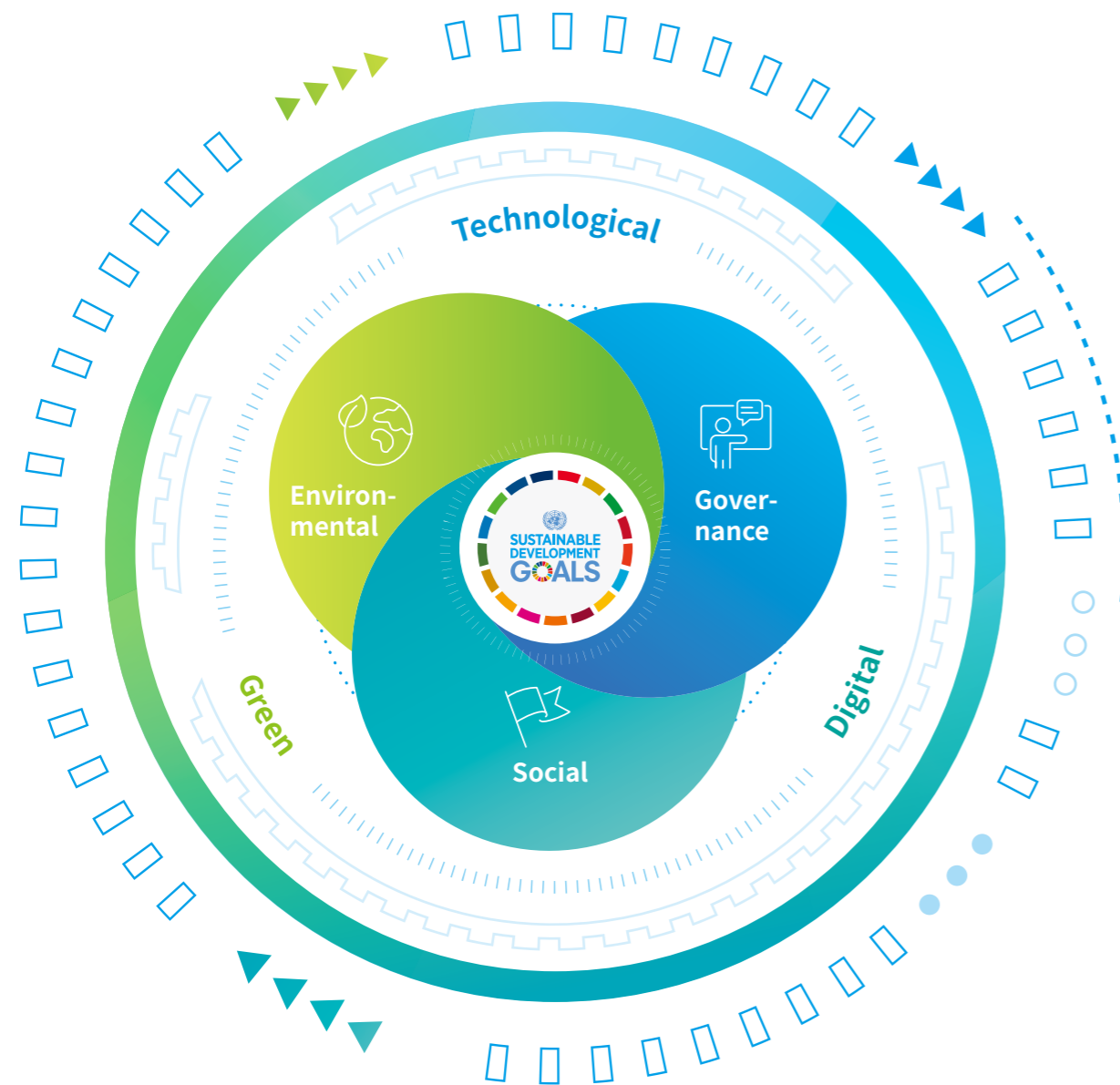
GCL Technology attaches great importance to talent cultivation and development. We focus on retaining high-quality talents and nurturing a competitive talent pipeline. We also make unremitting efforts to protect our employees' basic rights and interests, support them in seeking self-improvement, and safeguard their health and safety. By offering heartfelt care and benefits, we further enhance employees' happiness and sense of belonging. GCL Technology is also dedicated to bringing value and positive impact to society as a responsible corporate citizen. In terms of social contribution, we continue to invest in public welfare and encourage our employees to volunteer for rural revitalization, disaster relief, educational support, ecological conservation, and community building.

Our compliance operation is high on the agenda of GCL Technology's sustainability strategy. We have established the Environmental, Social and Governance Committee (ESG Committee) which is responsible for integrating ESG management issues into the decision-making and execution process. Through ongoing improvements on the risk management mechanism, we manage to nip every risk in the bud. We have adhered to the highest standards of business ethics, which is deeply reflected in our corporate culture and the daily work of every employee.

In the future, GCL Technology will aim to enhance the vibrancy of our products by implementing reforms and innovations and promoting industrial upgrades through digital production. Following the technological advancements, industrial upgrades, and market transformations, we will remain committed to clean and low-carbon operations and take a more assertive stance towards embracing the energy revolution and zero-carbon future. Our ultimate goal is to achieve the vision of "bringing green energy into life".

# Sustainable Development Targets and Achievements

To better realize our blueprint for sustainable development and address sustainable development challenges on all fronts, we have identified 13 Sustainable Development Goals (SDGs) that are closely related to the Group. We are committed to integrating sustainable development concepts into our daily operations, and have actively taken targeted actions to promote economic growth, social inclusion and environmental protection. In doing so, we have contributed to building an inclusive, sustainable and resilient future for mankind and earth.



## Key Milestones of Sustainable Development



## Honors and Awards

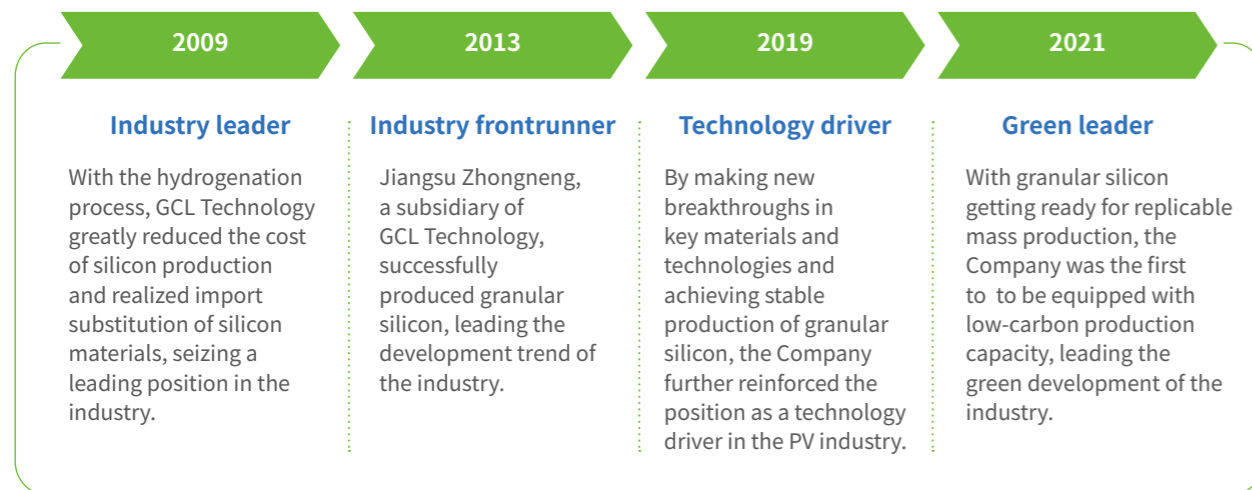
GCL Technology has won high recognition and was selected by numerous high-profile organizations such as the Forbes' Global Top 2000 Listed Companies and the Fortune China Top 500 List. In 2022, GCL Technology was selected as a constituent stock of the MSCI China Index, a constituent stock of the Hang Seng Composite Index and the China Leaders 100 Index, as well as a constituent stock of the Hang Seng Climate Change 1.5°C Target Index.



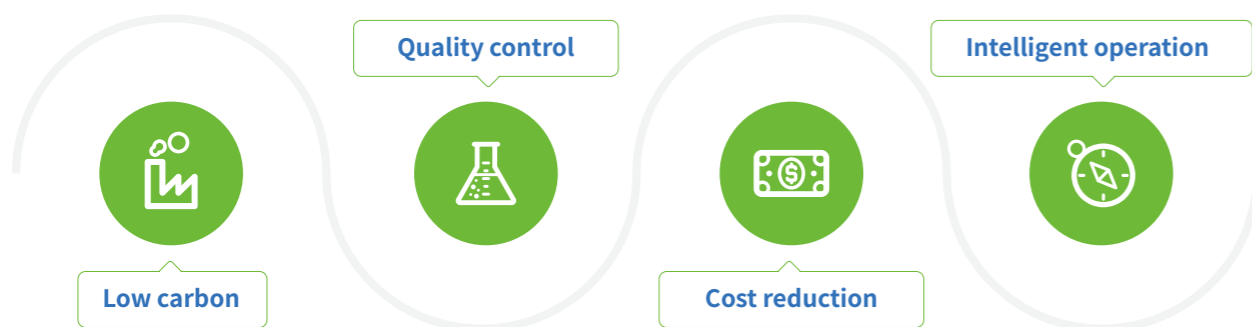
<sup>1</sup> The unit of greenhouse gas emissions intensity is tCO<sub>2</sub>e / total revenue (RMB million), the unit of comprehensive energy consumption intensity is MWh / total revenue (RMB million), and the unit of total water consumption intensity is ten thousand tonnes / total revenue (RMB million).

# Empowering Global Low-Carbon Energy Reform

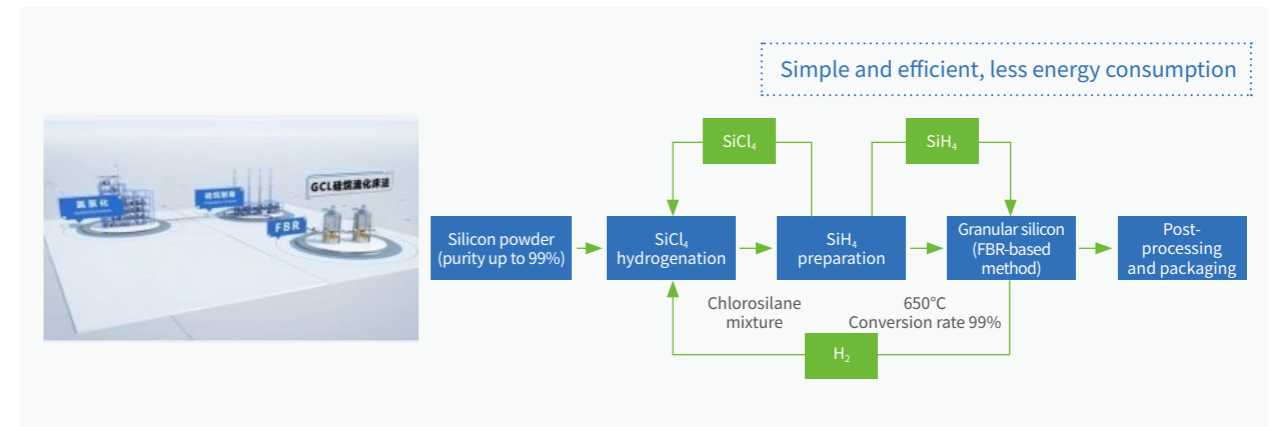
As the world's leading developer and intelligent manufacturer of high-efficiency PV materials, GCL Technology has remained true to our original aspiration of "focusing on green development, keeping improving the environment we live in" since the inception. This has motivated us to master and lead the development of high-efficiency photovoltaic materials and technologies.



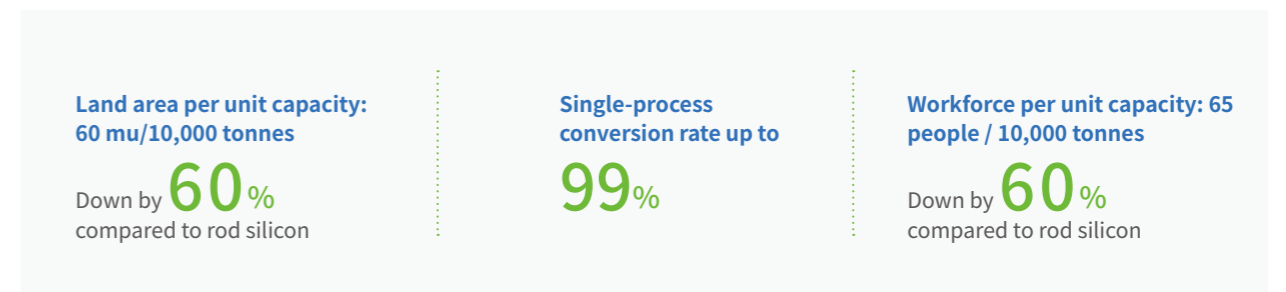
Leading the sustainable development with innovative technology, GCL Technology is well-positioned to advance the sound development of the PV industry. In an attempt to further advance green production, reduce production cost and improve production efficiency, a new-generation flagship product, granular silicon, was launched by GCL Technology. Granular silicon has given full play to its remarkable advantages, such as better filling, simpler production process, lower production cost and higher value of carbon reduction, during its application by downstream customers.



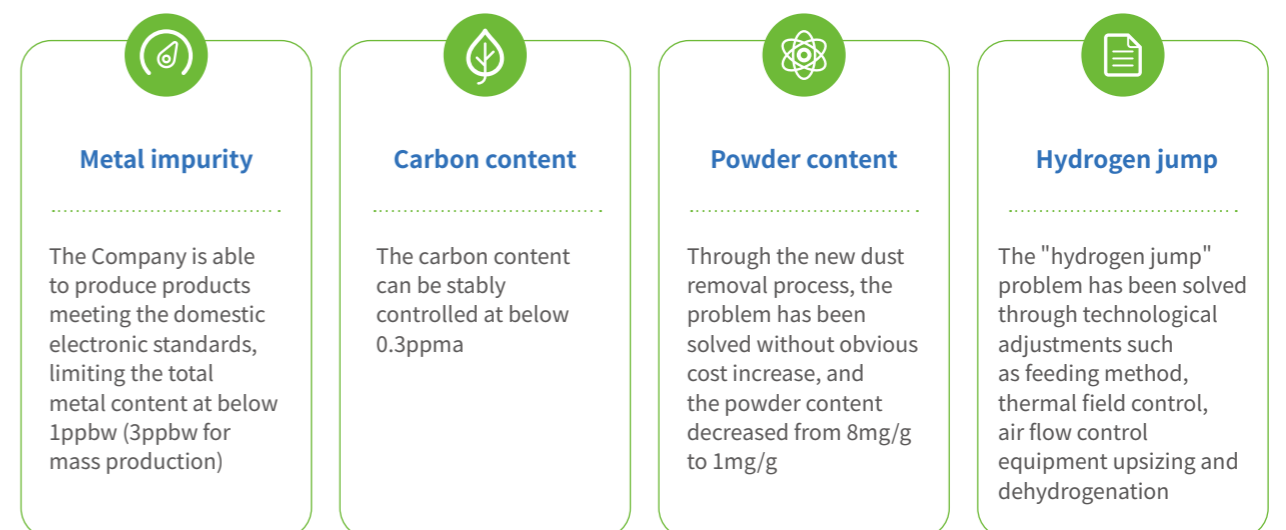
Compared to the improved Siemens method that features complicated process and high energy consumption, the FBR-based method of granular silicon boasts simple and efficient "three-step" principles and processes, thus effectively reducing the energy consumed during the production. In addition to addressing the "pain point" of energy consumption and the bottleneck of production efficiency, we will lead the industry into the next stage of fast development with our low-carbon characteristics.



FBR-based Granular Silicon Production Process



During the production process of granular silicon, GCL Technology emphasizes both output and quality. While expanding the production capacity of granular silicon, we focus on customer needs, optimize the product parameters, and improve the quality of granular silicon products.



Granular silicon can help to control carbon emissions at a low level during the whole life cycle of PV products. In 2021, GCL Technology obtained the GCL Granular Silicon Product Carbon Footprint Certificate issued by the French Environment and Energy Management Agency (ADEME). It breaks the world's previous lowest record held by Wacker (57.559 kilograms of CO<sub>2</sub>) with the carbon footprint value for every kilogram of granular silicon produced standing at 37 kilograms of CO<sub>2</sub> equivalent.

**Power consumption per unit product: 13.8 KWH/kg**

Down by **80%** compared to rod silicon

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**Energy consumption and carbon emissions during production reduced by about**

**~ 80%**

In 2022, the polysilicon<sup>2</sup> produced by GCL Technology for the construction and operation of PV power stations was expected to achieve an annual carbon emissions reduction of 79.29 million tonnes per year. If calculated according to the 25-year life cycle of solar module, the cumulative carbon emissions reduction will reach 2 billion tonnes.

