GCL TECH

2024

Environmental, Social and Governance Report

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About this Report

Report Overview

This report is the 12th Environmental, Social, and Governance (ESG) Report published by GCL Technology Holdings Limited (hereinafter referred to as "GCL Technology", "the Group", or "we"), formerly named as GCL-Poly Energy Holdings Limited.

The report primarily discloses the environmental, social, and governance management and performance of GCL Technology and its subsidiaries. This annual report covers the period from January 1, 2024, to December 31, 2024 (the "reporting period"). For improved readability, some content or data may be retrospective, including information from previous or subsequent years.

Basis for Preparation

The report has been prepared in accordance with Appendix C2 *Environmental, Social and Governance Reporting Code* (the *ESG Reporting Code*) under the Main Board and GEM Listing Rules of the Stock Exchange of Hong Kong Limited (HKEX). Additionally, the report refers to mainstream ESG index ratings including MSCI ESG Ratings, the S&P Global Corporate Sustainability Assessment (CSA), and Morningstar's Sustainability Rating (Sustainalytics). The report adopts a systematic materiality assessment process, incorporating both internal and external evaluations. The scope of disclosure, data collection, and calculations are based on principles of materiality, relevance, and applicability, with considerations for the industry and geographic location of the Group's business operations.

Reporting Scope

The policy documents, statements, and data in this report cover the headquarters of the Group, the subsidiaries, and holding companies under actual control (unless specified), as detailed in the tables below. The previous data referenced in this report are final statistics, and financial information is presented in RMB.

Compared to the 2023 ESG Report, the following adjustments have been made to the scope of business in this year's report: Funing GCL Photovoltaic Technology Co., Ltd. and Jurong GCL Photovoltaic Technology Co., Ltd. had significant changes in their operating status in 2024. Therefore, these entities have been excluded from the scope of this year's report. Additionally, in 2024, the Group has severed all ties with Xinjiang Goens Energy Technology Co., Ltd. through both direct and indirect divestment.

Access to the Report

The simplified Chinese, traditional Chinese, and English versions of this report can be downloaded from the official website of GCL Technology (www.gcltech.com). In case of discrepancies among the reports of three languages, the simplified Chinese version shall prevail.

If you have any questions or suggestions regarding the report or the ESG governance of the Group, please feel free to contact us through the channels as follows.

Sustainable Development Center, GCL Technology Holdings Limited

Address: GCL Energy Center, No. 28, Xinqing Road, Suzhou Industrial Park

Phone: +86 512 6853 3900

E-mail: ESG@gcl-power.com

Website: www.gcltech.com

Data Sources

The data in this report include internal statistics from GCL Technology, public reports, or coverage, as well as public data from third-party surveys or interviews, government departments, and professional organizations. The Board of Directors of GCL Technology guarantees that this report does not contain any false records, misleading statements, or significant omissions.

Business scope	Full name	Abbreviation
	GCL Technology Holdings Limited	GCL Technology, the Group, or we
	GCL (Group) Holdings Co., Ltd.	GCL Group
Polysilicon Segment	Jiangsu Zhongneng Polysilicon Technology Development Co., Ltd.	Jiangsu Zhongneng
	Leshan GCL New Energy Technology Co., Ltd	Leshan GCL
	Inner Mongolia Xinyuan Silicon Material Technology Co., Ltd.	Inner Mongolia Xinyuan
	Inner Mongolia Xinhuan Silicon Energy Technology Co., Ltd.	Inner Mongolia Xinhuan
Wafer Segment	Ningxia GCL Photovoltaic Technology Co., Ltd	Ningxia Photovoltaic
	Jiangsu GCL Silicon Material Technology Development Co., Ltd	Xuzhou Photovoltaic
	Suzhou GCL Photovoltaic Technology Co., Ltd	Suzhou GCL
	Konca Solar Cell Co., Ltd.	Konca Solar
Others	Henan GCL Photovoltaic Technology Co., Ltd.	Henan GCL
	Ningxia GCL Monocrystalline Silicon Technology Development Co., Ltd.	Ningxia GCL Monocrystalline
	Xuzhou GCL Solar Energy Material Co., Ltd.	Xuzhou Solar Energy Material
	GCL High Tech Nano Material (Xuzhou) Co., Ltd.	Xuzhou High Tech
	Kunshan GCL Optoelectronic Material Co., Ltd	GCL Optoelectronic

Message from the Chairman

Amid the accelerating global shift toward a restructured energy system and deepening green transition, GCL Technology remains true to its original aspiration and long-term development vision, seizing the opportunities of our time. As we face an increasingly complex market landscape and a wave of technological disruption, we take a forward-looking approach to anticipate industry trends and capture transformative opportunities amidst uncertainty. With innovation as our cornerstone and building on our polysilicon technology expertise, we are expanding into next-generation polysilicon technologies and new energy materials. This strategic approach creates our "second curve," driven by "dual engines and new momentum"—guiding us steadily toward a new era of high-quality, sustainable development.

We firmly believe that the competition of the future will go beyond products and technology—it will be a test of a company's capacity for sustainable development, ecosystem collaboration, and shared value creation. Guided by our four strategic pillars—Technology, Green, Talent and Value—GCL Technology will continue to amplify its core strengths in material technology. From strengthening and extending our industrial value chains to building interconnected business ecosystems, we're positioned to achieve resilient growth despite uncertainty and secure competitive advantages in the global green transition.

GCL Technology Holdings Limited

Chairman of the Board and Joint Chief Executive Officer

Mr. Zhu Gongshan

As China advances the "dual carbon" goals, the PV industry faces both unprecedented challenges and new opportunities. This pivotal moment of structural transformation—driven by market volatility and rapid technological change—presents a chance for systemic reinvention. GCL Technology is proactively responding to supply chain pressures stemming from geopolitical uncertainties, leveraging FBR granular silicon, the era-defining green and low-carbon material, as a driver of manufacturing transformation and application innovation. Through the synergy of our industrial, supply, and ecosystem chains, we are accelerating high-quality, resilient development. At the same time, our global footprint combined with deep technological capabilities continues to propel our "second curve," expanding the Group's prospect for long-term sustainability.

We have adopted the concept of "Infinity" as our ESG philosophy, which is anchored in technological innovation, guided by green and low-carbon development, underpinned by talent development, and oriented toward long-term value creation. With this philosophy, GCL Technology is committed to building a better future through a zero-carbon future with GCL Technology at its core.

Tech Infinity: From core technologies to an infinite future, powering a new engine for industrial transformation.

GCL Technology adheres to first-principles thinking, focusing on breaking through key bottlenecks that constrain industry progress. By upgrading the entire value chain around a green manufacturing system, we continue to unlock untapped growth potential. Inherently low-carbon in the design, our FBR granular silicon set a new global record in February 2024, with an ultra-low **carbon footprint of 14.441 kgCO_2e/kg** at our Inner Mongolia Xinyuan base, certified by the French Environment and Energy Management Agency (ADEME). To leverage the low-carbon advantages of granular silicon throughout the value chain, we've developed the **industry's first comprehensive solution—the "GCL Carbon Chain"—a pioneering platform that dynamically tracks and manages carbon footprints across the full product lifecycle**. This innovative system creates an unbroken chain of carbon data from raw materials to end products, empowering China's PV industry to establish its own low-carbon benchmarks. This represents a significant shift from simply following global carbon metrics to actively shaping international standards. The platform essentially creates a digital trust infrastructure and "green passport" system that facilitates the global export of environmentally responsible manufacturing capacity. Moreover, the continued advancement of granular silicon would not be possible without our steadfast investment in R&D. In 2024, **our R&D spending reached RMB 1.102 billion, accounting for approximately 7.3% of total revenue, with an increase of 1.7 percentage points year-on-year**. This investment helped reduce the cash manufacturing cost (including R&D) of granular silicon to a record low level of RMB 27.07/kg, while boosting the proportion of high-quality products to over 95% and pushing granular polysilicon's market share beyond 25%.

Green Infinity: From ecological stewardship to a sustainable future, advancing the green transition.

Green and low-carbon development has always been a core commitment of GCL Technology, not only as a guiding principle for our operations, but also as a responsibility we share with our value chain partners. **FBR granular silicon is now widely recognized as the most effective pathways for achieving Scope 3 emissions reductions across the PV industry**. To further execute our sustainable development strategy and accelerate the transition to renewable energy while enhancing internal management efficiency, we have established and disclosed **a range of environmental quantitative targets**—including those related to greenhouse gas (GHG) emissions, water usage, and hazardous air pollutants. Our green development strategy continues to evolve, supported by a **robust environmental management system**. In fact, 13 of our bases are certified to ISO 14001. We have implemented a suite of energy-saving measures, with estimated annual **reductions of 223.74 million kWh in electricity consumption** and **1.41 million tonnes in water use**. In addition, we have actively organized carbon verification programs across five key bases, covering Scope 1, 2, and 3 emissions and encompassing all core business operations. In 2024, we took a proactive step toward climate governance by following the IFRS S2 framework to develop **a comprehensive system covering "Governance–Strategy–Risk Management–Indicators and Targets"**. This includes value chain-wide identification and assessment of both physical and transition climate risks.

Talent Infinity: From talent aggregation to potential activation, empowering shared success.

At GCL Technology, we embrace a "One GCL" philosophy—placing people at the heart of our sustainable innovation and technological advancement. In 2024, we continued advancing a diverse and inclusive workplace, publishing our **employee diversity targets** and reinforcing the protection of employee rights. We optimized our talent attraction and retention mechanisms, **enhanced training systems**, and provided **multi-channel support for employee development**. Meanwhile, we strengthened our health and safety capabilities to create a secure, inclusive, and growth-oriented workplace where every employee is empowered to thrive.

Value Infinity: From corporate innovation to industry advancement to societal impact, cultivating an ecosystem of shared value.

GCL Technology, based on continuous improvement of governance, compliance, and operation, is aimed to contribute economic value and social value. In 2024, we further **integrated ESG into our operations** by **enhancing the professionalism of our ESG Committee**, while also establishing performance metrics and target management systems to support new-quality productivity. We built a sustainable supply chain management system, conducted supply chain due diligence and completed our **first *Supply Chain Due Diligence White Paper***, enabling our value chain partners to jointly develop green and resilient supply chains. We also collaborated closely with industry stakeholders to drive sector-wide progress. We were invited to participate in the carbon footprint research and pilot standard-setting for granular silicon conducted by the Chinese Research Academy of Environmental Sciences. Additionally, we joined the **United Nations Global Compact (UNGC)**, underscoring our commitment to international sustainability standards.

About GCL Technology

Company Introduction

GCL Technology Holdings Limited (Stock Code: 03800.HK) was established in 2006 and listed in Hong Kong in 2007. In 2023, it was ranked among the top 500 Chinese listed companies in the Fortune China 500 ranking. The company's headquarters is located in Hong Kong, China, and it has subsidiaries and research and development centers in the United States, as well as in Suzhou, Xuzhou, Leshan, Baotou, Hohhot, Zhongwei and other locations in China.

Vision

A world leading R&D and intelligent manufacturer of high-efficiency PV materials

Mission

Dedicated to green growth to keep improving the human living environment

Dream

Powerful GCL, Employee Wealth, Social Praise

Core Values

Value-Led, Innovation-Driven, Effort-Founded, Unity-focused

Business Operations

GCL Technology is at the forefront of developing advanced PV material technologies and is a major technology driver and supplier of polysilicon, wafers, and other PV raw materials. The company's core "futuristic technology", FBR, is a granular silicon technology that was developed over the past decade with independent intellectual property rights. It boasts low cost, high efficiency, and an excellent carbon footprint. This technology has been awarded carbon footprint certifications in PV raw materials in China、France and Germany and has set a new record for the lowest carbon footprint of silicon materials both domestically and internationally. GCL Technology has severed all legal and operational ties with Xinjiang Goens. The Group has achieved a complete operational separation from Xinjiang Goens, with no residual business engagements. This concludes GCL Technology's total exit from rod silicon operations, enabling an exclusive strategic focus on high-efficiency, low-carbon granular silicon production. The Group's core product portfolio includes polysilicon (granular silicon), wafer and perovskite module.

Polysilicon (granular silicon)

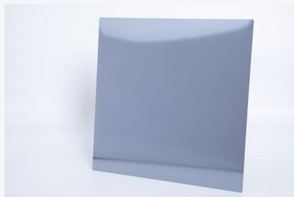
GCL Technology's granular silicon is renowned for its cost efficiency and outstanding performance in sustainability, earning multiple international certifications and setting an industry benchmark for green development.

Annual production: 269,199 tonnes

Cost reduction: The cash manufacturing cost (including R&D) of granular silicon has been reduced to RMB 27.07/kg, the lowest in the industry

Environmental impact: The latest carbon footprint for granular silicon is 14.441 $kgCO_2e/kg$, certified by the French ADEME. Compared with the traditional Siemens process, producing every 10,000 tonnes of granular silicon can reduce carbon emissions by approximately 220,000 tCO_2e[1]

Wafer

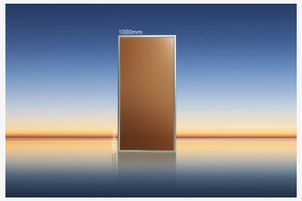


As one of GCL Technology's core products, wafers are recognized for their high efficiency and reliability. The Group continues to lead the industry through technical innovation and cost control.

Annual production: 32,243 MW

Technological innovation: With CCz[2] technology, the Group synchronizes crystal rod pulling and material melting, achieving a single production rate of 185kg/d. The pilot capacity has reached 200MW

Perovskite modules



GCL Technology has pioneered perovskite module technology in the renewable energy sector, establishing the world's first GW-scale large-size perovskite module base, advancing the commercialization of perovskite technology.

The world's first GW-scale tandem module base will commence production at the end of the year

Milestone in scale: Construction of the world's first GW-scale base for large-size perovskite tandem modules

Industry leadership: Perovskite module efficiency and size set world records, with a stable conversion rate of 26.36% for $1.71m^2$ tandem modules

[1] Calculation method for CO_2 reduction: average electricity consumption per kilogram of Siemens rod silicon – electricity consumption per kilogram of granular silicon) × national average grid emission factor × unit conversion factor. Specifically, the Siemens process consumes an average of 54.5 kWh/kg (according to the *2024–2025 China Photovoltaic Industry Development Roadmap*), while granular silicon production consumes 13.8 kWh/kg. The national average power grid emission factor used is 0.5366 $kgCO_2/kWh$, as published in the *2022 National Power Carbon Emission Factor Announcement*.

[2] CCz: Continuous Czochralski.

Awards and Recognition in 2024

Ranked among the Hurun China 500 Most Valuable Private Companies

for **4** consecutive years

Hurun Report

11 th

on the 2024 Hurun China Top 100 New Materials Companies List

Hurun Report

2025 Forbes China

ESG Benchmarks

in Industry Development

Forbes China

United Nations Global Compact

GCL Technology has joined the United Nations Global Compact(UNGC)

3rd place at the Top 20 PVBL 2024 Global PV Brand Value (Polysilicon, Wafer)	Century New Energy Network, New Energy Think Tank, PVBL Photovoltaic Brand Lab
Top 10 PV Materials Brands at the 2024 China Good PV Brand Ceremony	IN-EN.com, National Energy Research Institute
Best Energy and Resources Company	Zhitong Finance
2024 China ESG Inspired Case	Forbes China
2024 ESG Excellence Case	Xinhua News
Evergreen Award – Sustainable Development Green Excellence Case	*Caijing* Magazine and China Alliance of Social Value Investment
2024 Best Corporate Governance and ESG Award	Hong Kong Institute of Certified Public Accountants
2024 "All Quality Matters" China Award	TÜV Rheinland Group
Gigawatt-Level Gold Award (FBR Granular Silicon)	SNEC Organizing Committee
Outstanding Contribution Award	China Photovoltaic Industry Association
"2023-2024 Smart Zero-Carbon Achievement" – FBR Granular Silicon Low-Carbon Production Technology Project	Xinhua News
PVBL 2024 Global Best Solar PV Material/Accessory Brand	Century New Energy Network, New Energy Think Tank, PVBL Photovoltaic Brand Lab
2024 Listed Company Sustainable Development Excellence Case	China Association for Public Companies

ESG Ratings

MSCI

MSCI, an index provider under Morgan Stanley, assigns ESG ratings based on a company's internal governance structure, policies, management practices, and performance across various ESG topics.

B

S&P Global

S&P Global Corporate Sustainability Assessment (CSA) analyzes companies through multiple indicators such as governance, environmental protection, and social responsibility, reflecting the companies' capabilities in ESG management and information disclosure.

44

The Group outperformed the semiconductor manufacturing industry average across all ESG dimensions

MORNINGSTAR SUSTAINALYTICS

A Morningstar company that provides high-quality ESG research, ratings, and data to institutional investors and corporations, assessing the level of ESG risk faced by companies. Lower scores indicate better performance.

19.8 73/357(Semiconductor equipment industry)

Hang Seng Corporate Sustainability Index Series

Issued by Hang Seng Indexes Company Limited, the Hang Seng Sustainability rating system assesses ESG performance across various sectors and is a leading benchmark in Hong Kong's capital market.

A-

for three consecutive years

Top 30% among peers

CDP Discloser 2024

CDP is a not-for-profit charity that runs a global disclosure system for investors and companies to measure and manage their environmental impacts.

Climate change **B**

Water security **B-**

LSEG

Refinitiv ESG Rating, part of the London Stock Exchange Group, assesses a company's relative ESG performance across 10 key thematic pillars based on publicly available data.

63.2/100 (B) Above industry average

Wind

Wind ESG Rating integrates international ESG standards, investment practices in China's capital markets, and the unique characteristics of Chinese listed companies, forming a data-driven evaluation framework at its core.

BBB

27 / 219 (Semiconductor products & equipment industry)

(Last updated: February 2025)

Key Performance

Economic

Revenue
RMB 15.097 billion

Total tax contributions
RMB 545 million

Polysilicon Segment

Production volume
269,200 tonnes

up YoY
32%

Sales volume
281,900 tonnes

up YoY
45%

Sales-to-production ratio
105%

Cash manufacturing cost (including R&D)
RMB 27.07/kg

inventory levels: industry-leading low

industry: a new low

Market share exceeded 25%

Wafer Segment

Production volume
32,243 MW

Sales volume
33,525 MW

Environmental

Comprehensive energy consumption intensity
88.88 MWh/MW of wafers

down YoY
12%

Green electricity usage
25% of total electricity

a YoY increase of
90 times

GHG emission intensity
39.82 tCO_2e/MW of wafers

down YoY
21%

The Proportion of total alternative water sources used
78.32%

up YoY
4 percentage points

Water consumption intensity
123.32 tonnes/MW of wafers

down YoY
23%

Governance

Convened shareholder meeting
1

Board Committee meetings
17

Board meetings
19

The ESG Committee held meetings
4

Business ethics training coverage for four consecutive years
100%

Zero violation record

- No lobbying or political contributions
- No corruption-related violations
- No cases of unfair competition, antitrust, or monopoly lawsuits

Social

Annual R&D investment
RMB 1.102 billion

accounting for
7.3% of total revenue

up
1.7 percentage points YoY

Total patent applications
1,657

Total patents granted
1,282

Annual employee welfare expenditure
RMB 123.79 million

Average training hours per employee
83.8 hours

Annual protective equipment investment
RMB 19.84 million

Annual average customer satisfaction rate
96.80%

Community and philanthropy investment
RMB 13.48 million

ESG Philosophy and Governance

ESG Philosophy

At GCL Technology, "Infinity" represents our vision for ESG-driven growth. We continue to deepen our expertise in granular silicon while actively pursuing second-curve technologies to unlock limitless possibilities for development. By expanding and enriching application scenarios, we are building a new ecosystem of advanced materials. With ESG strategies at its core, GCL Technology is committed to creating green, low-carbon products, extending the benefits of decarbonization across the value chain, and shaping a more sustainable future through zero-carbon intelligent manufacturing.