**Compared to rod silicon, 1GW of granular silicon module can reduce carbon emissions by**

**126,000 tonnes**

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**In 2022, the polysilicon produced for the construction and operation of PV power stations was expected to achieve an annual carbon emissions reduction of**

**79.29 million tonnes per year**

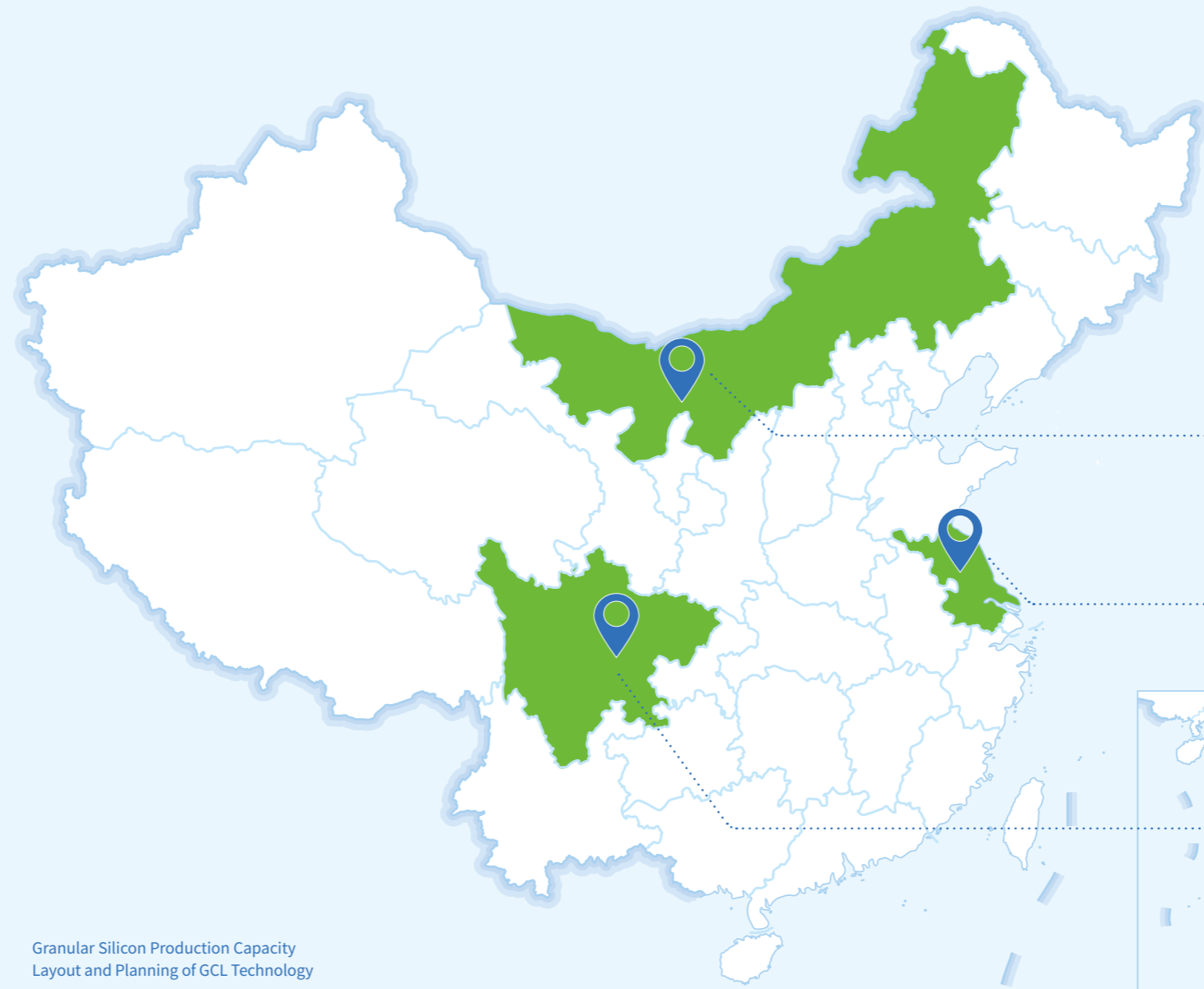
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**If calculated according to the 25-year life cycle of solar module, the cumulative carbon emissions reduction will reach**

**2 billion tonnes**

Based on the remarkable low-carbon characteristics of granular silicon, large-size PERC modules have been certified by the French institute, with an average carbon footprint of 400 to 450 kg CO<sub>2</sub>/ kW. Compared to the same type of modules without using granular silicon, the average carbon emissions are reduced by 28%, highlighting the low-carbon characteristics.

<sup>2</sup>The output includes the production by associated companies.



**Carbon footprint of module decreased by**

**28%**

At present, our granular silicon business has entered the stage of replicable modular expansion. We are accelerating the replication of the mass production lines in Sichuan and Inner Mongolia to rapidly release production capacity. Presently, the production capacity under operation and under planning reaches a total of 700,000 tonnes. With the continuous expansion of production scale, the market share of the Company will steadily increase.

**Inner Mongolia**

**Baotou**  
The capacity of 300,000 tonnes/year of granular silicon: 100,000 tonnes/year was put into production in Phase I  
The capacity of 150,000 tonnes/year of industrial silicon: All capacity was put into production

**Hohhot**  
The capacity of 100,000 tonnes/year of granular silicon: Under construction

**Wuhai**  
The capacity of 100,000 tonnes/year of granular silicon: Planned  
The capacity of 150,000 tonnes/year of industrial silicon: Planned

**Jiangsu Province**

**Xuzhou**  
The capacity of 100,000 tonnes/year of granular silicon: 60,000 tonnes/year was put into production, and the existing production capacity of rod silicon will be converted to 40,000 tonnes/year of granular silicon

**Sichuan Province**

**Leshan**  
The capacity of 100,000 tonnes/year of granular silicon: already put into production

In the future, GCL Technology will, as always, uphold the concept of green manufacturing. We will continue to promote the construction of 10,000-tonnel production bases of FBR-based granular silicon and expand the market share of granular silicon. Our goal is to lead the industry development with premium products, and facilitate the global low-carbon transformation through scientific and technological innovation.

# 01 Responsible Corporate and Compliance Operations

With a diligent and down-to-earth mentality, we strive for excellence in operations.

Our unremitting efforts to constantly optimize corporate governance, uphold honest operations and pursue high-quality development hold the key to the steady progress of GCL Technology. Facing various challenges both inside and outside of the Company, we have strictly abided by the rules of the capital market, continuously improved our compliance systems and followed the pathway for sustainable development over our 20 years of existence, achieving the vision of "becoming a respected global new energy and clean energy enterprise".





# Corporate Governance

GCL Technology believes that sound governance mechanisms are cornerstones of stable corporate development and sound governance practices can clarify the division of rights and responsibilities, thus protecting the rights and interest of shareholders and enhancing corporate value. We strictly comply with the *Company Law of the People's Republic of*

*China, the Enterprise Income Tax Law of the People's Republic of China*, and other laws and regulations, as well as regulatory standards. We strive to improve governance structure and management systems, enhance corporate governance and governance transparency, and integrate ESG management into corporate development strategies and practices.

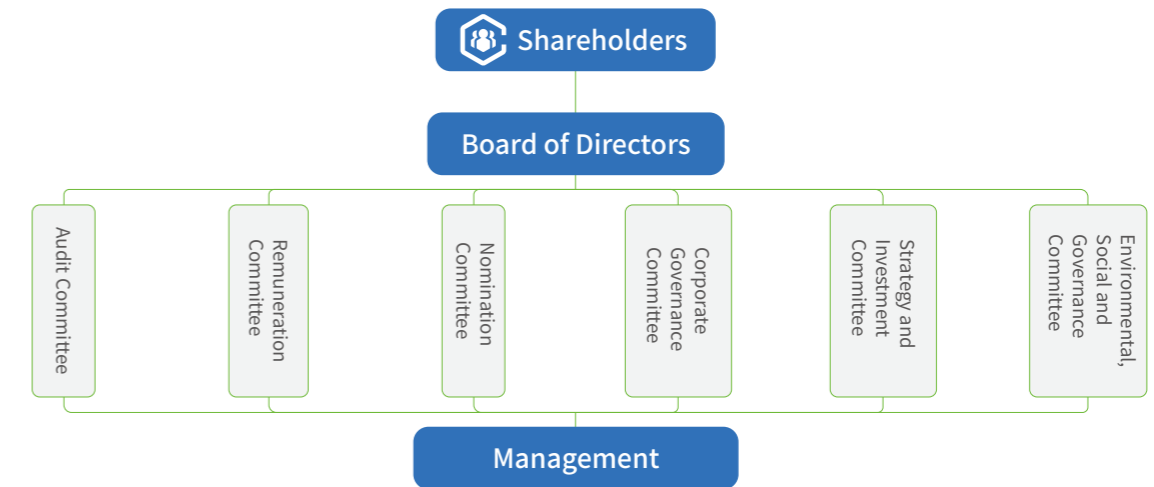


Long-term Governance Targets of GCL Technology

## Governance Structure

GCL Technology has set up corporate governance structure according to the modern enterprise system, with a board of directors under the shareholders. The Board of Directors is responsible for overall corporate decision-making, reviewing and approving strategic objectives of the Company, and overseeing overall corporate governance. We continuously optimize the governance structure by following the principles of compliance, independence, professionalism and diversity.

Under the Board of Directors, GCL Technology established the Audit Committee, Remuneration Committee, Nomination Committee, Corporate Governance Committee, Strategy and Investment Committee, Environmental, Social and Governance Committee. Each committee has clear authority and responsibility to carry out supervision and management in an orderly manner to ensure the high-quality and sound development of the Company.



## Board Diversity

In order to ensure the diversity of Board members and enhance the efficiency of the Company's governance, the Nomination Committee under the Board of Directors will review and revise the *Board Diversity Policy*<sup>3</sup> on a regular basis to ensure the effectiveness of the system and the diversity of the Board members. When appointing Board members, we adhere to the principle of employing talents based on their ability, and factor in diversity into appointment (including

but not limited to gender, age, culture and ethnicity), and comprehensively consider factors such as educational background, industry experience, expertise, professional knowledge and track record to ensure that they have the comprehensive skills and experience required to perform the functions of each committee and can deeply involve in the day-to-day governance and key decision making of the company.

Name	Financial expert	Industry expert	Risk management expert	Gender	Age
Zhu Gongshan (Chairman)	-	✓	-	Male	65
Zhu Yufeng (Vice Chairman)	-	✓	-	Male	41
Zhu Zhanjun (Vice Chairman and Joint CEO)	-	✓	-	Male	53
Lan Tianshi (Joint CEO)	-	✓	-	Male	42
Sun Wei	✓	✓	-	Female	51
Yeung Man Chung, Charles (Chief Financial Officer and Company Secretary)	✓	✓	✓	Male	55
Ho Chung Tai, Raymond	-	✓	✓	Male	84
Yip Tai Him	✓	-	✓	Male	52
Shen Wenzhong	-	✓	-	Male	54

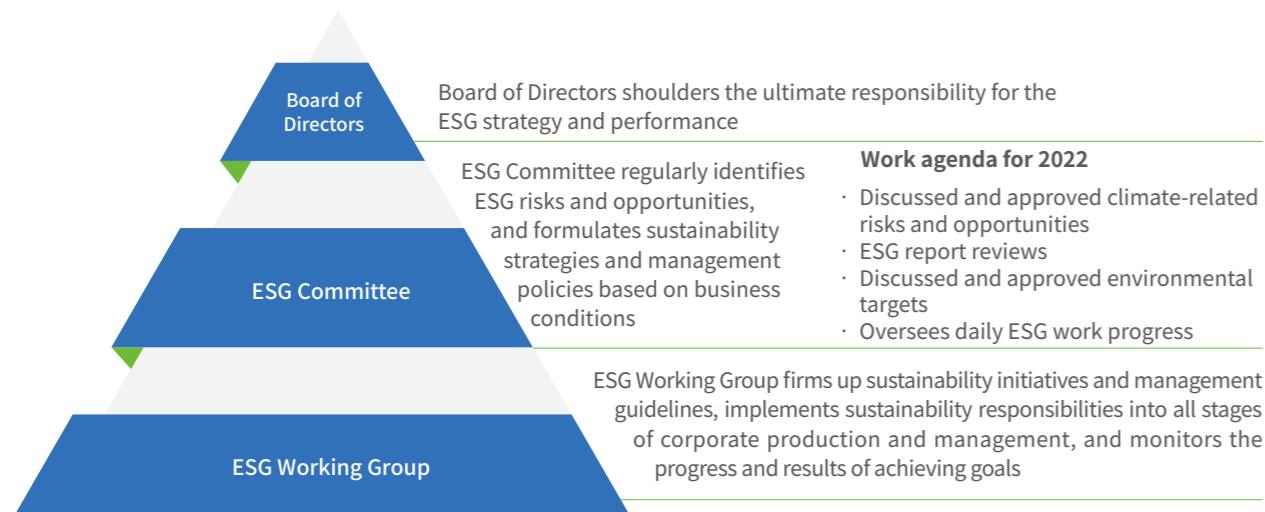
\*Members of the ESG Committee. Prof. Shen Wenzhong serves as the Chairman of the ESG Committee.

<sup>3</sup>For more details about *Board Diversity Policy*, please visit [www.gcltech.com/uploads/investor71/1675932214989440.pdf](http://www.gcltech.com/uploads/investor71/1675932214989440.pdf)

## ESG Governance

We are convinced that ESG is the source of green and low-carbon competitiveness for enterprises, and ESG practices are the best solutions to underpin stable and robust corporate development. While we vigorously develop core business and create economic value, we also constantly deepen sustainability concept, integrate sustainability concepts into internal corporate management and strive to achieve a balance between corporate development, environmental protection and social benefits.

To enhance ESG governance and ensure the stable and efficient implementation of ESG-related matters, we have established the Environmental, Social and Governance Committee ("ESG Committee") for direct management of ESG works during the Reporting Period. A three-tier ESG governance structure featuring the Board of Directors - ESG Committee - ESG Working Group has been formed, which further strengthens the engagement of Board of Directors and the management in ESG works and continuously improves the ESG management and building capacity of the Company.



ESG management structure of GCL Technology

### Statement of the Board of Directors

<b>Responsibilities of the Board of Directors</b>	The Board of Directors shoulders the ultimate responsibility for ESG management guidelines, strategies, goal-setting and progress review, as well as ESG performance of GCL Technology. The ESG Committee leads in formulating and monitoring the implementation of the ESG vision, goals and strategies, identifying and defining major ESG risks, reviewing the Company's ESG-related disclosures, coordinating and monitoring the implementation of various ESG-related tasks, and making recommendations and regular reports to the Board of Directors.
<b>Daily Practices</b>	During the Reporting Period, GCL Technology established an ESG Working Group to clarify the specific responsibilities of each business division and relevant functional levels, uniting the heads of various business departments and major subsidiaries to assist in the formulation and implementation of ESG strategies, targets and management policies and other related works, and integrating ESG elements into daily operations.
<b>Risk Management</b>	The ESG Committee of GCL Technology is responsible for identifying, clarifying, managing and overseeing material ESG risks of the Company, as well as providing risk analysis and decision-making support to the Board of Directors.
<b>Materiality Assessment</b>	GCL Technology maintains close communication with internal and external stakeholders to identify and assess material ESG issues with risks in order to formulate ESG targets and strategies. We have discussed and approved the material ESG issues identified, and will formulate ESG strategies, targets and management guidelines accordingly, follow up international ESG trends and peer performance in a timely manner, and review the progress of the relevant work on a regular basis.

## Communication with Stakeholders

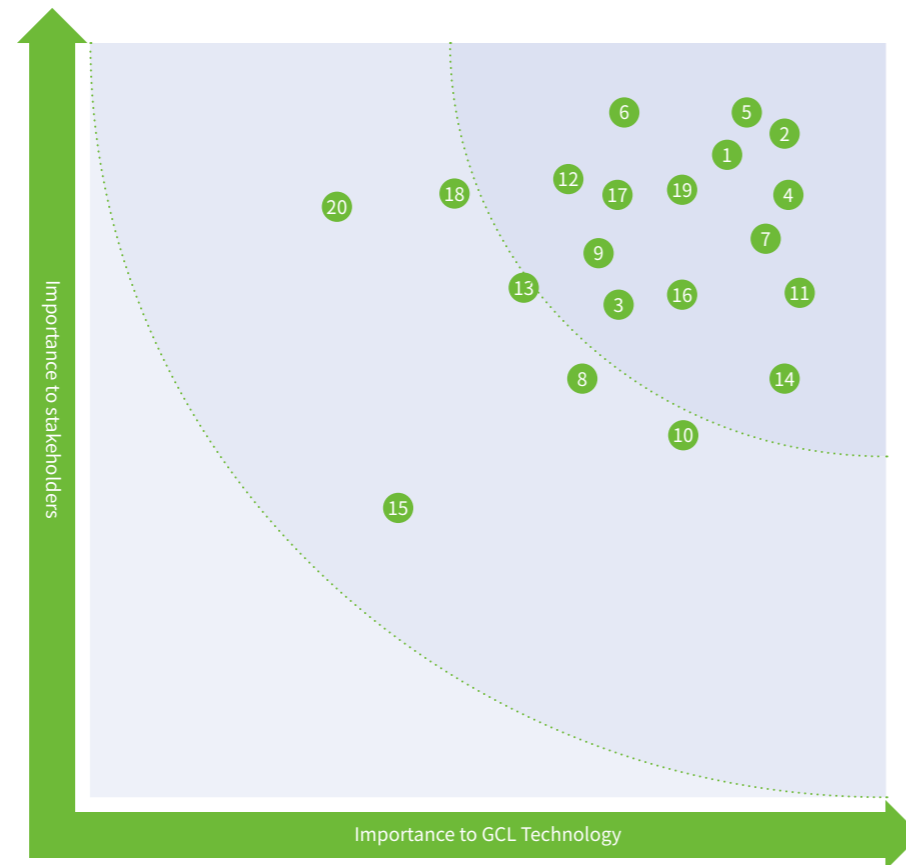
With the advancement of "dual carbon" goals, ESG issues have been highly related to corporate governance. We are committed to building open, transparent, smooth and two-way communication channels, communicating with all stakeholders about issues of shared concerns, and paying attention to

their opinions and feedback. We also learn and respond to the opinions, demands and expectations of stakeholders on ESG issues with risks, so that we can better identify all kinds of ESG risks and opportunities and constantly improve the management of corporate sustainability.

Stakeholder	Concerns	Channels for communication	Frequency
<b>Government departments/Regulators</b>	<ul style="list-style-type: none"> <li>· Business Performance</li> <li>· Environmental compliance performance</li> <li>· Employee occupational health and safety</li> <li>· Community contribution and charity</li> <li>· Corporate governance and risk management</li> <li>· Business ethics and anti-corruption</li> </ul>	<ul style="list-style-type: none"> <li>· On-site visits</li> <li>· Meetings</li> <li>· Phone calls</li> </ul>	· Irregular
<b>Shareholders/Investors</b>	<ul style="list-style-type: none"> <li>· Business performance</li> <li>· Corporate governance and risk management</li> </ul>	<ul style="list-style-type: none"> <li>· General meetings</li> <li>· Special general meetings</li> <li>· Investors' meetings</li> <li>· Online brokerage strategy meetings</li> <li>· Online industry meetings</li> <li>· Result announcement presentations</li> <li>· Press releases/Announcements</li> <li>· On-site visits</li> </ul>	<ul style="list-style-type: none"> <li>· General meetings are held annually, and special general meetings are held where required by a material event;</li> <li>· Other meetings are held from time to time as and when necessary</li> </ul>
<b>Customers</b>	<ul style="list-style-type: none"> <li>· Product quality management</li> <li>· Technological R&amp;D and innovation</li> <li>· Customer service</li> </ul>	<ul style="list-style-type: none"> <li>· On-site visits</li> <li>· Meetings</li> <li>· Client appreciation and communication meetings</li> </ul>	· Irregular
<b>Employees</b>	<ul style="list-style-type: none"> <li>· Guarantee of employee rights and benefits</li> <li>· Employee occupational health and safety</li> <li>· Diversity and equal opportunities</li> <li>· Career development and training</li> </ul>	<ul style="list-style-type: none"> <li>· Regular meetings</li> <li>· Employee meetings</li> <li>· Performance reviews</li> <li>· Internal publications</li> </ul>	<ul style="list-style-type: none"> <li>· Annual (performance review, employee meetings)</li> <li>· Regular (internal publication)</li> </ul>
<b>Partners</b>	<ul style="list-style-type: none"> <li>· Technological R&amp;D and innovation</li> <li>· Supply chain management</li> <li>· Industrial collaborative innovation</li> <li>· Business performance</li> <li>· Product quality management</li> </ul>	<ul style="list-style-type: none"> <li>· On-site visits</li> <li>· Meetings</li> <li>· Suppliers' conferences</li> <li>· Industry exhibitions</li> </ul>	· Irregular
<b>Community/NGOs</b>	<ul style="list-style-type: none"> <li>· Environmental compliance performance</li> <li>· Materials and water management</li> <li>· Energy management and conservation</li> <li>· Discharge of sewage, exhaust gas and solid waste</li> <li>· Community contribution and charity</li> <li>· Impact on community</li> </ul>	<ul style="list-style-type: none"> <li>· On-site visits</li> <li>· Meetings</li> <li>· Press releases/public reports</li> </ul>	· Irregular
<b>Media</b>	<ul style="list-style-type: none"> <li>· Business performance</li> <li>· Industrial collaborative innovation</li> <li>· Community contribution and charity</li> </ul>	<ul style="list-style-type: none"> <li>· Press releases / announcements</li> <li>· Meetings</li> <li>· Exhibitions</li> <li>· Luncheon meetings</li> <li>· Appreciation meetings</li> <li>· Management interview invitations</li> </ul>	· Irregular

## Materiality Assessment

During the Reporting Period, GCL Technology analyzed and identified material issues highly relevant to corporate development and drew the 2022 ESG material issue matrix, which charted the course of corporate development. These have been achieved based on feedback from all stakeholders, in line with the actual development situation of the Company and future development priorities, and through peer benchmarking.



Governance issues	<b>1. Business performance</b> ✓	Product and service issues	<b>11. Technological R&amp;D and innovation</b> ✓
	<b>2. Corporate governance and risk management</b> ✓		<b>12. Collaborative industry innovation</b> ✓
	<b>3. Business ethics and anti-corruption</b> ✓		13. Product quality management
Environmental issues	<b>4. Clean technology opportunities</b> ✓	Labour issues	<b>14. Supply chain management</b> ✓
	<b>5. Water management</b> ✓		15. Customer services
	<b>6. Greenhouse gas emissions</b> ✓	Community issues	<b>16. Human resources development</b> ✓
	<b>7. Climate change risk management</b> ✓		<b>17. Diversity and equal opportunities</b> ✓
	8. Environmental compliance performance		18. Protection of employee's interests
	<b>9. Energy management and conservation</b> ✓	<b>19. Community investment and public welfare</b> ✓	
	10. Wastewater, exhaust and waste management	20. Impact of business on the community	

\* Bolded issues are highly material ESG issues of GCL Technology in 2022

## Risk Management

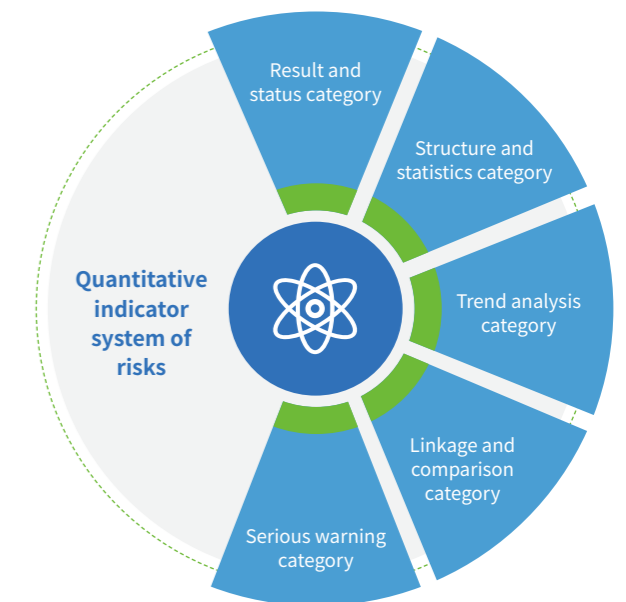
GCL Technology is committed to promoting corporate sustainability through developing the scientific, reasonable and comprehensive risk management system. In terms of systems, we have formulated a series of internal systems such as the *Principles and Systems of Internal Control Management*, the *Working Systems and Standard Guidelines for Internal Audit* and the *Comprehensive Risk Management Guidelines* to reasonably determine risk levels and risk response strategies to ensure that the system processes can effectively prevent, identify and respond to risks. During the Reporting Period, the Company prepared and updated risk management-related systems to further ensure the effective implementation of internal control and risk management of GCL Technology at the systematic level.

In terms of management, the Company has developed sound organizational systems for risk management and internal control and has put in place "three lines of defense" for risk management and internal control. With these efforts, the Company constantly improves risk management, conducts

regular summaries, and analyzes the rationality and feasibility of the work plans prepared for risk management.

In terms of execution, we monitor and prevent potential risks in the course of business operations in a timely manner through the closed-loop management of risk identification, assessment, control, rectification and review to ensure the sound operation of the Group. In 2022, based on the regular risk control work, GCL Technology broadened the business field of risk control (focusing on listing compliance, special project audits, engineering audits, and internal control management), incorporated the risk control of key infrastructure enterprises and business divisions into the scope of control, and consolidated the risk control force at the primary level. We further refined the steps to assess risks to ensure dynamic and effective identification, analysis and evaluation of risks. During the reporting period, GCL Technology produced 48 auditing reports through internal control self-appraisal for 18 businesses, achieving 100% coverage.

In 2022, we have developed a quantitative indicator system of risks, uniting relevant functional departments and business units to cooperate in the collection and provision of data as well as the analysis of results and response mechanisms to achieve timely tracking of the implementation of risk rectifications, and to realize the classified, professional and full-coverage management of risks in the risk management process. In addition, to further strengthen employees' awareness of risk management, the Company has conducted 33 risk control training sessions, with a total of over 1,530 participants. The training topics cover multiple dimensions, including authorization and process, internal control system, "three priorities and one major", engineering management, corporate culture, contract management, compliance with listing requirements, and technological upgrading and R&D, in a bid to continuously empowering GCL Technology's compliance in businesses.



## Business Ethics

We strictly comply with the *Law of the People's Republic of China Against Unfair Competition*, the *Criminal Law of the People's Republic of China*, the *Anti-Monopoly Law of the People's Republic of China* and the relevant laws and regulations of the countries in which our overseas projects are located. We have formulated internal systems and policies, such as the *Anti-Corruption Regulations*, to adhere to lawful and compliant operations and consciously maintain a fair and just market order. The Company clearly defines integrity discipline and strictly prohibits violations such as corruption, fraud and improper transfer of benefits.


In 2022, we put anti-fraud high on our agenda and revised the *Anti-Fraud (including Anti-Corruption) and Whistleblowing Management Standards and Shareholder Communication Policies*, which clearly stipulate the detailed guidelines for complaints and reports regarding anti-corruption, the handling process and the protection of whistleblowers' information. The anti-corruption policies of the Group apply to all employees and provide comprehensive supervision of the economic transactions with related parties, such as suppliers, customers and engineering contractors, and we conduct annual anti-fraud reviews for all operating locations.



Working Content of "Four Strict Investigation" of Anti-fraud of GCL Technology in 2022

The Group advocates the corporate culture of honesty and integrity and adopts zero tolerance policy for corruption. During the Reporting Period, we have updated our whistleblowing channels and feedback mechanism so that for any behavior in violation of ethics and honesty, any interested party may directly contact the Company's intake unit (i.e., the Audit Committee or any designated committee with a majority of independent

non-executive directors, such as the Corporate Governance Committee, etc.) to raise their concerns about any possible improper matters regarding the Company and/or its subsidiaries. We have established formal, standardized and detailed anti-fraud procedures to ensure that all fraudulent behaviors can be handled effectively and smoothly.

 **Reporting channels** | Tel: 86-0512-68533870 | Email: xpvjubao@gcl-power.com

## Protecting Whistleblowers

We are committed to protecting the privacy and safety of each whistleblower, and strictly prohibit discrimination, harassment, improper treatment of whistleblowers and employees who provide assistance for whistleblowing investigations. Anyone who discloses information about whistleblowers or retaliates

against them will be subject to disciplinary action, dismissal or termination of employment contract if found guilty. Through the whistleblower protection mechanism, we encourage all employees, suppliers, customers and engineering contractors to report business malpractices to the Group.

## Building Integrity Culture

The Group insists on promoting the building of integrity and honesty, fully implementing responsibilities on all levels and penetrating integrity awareness into corporate culture.

 **Content of Integrity Culture Building**

- Organize effective communication or training on anti-fraud policies and procedures and other relevant measures within the Company in various forms (such as employee handbooks, company regulations, publicity and online channels), to ensure that all employees (including full-time employees, part-time employees, interns and dispatched employees) receive training on relevant laws and regulations, professional ethics and ethical conduct. Guide employees on how to distinguish between lawful and unlawful, honest and dishonest behaviors.
- Encourage employees to abide by laws and regulations and behave with integrity in daily work within the Company, and instruct employees on properly addressing conflicts of interest and resisting improper interests at the workplace
- Inform all stakeholders directly or indirectly related to the Company about the commitment to complying with relevant laws and adhering to business ethics

As of the Reporting Period, all operation units had finished the training on business ethics, covering all employees and interns, with a training coverage of 100%.

Training Coverage  
**100%**

# 02

## Green Operations and Low-Carbon Future

We aim to become a zero-carbon pioneer and realize our green vision.

As a leading developer and intelligent manufacturer of high-efficiency PV materials in the industry, GCL Technology strives for the mission of "focusing on green development, keeping improving the environment we live in", and promotes the development of green PV materials via global green solutions and actions.



# Addressing Climate Change

Today, climate change presents a daunting global challenge to mankind. In response to the national "dual carbon" goal, GCL Technology proactively identifies the risks and opportunities posed by climate change, designs effective response measures, incorporates low-carbon development into strategic planning, and comprehensively improves its ability to cope with climate change.

## Risks and Opportunities

In the face of the increasing severity of climate change, stakeholders are expected to put forward higher low-carbon requirements on us. We regard the high sustainability requirement as an opportunity and driver for corporate development, actively identify climate change risks and opportunities, and further leverage the low-carbon advantage of granular silicon on the road to green development. To strengthen the management of climate-related matters, the ESG Committee is responsible for analyzing, identifying and monitoring the climate-related risks and opportunities of GCL.

### Climate Change Risk Identification

We proactively refer to the information disclosure framework of the Task Force on Climate-Related Financial Disclosures (TCFD) to address climate change. We also take into account the impact of national climate actions and energy transition trends on the industry, pinpoint and analyze our climate risks and opportunities, formulate a list of climate risks, and then prioritize them quantitatively according to their importance. On this basis, we have developed targeted response and measures to enhance our adaptability and resilience to climate change.



Risk related to climate change	Description	Measures
Transition risks	<p><b>Reputational risks</b></p> <p>Industrial stigmatization</p> <p>As consumers are more concerned about climate change and environmental protection, the potential opposition to the reproduction of PV products may stigmatize the industry and thus affect the business performance of the Company. Fortunately, with the strict implementation of national policies and the achievements in carbon emissions reduction, the impact of the reputational risk on GCL Technology will be reduced.</p>	<p>1. GCL Technology promotes green and low-carbon concepts in its procurement activities and considers factors such as environmental protection, resource conservation, safety and health, low-carbon recycling, and recycling promotion. GCL Technology also gives priority to the procurement of environmentally friendly raw materials, products, and services.</p> <p>2. GCL Technology applies the green concept throughout the manufacturing process. Suzhou GCL has passed the Jiangsu Green Factory certification. Baotou factory adopts steam recovery and optimizes energy consumption. Leshan GCL has obtained the "Clean Energy Consumption Certificate" issued by Sichuan Electric Power Trading Center.</p> <p>3. GCL Technology has pioneered in adopting the silane fluidized bed reactor (FBR) method to produce granular silicon, which effectively reduces the power consumption of silicon materials by nearly 80% compared with the improved Siemens method. It also effectively solves the "pain point" of high energy consumption in PV raw material production. The FBR granular silicon is a silicon-base material with the lowest carbon footprint in the global market</p>
	<p>Growing concern of stakeholders</p> <p>There is an increasing concern among stakeholders regarding the ESG performance of companies. Industries usually face the pressure from stakeholders to disclose their climate change related actions, which may include climate risk-related litigation and shareholder resolutions.</p>	<p>GCL Technology has set up the ESG Committee to oversee ESG-related tasks. They have also established a three-tier ESG governance structure, which includes the Board of Directors, the ESG Committee, and the ESG Working Group. This structure aims to encourage the participation of the Board and management in ESG initiatives and enhance their management and construction capabilities related to ESG. The mechanism enables the Group to implement relevant policies in an organized manner, set reasonable targets, monitor risks, and track performance.</p>
Physical Risks	<p><b>Chronic Risks</b></p> <p>Change of rainfall</p> <p>Excessive rainfall can result in land and factory buildings being submerged, traffic disruptions, production being suspended due to the inability to supply raw materials, and overstocking caused by sales suspension. These factors can negatively impact the operating costs and corporate assets.</p>	<p>GCL Technology intensifies its regular monitoring and analysis of risks in the regions where it operates, particularly in areas where changes in rainfall patterns pose a significant threat. The company implements measures to safeguard its operations and end products and minimize the impact of heavy rainfall on production, logistics, and sales.</p>
	<p><b>Acute Risks</b></p> <p>Flooding</p> <p>Flooding may lead to traffic interruptions, suspended production due to the failure to supply raw materials, and overstocking caused by sales suspension, thus affecting the operating costs and assets of enterprises.</p>	<p>GCL Technology strengthens regular risk detection and analysis in the locations where it operates, particularly in areas that risk of flood poses great impact on operation, in order to ensure the transportation and delivery of raw materials and products in the whole industrial chain and maintain the stability of operations.</p>

Risk related to climate change		Description	Measures
Physical Risks	Acute Risks	<b>Typhoon</b> Tropical cyclones may lead to the destruction of farmland and factory buildings, traffic interruptions, suspended production due to the failure to supply raw materials, and overstocking caused by sales suspension, thus affecting the operating costs and corporate assets.	GCL Technology strengthens regular risk detection and analysis in the locations where it operates, particularly in areas that typhoon risk has a greater impact on operation, to ensure the safety of production, storage, and logistics, and takes preventive measures to cope with the risk of raw material cost increase caused by typhoon.
		<b>Extremely hot weather</b> Extremely hot weather may result in higher raw material prices, higher manufacturing process requirements, reduced employee productivity and higher maintenance costs for PV modules, thus affecting the operating costs and assets.	GCL Technology strengthens regular risk testing and analysis in the locations where it operates, particularly in areas that extremely hot weather poses a great impact on operation, in order to ensure operational and product safety under extremely hot weather and takes measures to mitigate the impact of high temperatures on employees' safety and health.

Based on business insights and trend analysis, we have identified the following climate-related development opportunities and actively explored their feasibility in the business operations of GCL Technology, striving to be a fighter against climate change.

**Resource usage efficiency**

- Promoting technical transformation projects for water saving, pure water recycling, and water resource recycling, optimizing wastewater treatment settings, and improving water resource utilization efficiency
- Improving the efficiency of production equipment and reducing consumption in a bid to reduce corporate operating costs

**Source of energy**

- Using clean energy in production and further expanding photovoltaic power generation projects
- After comprehensively evaluating the current situation of energy use, we try to introduce new energy into the existing energy structure, such as purchasing green electricity

**Products and services**

- Making continuous efforts to strategically focus on low-cost and low-carbon FBR-based granular silicon technology, and driving down the electricity cost of global photovoltaic industry
- Promoting green and sustainable development of the supply chain, aligning with customers' strategies and needs, and enhancing the industry competitiveness of the Company

Climate change-related opportunities

Based on the identified product and service opportunities, the Group continued to strategically focus on low-cost and low-carbon FBR-based granular silicon technology, and expand our business based on the industry chain around energy technology innovation and low-carbon emissions reduction goals, in a bid to assist the industry and society to ultimately achieve the vision of low-carbon, environment-friendly and green sustainable development.