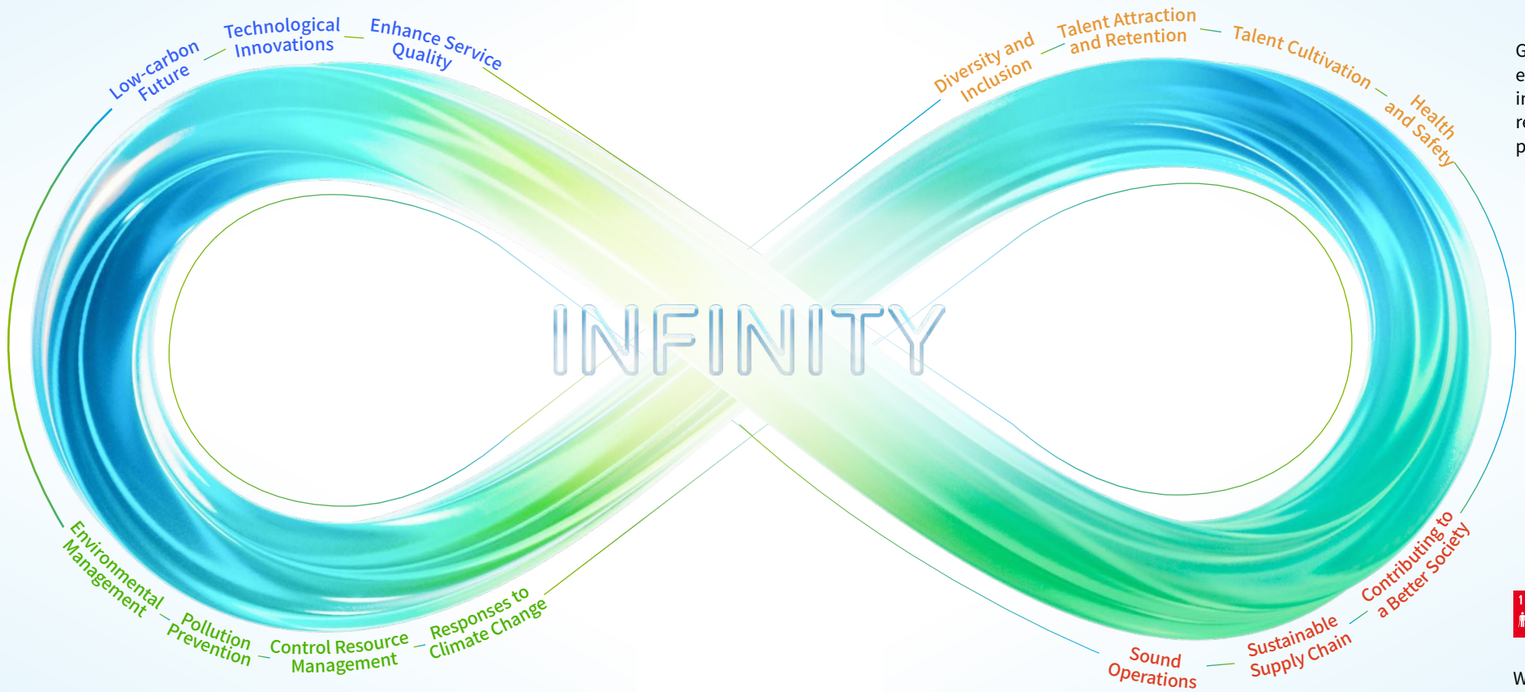
In 2024, GCL Technology anchored around "Infinity" and established four ESG pillars led by "Tech Infinity". These pillars align with our business roadmap, material ESG topics, and the United Nations Sustainable Development Goals. Based on this framework, we identified **4 ESG directions** and **18 material topics**, issued **13 policy statements**, and set **16 quantitative targets**. Moving forward, we will continue strengthening the management of ESG topics and complete the governance, strategy, management, and metrics for each ESG topic, taking concrete steps to realize our vision of an infinite future.

Tech Infinity

Driven by technological innovation, we focus on R&D to advance the transformation and evolution of energy, empowering the PV industry to enter a new era.

Talent Infinity

Guided by "One GCL" culture, we support employee continuous growth, and help individuals unlock their potential and realize both career aspirations and personal fulfillment.



Green Infinity

We champion green operations and prioritize ecological protection, actively addressing climate change to bring boundless greenery to society.

Value Infinity

We define our corporate value through strong corporate governance and responsible social practices, embedding sustainability into the supply chain to align business growth with social impact.

ESG Strategies

Tech Infinity

Letter on Responsible Marketing and Consumer Protection

We are dedicated to upholding fair marketing practices, safeguarding consumer privacy and data security, enhancing consumer education, and ensuring the safety of our products and services. By leveraging technological innovation, we strive to promote sustainable development.

Green Infinity

Environmental Protection Regulation
Notice on the Management Measures for Addressing Climate Change and Sustainable Development

We steadfastly comply with ecological regulations in our operating regions, establishing a robust environmental management system and strengthening the management of waste and emissions to achieve a win-win outcome for effective production and environmental protection. We promote energy conservation and emissions reduction to fulfill our goals in ecological preservation and corporate social responsibility.

Talent Infinity

Corporate Code of Conduct
Human Rights Policy
Employee Rights Protection Policy

We are committed to upholding internationally recognized human rights principles, including the *UN Guiding Principles on Business and Human Rights,* the *Universal Declaration of Human Rights,* and the core conventions and rules of the International Labour Organization (ILO). We respect and protect human rights, prohibit discrimination, harassment, and threat of employee privacy, and strictly ban child labor and forced labor. We also uphold freedom of association and the right to equal pay for equal work.

Value Infinity

Corporate Code of Conduct

Remuneration Management Policy for Directors, Supervisors, and Senior Executives

Anti-Fraud (Including Anti-Corruption) & Whistleblowing Management Standard and Shareholder Communication Policy

We are committed to operating with integrity, building a compliant anti-fraud and anti-corruption risk management system, and maintaining a fair and transparent compensation framework. We encourage employees to report misconduct and strive to improve corporate governance and ethical standards.

Customer Information Management Standards

We pledge to protect customer data, establish standardized processes for the collection, use, and management of customer information, and continue to improve service quality and information security.

Sustainable Procurement Guidelines
GCL Technology Supply Chain Partner Code of Social Responsibility

We are committed to integrating ESG principles into supplier lifecycle management, monitoring supplier responsibilities and performance, and advancing supply chain sustainability.

Notice on the Formulation of Community Engagement and Development Policy

We actively participate in community building and social responsibility efforts. Through initiatives such as supporting education, creating jobs, and improving public health, we strive to share the development outcomes with communities and promote harmony between business and society.

ESG Targets

2024 progress

R&D and Innovation

Annual investment in clean technology R&D (i.e., overall R&D spending) to account for no less than 5 % of total annual revenue — 146%

Customer Services

Annual customer satisfaction rate to remain no lower than 91 % — 106%

Waste Management

Starting from the 2024 baseline, the annual hazardous waste generation per MW to remain below 0.010 tones through to 2030[1] — 100%

Energy Management

In 2024, reduced electricity consumption per unit of production by 8 % compared to the 2023 levels — 175%

Water Resource Management

By 2026, reduce GHG emission intensity of polysilicon 31.78 % compared to 2023 levels — 69%

By 2026, reduce GHG emission intensity of wafers by 9.31 % compared to 2023 levels — In progress

Responses to Climate Change

By 2026, reduce GHG emission intensity of polysilicon 11.7 % compared to 2023 levels — 111%

By 2026, reduce GHG emission intensity of wafers by 16.1 % compared to 2023 levels — 25%

Diversity and Inclusion

By 2026, increase the proportion of female employees to 22 % — 96.32%

By 2026, increase the proportion of female senior management to 18 % — 106%

Health and Safety Management

- < 1.5 lost-time injury frequency rate per 200,000 working hours (employees and contractors)
- 100 % rectification rate of safety hazards — 100%
- 100 % closure rate for corrective actions on all accidents and incidents
- 100 % compliance rate in occupational hazard assessments

Business Ethics and Anti-corruption

By 2025, for at least 2 major operating sites get certified with ISO 37001 anti-bribery management system — In progress

Internal Control and Risk Management

Continue audits in business operations, management transitions, and centralized procurement; fully assess bribery and corruption risks by 2025. — In progress

achieve full A/B-level enterprise audit coverage

[1]The data is based on existing product lines as of 2024, including polysilicon and wafers.

ESG Governance and Management

Board Statement on ESG

The Board of GCL Technology recognizes the significance of ESG to the Group's long-term development. We firmly believe that ESG is not only a reflection of our social responsibility, but also a reflection of competitiveness and sustainable value creation. As such, ESG management has been integrated into the core of our corporate strategy and operations.

We have established a three-tier ESG governance structure comprising the governance, management, and execution levels. As the highest decision-making body, the Board is responsible for approving ESG strategies and overseeing major ESG efforts. At the Board level, we have also set up an ESG Committee to supervise and guide the Group's day-to-day sustainability efforts. To elevate the professional standard of ESG governance and better embed ESG into operations, we expanded the Committee with the appointments of Executive Director and Co-CEO Lan Tianshi, along with Independent Director Li Junfeng, significantly reinforcing our ESG engagement.

To ensure the effective implementation of ESG initiatives, GCL Technology has developed a robust system of ESG policies, procedures, and operating standards. We keep abreast of global ESG trends and macroeconomic shifts, while constantly engaging with internal and external stakeholders. We are committed to aligning with evolving regulatory requirements, international frameworks, and domestic ESG policies. We regularly review and refine our management practices to ensure full alignment with evolving ESG requirements. Material topics are identified based on stakeholder input, and resources are allocated accordingly to support effective ESG governance.

This report provides a truthful and comprehensive account of GCL Technology's ESG progress and performance in 2024. It was reviewed and approved by the Board of Directors on April 9th, 2025. The Board and all directors collectively and individually affirm that there are no false records, misleading statements, or major omissions in this report, and accept full responsibility for its authenticity, accuracy, and completeness.

ESG Management

To effectively meet external expectations and build a structured approach, GCL Technology has integrated eight key frameworks and rating standards into the development of its ESG indicator system. These include HKEX's *ESG Reporting Code*, the *Guidelines No.14 of Shanghai Stock Exchange for Self-Regulation of Listed Companies—Sustainability Reporting (Trial)*, the Task Force on Climate-related Financial Disclosures (TCFD), the *IFRS Sustainability Disclosure Standards S1 and S2*, the Hang Seng Corporate Sustainability Index Series, MSCI ESG Ratings, the S&P Global Corporate Sustainability Assessment (CSA), and the Carbon Disclosure Project (CDP). In 2024, following the updated *ESG Reporting Code* issued by HKEX in April and changes in capital market rating requirements, we conducted a comprehensive revision of our ESG indicators, assigning each indicator to a responsible owner while introducing the *GCL Technology ESG Indicator System Management Guidelines*, establishing a closed-loop ESG management mechanism.

The Group further advanced its system-building efforts during the reporting period, securing ISO 20400 Sustainable Procurement Guideline assessment. Four bases, including the Administrative Management Center, Jiangsu Zhongneng, Xuzhou Photovoltaic, and Ningxia Photovoltaic, were certified with SA 8000 for social accountability, reinforcing the Group's sustainability credentials.

During the reporting period

The ESG Committee held meetings

4

The Sustainability Management Committee held meetings

4

The Sustainability Center conducted regular working sessions over

30

These meetings covered

26

key topics, including corporate governance and business conduct, climate change response, and product carbon footprint

ISO 20400 Certification

SA 8000 Certification

ESG Governance

GCL Technology has established a three-tier ESG governance framework—comprising the Board of Directors, management, and execution levels—in accordance with HKEX's *ESG Reporting Code* and leading international rating standards. Serving as the highest decision-making body, the Board and its ESG Committee oversee the Group's sustainability strategy through the Sustainability Management Committee. This structure ensures the formulation of long-term plans, regular evaluation, and effective implementation of ESG initiatives.

To further strengthen ESG oversight and expertise, Co-CEO Lan Tianshi and renowned industry expert Li Junfeng joined the ESG Committee in 2024 as Executive Director and Independent Director. During the year, the Group also introduced the *Sustainable Development System Management Policy*, which clearly defines ESG responsibilities across all organizational levels, along with the corresponding management procedures, reporting lines , and performance management mechanisms—ensuring a more structured and effective approach to internal sustainability governance.

	Responsibilities	Meeting frequency
The ESG Committee	• Acts as the highest governing body for ESG oversight and decision-making • Reviews and approves the Group's ESG strategy, short-, medium-, and long-term planning, policies, and annual ESG report • Monitors the progress of material ESG topics and target achievement • Identifies and approves ESG-related risks and opportunities	At least 4 times per year
The Sustainability Management Committee	• Serves as the core management body for ESG, chaired by the Co-CEO. Reviews ESG strategies, planning, targets, and policies • Assesses progress on ESG topics, makes recommendations, and allocates resources to ensure achieving ESG goals	At least 4 times per year
Sustainable Development Center	• Oversees ESG progress across departments and provides regular analysis and updates on ESG indicators to the core management • Leads ESG disclosure efforts, reviews ESG reports, and submits them to leadership and the Board	Weekly
ESG Task Force	• Supports the Sustainable Development Center in project implementation and ESG disclosure • Executes ESG initiatives and ensures performance targets are met	Meetings held as needed based on project progress

Stakeholder Engagement

GCL Technology places a strong emphasis on stakeholder engagement. By building transparent and efficient communication mechanisms, the Group actively responds to the concerns of all parties and ensures its actions in environmental, social and governance areas align with stakeholder expectations, paving the way for shared growth.

In 2024, GCL Technology further expanded its stakeholder engagement efforts. Through various high-quality investor engagement channels, we ensured the timely, transparent exchange of information and strengthened meaningful dialogue.

Stakeholder Engagement Approach

Stakeholders	Key Expectations	Engagements	2024 Highlights
Customers	• Product Quality and Safety • R&D and Innovation • Customer Services	• On-site visits • Meetings • Customer appreciation events	• 30 formal exchanges on technology and quality activities with customers • 205 customers joined the internal training • 21 site visits with, 70+visitors
Employees	• Employee Rights Protection • Diversity and Equal Opportunities • Welfare and Care • Health and Safety Management • Training and Career Growth	• Regular meetings • All-hands meetings • Performance review meetings • Internal publications	• 0 complaints received • 35 employee forums • 6 GM Open Days • 1 satisfaction survey • Over 100 issues were collected during the Workers' Congress, with a 95% resolution rate
Shareholders & Investors	• Corporate Governance • Stable Compliance Operations	• Investors' meetings • Broker-hosted online conferences • Online industry conferences • Financial results presentations • Press releases/ announcements • On-site visits	• 296 investor engagement events • 1 shareholder meetings • 19 board meetings • 17 board committee meetings • The ESG Committee held a total of 4 • 55 public announcements
Suppliers & Partners	• Responsible Procurement • Product Quality and Safety • Industry Collaboration and Development	• Suppliers' conferences • Suppliers' training • Supplier visits • On-site project communication	• 343 training sessions totaling 468 hours • 1,019 suppliers engaged • 18 suppliers went through ESG due diligence assessments
Government and Regulatory Agencies	• Corporate Governance • Stable Compliance Operations • Internal Control and Risk Management • Business Ethics and Anti-Corruption • Sustainability Management • Data and Privacy Protection	• On-site visits • Meetings • Press releases/public reports	• 209 meetings attended, 276 visits received, totaling around 2,504 people
Industry Associations	• Product Quality and Safety • Intellectual Property Protection • R&D and Innovation	• On-site visits • Meetings • Suppliers' conferences • Industry exhibitions	• Participated in 5 industry association events including SNEC, CPSV, and national PV conferences • Established partnerships with 6 universities
Communities & NGOs	• Responses to Climate Change • Energy Management • Water Resource Management • Materials and Packaging Management • Environmental Management • Biodiversity Protection • Wastewater Management • Waste Gas Management • Community Investment and Philanthropy • Industry Cooperation and Development	• On-site visits • Meetings • Press releases/public reports	• Participated in the 2024 ESG Global Leaders Summit • Engaged in charitable efforts including support for individuals with disabilities and blood donations, and received awards from the Red Cross Society of China and was honored as a Leading Organization in Voluntary Blood Donation
Media	• Corporate Governance • Community Investment and Philanthropy • Industry Cooperation and Development	• Press releases/ announcements • Meetings • Exhibitions • Luncheon meetings • Appreciation events • Management interviews	• Over 30 executive interviews organized, 300+ news articles published, 7 media exchanges held across Beijing, Shanghai, Suzhou, and Xuzhou
Academics/ Experts/ Professional Organizations	• Technological Innovation • Green Energy R&D • Sustainability Management • Responses to Climate Change • Energy Transition • Responsible Procurement	• Conferences • Exhibitions • Executive interviews • Press releases/public reports	• Appointed energy & climate expert Li Junfeng as an independent board member • Participated in 2 R&D-focused exchange events • Established academic-industry platforms with institutions including the CAS's Ningbo Institute of Materials Technology and Engineering, Zhejiang University, Nankai University, Fudan University, Xi'an Jiaotong University, Central South University, and Henan University

Stakeholder Engagement Highlights in 2024

In February 2025, Zhu Gongshan, Chairman of the Board, was awarded the letter of appointment as a member of the High-level Steering Committee of the Belt and Road Initiative Platform of the United Nations Global Compact Organization (UNGC).

In May 2024, attended the Macquarie Asia Conference and engaged in in-depth discussions on "China's Practices and Technological Revolution under the Energy Transition"

In June 2024, showcased low-energy, high-efficiency granular silicon products and the GCL carbon chain at Intersolar Europe 2024

In November 2024, joined the main forum of the 7th China International PV and Energy Storage Industry Conference, contributing to the leadership dialogue on "Building a Robust Ecosystem to Navigate Industry Cycles"

In October 2024, participated in the 2024 Global ESG Leaders Conference and joined a panel discussion on "Achievements, Challenges, and Breakthroughs of the Green Transition"

In December 2024, at the 2024 Photovoltaic Industry Annual Conference, GCL Technology unveiled the world's first full-lifecycle dynamic carbon footprint tracking and management platform, GCL Carbon Chain, advancing green development across the industry

Materiality Assessment

To meet stakeholder expectations and reflect the Board's emphasis on ESG management, GCL Technology conducts regular materiality assessments in line with HKEX's *ESG Reporting Code* to identify ESG topics that are most material to both stakeholders and the Group. This ensures that the content disclosed in the report is both comprehensive and accurate.

In 2024, GCL Technology conducted an annual materiality assessment through a structured process involving topic identification, stakeholder engagement, and validation and review, resulting in an updated materiality matrix. In 2024, the Group added "product diversity" as a new material ESG topic, reflecting the evolution of its business strategy. In response to growing stakeholder interest, "Community Development" was also introduced. Additionally, due to the interconnected nature and integrated management of solid waste, wastewater, and waste air emissions, these topics were consolidated under the topic "waste management".