The greenhouse gas emissions of our silicon and wafer businesses are as follows:

Indicator	Silicon wafer		Silicon material	
	Unit	2022	Unit	2022
Scope 1 greenhouse gas emissions	Tonne of CO <sub>2</sub> equivalent	6,103	Tonne of CO <sub>2</sub> equivalent	2,256,765
Scope 2 greenhouse gas emissions	Tonne of CO <sub>2</sub> equivalent	252,194	Tonne of CO <sub>2</sub> equivalent	1,990,899
Total greenhouse gas emissions (Scope 1+Scope 2)	Tonne of CO <sub>2</sub> equivalent	258,297	Tonne of CO <sub>2</sub> equivalent	4,247,664
greenhouse gas emissions intensity	Tonne of CO <sub>2</sub> equivalent/MW silicon wafer	5.54	Tonne of CO <sub>2</sub> equivalent/tonne silicon material	40.56

Greenhouse gas emissions

Energy Management

GCL Technology consistently integrates its energy management initiatives with its mission to prioritize green development. The Company incorporates the principles of energy conservation and emission reduction into all aspects of its production and operations. Furthermore, it remains dedicated to enhancing energy efficiency, utilizing low-carbon technologies, promoting energy conservation, and advocating for low-carbon production.

We insist on developing clean energy, promoting technological innovation, expanding the investment and construction of clean energy power generation projects, as well as advancing energy transition. In addition, we proactively carry out energy-saving and efficiency-improving projects such as waste heat recovery and energy conversion. During the Reporting Period, we implemented energy optimization projects in several locations where we operate and obtained relevant green and low carbon certifications.

**Energy consumption goal:**

Putting efforts in the promotion of green operation and green office and comprehensive utilization of resources, so as to achieve negative growth in energy consumption intensity

**Greenhouse gas emissions goal:**

Proactively responding to the goal of "emission peak and carbon neutrality" goal set by the government and striving to achieve negative growth in carbon emissions intensity

Energy conservation and efficiency improvement projects

In May 2022, Xuzhou Photovoltaic carried out a project to recycle the waste heat from the cooling water of air compressors. The recirculating cooling mode was replaced by the direct cooling discharge mode. The waste heat from the cooling water of air compressors was reused for degumming in workshops, saving a 75-kW circulating pump.

In 2022, GCL Technology strengthened cooperation with leading enterprises, and considered taking measures to optimize energy management during the cooperation. We invested in a silicon powder project in Wuda District, Wuha City, Inner Mongolia Autonomous Region, and converted part of the heat from the high-temperature flue gas into electric power. This project has reduced the use of coal for power generation, relieved the pressure of energy use in locations where we operate, and achieved a win-win cooperation.

Our subsidiaries have obtained a series of green and low-carbon certifications. For example, Suzhou GCL has passed the Jiangsu Provincial Green Factory certification. Leshan GCL produces raw materials for green PV products and uses 100% clean energy in the production process and has obtained the Clean Energy Consumption Certificate<sup>4</sup> issued by Sichuan Power Exchange Center, further enhancing the influence of GCL Technology on green production in the industry.



Clean Energy Consumption Certificate of Leshan GCL

The energy consumption of our silicon material and wafer businesses is as follows:

Indicator	Silicon wafer		Silicon material	
	Unit	2022	Unit	2022
Coal	Tonne	-	Tonne	1,033,122
Gasoline	Tonne	8	Tonne	26
Diesel	Tonne	35	Tonne	230
Natural gas	10,000 Cubic metre	276	10,000 Cubic metre	5,358
Purchased electricity	MWh	434,287	MWh	2,704,543
Steam	Tonne	15,257	Tonne	1,513,873
Direct energy consumption	MWh	25,217	MWh	6,487,110
Indirect energy consumption	MWh	450,251	MWh	4,288,629
Total comprehensive energy consumption	MWh	475,469	MWh	10,775,738
Comprehensive energy consumption intensity	MWh/MW Silicon wafer	10.19	MWh/MW Silicon wafer	102.90

Energy consumption

<sup>4</sup>The Clean Energy Consumption Certificate is based on the data about the transaction contracts and settlement in the electricity market. It can provide traceability for the clean energy consumed by industrial and commercial enterprises, including hydro, wind, solar, biomass and gas power. Apart from accurately reflecting the scale and source of clean energy used by enterprises, it also serves as an authoritative certification for reducing carbon tariffs on the export, meeting carbon quota targets, and enhancing the competitiveness in international and domestic markets.

## Green Environment

GCL Technology strictly abides by numerous laws and regulations such as the *Environmental Protection Law of the People's Republic of China* and the *Law of the People's Republic of China on Environmental Impact Assessment*. We have formulated a series of environmental regulations, such as the *Environmental Protection Regulation*, the *EHS Accident Management Regulation*, and the *Provision of Emergency Management* to continually improve the environmental impact of all areas of production and operations. We also conduct strict management of the wastewater, exhaust gas and solid waste generated in the process of production and operations to achieve environment-friendly development.

The Board of Directors is responsible for environmental management strategy and performance. The ESG Committee is responsible for overseeing the environmental aspects of the Company's daily production operations. The ESG Committee supervises and guides the environmental work related to the

day-to-day production and operations of the Company. The ESG Working Group implements the management's strategic decisions regarding environmental management. During the Reporting Period, GCL Technology had zero environmental pollution incidents or environmental related penalties and nine subsidiaries of GCL Technology passed the ISO 14001 environmental management system certification, the environmental system certification rate reached 69%.<sup>5</sup>

Our routine staff training system includes education on environmental protection knowledge and skills. This includes standardized management of hazardous waste, emergency management, cleaner production, carbon emissions audit, environmental protection system processes, and interpretation of the latest environmental laws and regulations. Additionally, we create customized training plans for employees of different levels and use various forms of assessment to improve the effectiveness of the training.

## Wastewater Management

GCL Technology complies with wastewater management laws and regulations such as the *Water Pollution Prevention and Control Law of the People's Republic of China*. We have established regulations on wastewater treatment according to our internal actualities, ensured discharge compliance via a comprehensive wastewater monitoring system, and improved water recycling through means such as equipment upgrading and renovation as well as resourceful treatment of wastewater.



<sup>5</sup>Based on the number of subsidiaries that have received environmental system certification.



### Resourceful disposal of wastewater by Suzhou GCL

Suzhou GCL independently collects and disposes of the wastewater after cleaning silicon wafers and separating the silicon powder in wastewater through filter presses. After the transformation, the content of silicon powder in wastewater is reduced. With the operating pressure of the silt system reduced, the wastewater treatment and effluent quality become more stable. According to statistics, after carrying out the separate disposal of cleaning wastewater, Suzhou GCL increased the production of silica sludge by 365 tonnes per year and reduced the production of sludge from the wastewater station by about 365 tonnes per year. Upon wastewater treatment, the silicon sludge and waste residue go through resourceful disposal and utilization, thus reducing the impact on the wastewater system and improving the efficiency of the wastewater system.

Suzhou GCL increased the production of silica sludge by

**365 tonnes per year**

Reduction of sludge from the wastewater station by about

**365 tonnes per year**

The discharge of wastewater from our silicon and wafer business is as follows:

Indicator	Unit	2022	
		Silicon wafer	Silicon material
Amount of wastewater discharged	Tonne	5,519,676	1,867,857

Wastewater discharge situation



## Exhaust Gas Management

We strictly abide by exhaust gas management laws and regulations such as the *Air Pollution Prevention and Control Law of the People's Republic of China*. We have formulated internal management documents on waste management to strictly manage exhaust gas emissions. Our exhaust gas pollutants

mainly come from nitrogen oxides, sulfur oxides, sulfur dioxide and dust particles generated in the production process. We advance the treatment of exhaust gases and contribute to the Blue Sky Protection Campaign by installing facilities for dust removal and volatile organic compounds (VOCs) treatment.

### Exhaust gas system renovation of wastewater stations of Suzhou GCL

With the growing capacity of Suzhou GCL, the exhaust gas from wastewater treatment has increased significantly. Suzhou GCL performed a thorough inspection and analysis of the exhaust gas produced by the wastewater stations and its components. Based on the composition of the exhaust gas, the company utilized different techniques in determining its retrofit plan. The exhaust

gas system was further improved through test verification, case study, and other methods. With a total investment of RMB4.48 million, the project was officially completed and commissioned in October 2022, increasing the exhaust gas disposal capacity from 20,000 cubic meters/hour to 50,000 cubic meters/hour.



The emission of exhaust gas from our silicon business and wafer business is as follows:

Indicator	Unit	2022	
		Silicon wafer	Silicon material
Nitrogen oxides	Tonne	11.05	10.63
Sulfur oxides	Tonne	0.31	0.28
Dust particles	Tonne	13.55	2.70

Exhaust gas emissions

## Waste Management

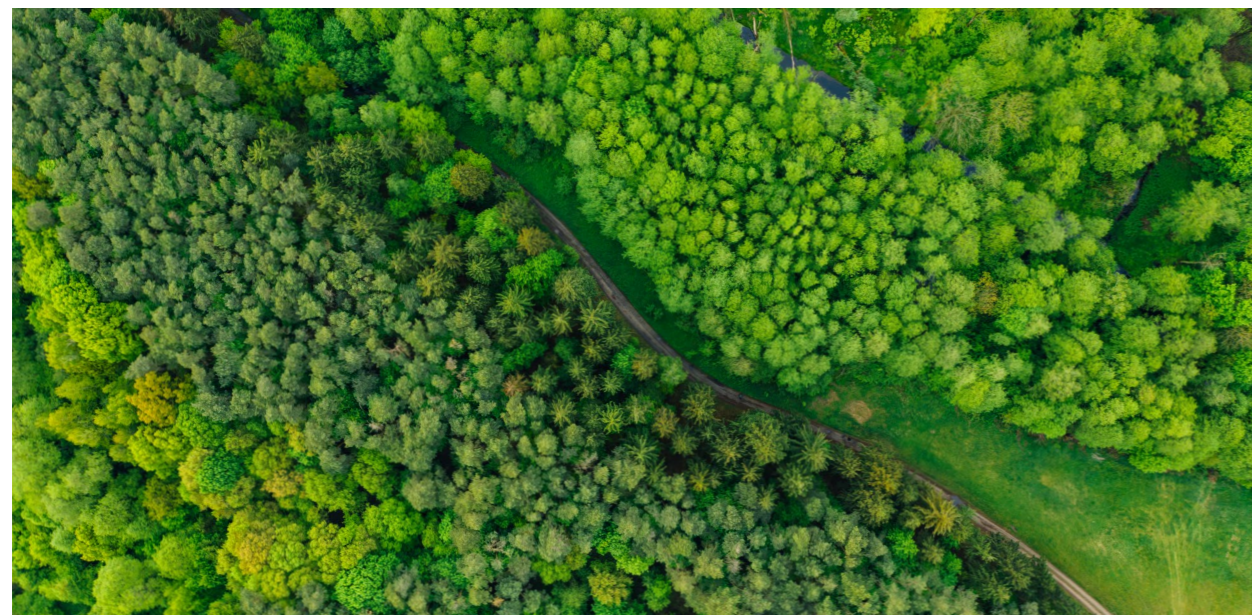
We strictly abide by waste management laws and regulations such as the *Law of the People's Republic of China on Prevention and Control of Environmental Pollution by Solid Waste* as well as the disposal of different types of waste in accordance with relevant internal policies. For hazardous waste, we engage qualified third parties to collect, transport and recycle waste, and assign well-trained personnel to store, transport and dispose of it. For non-hazardous waste, we carry out landfill disposal to ensure that waste disposal is in full compliance with relevant regulations.

The discharge of waste from our silicon business and wafer business is as follows:

 Waste target: Optimizing waste management, improving the reusability of waste, and ensuring waste disposal is 100% in full compliance with regulations

Indicator	Silicon wafer		Silicon material	
	Unit	2022	Unit	2022
Hazardous waste	Tonne	787	Tonne	284
Hazardous waste discharge intensity	Tonne waste/MW Silicon wafer	0.017	Tonne waste/Tonne Silicon material	0.003
Non-hazardous waste	Tonne	26,485	Tonne	55,086
Non-hazardous waste discharge intensity	Tonne waste/MW Silicon wafer	0.57	Tonne waste/Tonne Silicon material	0.53

Waste discharge



## Resource Management


GCL Technology continuously optimizes the manufacturing process and conducts a series of equipment upgrading projects to improve the efficiency of resource utilization. During the Reporting Period, we continued to optimize water resources management and materials management, promote green office, as well as realize optimal allocation of resources and sustainable production.

### Water Management

GCL Technology regards the use and management of water resources as a highly material issue, with 100% coverage of subsidiaries for optimized water management. We increase water-saving investment in multiple subsidiaries, advance the refined management of water resources, and reap water-saving benefits. We strictly abide by water management laws and regulations such as the *Water Law of the People's Republic of China*, and formulate relevant management policies in line with business operation of the Company to enhance water management.

We have established a governance structure in which the Board of Directors is responsible for the water management strategy and performance. The CEO of GCL Technology takes overall charge of the water management strategy and performance. The ESG Committee formulates the water strategy and guidelines based on the business development of GCL Technology. The ESG Working Group ensures that the relevant strategy and guidelines should be implemented by all departments, and also keeps abreast of water-related performance. GCL Technology faces no problems in water access.

We regularly check, maintain, and optimize water supply and water equipment in the process of production and operations. We also carry out a wide range of technical transformation projects including water conservation, pure water recovery and water resource recycling, and prevent water dripping and leakage through work such as regular equipment maintenance. We adopt various practices to promote responsible and sustainable use of water resources. For instance, we recycle production water using electric furnaces and other equipment and replace municipal water with reclaimed water. We also employ techniques such as air cooling to minimize the evaporation of recycled water and reduce our consumption of fresh water resources. These efforts reflect our commitment to responsible water management.

 Water Management goal: In 2023, water consumption of sillion material production per unit decreases by **19%** compared with 2022

### Water recycling facilities and water resource recycling of Jiangsu Zhongneng

GCL Technology attaches great importance to the use of alternative water sources and water recycling. Jiangsu Zhongneng, one of our subsidiaries, uses reclaimed water instead of canal water to replenish circulating water in each circulating water device. In 2022, the company used an estimated 9.85 million tonnes of reclaimed water. Concurrently, the company recycled the sewage discharged from circulating water devices to support production activities of downstream devices. In 2022, the company recycled about 850,000 tonnes of sewage.



### Sewage and concentrated water recycling of Xuzhou Photovoltaic

Cooling tower sewage recycling: Xuzhou GCL built a new monocrystalline plant for the application and demonstration project of granular silicon technology. The cooling tower has an average daily water replenishment capacity of 1,800 tonnes/day. In January 2022, the company conducted the renovation so that the sewage could be reused for truncation, rod cutting and grounding down. Upon the implementation of the project, the amount of water recycled reached 1,200 tonnes/day, with a recovery rate of 66.7%.

Recycling of concentrated water in pure water stations: In January 2022, Xuzhou Photovoltaic transformed the recycling of concentrated water in pure water stations and reused the concentrated water generated by reverse osmosis systems for degumming at processing and cutting workshops. After the project was implemented, the amount of concentrated water recycled reached 1,500 tonnes/day, with a recovery rate of 100%.

The water consumption of our silicon business and wafer business is as follows:

Indicator	Unit	2022	
		Silicon wafer	Silicon material
Total water consumption	Ten thousand tonnes	1,015	160
Total water consumption intensity	Ten thousand tonnes/Tonne Silicon material (MW Silicon wafer)	0.022	0.002
Percentage of water consumption from alternative sources (e.g., grey water, rainwater, sewage)	%	6	25
Percentage of recycled water	%	50.23 <sup>6</sup>	34.76 <sup>7</sup>

Water consumption

## Materials Management

GCL Technology makes a point of supporting and implementing strategies for recycling materials. We actively cooperate with both the upstream and downstream participants of the supply chain to track and recycle packaging materials in a timely manner. In addition, we optimize packaging materials and packaging methods to reduce the environmental impact caused by materials.

### Material recycling measures of Jiangsu Zhongneng

In 2022, Jiangsu Zhongneng conducted secondary disposal of waste materials. In addition to prioritizing the internal reuse of waste materials, the company also sold any remaining waste materials via the EPS system in the form of public bidding. In this way, waste materials were put to better use.

On the premise of ensuring safety, Jiangsu Zhongneng requires suppliers to prioritize recyclable and degradable packaging, so as to facilitate recycling in the later stage.

<sup>6</sup> Including Jiangsu Zhongneng  
<sup>7</sup> Including Xuzhou Photovoltaic

The materials used for our silicon business and wafer business are as follows:

Indicator	Unit	2022	
		Silicon wafer	Silicon material
Use of packaging materials	Tonne	6,102	6,522
Intensity of use of packaging materials	Tonne/Tonne Silicon material (MW silicon wafer)	0.13	0.06

Material use

## Green Office

GCL actively promotes green and sustainable office initiatives such as paperless office. We also encourage all employees to actively practice the new low-carbon lifestyle, raise their awareness of energy conservation and environmental protection, and integrate the concept of green, sustainable and low-carbon office in daily operations and corporate culture.