Materiality Assessment Process

Topic Identification

Refined and updated our ESG topics by drawing on disclosure guidelines from regulatory bodies, alongside our strategic priorities, industry landscape, and peer benchmarking.

Stakeholder Interview

Conducted surveys and interviews with key stakeholders including investors, customers, and suppliers to identify their areas of concern.

Validation and Review

Collected materiality rankings and suggestions through questionnaires and interviews with internal and external stakeholders, with final results reviewed and approved by the ESG Committee.

ESG Reporting Principles

Materiality

GCL Technology follows a structured materiality assessment process to identify ESG topics that are of greatest concern to both stakeholders and the Group's leadership. These material issues serve as the foundation and focus of the Group's sustainability strategy.

Quantitative

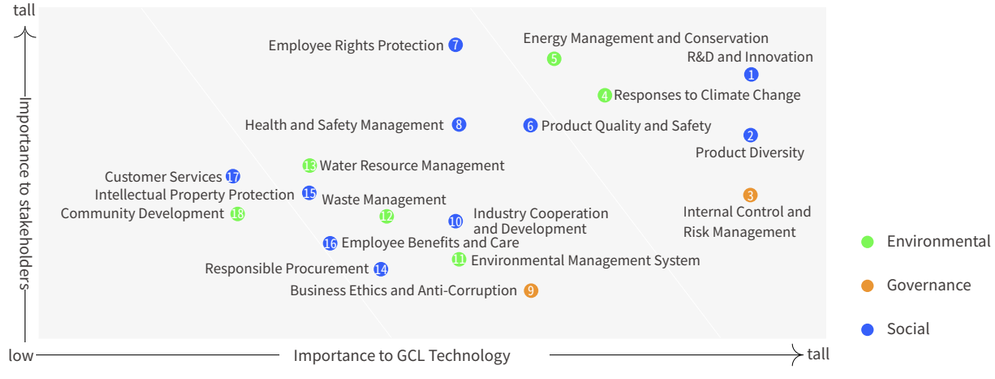
GCL Technology has developed an ESG indicator system that covers all bases, regularly compiling key quantifiable disclosure indicators encompassing all "Environmental" and certain "Social" subject areas in the *ESG Reporting Code*. These figures are compiled annually and constitute the disclosures in the report. For detailed ESG quantitative data, please refer to the respective chapters of this report.

Balance

Following review and confirmation by the Board of Directors, GCL Technology pledges that the content of the report is objective and openly disclosed. The information released can be accessed through public media or official disclosure channels of GCL Technology.

Consistency

Any changes in data collection or calculation methods compared to previous ESG reports are explained within the report. Historical comparisons of ESG data can be found in the relevant sections.



GCL Technology Materiality Matrix in 2024

ESG Highlights of the Year

——GCL Infinity: Ushering in a New Era of Infinite Technology and Value

Tech Infinity

R&D and innovation

R&D investment

Total R&D investment reached RMB **1.102 billion** accounting for approximately **7.3%** of annual revenue

Achieving the annual target of allocating no less than **5%** of revenue to clean technology R&D

R&D strength

National High-Tech Enterprise **8 bases**

National-level 5G factory **1 bases**

National Green Factory **4 bases**

Industrial Internet Benchmark Enterprise **1 bases**

Product quality and safety

Quality and safety assurance

All bases reported **0** quality-related incidents

with the proportion of high-quality products exceeding **95%**

Quality training **15,137 participants**

a YoY increase of **118.40%**

System certifications

13 bases were certified with ISO 9001, achieving **100%** coverage

Customer services

Customer loyalty

Improved product quality led to stronger customer retention

Granular silicon's market share surpassed **25%**

Annual customer satisfaction rate reached **96.80%** exceeding the target of 91%

Intellectual property protection

Patent achievements

Total patent applications **1,657** with an increase of **259** applications

Total patents granted **1,282** with an increase of **207** patents

Invention patents **497**

Utility model patents **781**

Product diversity

Low-carbon product certification

FBR granular silicon obtained French carbon footprint certification from ADEME,

with a certified footprint of **14.441 $kgCO_2e/kg$**

Perovskite products

Set new global records for product sizes of 1.71 m^2, 2 m^2, and 2048 cm^2;

Commenced construction of **the world's first** GW-scale base for large-size (1.2m × 2.4m) perovskite tandem modules.

Industry cooperation and development

Carbon Chain for emission reduction

Leveraging blockchain technology, GCL Technology built the industry's first full-lifecycle carbon footprint tracing and management platform "GCL Carbon Chain".

Granular silicon, as a core product, is embedded with low-carbon attributes, empowering the entire value chain to reduce emissions.

Green Infinity

Energy management

Enhanced energy conservation

Across its bases, the Group implemented energy-saving technical upgrades through process improvements, operational optimizations, and technological innovations.

These initiatives are expected to save approximately **2.24 billion kWh** of electricity annually

Comprehensive energy consumption intensity reached **88.88 MWh/MW of wafers**

down YoY **12%**

Clean energy adoption

Total renewable electricity usage for the year reached **2,741,143.13 MWh**

Inner Mongolia Xinyuan achieved a green electricity ratio of **35%**

Green Infinity

Water resource management

Water risk assessment

Annual water risk assessments were conducted, showing overall medium-level risk, with **no high-risk** regions among

14 operating bases

Water conservation

Water-saving measures led to estimated annual savings of

1.41 million tonnes of water

Alternative water sources

Industrial water recycling reached an industry-leading rate, the proportion of total alternative water sources used

78.32%

Waste management

Zero wastewater discharge

Leshan GCL, Inner Mongolia Xinyuan, and Inner Mongolia Xinhuan—achieved **"zero discharge"** of industrial wastewater

Industry standard leadership

Inner Mongolia Xinyuan took the lead in formulating the provincial *Emission Standards of Air Pollutants for Industrial Silicon*

Waste reduction

Hazardous waste generation dropped to

1,405 tonnes

reduction year-on-year

37%

Responses to climate change

TCFD evaluations

The Polysilicon Segment served as a pilot to establish a full value chain climate risk assessment framework. Evaluations for all business types will be rolled out in phases to strengthen climate resilience and turn risks into opportunities

Carbon inventory

Carbon verification was completed at

5 bases

covering Scope 1, 2, and 3 emissions

Environmental management

System certifications

13

production bases were certified with ISO 14001 environmental management system,

achieving a certification rate

100%

Audits

Throughout the year,

12 internal

and

12 external

environmental audits were conducted, with a closed-loop management system in place for continuous improvement

Talent Infinity

Employee rights protection

Protection of employees' rights

Lactation rooms and special health check-ups provided,

100%

maternity leave coverage

Accessibility facilities cover

100%

of employees with disabilities

Inclusive culture

Established the *Diversity, Equity and Inclusion Policy*, employed

15 persons

with disabilities

Delivered diversity-themed training with

100%

employee coverage

Employee development and training

Training system

Continued to advance the "GCL 5 Journey Program" for training.
Annual number of training participants

9,305

Total training investment reached

RMB 8.36 million

Total training hours for all employees reached

779,737,81 hours

Average training hours per employee

83.8 hours

Education advancement

Launched Digital Library 2.0 offering

548 curated courses

Educational Advancement Program covering

90+ employees

Employee benefits and care

Employee benefits

Annual employee welfare expenditure

RMB 123.79 million

Cover benefits including transportation subsidies and family health check-ups with

15

categories

Talent retention

Implemented an equity incentive plan benefiting

230

key employees

Employee satisfaction exceeded

85%

Health and safety

Safety performance

Safety hazard rectification rate reached

100%

Hours lost due to employee injuries down

23.1%

year-over-year

Number of employee emergency drill sessions

1,943

Health protection

Coverage of occupational health check-ups

100%

Annual protective equipment investment

RMB 19.84 million

AED coverage reached

100%

System certifications

12

bases certified with ISO 45001

with a

92.3%

certification coverage rate

4

companies, including the Administrative Management Center, Xuzhou Photovoltaic, Ningxia Photovoltaic, and Jiangsu Zhongneng, were certified with SA 8000

Value Infinity

Internal control and risk management

Governance & oversight

Convened general shareholders' meeting
1

Board meetings
19

Board Committee meetings
17

The ESG Committee held meetings
4

Reviewed resolutions
100+

Independent directors comprised
40 %
of the board

Zero violations

No cases
of corruption or unfair competition were reported

Information security

Achieved Level III cybersecurity certification; zero data breaches throughout the year; organized 3 cybersecurity training and drills
3

High-risk vulnerabilities resolved
100 %

Community development

Public welfare investment

Community and philanthropy investment
RMB 13.48 million

Employees participated in volunteer events for
517

Benefitted over
40,000 people

Recognition

Leshan GCL received the Red Cross Medal of Dedication
Jiangsu Zhongneng named a Leading Organization in Voluntary Blood Donation

Special Care Programs

Assisted
650+
children with disabilities through "the Sunshine Care Event"

Donated over
230,000 eggs
in the "Egg of Love" campaign

Covering
24,330 regions

Responsible procurement

System establishment

Built a sustainable supply chain management system covering of operations
100 % of operations

Established the five core audit areas covering environmental risks, business ethics, material traceability, labor rights, labor rights, and health and safety, and passed the
ISO 20400 Sustainable Procurement Guideline assessment

Supplier due diligence

Completed the *Supply Chain Due Diligence White Paper*, completed ESG due diligence for
18 core suppliers

Rectified risk items
564

Supplier empowerment

Delivered training sessions
343

Reaching suppliers
1,019

Supplier certifications

Suppliers certified with ISO 14001
127

Suppliers certified with ISO 45001
124

Suppliers certified with ISO 9001
154

Business ethics and anti-corruption

Business ethics training

Percentage of directors and employees trained
100 %

Business ethics training hours for directors
506.73 hours

01 Tech Infinity

GCL Technology has been driven forward by technological research and development, constantly breaking new ground to transform, pioneering advancements through innovation, and redefining technological limits while embracing challenges. We work towards more global presence of high-tech materials, offering greener low-carbon solutions to the world.

Low-carbon Future | Technological Innovations | Service Quality

SDGs addressed in this chapter

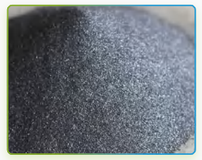
Low-carbon Future

Committed to green and sustainable development, GCL Technology strives to boost global energy upgrades and drive technological revolution through silicon-based materials.

Low-carbon Products

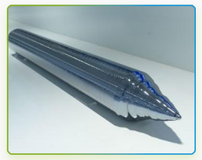
With the advancement of global "dual-carbon" goals and the roll out of policies such as carbon tariffs, carbon footprint has become a key competitiveness indicator of PV products, heralding an overarching trend of the replacement of high-carbon materials with low-carbon alternatives. FBR granular silicon, intrinsically low-carbon, with multiple new records set at home and abroad for the lowest carbon footprint, has become one of the core materials driving deep carbon reduction in the PV industry in this green and low-carbon era. Dedicated to large-size perovskite R&D for more than ten years, GCL Technology is a durable front-runner in three core areas in the global perovskite industry: module size, conversion efficiency, and stability. Perovskite technology offers significant advantages in manufacturing processes, with its substantially lower carbon footprint compared with that of crystalline silicon modules. Moreover, perovskite tandem cells boast a higher efficiency potential, enabling significant land savings for power plants of the same scale.

Industrial Silicon



Granular Silicon

Monocrystalline Rod Silicon



Wafer

FBR granular silicon

FBR granular silicon technology tops the world in terms of production scale, cost efficiency, and carbon footprint performance, setting the industry's lowest carbon emission record for polysilicon, which contributes to significant carbon reduction across the industry. As of 2024, our effective capacity of FBR granular silicon is registered 480,000 MT. Compared with rod silicon, an annual electricity saving of 19.5 billion kWh is secured, amounting to 10.48 million tonnes[1] of CO_2 reduction.

In 2024, we obtained carbon footprint certifications from international authorities in China, France, and Germany.

GCL's granular silicon earned carbon footprint certifications from the French ADEME with an ultra-low carbon footprint of **14.441** $kgCO_2e/kg$,

down by **61** %
compared with 37.00 $kgCO_2e/kg$ in 2021

CO_2

once again setting a new carbon footprint record in the polysilicon industry

- March: China Quality Certification (CQC) with a "Cradle-to-Gate" footprint of 27.23 kg CO_2e/kg
- June: TÜV Rheinland (Germany) certification with a "Cradle-to-Gate" footprint of 40.68 kg CO_2e/kg
- July: Certified "Gate-to-Gate" footprint of 24.913 kg CO_2e/kg by the French ADEME
- February 2025: Certified "Gate-to-Gate" footprint of 14.441 kg CO_2e/kg by the French ADEME

Perovskite PV module

Perovskite technology demonstrates significant advantages, with a single module producible in just 43 seconds, achieving a substantially lower carbon footprint compared with crystalline silicon modules. GCL Optoelectric self-developed perovskite PV modules have repeatedly broken world efficiency records, with each breakthrough certified by independent, authoritative third parties.

- 19.04% certified efficiency on $2m^2$ single-junction module
- 26.36% efficiency on $1.71m^2$ tandem perovskite modules
- 22.43% certified efficiency on $2048cm^2$ large-size single-junction perovskite solar module; 28.06% certified efficiency on $2048cm^2$ tandem module
- $2m^2$ single-junction perovskite module has been certified by TÜV Rhein IEC 61215 and IEC 61730 in terms of safety and reliability in May 2024, the first in the industry

GCL perovskite module obtained IEC 61215 and IEC 61730 certification

[1] CO_2 emission reduction calculation method: (Electricity consumption per kilogram of rod silicon production - Electricity consumption per kilogram of granular silicon production) × Annual output of granular silicon × National grid average emission factor. The average electricity consumption of rod silicon is taken as 57kWh/kg-Si from the China PV Industry Development Roadmap (2023-2024), while the electricity consumption of granular silicon production is taken as 13.8 kWh/kg-Si. The 2022 national grid average emission factor (0.5366tCO_2/MWh) from the *Announcement on Issuing the 2022 Power Sector CO_2 Emission Factors* is applied.

Industry Empowerment

Amid intensifying geopolitical tensions and international competition, the world is witnessing escalating "green" trade barriers. Therefore, carbon emissions across the entire lifecycle of PV supply chains have become a focal point of attention for governments and enterprises worldwide. However, existing international carbon footprint standards often apply higher default factors to China than local realities, while discrepancies exist in carbon accounting methodologies for PV modules across different standards, along with substantial variations in default factor values, placing Chinese PV products at a competitive disadvantage in carbon footprint performance. Therefore, it is urgent for China to establish carbon footprint standards that accurately reflect the true emission level of Chinese PV products.

To address this challenge and leverage the inherent low-carbon advantages of granular silicon to break through "green" trade barriers, in June 2024, GCL Technology, in collaboration with GCL System Integration, Ant Digital Technologies, and TÜV Rheinland, launched a groundbreaking carbon footprint management initiative — GCL Carbon Chain 1.0. This pioneering project established a digital carbon management system, driving effective low-carbon transition across the entire industrial chain.

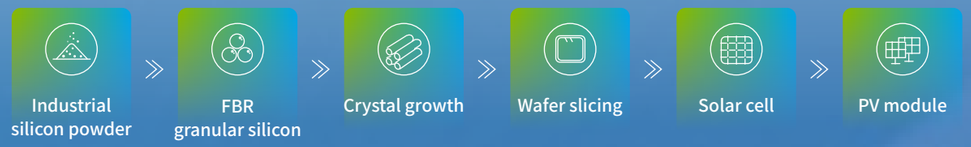
GCL CARBON CHAIN

GCL Carbon Chain: Industry's First Full-lifecycle Dynamic Carbon Footprint Tracking and Management platform

Integrating low-carbon granular silicon, blockchain, and digital intelligence, GCL Carbon Chain is the world's first carbon footprint tracking and management platform for the PV industry. Leveraging GCL Group's whole industrial chains and Ant Group Digital Technologies' blockchain expertise, the platform established an end-to-end carbon footprint traceability system, covering all production processes from industrial silicon to modules. A comprehensive carbon footprint trail from raw materials to end products is established in pursuance of optimized low-carbon approaches, delivering a digital carbon neutrality solution for the PV industry.

GCL Carbon Chain pioneered a new carbon footprint governance paradigm driven by the dual engine of "tech innovation + digital trust". On the technological front, we reduced the carbon footprint of photovoltaic raw materials by approximately 50%[1] through granular silicon technology, setting a low-carbon foundation for the entire industry chain. On the digital front, with Ant Group Digital Technologies' blockchain plus TaaS technology, we created a "digital carbon ledger" that enables end-to-end traceability across all data nodes from industrial silicon production to module application. This breakthrough empowers the industry's first verifiable, auditable, trustworthy, and tamper-resistant carbon data management system, enabling comprehensive carbon footprint tracking and management of products and supply chains.

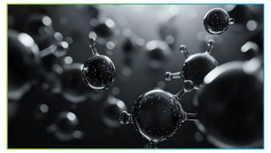
Factory-workshop-production line full coverage dynamic tracking enables precise determination of optimal low-carbon pathways.



Dynamic tracking and management of full-lifecycle carbon footprint

[1] Calculation method: (40.68 $kgCO_2e/kg$ cradle-to-gate granular silicon carbon footprint — 81 $kgCO_2e/kg$ (rod silicon characterization factor from internationally recognized carbon factor database)/ 81 $kgCO_2e/kg$ (rod silicon characterization factor from internationally recognized carbon factor database) *100%.

Redefining low-carbon benchmark standards



GCL Carbon Chain established the industry's first digital carbon emission factor calculation module, which integrates international standards with China's PV industry practices, redefining the carbon accounting baseline in the industry. The platform adopts ISO 14067 as its regulatory framework, and uses Ecoinvent database as its reference. It collects real-time production energy consumption data through blockchain, and generates internationally certified product carbon factors, developing a dedicated carbon factor reference table for China's PV industry.

In June 2024, GCL Technology obtained rigorous carbon footprint certification from TÜV Rheinland for its industrial silicon, granular silicon, crystal pulling, and wafer slicing processes. Among which, the calculated carbon footprint of granular silicon is 40.68 $kgCO_2e/kg$ from "Cradle-to-Gate" and 16 $kgCO_2e/kg$ from "Gate-to-Gate" — significantly lower than the 81 $kgCO_2e/kg$ characterization factor for conventional rod silicon in the international database (Ecoinvent 3.9.1). This breakthrough resolves long-standing discrepancies caused by companies being forced to adopt Europe's high-emission rod silicon carbon factors in their accounting, marking a pivotal shift for China from a "carbon factor follower" to a "carbon standard setter", laying a digital trust foundation for the global expansion of China's green manufacturing capacity.

Breaking through overseas carbon trade barriers

Against the backdrop of the EU Carbon Border Adjustment Mechanism (CBAM) gaining momentum, GCL Carbon Chain established a "digital carbon passport" system for China's new energy industry based on a precise, dynamic full-lifecycle carbon footprint database. Products registered on the platform are managed via a unique identifier, with each QR code integrating key data such as carbon footprint, traceability information, certification reports, and critical metrics from ESG report. This provides end consumers with a convenient and efficient way to access comprehensive lifecycle information, empowering PV manufacturers to effectively comply with EU regulations, including the Corporate Sustainability Reporting Directive (CSRD) and CBAM, as well as similar laws and regulations in other countries.