Through green activities, we cultivate the concept of environmental protection among our employees and call on them to keep in mind our mission of "focusing on green development and enhancing the environment we inhabit" and to pay long-term attention to the theme of green development. During the reporting period, we were dedicated to advancing green development in the modern era and actively engage in environmental protection initiatives such as Tree Planting Day, ecological governance and waste treatment. Our goal is to establish a more sustainable and healthy living environment for all.



### Internet Tree Planting Day themed "GCL Low-carbon Competition in Spring"

On 12 March 2022, when the Tree Planting Day approached, GCL Technology launched the Internet Tree Planting Day themed "GCL Low-carbon Competition in Spring". The program features three types of low-carbon competition on the Ant Forest platform. The activity aims to guide the staff to experience a low-carbon lifestyle, contribute to biodiversity and fulfill the GCL mission of "focusing on green development, keep improving the environment we live in" through green travel, paper recycling & plastic reduction, and high-efficiency and energy-saving operations. The event attracted 615 participants. The cumulative carbon footprint reduction of 222 participants in low-carbon competitions totaled 834,562.65 kg, and 182 participants for "cloud planting" planted a total of 2,570 trees.



# 03

## Technological Empowerment and Quality First

We pursue progress ceaselessly through innovation and strive for excellence with concrete actions.

GCL Technology actively responds to the national strategy of "carbon peak and carbon neutrality" and continually focuses on energy technology innovation, energy conservation and emissions reduction to facilitate industrial upgrading.



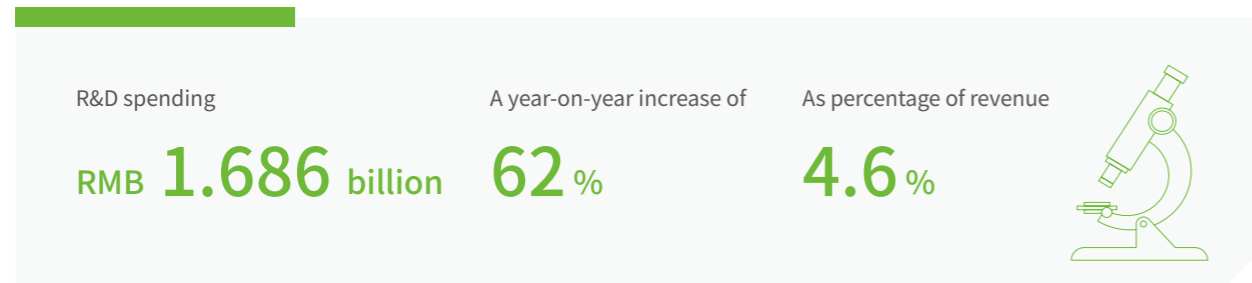
# Scientific and Technological Innovation

Amid the global low-carbon economy, low-carbon barriers, and China's "dual carbon" strategy, GCL Technology vigorously promotes industrial transformation and upgrading. Adhering to the strategy of "leading by science and technology", the Group is deeply engaged in technological innovation and launches high-quality products. We also contribute to the green and high-quality development of the PV industry chain by delivering value from low-carbon products.

## Research and Innovation Driven



Following the "technology-oriented and innovation-driven" development strategy, GCL Technology insists on improving the R&D management system, establishing sound R&D management policies, and striving to become the world's leading supplier of silicon-based materials. The Group boasts three independent R&D centers, namely the R&D center in Xuzhou, the R&D center in the US and the R&D center in Suzhou. We have built an outstanding research team composed of world class PV experts and scholars. A three-tier technical talent pipeline has been formed, with Chinese and foreign experts as technological leaders, young scholars with overseas research background as the backbone, as well as doctorates and masters graduate from renowned universities as the reserve.



### R&D Achievements

In 2022, GCL Technology carried out more than 180 R&D and technological transformation projects. We made remarkable progress and achievements in a series of key R&D projects in areas such as product quality improvement and material/energy medium consumption reduction.

Carried out more than **180** R&D and technological transformation projects in 2021

Xuzhou Photovoltaic and Suzhou GCL passed the assessment of Jiangsu Engineering Technology Research Center, and the former was rated as "excellent".

Jiangsu Zhongneng and Xuzhou Photovoltaic were selected into the Action Pool for New Round of Innovative Leading Enterprise Cultivation by the Department of Science and Technology of Jiangsu Province

The Large-scale and Low-carbon Production Technology of Silane FBR-based Granular Silicon won the First Prize of China Nonferrous Metal Industry Science and Technology Award

Funing GCL and Xuzhou High-tech won the title of Jiangsu Province Specialized and Special New "Little Giant" Enterprise

Jurong GCL received the National High-tech Enterprise Certification (the 3<sup>rd</sup> batch in 2022)

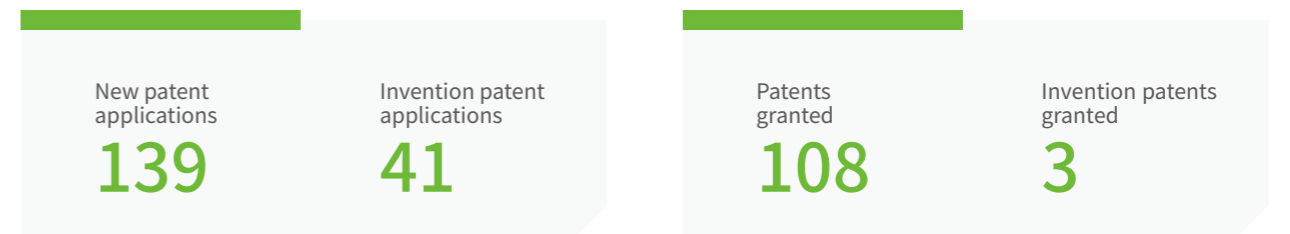
Innovation Awards of GCL Technology

## Intellectual Property Rights

Protecting intellectual property rights (IPR) underpins sustainable innovation. The Group strictly abides by the relevant laws and regulations in locations where we operate. By establishing a clear, comprehensive, applicable, and efficient IPR management system and mechanism, we standardize our business behaviors, fully protect our legitimate rights and interests, and respect the innovation achievements made by others in the industry. During the Reporting Period, GCL Technology revised the *Patent Management Standards* and the *Trade Secret Management Measures* and formulated the *Guidelines for the Selection of Patent and Technical Secret Protection* and the *Patent Drafting and Quality Evaluation Form of GCL Technology* according to our actualities and business needs. We also continue to enhance the IPR management, protection and operation capabilities that meet international standards and adapt to our research and innovation environment.

In terms of IPR layout and defense, GCL Technology actively analyzes the patent status of Jiangsu Zhongneng and the intelligence about our competitors. We have established a dedicated team to continuously and effectively protect the IPRs of the Company. In addition, we regularly organize trainings on IPR management system and the relevant knowledge to enhance the staff's awareness and ability of IPR management.

GCL Technology has applied patented technologies such as FBR-based granular silicon, modified Siemens process of polysilicon production method, high-efficiency polysilicon, ingot monocrystalline, Continuous Czochralski Monocrystalline (CCZ) and silicon wafer cutting process. The granting of various core invention patents has provided strong support for the independent IPR protection.



## Product Quality

GCL Technology prioritizes quality as one of the core principles in operations and a contributing factor for sustainable development. We insist on improving technological application and management and enhancing our quality control ability, so as to deliver premium products meeting the various demands of customers. Upholding the "customer first" concept, we also provide premium service experience for customers.

### Focusing on Quality

GCL Technology has strictly complied with laws and regulations on product quality and safety including the *Product Quality Law of the People's Republic of China*, the *Standardization Law of the People's Republic of China*, and the *Implementing Rules for the Manufacturing License for Industrial Products of the People's Republic of China*. We have developed and implemented a series of internal quality management systems. Based on systematic and hierarchical quality management processes, we continuously improve

the quality management system and quality management capabilities.

Nine subsidiaries of the Group have passed the ISO 9001 quality management system certification and are regularly reviewed by third parties. We have also put in place a strict product recall mechanism. During the Reporting Period, none of the products sold or transported by GCL Technology were recalled due to safety and health issues.

### Dedicated Service

GCL Technology is committed to becoming the supplier of silicon-based materials with the best customer experience. We constantly provide high-quality service to our customers and encourage responsible and sustainable consumption. We always focus on customer needs, face up to global competition, and enhance our brand value with market achievements and customer satisfaction.

### Responsible Marketing

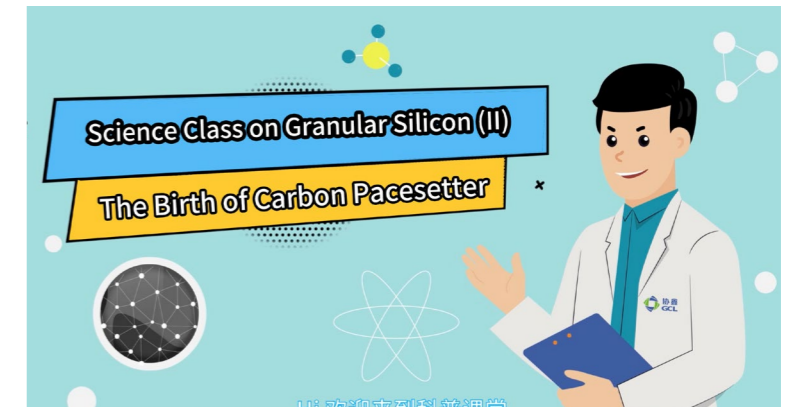
GCL Technology is devoted to promoting excellent social ethics and social customs in the production and operation process. We strictly abide by responsible marketing laws and regulations such as the *Advertising Law of the People's Republic of China*. We have formulated and implemented a series of internal guidelines and regulations including the *Responsible Marketing and Consumer Protection Policies*. We established review procedures for promotional content placement, strictly checked the compliance of materials in the marketing process, and organized regular training sessions related to marketing compliance to eliminate false and misleading advertisements.

The Group strives to help customers evaluate products and services, encourage consumers to make wise purchases,

share product information including pricing, in a transparent manner, without omitting any key information and with any unclear or ambiguous descriptions. According to customers' usage habits and production technology, we offer advice on the reasonable ratio of materials and provide technical support to help reduce production costs and improve production efficiency on the customer end. We provide downstream consumers with detailed information about product performance, usage and possible risks during product use, and provide consumers with sample products for trial.

GCL Technology insists on contributing to sustainable consumption. We also educate consumers and the public about the impact of their choice of products and services

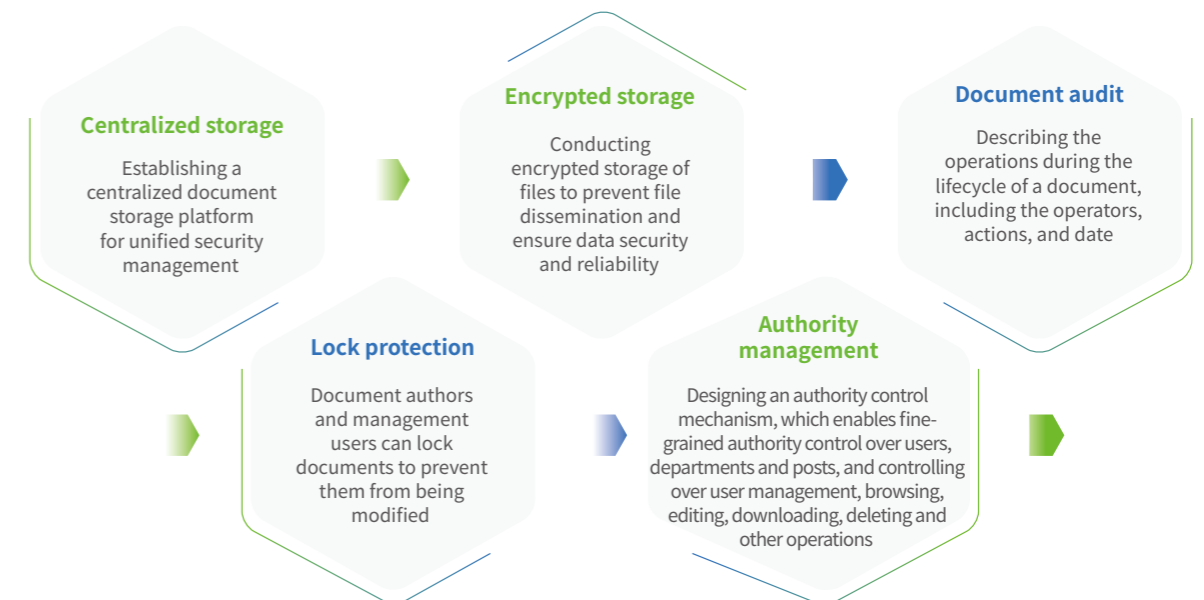
on their well-being and on the environment. GCL Technology publicizes granular silicon and new energy applications in various forms such as short videos. We have planned a series of short videos, for example "Science Class on Granular Silicon" and "Look, Our Carbon Pacesetter". These videos feature the development history, production process and low-carbon characteristics of granular silicon in the form of lively MG animation. These videos are novel and easy to understand, receiving over 22,000 views.



Science Class on Granular Silicon

### Consumer Privacy Protection

In strict compliance with the laws and regulations on data security and personal information, the Group has established a comprehensive and effective information security management system. We also strengthen information security management through such means as the information classification and confidentiality system, detailed control over sensitive information, and the installation of document security software. Furthermore, we promise to collect customer data with clear purposes and the consent of customers, minimize the amount of data collected as well as protect data security. Through these actions, we respect and protect the personal information of our customers to the maximum extent.



Information Security and Privacy Protection Measures of GCL Technology

In order to bolster information security management at its core, we take the initiative to conduct information security training and mandate employees to sign confidentiality agreements or clauses. This serves to heighten their awareness of information security and privacy protection. As a result, GCL Technology did not experience any incidents of customer information or privacy breach during the Reporting Period.

### Customer Complaint Response and Satisfaction Improvement

We highly value the communication with customers and actively diversify communication channels to ensure that we can understand and meet customer demands in a timely manner. GCL Technology offers online and offline communication channels on both the business and the customer end. We also assign dedicated persons to the site of key customers, forming a full-cycle and full-coverage customer communication feedback and handling mechanism.

We have established a sound customer complaint handling process and follow-up improvement management mechanism. We have also issued a series of customer complaint response systems such as the *Customer Complaint Handling Standards* and the *Product Quality Information Feedback Procedures* to clarify the customer complaint management system of GCL Technology. In 2022, GCL Technology handled customer complaints with the average response time of less than one working day, and 100% of the complaints were settled.

In order to fully understand the experiences and potential needs of customers, we regularly organize customer satisfaction questionnaires, which focus on issues such as the stability of products' chemical properties, packaging protection, timeliness of supply and timeliness of customer complaint handling. We also adopt improvement measures based on the survey results. In 2022, GCL Technology continued to optimize product quality and customer service experience, and the average satisfaction of key customers reached 91%.

Complaint handling rate

**100%**

Average satisfaction rate of key customers

**91%**



## Supply Guarantee

GCL Technology is devoted to building a harmonious and stable strategic partnership with suppliers, so as to better meet market demands. We fully leverage our advantages to continuously improve the supplier management system, strengthen the supply chain, extend the enterprise development concept to the supply chain, as well as connect the entire flow of the industrial chain. We also make unremitting efforts to create a more open and collaborative ecological platform, as well as facilitate the coordinated development of the industrial chain.

### Supplier Management

The Group aims to build a fair and transparent supply chain and support the construction of online bidding and purchasing platforms for digital, electronic, and collaborative procurement management. We have formulated a string of supplier management measures, including the *Supplier Management System*, the *Supply Chain Management System*, the *Procurement Management System*, the *EHS Assessment Method* and the *Anti-Corruption Regulations*. During the Reporting Period, we updated the definition of dishonest suppliers to further improve the supplier management system.