Accelerating low-carbon transition

The GCL Carbon Chain platform enables real-time monitoring of production-related carbon data, with all information recorded on the blockchain for full traceability. With the assistance of the platform, companies can conduct precise lifecycle carbon emission analyses. Through identifying problems and optimizing production, companies are empowered to pursue sustainable carbon reduction strategies.

Driving carbon emission reductions through digital innovation, GCL Carbon Chain not only equips the industry with accurate carbon footprint accounting and management tools but also provides Chinese PV enterprises with a "golden credential" for global green competitiveness. This digital carbon passport builds a bridge of trust for the global presence of domestic green manufacturing capacity, supporting China's historic transition from a renewable energy manufacturing leader to a global pacesetter in carbon neutrality standards.

Technological Innovations

R&D Innovation

Benefiting from long-term R&D and our commitment to first-principles thinking, technological innovation has become the driving force behind GCL Technology's sustainable development. To maintain our innovative vitality, GCL Technology constantly improves our technological innovation system, standardizes innovation management operations, strengthens intellectual property management, and enhances internal and external cooperation to empower the whole industry.

GCL Technology has formulated a series of R&D management regulations, such as the *R&D Project Management Regulation, Management and Reward Measures for Science and Technology Achievements, Technology Transformation Projects Management Standards*, and *R&D Projects Management Standards*. The Group revised these regulations in 2024 to further optimize research management processes, promoting more efficient technological innovation and research outcomes with higher effectiveness.

GCL Technology values R&D investment in clean technology. We set annual R&D plans and targets to ensure sufficient funding and foster an innovation-driven talent mechanism. Considering our main business, our R&D investment are mainly channeled to clean technologies, namely the production of low-carbon granular silicon and perovskite tandem modules with higher conversion efficiency. Moving forward, we will continue our R&D investment, to explore more high-tech new materials and products, bringing green energy to the whole world.

In 2024

R&D investment totaled

RMB 1.102 billion

accounting of the annual revenue

7.3 %

up by

1.7 percentage points

YoY

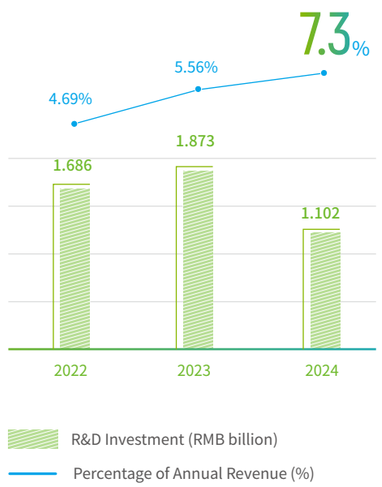
Target

Annual R&D investment in clean technology (i.e., total R&D investment) accounts for no less than

5% of the annual revenue

2024 Progress

"Achieved"



GCL Technology's R&D investment and its percentage of annual revenue (2022-2024)

R&D Team

GCL Technology has established the Global Silicon-based Materials Research Institute, including four major R&D branches, a research center, and a design center in the U. S. By integrating raw materials, material equipment, and production processes at the upstream and downstream, such structure improves product quality and overcome key technological bottlenecks in downstream applications, therefore fostering the coordinated development of practical and cutting-edge technologies, leading to higher market competitiveness. What's more, the Group has set up academician and postdoctoral workstations, in search of strong talent support for R&D and innovation.

As of 2024, the Group gathers a total of 2,132 R&D personnel.

In 2024

R&D personnel

2,132

In 2024

R&D projects

11

Innovation Incentives

GCL Technology requires all R&D project teams to hold weekly meetings for in-depth analyses of technical challenges and to report monthly reviews for systematic assessment of project progress to senior management. Such a system ensures a top-down, full-spectrum approach to driving R&D efforts. In addition, the Group has also implemented an innovation incentive mechanism, encouraging employees to engage in R&D by providing research funds, annual performance awards, and instant incentives. To ensure tailored motivation, R&D project incentives are evaluated case-by-case, where the incentive type and amount are determined during the project initiation and review stage.

Innovation Achievements

In 2024, the Group undertook 11 R&D projects. Five key projects have been advancing, namely the Rainbow Project (CCz Equipment and Process Development Project), high-temperature centrifugal granulation of silicon liquid and waste heat recovery, graphite-free production, highly efficient catalyst for trichlorosilane disproportionation and artificial quartz sand production. In parallel, we also conducted multiple preliminary research, including adsorbents for boron and phosphorus removal, synthesis of silicon nitride and silicon carbide synthesis, and projects on porous silicon and on the activation of silicon powder.

Industrial Silicon

- Synthesizing high-purity quartz sand with high-purity silicon powder, to enhance the added value of high-purity silicon powder.

Granular Silicon

- Developing new alternative materials to effectively extend the lifespan of graphite-made components, which is necessary for granular silicon production, while cutting production costs by RMB 0.94 per kilogram.
- Discovering the method of centrifugal granulation of silicon liquid under high temperature and achieving waste heat recovery.
- Developing a liquid catalyst to enhance the efficiency of the core reaction while recycling and extending the lifespan of the catalyst in trichlorosilane disproportionation.

Wafer

- Developing a complete crystal-pulling and equipment reserve method, enabling the large-scale commercialization of CCz wafers under the Rainbow Project.
- Implementing a tungsten wire thinning process, to overcome the fineness limits of traditional carbon steel wire, significantly improving wafer-cutting efficiency and yield.
- Developing "reverse cut" large-size slicing technology, a new cutting technology tailored for G12 large wafers, which overcomes multiple technical barriers while enhancing both efficiency and precision.

Perovskite

- Significantly reducing interface recombination losses in perovskite modules through optimized gradient energy band engineering and interface passivation.
- Achieving stable power output of perovskite single-junction modules through large-area thin-film deposition control technology and defect density regulation processes.
- Enabling precise regulation of the top and bottom cell configuration through optimized simulation based on a self-developed optical coupling synergy algorithm.
- Improved safety and reliability of single-junction modules by applying optimized encapsulation processes and ion migration suppression techniques.

GCL Technology key innovation projects in 2024

Digital Empowerment

GCL Technology is committed to driving development through intelligent and digital transformation, to enhance quality and efficiency through optimizing processes. By leveraging technological advancements and innovation, we provide a strong foundation for fostering new quality productive forces and strengthening core competitiveness.

Smart Manufacturing

GCL Technology is dedicated to building a green smart manufacturing system with low carbon emissions. We have established an intelligent ecosystem network integrating 5G and industrial AI across multiple bases, enabling smart, precision-driven management of production processes. As a result, the efficiency and product quality have been improved significantly.

Honors of GCL Technology in 2024

Leshan GCL was recognized as a National High-Tech Enterprise	
Ministry of Science and Technology of the PRC, Ministry of Finance of the PRC, and State Taxation Administration	
Henan GCL was listed in the fourth batch of the National Intelligent PV Pilot Demonstration Enterprises	Suzhou GCL was recognized as a National 5G Factory
Ministry of Industry and Information Technology of the PRC	
Xuzhou Photovoltaic was selected as Jiangsu Industrial Internet Platform	Jiangsu Zhongneng was listed as the 2024 Jiangsu Industrial Internet Benchmark Enterprise
Industry and Information Technology Department of Jiangsu	

National High-Tech Enterprises[1]
8

National 5G Factory
1

National Green Factories
4

Industrial Internet Benchmark Enterprise
1

Highlights of GCL Technology in Smart Manufacturing

Leshan GCL

Leshan GCL has innovated a collaborative operational system equipped with automated packaging, intelligent warehousing, and a digital management platform. This highly efficient and intelligent product packaging and storage system enables science-based allocation and precise management of production, storage, and sales processes. What's more, it provides a solid foundation for constantly improving quality and fosters a stable and efficient production environment that is more intelligent and digitalized.

Jiangsu Zhongneng

Jiangsu Zhongneng has synergized intelligent robotics and infrared imaging inspection systems with the digital management platform, significantly reducing energy consumption and emissions. With lower carbon emission and other green advantages, we have secured long-term agreements with many top-tier enterprises, helping China's PV industry overcome the "carbon barrier" in international markets and expand its presence in Europe, the Middle East, and beyond.

Suzhou GCL

Suzhou GCL continues to replace specialized slicing machines and advance smart manufacturing systems, promoting innovation in large-size wafer cutting, thin wafer processing, fine-line cutting, and tungsten wire cutting technologies. The company now holds nearly 50 patents, including technological invention patents, utility patents, and software copyrights.

[1] By the end of the reporting period, eight companies have been certified as national high-tech enterprises, namely Ningxia GCL Monocrystalline, Suzhou GCL, Jiangsu Zhongneng, Xuzhou Solar Energy Material, Funing GCL, Xuzhou Photovoltaic, Henan GCL, and Xuzhou High Tech.

Digital management

To enhance internal management efficiency, GCL Technology has been digitalizing our business operations. By building a digital transformation management system, optimizing business processes, and improving employees' digital literacy, we significantly enhanced operational efficiency and management effectiveness.

Management framework

In 2024, GCL Technology established a digital transformation project management system and released the *Management Regulations for Digital Transformation Projects*, clearly defining management responsibilities and processes, and laying a solid organizational foundation for digital transformation.

Management System and Responsibilities In the Digital Transformation of GCL Technology

Transformation measures

GCL Technology has implemented several initiatives of digital transformation, including the digitization and informatization of existing operational processes. By introducing advanced data analytics tools and intelligent platforms, we further optimized resource allocation and improved the efficiency of business processes.

Comprehensive Budget System

Establishing budget management modules which cover the whole process of budget preparation, rolling forecasts, simulation calculations, and analysis of actual expenses, to improve the management efficiency of operations, expenses, and investment budgets.

GCL Contract System

Implementing a lifecycle management platform for contracts to standardize approval processes, template use, digitizing seals, and support data-driven decision-making, which can effectively improve contract signing efficiency and security.

Process Mining Platform (Phase II)

Embedding a data permission division module for contract management and integrating with the GCL Intelligent Chain platform, to optimize key business processes such as procurement and sales, and enhance risk control and business process management capabilities.

GCL Audit System

Embedding a dynamic reporting display module to enable real-time tracking of audit project progress, making it more visualized and transparent.

System Tree Platform

Self-developing and launching digitalization modules for the institutional system to enable systematic and standardized management of our policies.

Highlights of GCT Technology's Digital Transformation

Digital training

GCL Technology enhances employees' digital skills through systematic training and capacity building, ensuring their good command of new technologies to maintain our competitiveness during the digital transformation process. In 2024, a total of 642 participants have been attracted to the digital training programs.

GCL Leading: PV Industry Trend Updates

CASE

GCL Technology University launched two sessions of digital skills courses for all employees through the PV Industry Trend Updates, precisely empowering our digital transformation process.

Session I "Lean Digitalization and Enterprise Digital Transformation"

Guided by lean thinking, the course focused on data value strategies and approaches. A total of 297 participants joined this session.

297
employees participated

Session II "Enterprise Architecture and Digital Transformation"

This course delved into digital strategies and tactics for enterprises, sharing digital transformation pathways and practical experience through analyzing Huawei and other leading companies' transformation process. A total of 345 participants joined this session.

345
employees participated

Lean Digitalization and Enterprise Digital Transformation

Enterprise Architecture and Digital Transformation

Industry Collaboration

Current domestic and international standards for polysilicon mainly target Siemens-method bulk silicon, with a lack of specific regulations for granular silicon. As a result, PV wafer manufacturers face challenges such as difficulties in quality assessment and high supply chain coordination costs when applying granular silicon, which hinders the process of greening the industry. To address this gap, GCL Technology actively participates in industry standard-setting. Following the official implementation of the *GB/T 35307-2023 FBR Granular Silicon*, GCL Technology completed the approval process for two industry standards during the reporting period.

Participation in the Setting of Industrial Standards in 2024

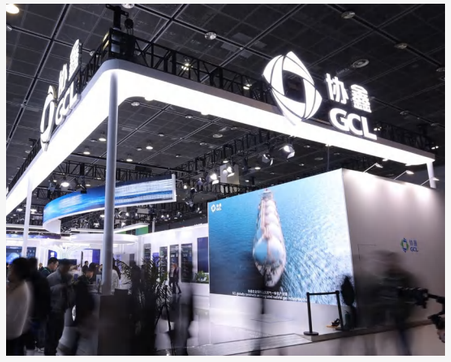
- YS/T 1754-2024 *Determination of Dust on Granular Silicon Surface-Turbidimetry*
- YS/T 1747-2024 *Determination of Hydrogen Content in Silicon Materials-Pulse Heating Inert Gas Fusion Infrared Absorption Method*

GCL Technology actively engages in industry-academia-research collaborations, partnering with institutions such as the Institute of Process Engineering, Chinese Academy of Sciences, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Zhejiang University, Nankai University, Fudan University, Xi'an Jiaotong University, Central South University, and Henan University to establish industry-academia-research platforms and explore results commercialization. In 2024, the Group collaborated with Xi'an Jiaotong University on the project of high-temperature centrifugal granulation of silicon liquid and waste heat recovery, and with Henan University on the research of industrial silicon pretreatment technology. Apart from that, the Group actively participated in exchange activities with other enterprises, sharing experiences with industry partners and injecting vitality into the sustained innovative development of the industry.

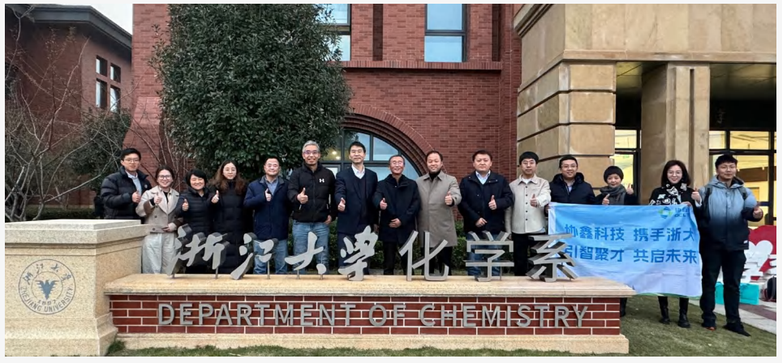
In June, Co-CEO Lan Tianshi participated in the 17th (2024) International Photovoltaic Power Generation and Smart Energy Conference & Exhibition (Shanghai), where he shared insights on topics such as GCL Technology's innovative R&D and China's energy storage companies' participation in international competition and cooperation.

In August, GCL Technology engaged in exchanges with Nankai University regarding summer on-site internships for students.

In September, Chairman Zhu Gongshan and Co-CEO Lan Tianshi attended the 2024 China Silicon Industry Conference, where they shared insights and strategies on key topics such as green development in the silicon industry, the technological advantages of granular silicon, and the Group's international expansion strategy.



In December, GCL Technology was invited to participate in the 16th Wuxi International New Energy Exhibition (CREC 2024), showcasing innovative achievements in the green and low-carbon fields, including granular silicon, perovskite, and the GCL carbon chain platform.



In December, GCL Technology engaged in discussions and exchanges with Zhejiang University on topics such as catalyst development, new methane-to-ethylene technologies, and carbon dioxide conversion and utilization.

Highlights of GCL Technology's Exchange and Collaboration in 2024

Intellectual Property

GCL Technology is committed to intellectual property protection, not only for a healthy internal R&D environment but also for building barriers to global competition. While strictly complying with relevant laws such as the *Patent Law of the PRC* and the *Trademark Law of the PRC*, GCL Technology has also developed a series of documents, including the *Intellectual Property Rights Management Measures, Trade Secret Management Measures,* and *Patent Drafting and Quality Evaluation Form of GCL*, to comprehensively protect intellectual property and standardize the management of internal innovation outcomes. In 2024, the Group revised the *Patent Management Standards* and the *Copyright Management Standards*, further refining operational details and establishing a trade secret protection system to ensure traceability of commercial secret access.

Organizational structure

A Confidentiality Promotion Team has been established to closely monitor IP security-related information and manage associated risks.

Patent management

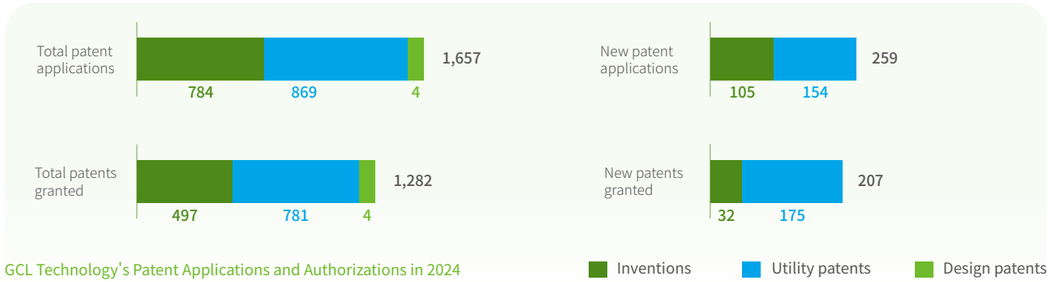
Unified management measures have been taken in place to regularly statistic and verify the Group's IP status. We used the GCL IP system and other digital tools, as well as conducted on-site research at bases to ensure comprehensive patent discovery across the Group.

Capacity building

Online and offline training and exchange discussions at irregular intervals have been organized to raise employees' awareness and enhance their ability to protect intellectual property.

In 2024

GCL Technology completed the NDA signing process for **1,252** key technical personnel across **174** critical positions at its **4** silicon material bases—Jiangsu Zhongneng, Leshan GCL, Inner Mongolia Xinyuan, and Inner Mongolia Xinhuan, and organized **6** IP training sessions, totaling **18** hours, with the attendance reaching **300**.



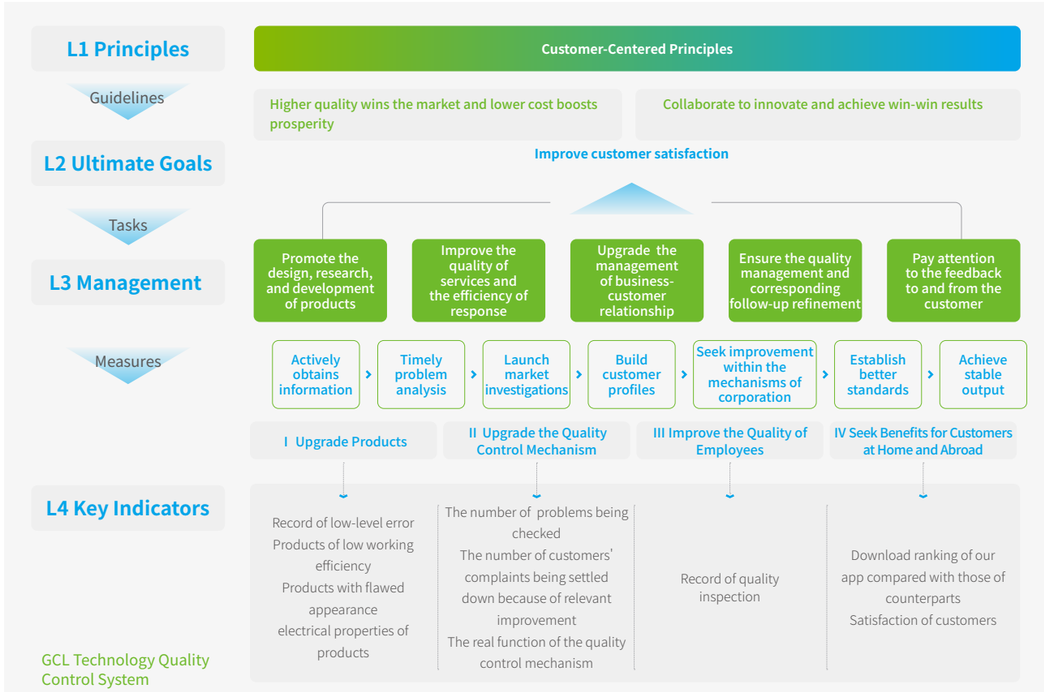
GCL Technology's Patent Applications and Authorizations in 2024

GCL Technology stays committed to promoting a healthy industry ecosystem for intellectual property protection. 2024, the Group continued to serve as Vice Chairman of the Intellectual Property Committee of the China Photovoltaic Industry Association, assisting member companies with risk prevention and maintaining industry order. Apart from that, GCL Technology also participated in the Conference on Strengthening and Safeguarding Industrial Chains through Intellectual Property organized by the Ministry of Industry and Information Technology of the PRC. During the conference, we engaged in discussions on topics such as intellectual property protection, collaboration across the industry chain, and enhancing intellectual property management and utilization capabilities. We shared our practical experiences, making contributions to the overall improvement of intellectual property protection across the industry chain.