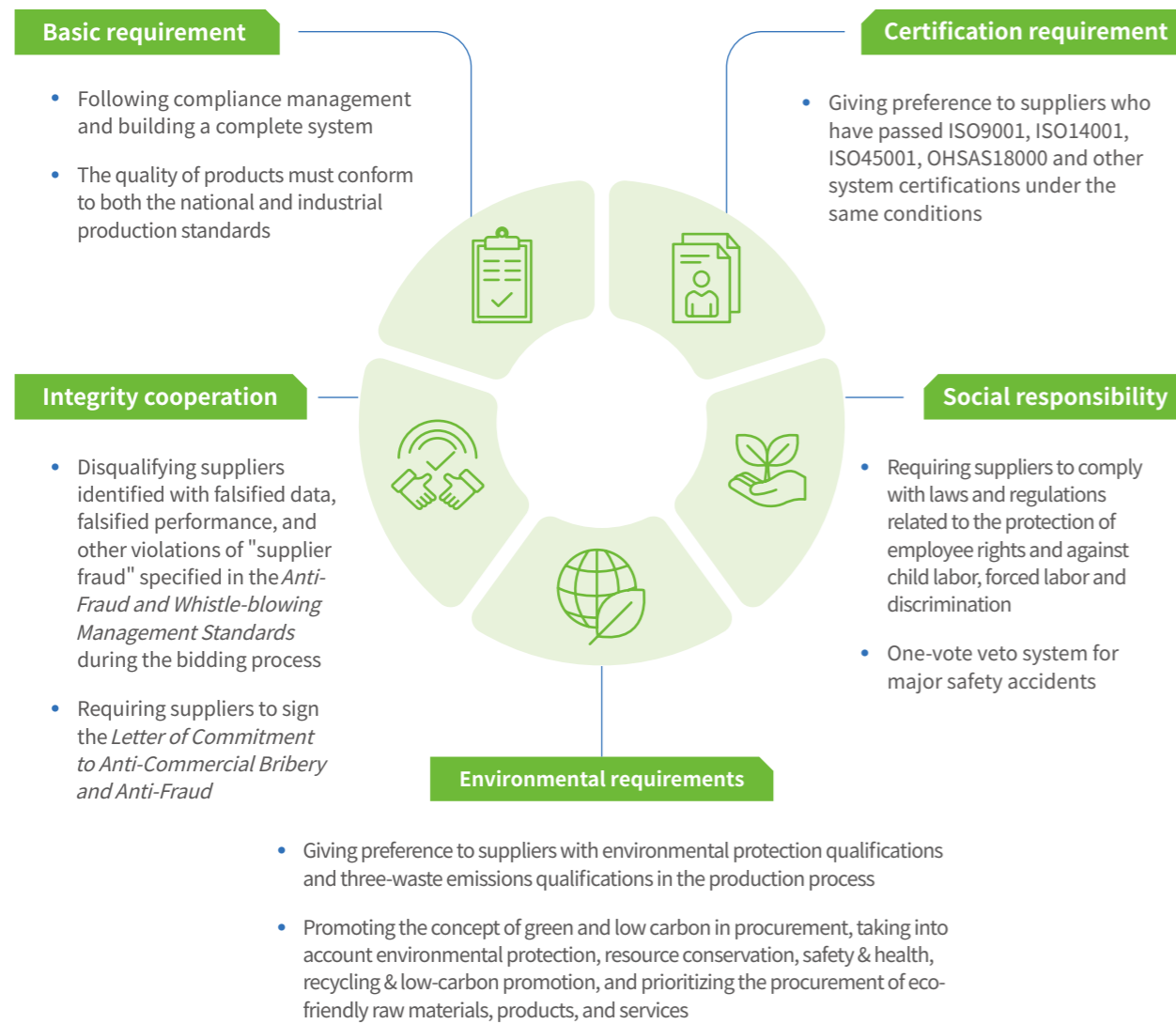
During the Reporting Period, the breakdown of the number of our suppliers is as follows:



Breakdown of Suppliers

## Responsible supply chains

With the aim to promote the sound and sustainable development of the supply chain, the Group integrates ESG factors into the supplier evaluation and cooperation process and conducts ESG risk management in all areas of the supply chain. Our supplier ESG management includes but is not limited to following measures:



GCL Technology has strategically positioned itself in the industrial silicon business of the upstream industry to ensure a steady supply of granular silicon raw materials. As part of our supply chain risk management, we have established a comprehensive supply chain assurance system and implemented diversified procurement measures. To mitigate various supply chain risks, we utilize consignment, alternative suppliers, annual framework procurement, pricing adjustment mechanisms, and point-to-point connections. Additionally, we provide significant support to local suppliers and ensure stable production through localized procurement.

### Support for local suppliers

In 2022, the Material Management Department of Inner Mongolia Xinyuan developed more than 20 local suppliers of silicon powder, auxiliary materials, packaging materials and sundry goods, which effectively reduced procurement cost, improved delivery timeliness, better secured material supply, as well as facilitated the growth of local suppliers.

The granular silicon project of Leshan GCL is located in Leshan City, Sichuan Province. The project was put into operation in July 2022. To meet diverse and complex demands for procurement. The Supply Chain Management Department developed more than 20 local suppliers, whose categories cover raw materials such as silicon powder, auxiliary materials, hardware and machinery, packaging materials and elevator maintenance. While improving the efficiency of local procurement, it also contributes to the sustainable development of local suppliers.

In 2022, the Material Management Department of Inner Mongolia Xinyuan developed more than

**20** local suppliers of silicon powder, auxiliary materials, packaging materials and sundry goods

## Empowering Suppliers

The Group places great importance on communication with our suppliers in order to strengthen our cooperation with each of them. We ensure timely interaction and exchange with suppliers through various channels such as the online portal management system, supplier visits, and on-site project communication. Additionally, we provide guidance and training to empower our suppliers and encourage innovative cooperation modes, promoting mutual development.

### Supplier training and guidance

In 2022, Inner Mongolia Xinyuan offered suppliers guidance on valve cleaning, thus improving the cleaning process and valve cleaning effect. In this way, the company can more effectively fulfill the cleaning requirements of equipment and materials during the production of granular silicon and ensures product quality.

In 2022, Jiangsu Zhongneng conducted more than 10 training sessions for suppliers, including admission conditions, inquiry & quotation, bidding rules, distribution requirements, safety and environmental protection commitments, anti-commercial bribery and anti-fraud commitments and confidentiality commitments. The training has helped suppliers better understand admission requirements and the bidding process, ensured the integrity of the supply chain, and improved cooperation efficiency.



# 04 Concerted Efforts and Shared Future

Capable talents are essential for achieving success.

GCL Technology adheres to a people-oriented human resource management philosophy, which strives to combine corporate development with the individual value of employees. We believe that employees are the most valuable asset of the company, and we protect their basic rights and interests while showing care and support for their personal growth. To attract and retain top talent, we continuously optimize the talent structure, compensation and benefit system, talent pipeline, and talent development channels to warm every employee.



# Talent Overview

GCL Technology views "GCL Home" as an integral part of our core value. Our employees are the source of innovation that stimulates sustainable development. GCL Technology strictly complies with employee recruitment laws and regulations in the places we operate such as the *Labor Law of the People's Republic of China*, the *Labor Contract Law of the People's Republic of China*, the *Regulations on the Prohibition of Child Labor*. In addition, we have formulated and thoroughly improved various employee management systems, including the *Labor Practice Policy of GCL Technology*<sup>8</sup> and the *Labor Management Standards*, in a bid to fully protect the legitimate rights and interests of employees during recruitment.

In line with the recruitment principles of "integration of internal and external factors, market-oriented competition and recruiting outstanding candidates", we have established the *Human Resources Strategic Planning Management System*. Based on the development strategy planning, business development needs and project operation of the Company, we

also carry out flexible talent demand forecasts and formulate reasonable recruitment plans. Aside from building a potential talent reserve pool and emerging talent reserve, we also widely attract talents with professional expertise, skills, and experience, and actively build a diversified team of outstanding talent.

During the Reporting Period, we adopted campus and social recruitment channels, and launched the global management trainee program. We furthered the partnership with educational institutions, targeted employment cooperation and orientation class cooperation, laying a solid talent foundation for our global business layout. During the Reporting Period, GCL Technology signed school-enterprise cooperation agreements and carried out the traineeship program with four regional universities to provide various cooperative training programs for students, potential and existing internal employees.

In strict compliance with our sound internal labor management system, we insist on building diverse and equal labor relations and creating an equal, inclusive, and fair workplace for our employees. In terms of compliance employment, we strictly follow the employment principle of "prohibiting child labor, any form of forced labor, employee discrimination and unfair competition". We also conduct strict pre-employment reference checks to verify the identity of new employees, and sign labor contracts with them to ensure employment compliance. Meanwhile, we regularly carry out internal labor reviews. If any form of forced labor is discovered within the Company, we will take

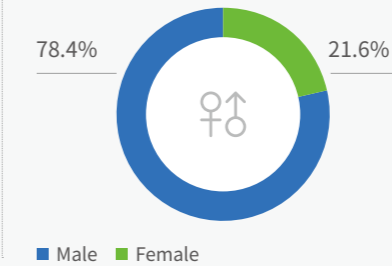
disciplinary action according to the relevant requirements. During the Reporting Period, GCL Technology did not involve in any incidents of child labor or forced labor.

At the end of the Reporting Period, the total workforce of GCL Technology amounted to 11,527 individuals. The majority of the employees, approximately 99.7%, were from the Chinese mainland, while 0.2% were from Hong Kong, Macao, and Taiwan, and the remaining 0.1% were from foreign countries. Our workforce breakdown is illustrated as follows.

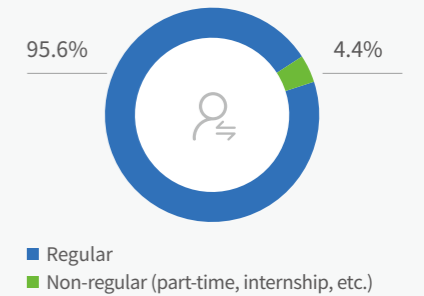


Total workforce amounted to **11,527**

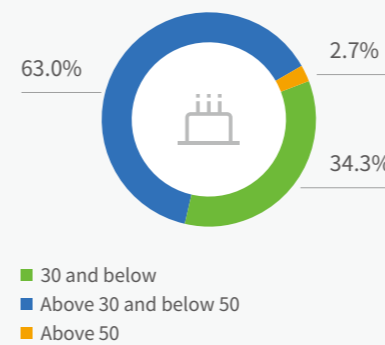
Number of employees by gender



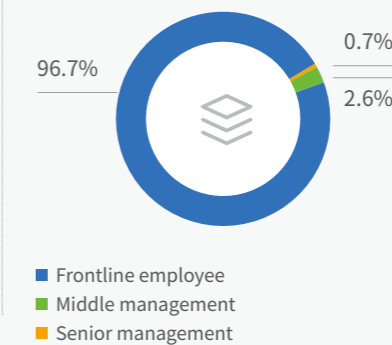
Number of employees by employment type



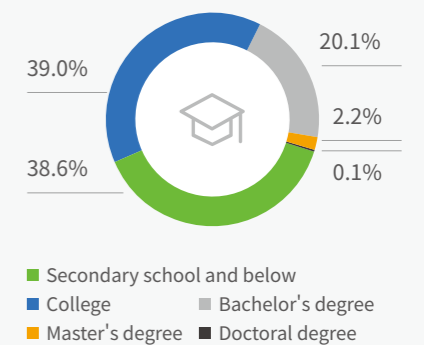
Number of employees by age



Number of employees by position



Number of employees by educational background



GCL Technology is fully aware of the importance of talent to sustainable development and regards employees as the most valuable asset of the Company. We not only actively introduce excellent talents aligned with our business strategy and development level, but also effectively unleash the vitality of our talents. The Company also shows more heartfelt care and adopts multiple measures to retain talent, including providing more competitive compensation and benefits, offering diverse channels for career development, and strengthening the construction of corporate culture.

## School-enterprise cooperation for young talent cultivation

During the Reporting Period, GCL Technology signed a strategic cooperation framework agreement with Inner Mongolia Vocational College of Chemical Engineering. Both sides would engage in in-depth cooperation on "collaborative education, collaborative innovation, collaborative service and joint construction of resource pool", so as to empower the sustainable development of GCL Technology.



In respect of the talent pipeline, GCL Technology is closely cooperating with top domestic and overseas research institutes of chemical engineering and macromolecule materials. Through approaches such as expert introduction, internal cultivation and social recruitment, we continuously recruit new professional forces and absorb advanced experience, based on the existing R&D and management teams.

<sup>8</sup> For more details about *Labor Practice Policy of GCL Technology*, please visit <http://www.gcltech.com/uploads/investor83/1659097990418592.pdf>

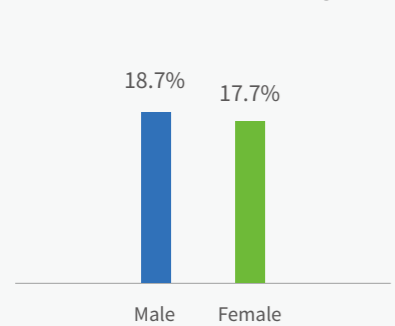
In 2022, GCL Technology continued to create a harmonious, diverse, and inclusive workplace, improve employees' working experience, and enhance their sense of belonging, identity, and gain.



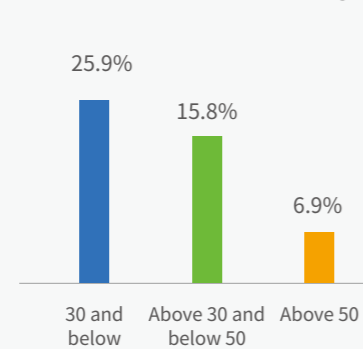
Employee Family Banquet-Experience of the Corporate Culture of GCL Technology

During the Reporting Period, GCL Technology maintained a stable staff, and our employee turnover rate stood at 18.5%. Details of our employee turnover are as follows:

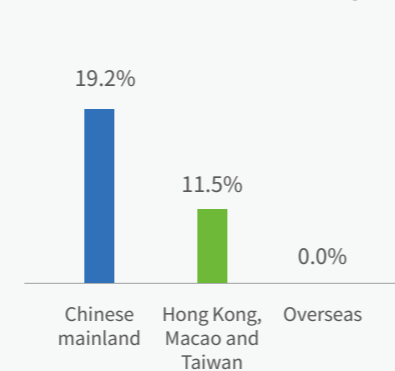
Turnover rate of employees by gender



Turnover rate of employees by age



Turnover rate of employees by region



## Talent Cultivation

GCL Technology has a longstanding dedication to fostering employee growth and inspiring innovation, entrepreneurship, and value creation among its workforces. Furthermore, the Company strives to distribute development benefits equitably among its employees by providing them with a range of advancement and professional development opportunities, as well as diverse training courses. GCL Technology also assists its employees in enhancing their occupational abilities and acquiring general and managerial skills to achieve their long-term career objectives.

## Employee Development

The Group is dedicated to creating a thorough evaluation mechanism and a transparent career progression plan for its employees. To achieve this, we have developed systems for performance appraisal and promotion management, such as the *Management Standards for Promotion and Demotion of Employees* and the *Performance Appraisal Management Standards for Functional Departments*. These systems integrate talent evaluation, development, performance, and salary management, allowing us to effectively assess the abilities of key personnel and empower all employees for long-term growth.

After the evaluation cycle, we gather feedback from employees to ensure a closed management loop and continuously improve the employee ability evaluation system.

### Promotion channels for different positions

- Employees choose promotion channels according to their positions (management, professionalism, technology, R&D, and operation)

### Capability-oriented

- Combining the employee ability evaluation results with promotion and recruitment, in line with the principle of "position based on ability"
- Designing evaluation and recruitment criteria for core positions and formulating the incentive mechanism to motivate frontline employees to continuously improve their skills

### Personalized planning

- Preparing employee mobility plans to support the flexible mobility of excellent employees in offices and places of operation including Suzhou, Xuzhou, and Hong Kong

### Transparent promotion mechanism

- Ensuring scientific and reasonable promotion and evaluation criteria and implementing fair promotion

### Supporting employee development with multiple resources

- Encouraging all employees, including part-time employees and contracted employees, to obtain professional qualifications such as certified public accountant, financial risk manager, as well as undergraduate and postgraduate on-the-job degrees, and providing financial support and working hours support at the company level
- Offering career counseling to all employees

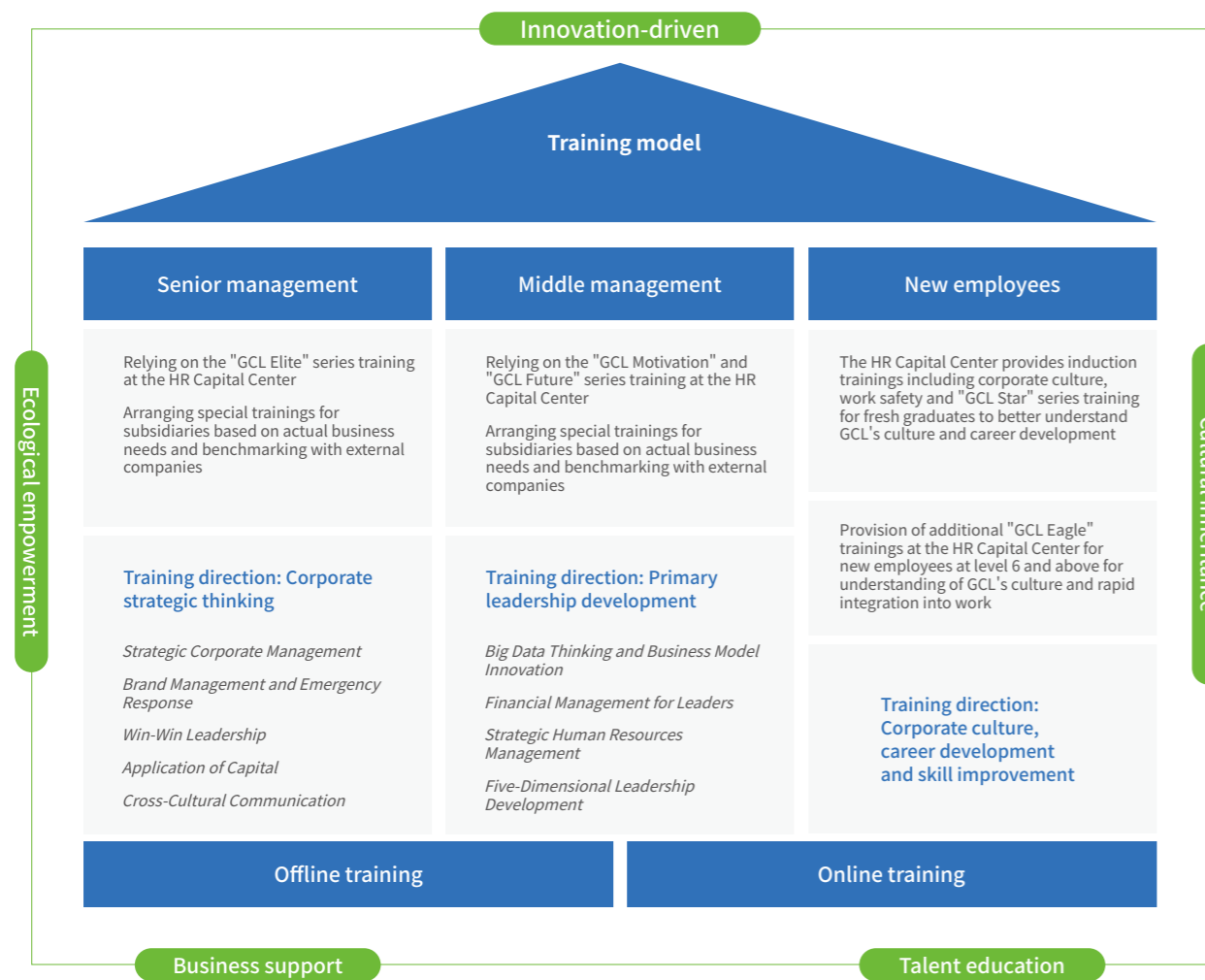
Employee promotion and development system of GCL Technology

Our emphasis is on meeting the demand for managerial talents in critical incremental projects. To achieve this, we encourage our employees with high-potential to participate actively in the selection process for cadre reserves, while simultaneously creating a fair competition environment and career development opportunities for all employees. During the Reporting Period, we conducted a thorough assessment of senior executives within the management center and

leadership teams for critical projects. We compared the talent data both within and outside the industry, analyzed their business and project management capabilities, and evaluated their professional qualifications, value contributions, and management abilities. Additionally, we offered suggestions to improve the skills and career development of high-potential employees across various levels.