[1] Critical positions refer to roles involving R&D, core manufacturing processes, and other functions requiring confidentiality.

Service Quality

GCL Technology adhered to the customer-centered approach, trying our best to meet customer demands and regarding them as the source of improvement of our product and service quality. We have built and will continuously optimize our quality management system guided by five key quality development directions: standardized working process, lean management, quality first, continuous improvement, and customer satisfaction. In the meantime, we focused on improving product quality and customer satisfaction through problem analysis, market research, establishment of customer profiles and other targeted step-by-step measures.



In 2024, GCL Technology issued the *Integrated Quality Management Policy*. On the one hand, this was a document for emphasizing the underlying guideline "Higher quality wins the market and lower cost boosts prosperity", whereby we upgraded the quality management system, firmly adhered to the tenet of being customer-centered, continuously optimized the quality management system, and advanced extra miles in refining the details of the products; on the other hand, the document also emphasized another guideline called "Collaborate to innovate and achieve win-win results", which epitomized our joint efforts with our partner to lead the global development of green and high-efficiency intelligence manufacturing of PV material.

Targets	2024 Progress
0 product quality accidents[2]	**0** product quality accidents in all bases
The customer satisfaction rate is not less than **91%**	The annual average customer satisfaction rate reaches **96.80** %, with an average survey participation rate of **70** % among customers.
	"Achieved"

[2] Definition: This refers to misconduct including the substitution of inferior products, falsification of information, uncooperative behavior during quality improvement efforts, and unauthorized modifications.

Improve Product Quality

Through systematic monitoring of shipment data and customer feedback, combined with market survey and customer profile analysis, GCL Technology focused on three major directions for higher product quality: performance optimization, appearance enhancement, and the control of both risk and cost. In doing so, we built a detailed product quality standard system and strengthened the corresponding implementation to dynamically respond to the changes in the market, to continuously upgrade our product quality, and to provide the market with highly reliable products. Due to the characteristics of the PV industry, GCL Technology was not involved in any product recall. More importantly, no quality accident occurred during the reporting period.

- Systematic monitoring
- Customers' needs

- Performance optimization
- Appearance enhancement
- Control of both risk and cost

- A detailed product quality standard system

- Continuously upgrading product quality

Granular silicon has achieved a market share of over

25%

In 2024, we fully implemented our product quality improvement measures and improved standards for product control within the corporation. To accommodate our customers' expectations, we incessantly improved the quality of our products and services by customizing our quality management requirements for different products, enhancing standards for product quality testing, and prioritizing customers' requirements in our quality management system. Driven by ongoing quality enhancements, the Group has seen a steady rise in customer retention, with granular silicon achieving a market share of over 25%.

As of February 2025

- GCL Technology has made rapid progress in controlling metallic impurities in granular silicon:

95%+ of the products contain ⩽ 0.5 ppbw of 5 key metallic elements

91%+ of the products contain ⩽ 1 ppbw of 18 metallic elements.

- Stricter turbidity standards have also been implemented:

97%+ of the products have a turbidity of ⩽ 100 NTU

41%+ of the products achieve a turbidity of ⩽ 70 NTU

The average particle size of large-particle products has reached

⩾ 2mm

Updated versions of technical specifications for GCL Technology products were issued in 2024

8

Initiatives for quality improvement

8

GCL Technology's Quality Improvement Highlights in 2024

- All bases of GCL Technology were required to strengthen quality control, cost optimization, technological innovation, and supply chain management measures to improve raw material management.
- *The Management Framework of Testing, Analysis, and Standard Alignment of Granular Silicon Products* was released to unify testing procedures across all bases. Besides, eight updated versions of technical specifications for GCL Technology products were issued in 2024.
- Multiple inspections of testing and measurement systems were conducted, together with eight initiatives for quality improvement, so as to establish standardized testing protocols.
- Comparative analyses of testing standards and targeted measures were implemented to address deficiencies.
- Partners from both upstream and downstream of the production line were assembled through integrated project meetings for proactively addressing customer requirements. A concerted effort was thus forged to refine the quality management system.

Upgrade Quality System

GCL Technology has established a quality management system covering the entire product lifecycle, including crucial steps like raw and auxiliary material intake, production processes, and final product control. We continuously ameliorated our quality system by establishing performance-based employee compensation mechanisms and quality inspection protocols to ensure high-quality output of products and services across all dimensions.In 2024, 13 GCL Technology subsidiaries were certified with ISO 9001 Quality Management System, achieving a coverage rate of 100%. Inner Mongolia Xinyuan earned the CNAS accreditation for its laboratory. Additionally, the GCL Technology Administrative Management Center, Xuzhou Photovoltaic, and Ningxia Photovoltaic received SA 8000 Social Accountability Management System certifications.

100%

of bases were certified with ISO 9001 Quality Management System

Management system

GCL Technology has established comprehensive management systems, including policies such as the *Quality Management Regulations*, and *Quality Management System Performance Evaluation Criteria*. All of the Group's bases, in aligning their work with the GCL Technology quality management requirements, have revised and updated policies on quality standards, production line planning and disposition, raw/accessory material criteria for acceptance, final product control, shipping, and final product quality requirements.

Organizational structure

The Quality Management Center oversaw the quality of product and customer service through its specialized divisions: Customer Engineering, Product Quality, and Systems Management. A multi-tiered quality governance structure has been established across all product lines, with dedicated quality leads appointed at each base to ensure accountability and oversight. This well-defined quality management system clarified responsibilities at every organizational level to ensure stably high quality of products and corresponding continuous improvement.

Link	Management requirements	Actual performance
Raw and auxiliary materials management	• The Group formulated the *Quality Management Measures for Raw/Auxiliary Materials and Three Kinds of Chemical Agents*.	• Inner Mongolia Xinyuan developed **9** new standards for incoming inspection, including the *Corrugated Paper Packaging Procurement and Incoming Inspection Standard*.
Production Process	• The Group formulated the *Production Process Quality Control Management Regulations* and the *Program for Quality Monitoring and Measurement* to monitor indicators related to crucial steps of the production process.	• Leshan GCL revised **19** documents related to production and added **3** new ones, including the *Recirculated Silicon Material Management Regulations*. • Inner Mongolia Xinyuan added **16** production process policies, including *Management Regulations on Pipeline Opening Operations and Management System of Critical Valves for Industrial Purposes*. • Inner Mongolia Xinhuan established an abnormality-checking mechanism and issued relevant policies to help analyze the causes of abnormality as a way to improve the product qualification rate.
Management and control of the final product	• The Group formulated the *Product Quality Management Measures* to confirm the relevant quality requirement and standardized process for product testing, inspection, warehousing, shipment, and validation.	• Suzhou GCL revised the technical standards for auxiliary materials in **43** editions, added **3** new documents on final product control, including the *Final Product SAP Work Instructions*, optimized the sampling rules, and integrated big data analysis to enable precise sampling. • Ningxia Photovoltaic guaranteed the accuracy of final product inspection by monitoring anomalies through system data.
Customer service	• The Group provided satisfying pre-sales and after-sales service • The Group facilitated the cooperation of its departments to complete the quality review. • The Group improved customer services and feedback mechanisms by regularly launching customer satisfaction surveys and promoting exchanges on technology quality.	• The Group completed **4** wafer size analyses, promoted timely switching of product models, and drew customer portraits more than **40** times, leaving no stone unturned to improve products and services to meet customer needs • The Group organized **50** meetings on customer complaints, promoted **324** relevant projects for improvement, and reduced the number of customer complaints by **30.7%** year-on-year, customer complaints are **100%** handled promptly.

GCL Technology Quality Management Requirements throughout the Full Lifecycle and Annual Practices in 2024

Quality performance evaluation

GCL Technology has incorporated indicators demonstrating product quality into the monthly and annual performance assessments of all business units, assigning the results of performance evaluations for what determined employees' compensation and bonuses. Different evaluation methodologies have been established for individual staff from junior level to senior level as well as departments as a whole, which aimed at fully galvanizing quality improvement initiatives. This approach ensured that all employees maintained consistent awareness of quality details in their daily work.

Quality inspection

We have implemented a comprehensive quality system evaluation program to advance the assessment of our product quality management system. Ceaseless endeavors have been made to enhance overall system development, together with dynamically updated quality inspection results showing on billboards after relevant products or services were assessed within the Group framework. This practice fostered proper competition within the Group while proactively welcoming quality inspections from customers and third-party organizations. In 2024, GCL Technology conducted 44 quality inspections within the Group and underwent 87 quality inspections by third-party organizations, demonstrating the commitment of the Group to rigorous quality oversight.

GCL Technology Billboard for Showing Quality Assessment Results

GCL Technology Mounted Multi-dimensional Product Quality Specialized Inspections

CASE

In 2024, GCL Technology Quality Management Center led a maturity assessment of the quality management system, evaluating the system across the three main business divisions. The assessment identified **332** quality risk issues, all of which were addressed with a **100%** issue closure rate.

Additionally, the Group conducted thorough reviews of the quality management system at its silicon wafer bases, with a focus on sustainability and operational excellence. Corrective action plans were implemented to strengthen the accuracy and consistency of system execution across all bases.

Specialized inspections to address problems related to materials of mixed ingredients:

Special inspections were launched to address the basic errors related to slices of mixed ingredients according to the feedback from clients. A total of **40** relevant risks were precluded and the *Quality Management Measures of Ingot and Wafer Slicing Department* was issued to standardize the management process, mobilizing the whole staff to identify the relevant risks; since then, till the end of the reporting period, no customer complaints about the problems related to materials of mixed ingredients have occurred in **6** consecutive months.

Specialized inspections on the alignment of product standards in practice:

Specialized supervisions and inspections for N-type products that served as the substitution of old version products were mounted to observe the alignment of product standards in practice and workplace management across the Group. **61** of relevant quality risks were addressed to ensure that the Group's products reached the **first tier of ranking in customers' eyes**.

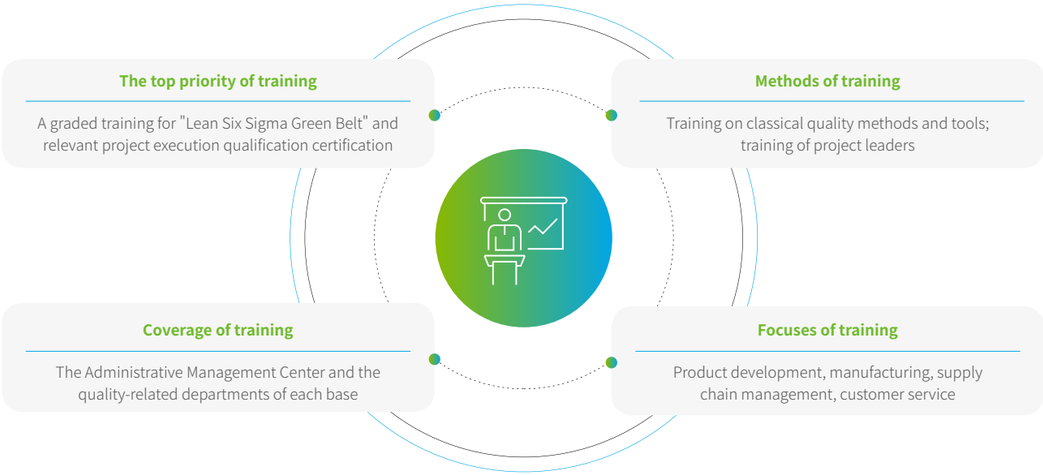
Specialized inspections for the process change management:

21 problems of under-standard implementation of the process change management were found, and plans for improvement such as the introduction of unified classification of process change, unified production process, center-based systematic system, centralized approval process, and regular supervision mechanism.

Improvement of Employee Quality

GCL Technology has charted a path of fostering quality culture across the Group through "establishing norms, standardizing behavior at work, and forming culture", whereby the training system was established to improve employees' capabilities to ensure product quality. Besides, the dissemination of quality culture was advanced to help every employee be more aware of product and service quality.

GCL Technology Training System to Ensure Quality



Comprehensively Developing the "Quality-first Culture" to Enhance the Quality Awareness of All Employees

CASE

In 2024, GCL Technology called on all employees to study the requirements of the *Integrated Quality Policy* and comprehensively promoted the policy by incorporating it into the training of new employees, drawing up and distributing reading materialsand taking random tests among employees to check out whether employees could memorize the policy, which equipped employees with more relevant knowledge and created a good environment for further learning. This served as an impetus to the integration of quality awareness into the Group's daily work.

Employees of GCL Technology Studying the *Integrated Quality Policy*

A Wall for Disseminating the *Integrated Quality Policy*

In 2024, the Group conducted 783 hours of training on quality-related topics, with 15,137 participants. The Group convened quality management personnel before they started their work to participate in the relevant training organized by the China Quality Association and the China Association for Quality Inspection. A total of 35 employees (including 8 directors and 27 staff members of quality and safety management) obtained relevant qualifications and certificates, which was a positive sign for the Group to further enhance the comprehensive capabilities of quality management personnel.

In 2024

The Group conducted **783** hours of training on quality-related topics

with **15,137** participants

A total of **35** employees obtained relevant qualifications and certificates

GCL Technology Highlight Quality Training Programs in 2024

Primary quality training camp

Convene employees to study "Basic Edition of Lean Six Sigma Green Belt", adopting the training model of "online lectures plus offline regional-based camp", consisting of 8 classes for theoretical learning and 4 classes of project coaching, with a total of 1,440 hours for training. 38 trainees passed the exam, and these trainees took the lead in organizing and completing 10 quality improvement projects in the companies they worked at.

Middle-level quality training camp

Convene employees to study "Standard Edition of Lean Six Sigma Green Belt", with a total of 31 participants in the training and a total of 91 hours for training required. The participants chose their subject for further research according to the actual quality issues in companies they worked in and used the tools they learned to finish and submit reports for facilitating relevant projects.

A Lecture on PV - Quality Training

With "Quality Management and Value Creation" as the training theme, more than 360 senior employees of management framework participated in a 3-hour training to help those managerial and technology experts understand how to implement the Group's quality management system and corresponding methods in their daily work to ensure the system's efficiency, as a way to help the quality management plan be implemented effectively.

Providing Satisfying Services to Internal and External Customers

GCL Technology was always guided by the "customer-first" principle, which was embodied not only in the regular customer management systems and response systems but also in the innovative mechanisms for internal and external customer services. By actively collecting necessary information, realizing inter-departmental coordination across the Group, and addressing problems for further improvement, we developed a proper and comprehensive workflow of internal management with reasonable standards and norms, which facilitated the continuous improvement of our ranking and customer satisfaction.

Information collection

Model on the e-commerce industry: A procedure to solve customers' problems was set up, involving receiving the customers' complaints, filling documents, sending the notice, confirming parties with liability, analyzing the causes and giving feedback to customers.

Communicate with customers: We developed different customer service plans for different scenarios covering product counseling stages, pre-sales stages, transaction and after-sales stages. Other measures were also adopted, such as the regular meetings with customers were held every two weeks and the visits to our customers, so as to know more about customers' needs before trying to meet them in time.

Survey the customers' opinion: we conducted customer satisfaction rate surveys, in which the three key indicators for assessment were product quality, product delivery and service quality.

Internal alignment

Hold regular meetings on customer complaints: We held regular meetings on customer complaints every week to review and evaluate our performance promptlywhile tracking the progress of the implementation of the improvement plans.

Targeted improvement

Establish standards for core management systems: We established the Committee of Standardized Quality Control in the Ingot and Wafer Slicing Department and formulated internal policies such as the *Customer Relationship Maintenance Management System* to make our management requirements more detailed and practical.

In 2024, GCL Technology attached great importance to improving its service quality and response efficiency in light of the wafer market and customers' needs by formulating the *Customer Differentiated Demand Management System* to ensure that customers' demands are effectively identified, categorized, responded to and tracked, which enhanced customer satisfaction and the Group's competitiveness. Moreover, in accordance with the *Response System of Customer Complaints and Returns of Products*, the Group stipulated strict response timelines for each stage of the complaint resolution process. On average, a resolution plan is provided within one business day after receiving a customer complaint, with a complaint resolution rate of 100%. This robust management approach has significantly improved customer satisfaction, achieving an annual average customer satisfaction rate of 96.80%, with an average survey participation rate of 70% among customers.

GCL Technology implemented the requirements of responsible marketing, strictly complied with national laws, regulations, and the Group's internal policies such as the *Advertising Law of the People's Republic of China* and the *Responsible Marketing and Consumer Protection Policy*, stringently controlled the content of advertisements for promotion and meticulously managed the dissemination of on-line information by with the standardized process. Besides, the Group conducted special inspections on sales, revising and supplementing the regulatory terms in relevant files to ensure that none of the Group's activities ran counter to national laws and regulations. Meanwhile, by taking customers' needs into consideration, GCL Technology clearly conveyed to customers key information such as product performance, characteristics, price and potential risks of use, etc. In 2024, GCL Technology organized 60 hours of training on responsible marketing, with 40 employees participating in the training.

GCL Technology Invited Customers to Conduct Competency Training Together

CASE

In 2024, GCL Technology, forging ahead with open-mindedness and an enterprising spirit, took the initiative to invite customers to provide training for the Group's employees in quality, technology, production, and other related fields. The Group precisely focused on the salient deficiencies in customer service and prioritized the direction of product quality optimization, promoting the enhancement of service capability and product quality.

During the reporting period, 205 employees participated in the foregoing training, after which each base of GCL Technology meticulously analyzed and reviewed the recent cases of customer complaints as well as the underlying causes of the problems before identifying the direction for improvement. In doing so, they took effective actions according to customer complaints to improve service and product quality.

GCL Technology Invited Customers to Conduct Employee Training

During the reporting period

Participants in the foregoing training

205 employees

In 2024

Complaint resolution rate 100 %

Achieving a satisfaction rate 96.80 %

Customers participating in the satisfaction survey accounted for 70 %

Organizing training on responsible marketing 60 hours

Participants in the training 40 employees

02 Green Infinity

Our commitment to green practices extends beyond the features of our products and forms the foundation of our operations. We are dedicated to strengthening environmental management systems, promoting efficient and circular resource use, ensuring compliant pollution prevention and control, and actively addressing climate change. Through lean management, we strive to preserve the purity of nature and envision a zero-carbon future filled with green possibilities.