## Employee Training

We have built an innovative five-dimensional training model in strict compliance with the internal *Training Management Standards*. We also strive to meet the needs of employee training while supporting the business development of the Company. In addition, we organize both online and offline training activities to provide various categories of multi-dimensional and diverse employee trainings, aiming to improve employees' managerial skills, professional capabilities, and vocational abilities, and dig deep into the potential and value of each employee.



The Five-dimensional Employee Training Model of GCL Technology

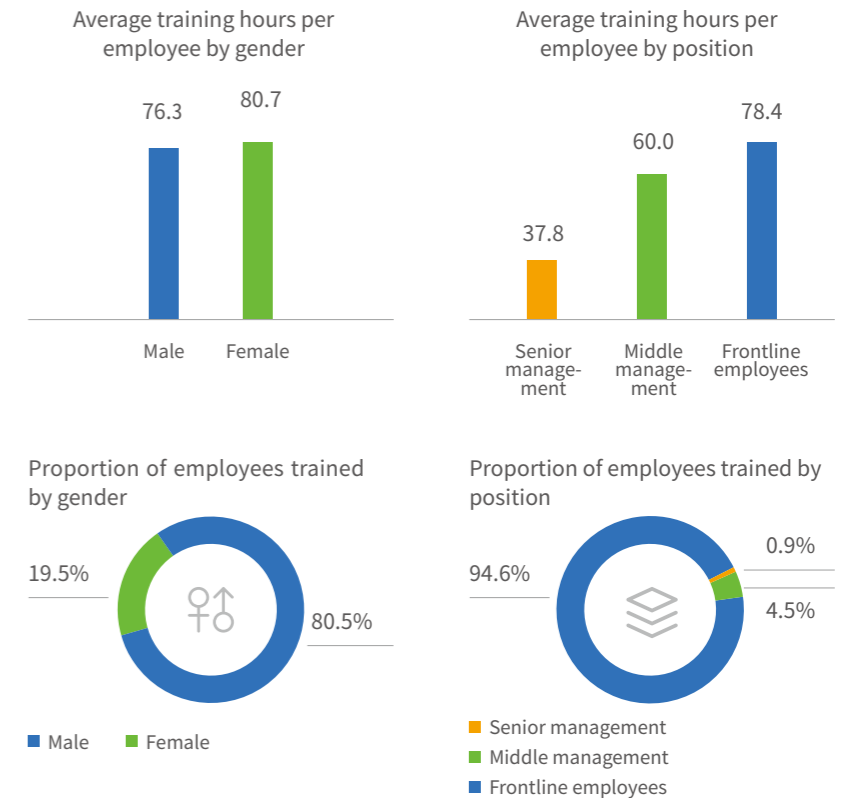
During the Reporting Period, we carried out the "Wuhang Plan" covering all our staff from frontline employees to senior executives, in a bid to further improve the employee training system. Through the combined use of online and offline channels, we improve employees' abilities in a multi-channel, multi-form, and multi-dimensional manner.

Relying on the sound training management system and other relevant system, we carried out a wide variety of training programs and activities during the Reporting Period. In addition, we further deepened the school-enterprise cooperation, fully met the personalized career development needs of employees at different levels and in different positions, and comprehensively improved the professional ability of all employees.

During the Reporting Period, a total of 15,329 employees of GCL Technology participated in the training, with an average training time of 77.2 hours. The details of the employee training are as follows:

Number of employees participated in training

15,329



# Employee Care

GCL Technology's mission is not only to bring green energy into people's lives but also to show genuine care for all employees. We prioritize protecting the legitimate rights and interests of every employee and providing them with competitive compensation and benefits. Additionally, we respect their right to express their demands and have established a flexible and efficient communication system. During the Reporting Period, we organized several employee engagement activities to motivate their passion and enthusiasm for work and cultivate a warm and supportive work environment.

## Rights and Interests of Employees

GCL Technology respects and values every employee and fully protects their rights and interests. In the areas we operate, we strictly abide by the relevant laws and regulations such as the *Labor Law of the People's Republic of China*, the *Labor Contract Law of the People's Republic of China* and the *Law of the People's Republic of China on the Protection of Rights and Interests of Women*. In accordance with international initiatives such as the *ILO Declaration on Fundamental Principles and Rights at Work*<sup>9</sup> and the *UN Guiding Principles on Business and Human Rights*<sup>10</sup>, we have formulated relevant systems, including the *Human Rights Policy of GCL Technology*<sup>11</sup> and the *Employee Rights Protection Policy of GCL Technology*<sup>12</sup>. We resolutely prohibit discrimination

on the basis of nationality, age, ethnicity, gender, belief, and other differences or on the basis of illness, mental and physical defects, and we have zero tolerance for employee harassment and workplace threats in any form. We promise to treat every employee fairly and protect the legitimate rights and interests of our employees. We have not experienced any significant layoffs in the past three years.

We have long been striving to build harmonious and stable labor relations, safeguard the legitimate and special rights and interests of female employees, and respect the rights of free association and collective bargaining, in a bid to promote the stable and sound development of the Company.



### Protection Measures for Employee Rights and Interests

<sup>9</sup> For the *ILO Declaration on Fundamental Principles and Rights at Work*, please visit [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilobbeijing/documents/publication/wcms\\_158529.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilobbeijing/documents/publication/wcms_158529.pdf)

<sup>10</sup> For the *Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework*, please visit [https://www.ohchr.org/sites/default/files/Documents/Publications/GuidingPrinciplesBusinessHR\\_CH.pdf](https://www.ohchr.org/sites/default/files/Documents/Publications/GuidingPrinciplesBusinessHR_CH.pdf)

<sup>11</sup> For more details about the *Human Rights Policy of GCL Technology*, please visit <http://www.gcltech.com/uploads/investor83/1659098001452952.pdf>

<sup>12</sup> For more details about the *Employee Rights Protection Policy of GCL Technology*, please visit <http://www.gcltech.com/uploads/investor83/1659098011697945.pdf>

## Compensation and Benefits

We provide competitive compensation and various benefits for all employees and have established a diversified employee compensation and benefit system. In 2022, we conducted a survey on employee compensation among peer enterprises in surrounding areas, so as to improve our pay competitiveness as well as attract and retain excellent talents. During the Reporting Period, we revised the *Employee Attendance and Leave Management Standards* and the *Benefits Management Standards* and offered new benefits to female employees, such

as childcare leave and single child care leave, to guarantee the welfare of female employees.

As of the end of the Reporting Period, GCL Technology and our subsidiaries at all levels had established 13 labor unions covering all production enterprises. Thanks to the sound organizational structure and complete functions, these labor unions safeguarded the benefits for all employees, allowing employees to further feel at home in GCL Technology.

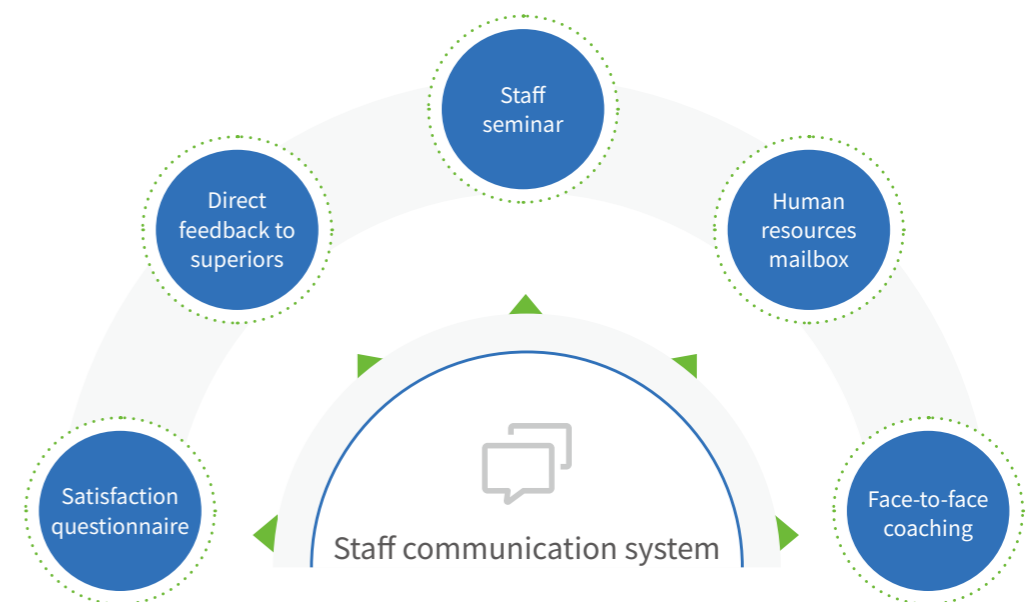
## Employee Equity Incentive

We are committed to establishing a sustainable incentive and constraint mechanism that will effectively motivate our exceptional employees, promote the sharing of benefits, and strengthen the Company's cohesion and core competitiveness. In 2022, GCL Technology launched a medium and long-term equity incentive plan for around 233 key R&D and production staff, providing them with roughly

290 million shares. This initiative has enabled us to maintain our sustainability on technological innovation, facilitating the Company's rapid and high-quality development. Additionally, we plan to extend the equity incentive plan to more departments and include outstanding employees from diverse positions, so as to encourage their motivation and initiative comprehensively.

## Employee Communication

GCL Technology has implemented a flexible and efficient communication system, developed multiple channels for employees to express themselves, and enhanced the overall communication effectiveness between employees and the Company. To promote employee satisfaction, we conduct annual surveys and prioritize the "happy experience" of our employees in organizational management. In doing so, we adhere to ESG principles of social responsibility and sustainable development, which effectively increases our employees' happiness and job satisfaction.



## Employee Activities

At GCL Technology, we prioritize the work-life balance of all our employees and place a strong emphasis on their physical and mental well-being. We value the harmonious relationship between labor and management, encourage employee participation in scientific and technological innovation, and recognize outstanding employees for their contributions. We also provide platforms for talent showcasing, organize cultural and sports events, and enrich the leisure lives of our employees. Throughout the Reporting Period, we held various employee events, including birthday celebrations, reading groups, Women's Day festivities, parent-child activities, and summer heat relief programs, creating a warm and welcoming environment for all our employees.



Celebration activities for Women's Day



Parent-child activities



Summer heat relief activities



Employee birthday parties

### "Happy GCL" survey in 2022

The "Happy GCL" survey kicked off on 11 October 2022. The "Happiness Model Indicator" was built from four perspectives, namely organization, leadership, employee experience and ESG. The survey aims to conduct in-depth research on eight dimensions, including organizational excellence, organizational health, growth promotion, employee care and happy achievement. By exploring excellent practices, successful experience and problems existing in organizational management, the Company focused on improving the work experience of employees.

The survey was anonymous, and 10,520 valid questionnaires were completed. Based on the survey results, all business departments and project companies exchanged ideas on the problems identified in the survey. Besides discussing and formulating improvement and action plans, they also determined factors such as the responsible person, completion time and quantitative standards, which were adopted as one of the key objectives of management improvement in 2023.

Number of valid questionnaires

10,520



GCL Technology has established a confidential and efficient internal complaint process for our employees. We fully guarantee the safety and privacy of our employees and encourage them to submit complaints and feedback related to workplace discrimination, sexual harassment, and unfair treatment. We promise to thoroughly investigate all complaints and feedback submitted by employees. In cases where the complaint is validated, we maintain a "zero tolerance" policy for individuals involved and promptly inform the employees of the investigation and resolution results.

# Health and Safety

At GCL Technology, we place the utmost importance on the safety and well-being of our employees as we believe that a secure and healthy workplace is an essential entitlement of every worker and forms the cornerstone of our Company's sustainable growth. We strive to provide a safe and healthy working environment for all our employees and take our responsibility seriously in ensuring their occupational health.

## Production Safety

GCL Technology strictly abides by production safety laws and regulations such as the *Production Safety Law of the People's Republic of China* and the *Fire Protection Law of the People's Republic of China*. We have formulated internal management regulations such as the *Safety Production Assessment Management Standards* and the *EHS Inspection and Hidden Hazard Control Regulations*. In 2022, the Company conducted compliance evaluation on internal regulations and revised the EHS regulations, including the EHS management system, on-site safety operation procedures and operation instructions, based on the latest updates on local laws and regulations and the actualities of the Company.

To optimize our structure, we established a Safety Committee that oversees the comprehensive coordination of our production safety system. This committee is responsible for clarifying departmental responsibilities, developing safety standards, improving our production safety management structure, and establishing a complete safety supervision and assurance system from top to bottom. The EHS Office is accountable for ensuring that all units fulfill their primary responsibility for production safety and will investigate and handle any production safety accidents. Furthermore, we have signed safety production management agreements with external construction units to define the safety production obligations of both parties and regularly conduct education and training activities for relevant personnel. During the Reporting Period, nine subsidiaries of GCL Technology, representing 75% of all subsidiaries of the Company, successfully obtained the ISO 45001 occupational health and safety management system certification.

Nine subsidiaries obtained ISO 45001 occupational health and safety management certification, representing

**75%**  
of all subsidiaries



## Safety Performance and Objectives

After considering all relevant factors, our subsidiaries set an annual production safety goal. We conduct quarterly evaluations and performance assessments of safety production for both our subsidiaries and the individuals in charge. To ensure that our safety performance objectives are met, we utilize self-evaluation and spot checks. During the Reporting Period, GCL Technology recorded zero fatal incidents among our employees, 29 instances of work-related injury, and 21,414 lost work hours due to injury.

## Safety Training and Publicity

GCL Technology attaches great importance to improving each employee's knowledge and emergency skills related to health and safety. We actively organize safety training activities to improve employees' emergency responsiveness and risk prevention capability. In 2022, we updated the *Administrative Rules of EHS Education* based on the latest regulations and cases, added amendments on standardized management of hazardous waste and emergency management, and offered employee training on the interpretation of the latest safety requirements.

In the meantime, we successfully implemented specialized safety training programs for various categories and ranks of employees, ensuring their effectiveness. Furthermore, we made it mandatory for new hires to undergo an EHS education assessment at the company level, functional department/workshop level, and job level before commencing work. For senior management, our monthly business analysis will synchronize the training content and will further deepen it to enhance their safety knowledge reserve.

In order to optimize the emergency plan management system, GCL Technology formulated drill plans and implemented various drills. Meanwhile, with the "Production Safety Month", "119 Fire Protection Month" and other events for safety-related publicity, GCL Technology guides employees to develop the awareness of prevention and protection as well as expand relevant protection skills.

Extensive publicity



Fire safety knowledge training



Fire inspection



Fire drill



"119 Fire Protection Month" of Suzhou GCL

Occupational Health

GCL Technology values the occupational health of all employees and strives to create a safe and healthy working environment. We strictly abide by occupational health laws and regulations such as the *Law of the People's Republic of China on the Prevention and Control of Occupational Diseases*, the *Regulations on the Prevention and Control of Pneumoconiosis of the People's Republic of China* and the *Regulations on Labor Protection in Workplaces Where Toxic Substances Are Used*. We have then formulated internal policies and systems including the *Management System of Articles (Appliances) for Labor Protection*, the *Regulations on Management of Work Subject to High Temperature and Heatstroke Prevention and Cooling*, the *Regulations on Occupational Health Management of Radioactive Sources*, the *Occupational Disease Prevention and Control Plans and Implementation Program*, the *Responsibility System for Occupational Disease Prevention and Control* and the *Occupational Disease Hazard Warning and Notification System*. The Company has established a sound occupational health management system to protect the health and safety of all employees.

Throughout the Reporting Period, we implemented a range of measures to safeguard the occupational health of our entire workforce. We conducted distinct physical check-ups for employees with varying job roles to help those who are exposed to health hazards better understand their health conditions. We documented the results of physical examinations and promptly transferred employees with abnormal results from their positions. To prevent occupational diseases, we arranged for medical experts to give lectures on a regular basis, which raised employees' awareness of how to prevent and treat such illnesses. Additionally, we pursued technical innovations by introducing robots and other automated equipment to reduce the workload of our employees, enhance work efficiency, and further mitigate the risks of occupational diseases. Notably, during the Reporting Period, we had zero cases of occupational diseases among our employees.

During the Reporting Period,

**0**  
occupational disease incident occurred involving GCL Technology

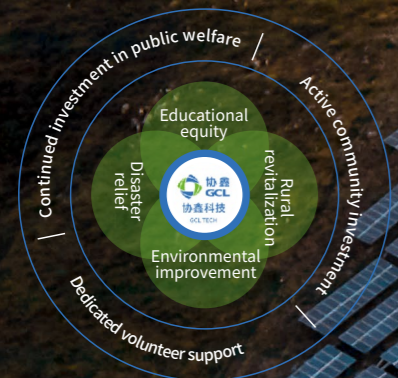


# 05

## Social Responsibility and Public Welfare

GCL Technology contributes to society with concerted efforts and steady steps.