Environmental Management | Pollution Prevention and Control | Resource Management | Climate Change Response

SDGs addressed in this chapter

Environmental Management

GCL Technology abides by applicable laws and regulations, including the *Environmental Protection Law of the People's Republic of China* and the *Circular Economy Promotion Law of the People's Republic of China*. Under a comprehensive environmental management framework, we actively support biodiversity protection and participate in ecological initiatives to foster harmony between humanity and nature.

Targets

0 severe environmental emergency incidents

0 environmental incidents caused by hazardous chemical spills

2024 Progress

"Achieved"

Environmental Management Systems

We have formulated and released the *Environmental Protection Regulation* to define environmental responsibilities at all levels and establish routine environmental management, achieving standardized environmental management. In 2024, 13 of our bases were certified under ISO 14001 environmental management systems, with a certification coverage rate of 100%.

Awards and Recognition

- Leshan GCL was selected for the "2024 Green Manufacturing Tiered Cultivation List" of Sichuan Province
- Henan GCL was selected for the fourth batch of national smart PV enterprises
- Suzhou GCL was recognized as a "Green Factory" in Jiangsu Province

Organizational structure

Chaired by the Co-CEO, the Safety and Environmental Protection Committee is our highest authority on safety and environmental matters. The committee is responsible for setting environmental policies, planning key initiatives, and overseeing the implementation of environmental measures. This ensures that our environmental efforts drive measurable improvements across the Group.

Safety and Environmental Protection Committee	• Setting up and reviewing the Group's policies and goals for safe and environmentally responsible production, and supervising their implementation • Organizing major safety hazard assessments and urging their rectifications
Safety and Environmental Protection Committee Office	• Supervising and evaluating the environmental management practices of each base • Organizing comprehensive inspections on safe and environmentally responsible production • Reporting regularly to the Safety and Environmental Protection Committee
Other relevant departments and bases	• Developing management systems and annual work plans and implementing daily management • Formulating environmental pollution emergency response plans and organizing related training and drills

GCL Technology's Organizational Structure of Environmental Management

Performance management

We have integrated environmental management performance into our performance evaluation system. Annual targets, such as energy savings and emission reductions, are clearly defined and incorporated into the *Annual Business Objectives Responsibility Agreement* signed with each base. Evaluation results are closely tied to the compensation of core management, ensuring environmental goals are met effectively.

In 2024

Internal environmental audits

12

External environmental audits

12

Environmental audit

We have a comprehensive audit mechanism in place to assess our environmental management systems and conduct regular internal and external audits. Each base conducts internal audits annually, focusing on legal compliance and alignment with ISO standards. All issues identified are promptly addressed and corrected. In addition, third-party agencies are engaged annually to conduct independent environmental audits across our bases. These reviews assess our environmental management systems, ensuring continuous improvement and compliance with international standards and regulations. In 2024, we conducted 12 internal environmental audits and 12 external environmental audits.

In 2024

Total attendance in environmental protection training

37,300

amounting to

1.9228 million hours

Environmental protection training

We have formulated the *Regulations of Environmental Protection Training Management* to regularly train employees at all levels. Training covers key topics such as environmental laws and regulations, solid waste management, pollution control, emergency preparedness, and hazard identification. Each year, our bases host themed events on World Environment Day to reinforce green awareness among employees. During the reporting period, we recorded a total attendance of 37,300 in environmental protection training, amounting to 1.9228 million hours.

Jiangsu Zhongneng Organized World Environment Day Campaign

CASE

On June 5, 2024, the 53rd World Environment Day, Jiangsu Zhongneng launched a series of environmental initiatives. These included upgrading and strengthening the management of environmental protection equipment, tightening controls over wastewater, waste gas, and solid waste, and performing comprehensive inspections to identify and resolve environmental risks, ensuring the normal operation of environmental protection facilities and the compliance of waste discharge. In addition, employees participated in training sessions on environmental laws and regulations to enhance legal awareness and promote green practices. These initiatives reflected Jiangsu Zhongnen's commitment to fulfilling its corporate social responsibility through concrete action.

Environmental Risk Management

In line with the *Measures for the Administration of Emergency Response Plans*, *Measures for Environmental Emergency Response Management*, and site-specific rules at our operations, we adhere to the principles of "Prevention first, combining prevention with the emergency response". We have established internal policies, such as the *Emergency Response Plan for Environmental Emergencies*, *Emergency Response Plan for Pollution Control*, *Emergency Response Plan for Severely Polluted Air Quality*, and the *Emergency Response Plan for Radioactive Source Incidents*, to manage various environmental risks.

To effectively address environmental risks, we have developed a comprehensive emergency response framework that covers the full lifecycle, including risk identification, monitoring and early warning, emergency response measures, recovery, protective measures, and supervision and management. This standardized environmental risk prevention and control system outlines clear emergency levels and response plans to ensure rapid, effective action in environmental emergencies.

Risk identification	Identifying the types of environmental risk substances, characteristics of risk units, and environmental risk levels.
Monitoring and early warning	Monitoring environmental risk sources, specifying monitoring methods, approaches, and measures, and developing an early warning action plan.
Emergency response measures	Establishing emergency response measures based on the classification standards for environmental emergencies to ensure a well-structured and effective response.
Recovery	Addressing recovery and reconstruction and post-incident handling, including on-site cleanup, restoration of production, and daily life, as well as compensation and measures to eliminate the impact of the incident, and conducting environmental impact assessments as needed.
Protective measures	Taking protective measures related to areas such as communication and information, human resources, emergency supplies and equipment, technology, financial resources, healthcare, transportation, public security, logistics, and legal affairs, while integrating social resources to ensure that all the measures are properly implemented.
Supervision and management	Establishing a supervision and management mechanism, outlining responsibilities, and conducting regular inspections and dynamic monitoring to ensure that environmental management measures are effectively implemented.

GCL Technology's Environmental Risk Management Procedure

Fire and Explosion Risk Assessment and Prevention at Ningxia Photovoltaic

CASE

Fire and explosion risks at Ningxia Photovoltaic are primarily concentrated in the monocrystalline workshop and the substation. Potential hazards stem from equipment malfunctions, operational errors, or electrical short circuits. Such incidents not only endanger personnel and damage equipment but also risk releasing toxic pollutants into the environment.

To effectively mitigate these risks, Ningxia Photovoltaic implemented a series of targeted prevention measures in 2024:

- Enhanced control of production equipment, standardized operation procedures, and strengthened staff training to prevent incidents caused by improper handling.
- Installed fire detection and alarm systems in flammable and explosive areas to enable real-time hazard monitoring.
- Placed clear "No Smoking" and "No Open Flames" signs and enforced fire source control.
- Conducted regular safety training to improve employee safety awareness.

Ecological Protection

We comply with ecological protection laws such as the *Wildlife Protection Law of the People's Republic of China* and *Regulations of the People's Republic of China on Nature Reserves*, as well as local biodiversity-related legislation. We have developed the *Biodiversity Protection Commitment and Policy*, which outlines our responsibilities regarding the protection of natural and forest resources and the use of renewable energy. The policy also sets out ecological management expectations for our suppliers, reflecting a shared commitment to ecological civilization. In 2025, GCL Group officially became a signatory to the Taskforce on Nature-related Financial Disclosures (TNFD), reinforcing its long-term dedication to biodiversity protection.

We assess the interactions between our operations and the surrounding ecosystems, identifying both environmental impacts and dependencies. This allows us to develop targeted management strategies to minimize ecological disruption. Our assessments show that the impact of our projects on nature is greater than their dependencies on the ecosystem. Key drivers of impact include land use, emissions of non-GHG air pollutants, and noise disturbances. To address these challenges, we mandate that all construction projects strictly implement ecological protection measures according to relevant requirements.

The Group's Hong Kong office was awarded a membership certificate from the World Wide Fund for Nature (WWF) in recognition of its outstanding contribution to local biodiversity conservation.

Ecological Protection Measures for Construction Projects

Before construction: Assessing the impact on biodiversity to keep business activities and project sites away from nature reserves and ecologically protected habitats.

During construction: Establishing relevant management systems such as the *Management System on the Impact on Interested Parties, Noise Pollution Prevention and Control Responsibility System, Environmental Protection Management System during the Construction Period, Wastewater Management System during the Construction Period, Dust Prevention and Control Management System during the Construction Period*, and *Noise Prevention and Control Management System during the Construction Period*. These documents clearly define environmental management standards for all processes such as construction design and implementation, ensuring that the projects proceed in an environmentally friendly and well-regulated manner. Detailed measures include:

Air pollution control	• Requiring construction teams to use mist cannons in projects that may generate dust (e.g., earthworks, crushed stone).
Soil and water conservation	• Using small-scale, targeted excavation methods for large-scale construction. • Monitoring soil quality and groundwater levels regularly to evaluate the effectiveness of conservation efforts.
Noise abatement	• Setting up monitoring stations for real-time noise tracking. • Installing soundproof covers and insulation for fans and blowers. • Strictly managing vehicle movement and avoiding operations near residential areas to minimize disturbance.
Ecological conservation	• Offsetting vegetation loss by transplanting and compensatory planting. • Implementing measures to prevent or reduce disturbances to local wildlife habitats.

We continue to organize environmental public welfare activities, encouraging employees to take part in ecological conservation efforts. In 2024, we made donations worth tens of thousands of yuan to biodiversity-themed campaigns, including the Endangered Species Protection Program and the 2024 National Birdwatching Festival, both initiated by the SEE Foundation.

"Tree Planting Challenge": Over 10,000 Trees Planted in Six Years

CASE

On August 28, 2024, we successfully concluded our annual "Tree Planting Challenge". Since its launch in 2019, more than 1,000 employees have taken part, planting 9,176 trees across regions such as Liangshan (Sichuan), Jiuquan (Gansu), Bayannur and Tongliao (Inner Mongolia), and Baoding (Hebei) through the Ant Forest platform.

During the reporting period, over 300 employees joined the initiative and planted 6,606 trees. The champion of the challenge maintained a 2,812-day streak on Ant Forest and planted 1,404 trees, while the runner-up maintained a 2,766-day streak, planting 1,033 trees.

During the reporting period

300+

employees joined the initiative

planted

6,606 trees

GCL Technology's "GCL Earth Hour" Program

CASE

Since 2010, we have partnered with WWF's Earth Hour initiative, creating a signature corporate green culture brand for more than a decade.

On March 23, 2024, the themed event "Building a Carbon-Neutral Future – 2024 GCL Earth Hour" was launched across our bases nationwide. Activities included a "Lights-Off for One Hour" ceremony and employee sharing sessions on "How We Spent Earth Hour" and "Show Off My Carbon Footprint". These engagements highlighted employees' environmental awareness and action.

In May 2024, the GCL Earth Hour program was awarded the First Prize for Innovative Cultural Brand Projects at the Enterprise Culture Brand Innovation and Development Forum hosted by the China Culture Administration Association.

GCL Technology Receiving Award for the "GCL Earth Hour" Program

Leshan GCL's Tree Planting Event on the National Tree Planting Day

CASE

On March 12, China's National Tree Planting Day, Leshan GCL organized a volunteer event themed "Tree Planting with GCL, Green in New Energy". Over 50 employee representatives planted 20 osmanthus trees and 20 golden locust trees across Leshan's company premises, adding vibrant greenery to the site.

On March 12, China's National Tree Planting Day

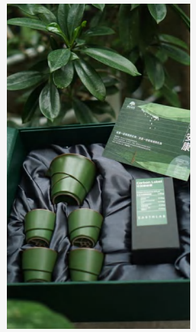
50+

employees from Leshan GCL participated in the tree-planting event

Tree Planting Event at Leshan GCL

"Go Sustainable" Fund Implements Innovative Low-Carbon Practices

CASE



Go Sustainable Fund, An Innovative Program in Low-carbon Practices

In 2022, GCL Technology's investment platform, Restone Capital, launched the "Go Sustainable" Fund to build low-carbon supply chains. Under this initiative, routine office supplies are replaced with products made from recyclable, renewable, or low-carbon materials, with their full life-cycle carbon footprint assessed. In 2024, we partnered with Niuyouguo Planet Farm to replace the coffee beans in our offices with sustainably sourced beans from Menglian, Yunnan. The cooperation has improved living and educational conditions for nearly 400 elderly residents and students across eight villages, demonstrating our commitment to social responsibility and environmental protection.

In 2024

Nearly 400

elderly residents and students had their living and educational conditions improved through our cooperation with Niuyouguo Planet Farm.

Pollution Prevention and Control

We maintain rigorous control over all pollutants, including waste gas, wastewater, and solid waste, across our production and operational processes. We mandate a 100% synchronization rate of environmental protection treatment equipment. By continually refining management systems and monitoring pollutant indicators, we ensure that all discharges comply with national and local environmental regulations, contributing to both sustainable production and environmental protection goals.

Targets

Wastewater

100% annual compliance rate for wastewater discharge

Waste Gas

100% annual compliance rate for waste gas emissions

Solid Waste

100% compliance rate for hazardous and solid waste disposal,

100% coverage of follow-up reviews on disposal units.

By 2030, the annual total amount of hazardous waste processed should be less than **0.01 tonne/MW of Wafers**[1].

2024 Progress

"Achieved"

The total amount of hazardous waste treated in the year was

0.006 tonne/MW

of Wafers, achieving the annual target.

	Applicable laws and regulations	Major management policies
Waste Gas	• *Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution*	• *Waste Gas Pollution Prevention and Control System* • *Fugitive Emissions Prevention and Control Management System* ***(New Revision)*** • *Regulations on the Control of Production Waste Gas Emissions* ***(New Revision)***
Wastewater	• *Water Pollution Prevention and Control Law of the People's Republic of China* • *Regulations on Urban Drainage and Sewage Treatment*	• *Wastewater Pollution Prevention and Control Management System* • *Emergency Pool Management System* • *Wastewater Discharge Permit Management System* ***(New Revision)***
Solid Waste	• *Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste* • *Standard for Pollution Control on Hazardous Waste Storage*	• *Waste and Hazardous Waste Management Control System* • *Emergency Plan for Waste Leakage* • *Management System of Waste Gas, Wastewater, and Solid Waste* ***(New Revision)*** • *Hazardous Waste Management System* ***(New Revision)*** • *Hazardous Waste Prevention and Control Responsibility System* ***(New Revision)***
Noise	• *Law of the People's Republic of China on the Prevention and Control of Noise Pollution*	• *Noise Pollution Prevention and Control Management System*

GCL Technology's Environmental Pollution Control Policies

[1] The data is based on existing product lines as of 2024, including polysilicon and wafers.

Waste Gas

GCLTechnology's primary waste gas emissions include nitrogen oxides and sulfur oxides from boiler operations, as well as particulate matter, chlorosilane, and hydrochloric acid vapors released during various stages of the production process. We have enforced end-to-end management of waste gas emissions, adopting production equipment that meets China's most stringent environmental standards. Specific emission control measures and responsibilities are clearly defined. During the reporting period, we reported zero incidents of excessive emissions.

Waste Gas Emission Reduction Measures

- Upgraded equipment and dust recovery technologies are employed across operations to reduce emissions
- Activated carbon used in gas adsorption systems is regularly replaced to ensure treatment efficiency
- Emission monitoring plans are regularly updated following the requirements of pollutant discharge permits
- Internal and external audits of waste gas emissions are conducted, with all issues identified being fully rectified

Xuzhou Solar Energy Material Upgrades Its Furnace to Reduce Waste Gas Emissions

CASE

In 2024, Xuzhou Solar Energy Material undertook major equipment upgrades by building a new furnace to replace the old furnace and some drying units. The new furnace utilizes advanced low-nitrogen combustion technology. As a result, the plant achieved an annual reduction of 2.21 tonnes of sulfur dioxide, 0.908 tonnes of nitrogen oxides, and 5.923 tonnes of particulate emissions.

Inner Mongolia Xinyuan Contributes to the Establishment of Regional Waste Gas Emission Standards

CASE

In 2024, Inner Mongolia Xinyuan actively participated in the development of the *Air Pollutant Emission Standards for the Industrial Silicon Sector of the Inner Mongolia Autonomous Region.* Drawing on its practices as well as local enterprises' experience in silicon production, it provided valuable suggestions on emissions limits, fugitive emission control, and pollutant monitoring strategies, contributing to the advancement of regional environmental standards.

		Unit	2024	2023
Polysilicon	Nitrogen oxides	tonne	**27.35**[2]	7.47
	Sulfur oxides	tonne	**0.15**	0.38
	Dust particles	tonne	**3.74**[3]	1.71
Wafer	Nitrogen oxides	tonne	**5.63**	6.07
	Sulfur oxides	tonne	**0**	0
	Dust particles	tonne	**8.85**	9.28

GCL Technology's Waste Gas Emissions for Polysilicon Segment and Wafer Segment in 2023-2024

[2] In 2024, due to an surge in production capacity of polysilicon companies, nitrogen oxide emissions from relevant production processes showed an upward trend.

[3] In 2024, due to a surge in production capacity of polysilicon companies, dust emissions from relevant production processes showed an upward trend.

Wastewater

Wastewater is primarily generated from processes such as granular silane gas purification, slurry treatment, and the nano-silicon circulating water system. We adhere to applicable regulations to ensure compliance and treatment efficiency. Regular risk assessments are conducted to prevent wastewater-related incidents. With real-time monitoring and hazard inspections in place, we ensure zero leakage of wastewater. In the event of any anomalies such as wastewater leakage, emergency response plans are activated immediately to control the spread of pollution and ensure environmental safety. During the reporting period, we reported no incidents of non-compliant wastewater discharge. The production wastewater of Leshan GCL, Inner Mongolia Xinyuan and Inner Mongolia Xinhuan has achieved "zero discharge".

We follow the principles of separating wastewater from non-wastewater, treating wastewater by category, and reusing wastewater while discharging non-wastewater. Continuous efforts are made to optimize production processes and upgrade treatment systems to improve wastewater reuse and reduce discharge. In 2024, all bases strengthened the monitoring of pH value and turbidity levels, ensuring compliance through a series of specialized inspections, including initial rainwater environmental management inspections and automated pollution source detection inspections, with all identified issues completely resolved.

Ningxia Photovoltaic Developed "Dynamic Dosing Model" for Precision Wastewater Treatment

CASE

In 2024, Ningxia Photovoltaic introduced a "dynamic dosing model" to reduce the high costs of wastewater treatment while increasing its efficiency. The model uses real-time monitoring of 12 key parameters, such as raw water turbidity and pH value. Compared to the traditional fixed-dosing approach, the new model adopts a tiered and dynamic dosing strategy based on changes in the flow of wastewater. After conducting hundreds of trials, Ningxia Photovoltaic optimized the poly aluminum chloride (PAC) usage down to 0.1 g/L, maintaining treated water turbidity below 15 NTU, well ahead of industry benchmarks. This new approach resulted in a 9.5% reduction in PAC consumption, saving an average of 1.55 tonnes of chemicals monthly and cutting annual costs by over RMB40,000. This precision management and control model has been extended to other treatment chemicals such as polyacrylamide (PAM) and caustic soda with standardized operating manuals in place, significantly reducing the costs of wastewater treatment.