We are keenly aware that the development of the Company is inseparable from the support of all sectors of society. Upholding the concept of philanthropy, we actively fulfill our corporate social responsibility and contribute to society with a sense of gratitude. Under the guidance of our social responsibility matrix, we live up to the high expectations of the society. While realizing sustainable development, we forge close connections between the Company and the community, promote community building and sharing, as well as facilitate social growth and economic prosperity.



Social Responsibility Matrix of GCL Technology

By the end of 2022

our cumulative investment in public welfare, community investment and other sectors had exceeded

**RMB 13.207 million**

GCL Technology has won a high recognition from authoritative media and has been granted various awards for our continuous efforts and investment.



# Philanthropy

While continuously improving economic benefits, we focus on green development and public welfare. We engage in charitable donations and public welfare undertakings through various channels and build a harmonious community with concrete actions.

## Rural Revitalization

Revitalizing the cultural development vitality of rural areas is a key project in the rural revitalization strategy and also a social responsibility that GCL Technology adheres to. During the Reporting Period, we actively carried out rural revitalization projects to help build a new rural culture.

### Healthy China and rural revitalization

In June 2022, Henan GCL, a subsidiary of GCL Technology, donated six sets of outdoor fitness equipment to Wangzhuang Village in Luohe, Henan Province to promote national fitness and contribute to rural revitalization.



## Disaster Relief

Cooperation and solidarity in times of hardship are traditional virtues in the Chinese culture. GCL Technology deeply integrates the humanitarian spirit into its corporate culture. When disasters strike, we feel a sense of duty to respond promptly and launch relief efforts, working alongside the affected communities to overcome challenges together.

### Joint efforts towards disaster relief

On 5 September 2022, a 6.8-magnitude earthquake struck Luding County, Ganzi Prefecture, Sichuan Province, resulting in significant loss of life and property damage. In response to the disaster, we paid close attention and took prompt action. The Group and Jiangsu GCL Sunshine Charity Fund donated RMB10 million in cash and the "GCL Sunshine" distributed PV power generation system worth RMB10 million to the Red Cross Society of Garze Tibetan Autonomous Prefecture for earthquake relief and post-disaster reconstruction in Garze Prefecture, Sichuan Province.

Donation made to Red Cross Society of Garze Tibetan Autonomous Prefecture

**RMB10 million**

Donation of the "GCL Sunshine" distributed PV power generation system worth

**RMB10 million**

## Educational Support

GCL Technology has always been committed to the education for left-behind children and strived to improve the learning and living conditions of impoverished students through various educational support programs. We also contribute to the development of grassroots cultural construction and regional education with concrete actions.

### Donations for the education of left-behind children

In September 2022, Inner Mongolia Xinyuan, in conjunction with the GCL Sunshine Charity Fund, organized the charity activities to provide pastoral care for left-behind children in rural areas. This program included various services such as emotional support, self-protection education, and social practice opportunities for students from Xinguang Primary School in Hondlon District, Dasuji Primary School in Darhan Muminggan Joint Banner, and Wuke Primary School in Darhan Muminggan Joint Banner. The program also donated RMB200,000 in the first year.



# Volunteer Activities

The Group upholds a social service model that places the Company at the forefront while engaging all employees. This approach promotes a culture of volunteerism among our workforce and encourages participation in diverse volunteer service projects sponsored by the Group. As part of our continued commitment to advancing public welfare

initiatives, GCL Technology is actively involved in community development and ecological preservation. We proactively collaborate with our employees, charitable organizations, and other stakeholders to organize a wide range of volunteer activities. Our goal is to promote the spirit of giving back and achieve harmony between corporate and social values.

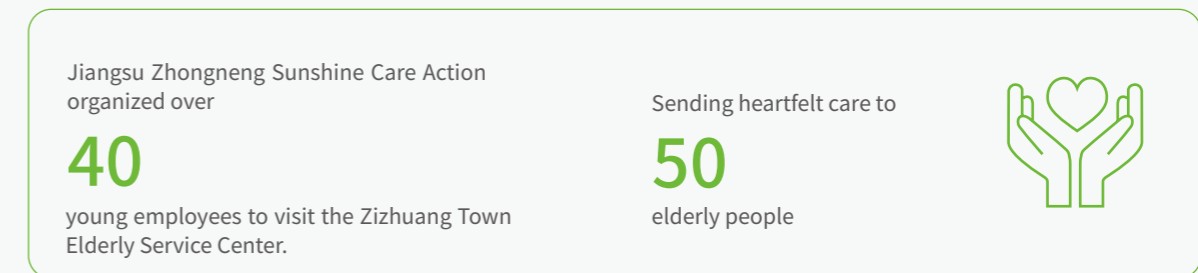


## Community Building

We maintain a strong sense of gratitude and continuously strive to enhance communication and connection with the community. Our company also unites all employees to engage in diverse community building activities and share our business achievements with the community. We have cultivated a culture of community volunteerism where everyone can contribute in their own way, actively promoting the sustainable development of the community.

### Showing respect and care for the elderly in the community

In September 2022, Jiangsu Zhongneng Sunshine Care Action organized more than 40 young employees to visit the Zizhuang Town Elderly Service Center. They also brought the "Sunshine Care Packages" and heartfelt care to 50 elderly people, making them feel the care and warmth from the society.



# About the Report



## Report Overview

This report is the 10th Environmental, Social and Governance ("ESG") Report of GCL Technology Holdings Limited (referred as the "Company" or "GCL Technology" in the Report, previously known as GCL-Poly Energy Holdings Limited), focusing mainly on ESG management and performance of GCL Technology and its subsidiaries (referred as the "Group" or "we" in the Report). It is an annual report which covers the work between 1 January 2022 and 31 December 2022 (referred as the "Reporting Period" in the Report). To make this report more readily understandable, some content and data are traceable back to the source in previous years or subsequent years.

## Scope and Coverage of the Report

Unless otherwise specified, the policy documents, statements and data in this report cover the headquarters of the Company and the subsidiaries and holding companies actually controlled by the Company. The previous data quoted in this report are the final statistics, and the financial data in this report are denominated in RMB. The company has no significant mergers and acquisitions in the past three years.

## Basis of Preparation

The report has been prepared in accordance with the *Environmental, Social, and Governance Reporting Guide* set out in Appendix 27 of the *Listing Rules* of The Stock Exchange of Hong Kong Limited (referred as the "SEHK" or the "Stock Exchange" in the Report), with reference to the issues of concern covered by the United Nations Sustainable Development Goals ("SDGs"), factoring into the current development level and actual ESG practices of the Company. The content of this report is determined according to a set of systematic procedures, which include identifying and prioritizing major stakeholders and material ESG-related issues, defining the boundary of the ESG Report, collecting relevant materials and data, preparing the report based on the data, and reviewing the data of the report.

## Reliability Assurance

After being confirmed by the management, this report was adopted by the Board of Directors of the Company (referred as the "Board of the Directors" in the Report) on April 14th of 2023. The Group ensures that this report contains no false records, misleading statements or material omissions. We undertake to be responsible for the authenticity, accuracy and completeness of this report.

## Access and Response to the Report

Traditional Chinese and English versions of this report are available. The electronic version of this report can be obtained from the "Financial Statements/Environmental, Social and Governance Information" category on the website of the SEHK and the "Corporate ESG" section of the official website of the Group (<http://www.gcltech.com>). If you have any questions or suggestions on the content of this report, please contact us by following means:

**Telephone:** (Hong Kong) (852) 2526 8368  
(PRC) (86) 0512 6853 3856  
**Fax:** (852) 2536 9638  
**E-mail:** [ir@gcl-power.com.hk](mailto:ir@gcl-power.com.hk)  
**Address:** Unit 1703-1706, Level 17, International Commerce Centre, 1 Austin Road West, Kowloon, Hong Kong

# Appendices

## HKEX ESG Reporting Guide Content Index

Aspects, General Disclosure, KPIs		Location
<b>Environmental</b>		
<b>A1: Emissions</b>	General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste.  Green Operations and Low-carbon Future— Green Environment  Green Operations and Low-carbon Future— Addressing Climate Change
	A1.1	The types of emissions and respective emissions data.  Green Operations and Low-carbon Future— Green Environment
	A1.2	Total greenhouse gas emissions (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).  Green Operations and Low-carbon Future— Addressing Climate Change
	A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).  Green Operations and Low-carbon Future— Green Environment
	A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).  Green Operations and Low-carbon Future— Green Environment
	A1.5	Description of measures to mitigate emissions and results achieved.  Green Operations and Low-carbon Future— Addressing Climate Change  Green Operations and Low-carbon Future— Green Environment
	A1.6	Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved.  Green Operations and Low-carbon Future— Green Environment
<b>A2: Use of Resources</b>	General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials.  Green Operations and Low-carbon Future— Addressing Climate Change  Green Operations and Low-carbon Future— Resource Management
	A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total and intensity  Green Operations and Low-carbon Future— Addressing Climate Change
	A2.2	Total water consumption and intensity  Green Operations and Low-carbon Future— Resource Management
	A2.3	Description of energy use efficiency initiatives and results achieved.  Green Operations and Low-carbon Future— Addressing Climate Change
	A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency initiatives and results achieved.  Green Operations and Low-carbon Future— Resource Management
	A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.  Green Operations and Low-carbon Future— Resource Management
<b>A3: The Environment and Natural Resources</b>	General Disclosure	Policies on minimising the issuer's significant impacts on the environment and natural resources.  Green Operations and Low-carbon Future— Resource Management
	A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.  Green Operations and Low-carbon Future— Resource Management

Aspects, General Disclosure, KPIs		Location
<b>A4: Climate Change</b>	General Disclosure	Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issuer.  Green Operations and Low-carbon Future— Addressing Climate Change
	A4.1	Description of the significant climate-related issues which have impacted, and those which may impact, the issuer, and the actions taken to manage them.  Green Operations and Low-carbon Future— Addressing Climate Change
<b>Social</b>		
<b>B1: Employment</b>	General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare.  Concerted Efforts and Shared Future— Talent Overview
	B1.1	Total workforce by gender, employment type, age group and geographical region.  Concerted Efforts and Shared Future— Talent Overview
	B1.2	Employee turnover rate by gender, age group and geographical region.  Concerted Efforts and Shared Future— Talent Overview
	<b>B2: Health and Safety</b>	General Disclosure
B2.1		Number and rate of work-related fatalities  Concerted Efforts and Shared Future— Health and Safety
B2.2		Lost days due to work injury.  Concerted Efforts and Shared Future— Health and Safety
B2.3		Description of occupational health and safety measures adopted, how they are implemented and monitored.  Concerted Efforts and Shared Future— Health and Safety
<b>B3: Development and Training</b>	General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.  Concerted Efforts and Shared Future— Talent Cultivation
	B3.1	The percentage of employees trained by gender and employee category  Concerted Efforts and Shared Future— Talent Cultivation
	B3.2	The average training hours completed per employee by gender and employee category.  Concerted Efforts and Shared Future— Talent Cultivation
<b>B4: Labour Standards</b>	General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour.  Concerted Efforts and Shared Future— Talent Overview
	B4.1	Description of measures to review employment practices to avoid child and forced labour.  Concerted Efforts and Shared Future— Talent Overview
	B4.2	Description of steps taken to eliminate such practices when discovered.  Concerted Efforts and Shared Future— Talent Overview

Aspects, General Disclosure, KPIs		Location
B5: Supply Chain Management	General Disclosure	Policies on managing environmental and social risks of the supply chain. Technological Empowerment and Quality First—Supply Guarantee
	B5.1	Number of suppliers by geographical region. Technological Empowerment and Quality First—Supply Guarantee
	B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, and how they are implemented and monitored. Technological Empowerment and Quality First—Supply Guarantee
	B5.3	Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored. Technological Empowerment and Quality First—Supply Guarantee
	B5.4	Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored. Technological Empowerment and Quality First—Supply Guarantee
B6: Product Responsibility	General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress. Technological Empowerment and Quality First—Product Quality
	B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons. Technological Empowerment and Quality First—Product Quality
	B6.2	Number of products and service-related complaints received and how they are dealt with. Technological Empowerment and Quality First—Product Quality
	B6.3	Description of practices relating to observing and protecting intellectual property rights. Technological Empowerment and Quality First—Scientific and Technological Innovation
	B6.4	Description of quality assurance process and recall procedures. Technological Empowerment and Quality First—Product Quality
	B6.5	Description of consumer data protection and privacy policies, and how they are implemented and monitored. Technological Empowerment and Quality First—Product Quality
B7: Anti corruption	General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering. Responsible Corporate and Compliance Operations—Corporate Governance
	B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases. Responsible Corporate and Compliance Operations—Corporate Governance
	B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored. Responsible Corporate and Compliance Operations—Corporate Governance
	B7.3	Description of anti-corruption training provided to directors and staff. Responsible Corporate and Compliance Operations—Corporate Governance
B8: Community Investment	General Disclosure	Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests. Social Responsibility and Public Welfare—Volunteer Activities
	B8.1	Focus areas of contribution. Social Responsibility and Public Welfare—Volunteer Activities
	B8.2	Resources contributed to the focus area. Social Responsibility and Public Welfare—Volunteer Activities

## List of Laws and Regulations

<i>Company Law of the People's Republic of China</i>	<i>Standardization Law of the People's Republic of China</i>
<i>The Law of the People's Republic of China on Enterprise Income Tax</i>	<i>Implementing Rules for the Manufacturing License for Industrial Products of the People's Republic of China</i>
<i>Criminal Law of the People's Republic of China</i>	<i>Advertisement Law of the People's Republic of China</i>
<i>Law of the People's Republic of China Against Unfair Competition</i>	<i>Labor Law of the People's Republic of China</i>
<i>Anti-Monopoly Law of the People's Republic of China</i>	<i>Labour Contract Law of the People's Republic of China</i>
<i>Environmental Protection Law of the People's Republic of China</i>	<i>Law of the People's Republic of China on the Protection of Rights and Interests of Women</i>
<i>Law of the People's Republic of China on Environmental Impact Assessment</i>	<i>Regulations on the Prohibition of Child Labour</i>
<i>Water Law of the People's Republic of China</i>	<i>Production Safety Law of the People's Republic of China</i>
<i>Water Pollution Prevention and Control Law of the People's Republic of China</i>	<i>Fire Protection Law of the People's Republic of China</i>
<i>Law of the People's Republic of China on Prevention and Control of Environmental Pollution by Solid Waste</i>	<i>Law of the People's Republic of China on the Prevention and Control of Occupational Diseases</i>
<i>Air Pollution Prevention and Control Law of the People's Republic of China</i>	<i>Regulations on the Prevention and Control of Pneumoconiosis of the People's Republic of China</i>
<i>Product Quality Law of the People's Republic of China</i>	<i>Regulations on Labor Protection in Workplaces Where Toxic Substances Are Used</i>

## Major Applicable Internal Policies of the Company:

<i>Board Diversity Policy</i>	<i>Anti-Fraud (including Anti-Corruption) and Whistleblowing Management Standards and Shareholder Communication Policies</i>
<i>Principles and Systems of Internal Control and Management</i>	<i>Anti-fraud and whistleblowing management standards</i>
<i>Internal Audit Work System and Normative Guidelines</i>	<i>Patent Management Measures</i>
<i>Comprehensive Risk Management Guidelines</i>	<i>Trade Secret Management Measures</i>
<i>Anti-Corruption Regulations</i>	<i>Guidelines for the Selection of Patent and Technical Secret Protection</i>

Patent Drafting and Quality Evaluation Form of GCL Technology	Training Management Standards
Responsible Marketing and Consumer Protection Policies	Human Rights Policy of GCL Technology
Customer Complaint Handling Standards	Employee Rights Protection Policy of GCL Technology
Product Quality Information Feedback Procedures	Safety Production Assessment Management Standards
Environmental Protection Regulation	Special Operation Hidden Danger Investigation and Management
EHS Inspection and Hidden Hazard Control Regulations	Management System of Articles (Appliances) for Labor Protection
EHS Accident Management Regulation	Regulations on Management of Work Subject to High Temperature and Heatstroke Prevention and Cooling
Administrative Rules of EHS Education	Regulations on Occupational Health Management of Radioactive Sources
Provision of Emergency Management	Occupational Disease Prevention and Control Plan and Implementation Program
Labor Practice Policy of GCL Technology	Responsibility System for Occupational Disease Prevention and Control
Labor Management Standards	Occupational Disease Hazard Warning and Notification System
Human Resources Strategic Planning Management System	Supplier Management System
Benefits Management Standards	Procurement Management System
Employee Attendance and Vacation Management Standards	Procurement Management Measures
Management Standards for Promotion and Demotion of Employees	EHS Assessment Method
Performance Assessment Management Standards for Functional Personnel	

## Names of Companies Used in the Report

Full name	Abbreviation
Golden Concord Holdings Limited	Golden Concord
Jiangsu Zhongneng Polysilicon Technology Development Co., Ltd.	Jiangsu Zhongneng
Inner Mongolia Xin Yuan Silicon Material Technology Co., Ltd	Inner Mongolia Xinyuan
Leshan GCL New Energy Technology Co., Ltd	Leshan GCL
Suzhou GCL Photovoltaic Technology Co., Ltd	Suzhou GCL
Jurong GCL Photovoltaic Technology Co., Ltd	Jurong GCL
Jiangsu GCL Silicon Material Technology Development Co., Ltd	Xuzhou Photovoltaic
Konca Solar Cell Co., Ltd	Wuxi Konca
Funing GCL Photovoltaic Technology Co., Ltd	Funing GCL
GCL High Tech Nano Materials (Xuzhou) Co., Ltd.	Xuzhou High Tech