This new approach resulted in a 9.5% reduction in PAC consumption
9.5 %

Monthly average saving of chemicals is
1.55 tonnes

Cutting annual costs by over
RMB 40,000

		Unit	2024	2023
Polysilicon	Discharge volume	ten thousand tonnes	**152**	155
	Discharge intensity	tonne/tonne of polysilicon	**5.65**	6.65
Wafer	Discharge volume	ten thousand tonnes	**487**	734
	Discharge intensity	tonne/MW of Wafers	**151.03**[1]	143.78

GCL Technology's Wastewater Discharge for Polysilicon Segment and Wafer Segement in 2023-2024

[1] In 2024, market fluctuations led to a decline in the Group's wafer capacity utilization rate, resulting in a higher discharge intensity of discharged wastewater in related processes.

Solid Waste

We classify all solid waste into two categories, non-hazardous waste and hazardous waste, after thorough hazard assessments. End-to-end management procedures are established by national regulations to ensure proper treatment of different types of solid waste. During the reporting period, we achieved 100% compliant disposal of waste.

Hazardous waste

- Conducting hazardous waste risk assessments, establishing classification standards, and setting up dedicated management procedures.
- Registering hazardous waste and storing it in the hazardous waste warehouse, and reporting and tracking its transfer through the hazardous waste management system.
- Ensuring all hazardous waste is legally disposed of by qualified third-party service providers.

Non-hazardous waste

- Strengthening the control and operation of technologies and optimizing processes to reduce solid waste generation.
- Standardizing temporary storage and handling of solid waste to prevent environmental pollution.
- Engaging qualified third parties for resource recovery and conducting regular inspections on non-hazardous waste disposal practices.

GCL Technology's Solid Waste Generation Management Measures

Jiangsu Zhongneng Implements a Plate and Frame Filter Upgrading Project

CASE

In 2024, Jiangsu Zhongneng achieved a sustainable upgrade in its sludge treatment facility through a plate and frame filter upgrading project. The technology uses high-pressure mechanical dewatering with multi-layer filter plates to reduce sludge moisture content from over 70% to 55%, significantly improving solid-liquid separation efficiency. Chemical usage efficiency improved by 50%, reducing consumption from 3.0 kg/t to 1.5 kg/t, with an annual saving of RMB671,000 in chemical costs. The project resulted in an annual reduction of 13,000 tonnes in sludge volume and an annual saving of RMB1.971 million in transportation and disposal costs.

The project resulted in an annual reduction of 13,000 tonnes in sludge volume
1,3000 tonnes

an annual saving of RMB 1.971 million in transportation and disposal costs
RMB 1.971 million

Inner Mongolia Xinyuan Recycles Silicon Powder from Rotary Drum Filter Cake

CASE

In 2024, Inner Mongolia Xinyuan launched a recovery project for rotary drum filter cake. Through drying and purification technologies, it removed chlorosilane and low-boiling-point metal chlorides from the cake, converting it into high-purity industrial silicon. The powder was then blended with byproduct silicon powder for further smelting and grinding, ultimately producing cold hydrogenated silicon feedstock. The project has processed 1,399 tonnes of rotary drum filter cake and recycled 1,027 tonnes of Industrial silicon, with an economic benefit of RMB4.9 million. It provided a high-efficiency solution for resource recovery in granular silicon production, improving its efficiency while cutting costs.

The project has processed rotary drum filter cake
1,399 tonnes

recycled industrial silicon
1,027 tonnes

Xuzhou Photovoltaic Develops Precision Slicing Technology

CASE

Monthly solid waste generation was reduced to

600 tonnes

In 2024, Xuzhou Photovoltaic developed a new solid waste treatment and recycling system. It introduced a fine wire slicing technology and collaborated with leading environmental R&D institutions to develop recycling technology. The new system greatly reduced waste generation and increased operation efficiency. Specifically, monthly solid waste generation was reduced to 600 tonnes, monthly third-party treatment costs were cut by RMB 200,000, and procurement costs for new raw materials dropped by RMB 180,000. The project exemplifies a successful integration of environmental and economic benefits.

		Unit	2024	2023
Polysilicon	Hazardous waste	tonne	**772**	1,505
	Hazardous waste generation intensity	tonne/tonne of polysilicon	**0.003**	0.006
	Non-hazardous waste	tonne	**94,103**	75,431[1]
	Non-hazardous waste generation intensity	tonne/tonne of polysilicon	**0.35**[2]	0.32
Wafer	Hazardous waste	tonne	**544**	469
	Hazardous waste generation intensity	tonne/MW of wafers	**0.017**[3]	0.009
	Non-hazardous waste	tonne	**50,684**	57,301[4]
	Non-hazardous waste generation intensity	tonne/MW of wafers	**1.57**[5]	1.12

GCL Technology's Solid Waste Generation for Polysilicon Segment and Wafer Segment in 2023-2024

[1] Due to changes in statistical scope, relevant data for 2023 has been restated.

[2] Due to the dismantling of the rod-shaped silicon facility at Jiangsu Zhongneng, there was a one-time increase in the volume and intensity of non-hazardous waste generation.

[3] In 2024, Suzhou GCL increased the frequency of activated carbon replacement in its waste gas treatment system, leading to a rise in both the total volume and intensity of hazardous waste generation.

[4] Due to adjustments in statistical methodologies, including the incorporation of additional data categories such as domestic waste and plastic waste, relevant data for 2023 has been restated.

[5] Due to the decreased capacity utilization rate of silicon wafer production, the emission density of non-hazardous waste has increased.

Resource Management

We are committed to integrating the concept of resource conservation into all stages of our production and operations. We have established relevant management systems including the *Energy and Water Conservation Management Guidelines* and the *Energy Saving and Emission Reduction Work Plan* to define the responsibilities of resource management, which include the formulation of water and energy targets, resource management during daily operations, and the evaluation of resource performance indicators.

Organizational structure

The Group places great importance on energy and water resource management. Our strategies on energy and water resources are led by the Executive Director and Co-CEO, Lan Tianshi, who also oversees their implementation. The ESG Committee is responsible for comprehensively supervising the formulation and execution of energy and water resource targets. Under the leadership of the Co-CEO, the Sustainable Development Management Committee is responsible for formulating and leading the execution of strategies at each base. The Strategic Operations Center ensures that these strategies are effectively implemented across all bases, while monitoring KPIs and providing support. This organizational structure effectively ensures scientific decision-making and efficient execution in the Group's energy and water management.

Performance review

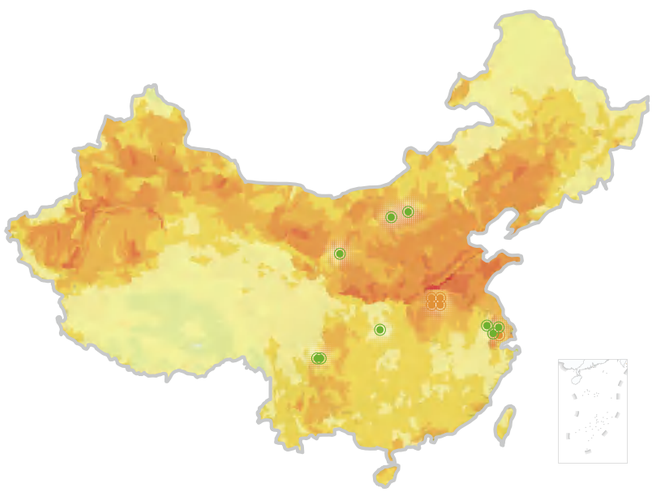
Annual performance targets were set based on the patterns of water and energy consumption for each production. We regularly assess the implementation of water and energy-saving plans in specific sections and sign an *Annual Business Objectives Responsibility Agreement* with the responsible individuals at each base to ensure the achievement of annual goals.

Water Management

We emphasize the sustainable use of water resources and product water management. Combining the results of regular assessments of water resource risks at each base, we design water-saving and efficiency improvement plans, promote the recycling of water resources, and strive to establish a green and low-carbon water resource management model, aiming to improve the efficiency of water resource utilization.

Water Risk Management

Leveraging the Water Risk Filter developed by the WWF, we conduct an annual risk assessment of water resources at each base. Tailored water resource management strategies are then developed for different risk levels based on the assessment results. In 2024, we completed a comprehensive water risk assessment for 14 locations (13 production bases + 1 Administrative Management Center), covering basin reputational risk[1], basin physical risk[2], and basin regulatory[3] risk to ensure that water resource risks are controlled.



- High risk: None
- Medium risk: 5 bases
- Low risk: 9 bases

Average score of water risk 2.7 Medium risk

Extremely low risk	Low risk	Medium risk	High risk	Extremely high risk
1.0-1.8	1.8-2.6	2.6-3.4	3.4-4.2	4.2-5.0

- Physical risk 3.2
- Regulatory risk score 1.7
- Reputational risk 3.1

GCL Technology's Basin Physical Risk Map

[1] Basin reputational risk: it refers to potential risks from negative public opinion, mainly focusing on the public's water perception, local cultural environment, and media attention levels; and involves 4 key indicators: the importance of water in local culture, importance of water in biodiversity, media attention, and the risk of hydrological conflict.

[2] Basin physical risk: it refers to risks to water quantity, quality, and aquatic ecosystems due to human activities and natural factors, including 4 major categories: water scarcity risk, flood risk, water quality risk, and ecological system dependence.f

[3] Basin regulatory risk: it refers to potential risks arising from governmental regulatory measures in water resource management, involving aspects like water rights allocation, wastewater discharge pricing mechanisms, and water quality standards; includes 4 main categories: policy environment uncertainty, institutional and governance inefficiency, management tool application flaws, and infrastructure and funding support risk.

The assessment shows that the Group's overall water risk score was 2.7 in 2024, indicating a medium level of risk. We've also conducted risk assessments for each base and tailored water management strategies based on their individual risk level, aiming to reduce water risks and ensure the sustainable use of water resources.

Risk type	Response measures	Risk level and number of bases[4]		
		High risk (0)	Medium risk(5)	Low risk(9)
Reputational risk	Regularly assess water use efficiency and water resource management performance, and disclose wastewater discharge data and other relevant information to stakeholders to reduce reputational risk caused by information asymmetry	√	√	√
	Actively participate in basin protection projects and collaborate with local governments, communities, and NGOs to promote basin water resource protection	√	√	
	Develop crisis response plans with clearly defined procedures; establish a public opinion monitoring system to track real-time media reports and public sentiment	√		
Regulatory risk	Strictly comply with national and local basin protection laws and regulations to ensure all operational activities within the basin are legal and compliant	√	√	√
	Establish reasonable water quota and rigorously assess the execution of annual and monthly water-saving plans based on the quota	√	√	
	Maintain close communication and coordination with local government and environmental departments and actively participate in government-enterprise exchanges related to the basin	√		
Physical risk	Establish a comprehensive water resource management system, clarify the roles and responsibilities at all levels, and develop water conservation measures and plans	√	√	√
	Introduce advanced water treatment technologies, promote water-saving modifications, ensure that wastewater is discharged up to standard, increase the reuse rate of wastewater, and utilize alternative water sources to improve water resource utilization efficiency	√	√	√
	Set detailed water-saving and wastewater reduction targets and incorporate them into employees' performance review	√		

GCL Technology's Measures for Addressing Various Levels of Water Risks

Industrial Silicon Segment

- Use boiler wastewater, rainwater, and cooling tower water to replace fresh water, reducing freshwater consumption
- Use pressurized rainwater to replace fresh water, reducing the water refill demand for boiler cooling pool

Polysilicon Segment

- Actively optimize drainage systems to recycle water
- Install sewage disposal devices to achieve "0 wastewater discharge"

Wafer Segment

- Utilize treated reclaimed water as an alternative water source to reduce dependence on natural water resources
- Modify process and implement water-saving projects to reduce water usage

GCL Technology Water Risk Management Measures across Business Segments

[4] We assessed the physical, regulatory and reputational risks of each base individually. A site is considered to be at high risk if it has two or more dimensions rated as high risk, at medium risk if it has one dimension rated as high risk, and at low risk in all other cases.

During the reporting period

Total of

7

process modification projects

Projected to achieve

1.41 million tonnes

of water

Water conservation

GCL Technology has always placed the protection of water resources at a strategic level of corporate development and has implemented a number of water conservation measures to maintain the ecological safety of the waters around its production bases. We strive to improve our production processes, significantly increase water utilization, and ensure regional water quality and environment. Besides, we continue to promote water reuse, actively adopt alternative water sources, and reduce our reliance on natural water bodies, thereby contributing to the protection of regional water ecology.

In 2024, we explored new paths for water conservation and improved the efficiency of water utilization in all aspects by enhancing the utilization rate of recycled and reclaimed water, increasing water reuse and making water conservation renovations. During the reporting period, we carried out a total of 7 water-saving process projects, projected to save 1.41 million tonnes of water, with the overall water unit consumption decreasing by 23% YoY, exceeding the annual target.

Targets		2024 Progress	
Polysilicon:	With 2023 as the base year, a **31.78%** reduction is targeted by 2026	Water consumption of polysilicon segment was **57.36** tonne/tonne of polysilicon, down 22% compared to 2023	Water consumption of wafer segment was **285.70** tonnes/MW of wafers, up 47% compared to 2023[1]
Wafer:	With 2023 as the base year, a **9.31%** reduction is targeted by 2026		

GCL Technology 2024 Water Saving Targets and Progress for Polysilicon Segment and Wafer Segment

Industrial Silicon	• In Inner Mongolia Xinyuan, the discharge from waste heat boilers is cooled in a pool, collected, and stored in the rainwater system for reuse as a refill for cooling towers. The discharge from cooling towers is prioritized for use in silicon washing, with any surplus sent to granular silicon for wastewater treatment.	• The annual water savings amount to **17.099 tonnes** for silicon washing.
Polysilicon	• In Leshan GCL, a project was launched to optimize circulating water devices. The refill water required was reduced from **171 m^3/h** to **137 m^3/h** after optimization, saving approximately **34 m^3/h** of water.	• The annual water savings amount to **199,104 tonnes**.
	• In Inner Mongolia Xinhuan, energy-saving modifications to mechanical seal water, steam condensate recovery, and sewage treatment projects were introduced to save water across production and operations.	• The mechanical seal water energy-saving project resulted in an annual savings of **35,040 tonnes** of water. • The steam condensate recovery project saved **648 m^3** of secondary desalinated water annually. • The sewage treatment project saved **45,900 tonnes** of water annually.
Wafer	• In Xuzhou Photovoltaic, the use of recycled water was expanded to reduce surface water extraction. Cooling tower wastewater is recycled to reduce fresh water usage and wastewater discharge.	• The utilization of recycled water increased from **73.62%** to **83.03%**. • Cooling tower water recovery totaled **632,800 tonnes**, with an annual water saving of **106.87 million tonnes**.
	• In Suzhou GCL, filtrate direct supply systems for workshops were modified and optimized to effectively reduce coolant usage in slurry systems.	• Each slicing machine saved **1.6 tonnes** of purified water, amounting to an annual savings of **5,840 tonnes**.
	• In Ningxia GCL Monocrystalline, the supply system for landscaping water around the plant was optimized to use treated wastewater for irrigation instead of fresh water.	• This resulted in an annual saving of **8,827 tonnes** of fresh water for irrigation.
Perovskite	• During the construction of the perovskite project, provisions were made for air conditioning condensate pipelines and collection tanks. In summer, the collected condensate water is routed to the chiller cooling towers, thus reducing tap water usage and lowering water temperatures.	• **30,240 tonnes** of condensate water is saved annually.

GCL Technology's Water Conservation Initiatives Highlights in 2024

[1] In 2024, due to an surge in production capacity of polysilicon companies, the water consumption per unit output of wafers showed an upward trend.

Water Resource Optimization Projects at Inner Mongolia Xinhuan

CASE

In 2024, Inner Mongolia Xinhuan proactively implemented various water-saving projects, significantly reducing the consumption of different types of water resources and achieving an annual total saving of 81,588 tonnes.

Mechanical seal water conservation

- The project recycles production water by connecting mechanical seal cooling water to a newly added atmospheric container and using a pump to return the water to the mechanical seal cooling system.
- With this modification, 2,920 m^3 of water can be saved per month.

Steam condensate recovery

- Steam condensate was recovered to the cooling tower pool via overflow pipes, reducing the need for desalinated water replenishment.
- After the modification, 54 m^3 of secondary desalinated water can be saved per month.

Sewage treatment device renovation

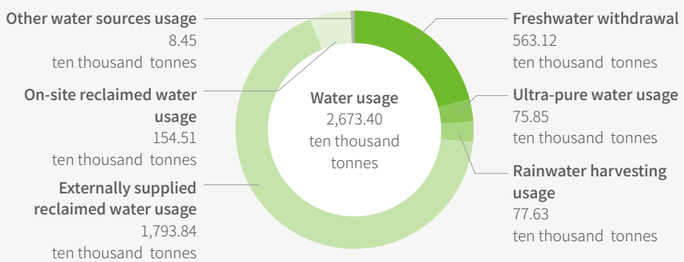
- We used pre-treated water in lime milk preparation, and evaporation distillate in sodium sulfate preparation to significantly reduce production water consumption.
- These modifications resulted in a monthly savings of 3,825 tonnes of production water.

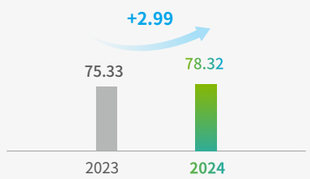
Additionally, the Group also encourages employees and suppliers to participate in water-saving initiatives. Bases organize water-saving training sessions at times to explain saving techniques applicable to in daily routine and production processes, enhancing the water conservation awareness of all employees. In 2024, Inner Mongolia Xinhuan strengthened employee awareness and operational standards around water conservation by offering specialized training sessions on cooling water system optimization and wastewater reuse. These sessions were tailored to chemical production and delivered through policy briefings, technical workshops, and case study sharing.

Total water usage[2]
2,673.40 ten thousand tonnes

Total water consumption[3]
1,760.54 ten thousand tonnes

Total water withdrawal[4]
563.12 ten thousand tonnes





▲ The Proportion of total alternative water sources used (%)[5]

In 2023 97.76%, In 2024 91.86%

▲ The Proportion of alternative water sources used for polysilicon (%)

In 2023 41.57%, In 2024 60.48%

▲ The Proportion of alternative water sources used for wafers (%)

GCL Technology 2024 Water Consumption

[2] Total water usage refers to the total volume of water resources directly or indirectly used across all activities throughout the year. This includes freshwater withdrawal, ultrapure water usage, rainwater harvesting, externally supplied reclaimed water, on-site reclaimed water, and other water sources.
[3] Total water consumption refers to the volume of water used up in production and operations.
[4] Total water withdrawal includes fresh water drawn directly from external sources such as natural water bodies (surface and groundwater) and municipal pipelines.
[5] Alternative water sources include externally supplied reclaimed water, harvested rainwater, on-site reclaimed water, and other water sources.

Energy Management

We are committed to exploring energy-saving opportunities in production and operations, actively embracing renewable energy, and optimizing our energy structure. In 2024, all bases implemented process innovations, operational improvements, and technological upgrades, significantly enhancing energy efficiency. During the reporting period, we conducted eight energy-saving technological upgrades, projected to achieve annual electricity savings of 223.74 million kWh. Meanwhile, we continued to scale up renewable energy use in 2024, with total renewable energy consumption exceeding 2,741,143.13 MWh, representing a 90-fold increase compared to 2023 levels.

Targets

Polysilicon: **8%** reduction in electricity unit consumption in 2024, using 2023 as the base year

2024 Progress

Power consumption of polysilicon segment was

14.31 MWh/tonne of polysilicon

a **14%** reduction compared to 2023

"Achieved"

During the reporting period

We conducted

8

energy-saving technological upgrades

Projected to achieve annual electricity savings of

223.74 million kWh

With total renewable energy consumption exceeding

2,741,143.13 MWh

Green electricity usage

25 %

of total electricity

Representing a

90 times

increase compared to 2023 levels

Industrial Silicon	At Inner Mongolia Xinyuan, we recycled drum filter residues by drying and purifying them, then combined them with by-product silicon powder to form silicon blocks, which are ground into silicon powder.	This initiative is projected to save energy equivalent to **4,620 tonnes** of standard coal.
	To reduce the electricity consumption of industrial silicon, the smelting electricity consumption is reduced by upgrading the level of intelligent operation through automatic electricity distribution, and the electricity consumption is reduced by controlling the operating parameters through the process system data analysis tests.	Annual electricity consumption per unit decreased by **5.5%**, saving roughly **169 million kWh**.
Polysilicon	At Inner Mongolia Xinyuan, we enhanced the hydrogen recovery system by installing three-way pipes, enabling the direct return of high-pressure hydrogen and re-pressurizing low-pressure hydrogen for reuse, maximizing the use of gas without adding new equipment.	This initiative is projected to save energy equivalent to **1,022 tonnes** of standard coal.
	We also introduced advanced hydrogen recovery technologies at Inner Mongolia Xinhuan, acquiring high/low-pressure hydrogen-silicon powder filters and carried out energy-saving modifications and equipment upgrades for the cold hydrogenation unit, significantly reducing hydrogen losses.	The total annual hydrogen recovery was **7.62 million m³**.

GCL Technology's Energy Conservation Initiatives Highlights in 2024

Green and Efficient Integrated Drying and Baking Tunnel Kiln at Xuzhou Solar Energy Material

CASE

In 2024, we constructed a 100-meter-long integrated drying and baking tunnel kiln at Xuzhou Solar Energy Material to boost efficiency and enhance product quality. This project incorporated advanced low-nitrogen combustion nozzle technology, which significantly reduced nitrogen oxide emissions and cut natural gas usage by 100,000m³ per month. The new kiln operation has also led to substantial improvements in crucible quality, increased product strength, reduced deformation, and lowered metal impurity content.

Furthermore, our bases across China organize energy-saving training sessions at times to explain energy-saving techniques relevant to both office and production environments. The training emphasizes efficient use of office equipment, turning off lights and water when not needed, managing equipment operations effectively, and optimizing processes, thereby significantly enhancing employees' energy-saving awareness. In 2024, Inner Mongolia Xinhuan organized training sessions focused on process optimization, equipment energy efficiency, and circular resource utilization. These were delivered through policy interpretation, case analysis, and hands-on workshops, driving continued progress in green production transformation.

		Unit	2024	2023
Polysilicon	Total comprehensive energy consumption	MWh	**13,497,318**[1]	12,161,892
	Total comprehensive energy intensity	MWh/tonne of polysilicon	**50.14**	52.36
Wafer	Total comprehensive energy consumption	MWh	**1,397,002**	1,426,199
	Total comprehensive energy intensity	MWh/MW of wafers	**43.33**[2]	27.92

GCL Technology's Energy Consumption for Polysilicon Segment and Wafer Segment[3] in 2023-2024

[1] Comprehensive energy consumption was rising due to concentrated release of production capacity of polysilicon in 2024.
[2] Comprehensive energy consumption density was on the rise due to the decline in capacity utilization rate of wafer in 2024.
[3] Comprehensive energy consumption data is calculated with reference to the *General Rules for Calculating Comprehensive Energy Consumption* (GB/T 2589 2020).

Wafer	In Ningxia Photovoltaic, we optimized the control system of cooling tower fans, converting 24 fans in the cooling towers to variable frequency control mode, reducing power to 17 kW.	This resulted in an annual electricity saving of **1.0512 million kWh**.
	At Xuzhou Photovoltaic, we improved the efficiency of slicers and implemented various energy-saving measures such as using energy-efficient air compressors, launching argon recovery projects, upgrading AC systems, and introducing automated equipment.	Switching to energy-efficient air compressors is expected to save **5.769 million kWh** of electricity annually. Argon recovery achieved an annual recovery volume of **26,875 tonnes**.
	At Ningxia GCL Monocrystalline, we converted all 138 oil pumps to dry pumps, saving electricity while reducing waste oil emissions.	The annual steam saving is expected to be **17,520 tonnes**.
Other Business	At Xuzhou High Tech, we stopped steam leakage in jacketed pipelines by replacing the leaking parts, thus reducing steam loss.	This is expected to save **2.012 million kWh** of electricity annually and reduce waste oil sludge by **50 tonnes** per year.

Packaging Material Management

GCL Technology is advancing its green transition in packaging by enhancing recycling and reuse, guided by principles of "environmental protection, reduction, and recycling" to effectively cut material consumption. Our main packaging materials include cardboard boxes, wooden pallets, PE products, EPE foam, and industrial silicon bags.

In 2024, several bases implemented circular packaging measures tailored to their needs: Konca Solar recycled ingot packaging and cleaning barrels, Suzhou GCL repaired and reused wooden pallets to extend their lifespan, and Henan GCL switched from woven plastic bags to cardboard boxes for easier recycling and reuse.

Xuzhou Photovoltaic's Waste Bulk Bag Recycling in Multiple Scenarios

CASE

The initiative is estimated to save approximately

RMB 138,000

In 2024, Xuzhou Photovoltaic undertook a technical transformation, developing an innovative process to clean and reuse ton bags. This process allows bags initially earmarked for disposal to be reused in the polycrystalline, monocrystalline, and slicing workshops. And it has become a standardized operating procedure adopted across multiple production units. The initiative is estimated to save approximately RMB 138,000 annually.

		Unit	2024	2023
Polysilicon	Use of packaging materials	tonne	**17,961**[1]	16,129
	Intensity of use of packaging materials	tonne/tonne of polysilicon	**0.07**	0.07
Wafer	Use of packaging materials	tonne	**3,486**	6,692
	Intensity of use of packaging materials	tonne/MW of wafers	**0.11**	0.13

GCL Technology's Use of Packaging Materials for Polysilicon Segment and Wafer Segment in 2023-2024

[1] The use of packaging materials was rising due to concentrated release of the production capacity of polysilicon in 2024.

Climate Change Response

With extreme weather events becoming more frequent and global climate risks on the rise, tackling climate change has become a global priority. At GCL Technology, we are dedicated to our mission of "dedicated to green growth to keep improving the human living environment". In line with the IFRS S2 Climate-related Disclosures from the International Sustainability Standards Board (ISSB), we actively identify, assess, and respond to climate risks, striving to lead in this global endeavor.

In 2024, we launched a pilot project examining the physical and transition risks of climate change in our polysilicon segment across the entire value chain. Using climate scenario analysis, we optimize strategies and measures to enhance our climate resilience and minimize the impact of climate change on our operations. As we look to the future, we will expand our climate risk identification and assessment to include wafer and other business lines, working closely with our partners to build a more sustainable future.

Governance

GCL Technology has institutionalized a three-tier climate governance framework, anchored by the ESG Committee as the strategic decision-making authority, to ensure scientific rigor and operational efficiency in climate change management. Under the strategic guidance of the ESG Committee, we have developed a transparent and accountable top-down governance system that integrates climate strategies into business decision-making at all levels.

Management Level		Responsibilities
Governance Level	ESG Committee	The ESG Committee is responsible for supervising and reviewing the Group's strategies and planning for climate change responses while regularly monitoring progress towards climate-related goals.
Management Level	Sustainability Management Committee	The Sustainability Management Committee oversees climate-related risk management and implements strategies for addressing ESG and climate-related risks in corporate decision-making, investment, and operations.
	Sustainable Development Center	The Sustainable Development Center coordinates the Group's overall management of climate efforts, prompting each functional department and bases to identify climate-related risks and take responsive measures.
Execution Level	ESG Task Force	The ESG Task Force monitors domestic and international climate policy developments and identifies climate-related risks that significantly impact the Group's business and/or financial performance using historical data. It also rolls out plans for risk control measures.

Climate Change Governance Structure

In 2024

Conducted TCFD training for both the ESG Committee and the Sustainability Management Committee

Once

We issued the *Management Measures for Addressing Climate Change and Sustainable Development*, committing to adapting to and mitigating the impact of climate change on our operations while collaborating with stakeholders to promote energy conservation and emission reductions, facilitating the transition to a low-carbon economy.

In 2024, we conducted climate-related training, including 1 dedicated Task Force on Climate-related Financial Disclosures (TCFD) training session for both the ESG Committee and the Sustainability Management Committee, enhancing the awareness and skill level of our directors and top management in climate risk management. In addition, we have incorporated climate-related targets (e.g. energy consumption targets) into the annual performance evaluations of our executive directors, supervisors, and senior executives, actively monitoring progress toward our climate governance goals.

Strategy[1]

To develop effective climate change response strategies, we have identified and evaluated climate-related risks and opportunities across all business segments and advanced the next phase of work progressively. In 2024, we assessed the importance and financial impact of climate risks by collecting financial data and climate-related indicators from key stages in the value chain of our polysilicon segment. This assessment considered international climate scenarios to formulate targeted response strategies aimed at enhancing our climate resilience.

Climate Scenario Analysis

We primarily evaluated the impact of physical and transition risks based on the SSP1-2.6 and SSP5-8.5 scenarios from the United Nations Intergovernmental Panel on Climate Change (IPCC) AR6[2], along with the Net Zero 2050 and Stated Policies Scenarios from the International Energy Agency (IEA)[3].

	Low-temperature Scenario	High-temperature Scenario
Scenario	SSP1-2.6	SSP5-8.5
Description	This scenario envisions achieving global net-zero emissions by 2050, limiting global temperature rise to 1.5 ° C by 2100 (with at least a 50% probability), aligned with the Paris Agreement goals.	In this scenario, the global average temperature rises significantly, potentially exceeding 4° C above pre-industrial levels by 2100, as socio-economic development continues to heavily rely on fossil fuels and high carbon emissions.

Climate Physical Risk Assessment Scenarios

	Low-temperature Scenario	High-temperature Scenario
Scenario	Net Zero 2050 (NZE)	Stated Policies Scenario (STEPS)
Description	The NZE 2050 scenario[4] outlines a normative pathway for the global energy sector to achieve net-zero carbon emissions by 2050, with developed economies reaching this target earlier. It aligns with major Sustainable Development Goals (SDGs) related to energy, especially ensuring universal access to affordable, reliable and modern energy services and improving air quality by 2030. This scenario is consistent with emission reduction targets assessed in the IPCC's Sixth Assessment Report (AR6) to limit global temperature rise to 1.5° C (with at least a 50% probability).	STEPS[5] provides insights into mainstream energy system developments through a detailed review of the current policy landscape, reflecting a comprehensive assessment of policies and measures announced or implemented across sectors. It does not assume that announced policies and climate targets will automatically be achieved. This scenario includes a wide range of policies, such as the Nationally Determined Contributions (NDCs) under the Paris Agreement. Under STEPS, global temperatures are projected to rise to 2.4° C by 2100 (with a 50% probability).

Climate Transition Risk Assessment Scenarios

[1] The disclosure results of this climate risk assessment are only for the polysilicon segment. GCL Technology will gradually carry out the climate risk assessment by business segments and update the results in the future reports.
[2] AR refers to the Sixth Assessment Report issued by the Intergovernmental Panel on Climate Change (IPCC).
[3] The International Energy Agency (IEA) is an intergovernmental organization founded in 1974 and headquartered in Paris, France. Its initial goal was to coordinate responses to oil supply crises, but over time its mission has expanded to include global energy security, economic development, and environmental protection.
[4] https://www.iea.org/reports/global-energy-and-climate-model/net-zero-emissions-by-2050-scenario-nze
[5] https://www.iea.org/reports/global-energy-and-climate-model/stated-policies-scenario-steps#abstract

Time Horizon

We have set short-, medium- and long-term time horizons, informed by our greenhouse gas emission reduction targets, water resource targets and the recommendations of the Science Based Targets initiative (SBTi). Specifically, the short-term covers 2024 to 2026, the medium-term spans 2027 to 2030, aligned with the China's goal of peaking carbon emissions by 2030, and the long-term extends from 2031 to 2050, aligned with China's goal of achieving carbon neutrality before 2060 and SBTi recommendations.

Identification of Climate Risks and Opportunities

In 2024

following our climate risk and opportunity management process, we have identified a total of **23** climate risks and opportunities including **7** physical risks, **10** transition risks, **6** climate opportunities

Type	Opportunity	Description
Resource efficiency	Enhanced resource utilization	Optimize manufacturing processes and implement energy-saving projects to improve material and water efficiency, thereby reducing operating costs.
Energy source	Use of renewable energy	Use photovoltaics and other renewable energies to save on energy costs and mitigate risks from rising coal prices.
Products and services	Development of low-carbon products	Photovoltaic solar energy will be mainstream clean energy and play a crucial role in achieving global "carbon neutrality." Our FBR granular silicon meets consumer demand for climate-friendly products, enhancing competitiveness and revenue.
Market	Access to new markets	With more than 100 countries now committed to"carbon neutrality" targets, photovoltaic technology has emerged as a cornerstone of the global energy transition. By strategically prioritizing early market entry into regions with ambitious decarbonization timelines, GCL Technology can secure advantageous market positions, driving both market share growth and revenue expansion in these high-potential fields.
	Utilize the incentives of the public sector	In order to encourage and support the development of photovoltaic power generation, the state has introduced a series of subsidy policies. We actively responds to relevant national policies and will receive subsidies from the state and local governments, reducing the financial pressure.
Resilience	Resource substitution/ diversification	Enhance the substitutability and diversification of raw materials to improve supply chain reliability; reduce the risk of operational disruptions and potential financial losses.

Key Climate Opportunities

Risk Type	Risk Factor	Risk Description	Response
Acute	Typhoons/ Tropical Cyclone	• Damage to factories and equipment increases maintenance costs and reduces operational capacity. • Supply chain disruptions delay logistics, causing material shortages and affecting production. • Threats to employee health and safety may interrupt operations.	• Conduct seasonal inspections of operational facilities and equipment to enhance disaster resilience. • Establish emergency response plans and conduct regular drills.
	Extreme Precipitation	• Facility damage and production interruption reduce revenue and increase costs. • Disrupted logistics delay supply and delivery of raw materials and products. • Increased pressure on wastewater treatment systems reduces efficiency and raises costs.	• Apply waterproof sealing to production equipment to prevent short circuits or structural corrosion. • Install temporary water storage and emergency treatment facilities to manage overflow and system overload during heavy rainfall.
	Cold Waves	• Freezing in the circulating water system reduces production efficiency and raises maintenance costs. • Disruptions in transportation hinder raw material supply, potentially leading to shutdowns. • Increased energy use raises operating costs.	• Enhance winter maintenance of facilities in Inner Mongolia and implement anti-freezing measures. • Improve energy efficiency through waste heat recovery and other technologies.
	Heat Waves	• Power restrictions may halt production, impacting output and increasing restart costs. • Reduced cooling efficiency increases water consumption and operational expenses. • Health and safety risks to employees may reduce productivity and income.	• Optimize chiller operations to prevent overloading and ensure efficient performance through routine maintenance. • Deploy reliable process monitoring systems to ensure safe equipment operations. • Improve power outage contingency plans at high-risk bases, such as Leshan GCL, and reinforce summer energy-saving measures.
Chronic	Sea Level Rise	• Flooding in low-lying areas may damage equipment, cause asset impairment, and increase losses. • Supply chain disruptions hinder logistics, reduce raw material supply, and impact revenue.	• Upgrade factories' drainage systems to reduce flood risks associated with sea level rise. • Monitor sea level trends and develop adaptive response strategies to mitigate long-term risks.
	Drought and Water Scarcity	• Water shortages may halt operations, reducing output and revenue. • Rising water costs increase operational expenses. • Lower cooling system efficiency accelerates equipment wear.	• Conduct water risk assessments and implement mitigation strategies. • Develop air-cooling technologies to reduce water consumption. • Enhance wastewater reuse and aim for zero discharge to improve water resource efficiency.
	Extreme Shifts in Rainfall & Weather Patterns	• Infrastructure failure may cause production stoppages, reduce output, and delay recovery. • Supply chain disruptions hinder logistics and raw material supply, impacting revenue. • Greater strain on wastewater systems increases discharge costs and affects operational efficiency.	• Optimize plant drainage systems and reinforce structural foundations to withstand long-term extreme weather events. • Diversify supplier choices and logistics routes, and stockpile critical materials to reduce supply chain risks.

Key Physical Climate Risks

Risk Type	Risk Factor	Risk Description	Response
Policy Risk	Stricter energy conservation and emission reduction policies	• Stricter policies demand higher standards for energy use and carbon emissions in photovoltaic material production, requiring us to adopt efficient technologies and equipment, which may increase compliance costs.	• Upgrade green technologies and renewable energy systems, reduce emissions and product carbon footprints, conduct regular carbon audits and disclose data, and monitor policy changes to manage costs.
	Mandatory regulation on existing products and services	• Mandatory regulations require us to increase investment in reducing energy consumption and carbon emissions per unit of product, including carbon emission monitoring, reporting, and trading costs.	• Advance low-carbon production processes, improve carbon management systems, enhance data tracking, and engage in carbon trading to reduce compliance costs.
	Stricter emission reporting obligations and compliance requirements	• Meeting stricter emission reporting obligations requires increased investment in monitoring, reporting, and verification, directly raising operating costs. Meeting compliance may require additional investment in emission-reduction R&D, raising costs further.	• Build intelligent emission monitoring/ reporting systems and invest in emission-reduction technologies to ensure compliance.
	Carbon pricing	• These mechanisms may impose additional operating costs on photovoltaic material producers like us. Such regulations could mean higher operating costs—whether through buying more carbon emission permits or funding energy-saving initiatives to comply with trading controls.	• Track global carbon pricing and carbon border tax developments, optimize production presence and carbon asset strategies, and reduce allowance needs by pumping up energy efficiency and green energy.
	Climate-related litigation risk	• Stricter climate-related laws may expose GCL Technology to litigation, reputational damage, financial loss, and potential operational disruptions if policies and laws are violated.	• Strengthen climate compliance frameworks, conduct regular legal and policy risk assessments, and develop contingency plans to mitigate litigation risks.
Technology Risk	R&D failure	• Developing low-carbon photovoltaic materials involves new processes and equipment. R&D failures or low market adoption of new technologies could hinder transition efforts, impact competitiveness, and increase liabilities.	• Adjust R&D direction and investment as needed to balance innovation with risk and a ensure successful transition.
	Tech evolution	• The photovoltaic industry is experiencing rapid technological evolution. GCL Technology's granular silicon production currently faces process-related challenges that may erode its low-carbon competitive edge. Concurrently, emerging non-silicon-based materials are gaining traction, yet the company's core business remains heavily reliant on granular silicon. Failure to accelerate R&D investments could jeopardize market competitiveness and industry leadership positioning.	• Develop parallel R&D paths; accelerate process optimization for granular silicon while exploring opportunities in non-silicon materials.
Market shifts	Rising low-carbon supply chain expectations	• Downstream clients increasingly require lower emissions across the supply chain. Failure to provide product carbon footprint certifications or meet low-carbon standards may reduce business opportunities and pricing power.	• Build full life cycle carbon footprint systems, pursue green certifications, and apply low-carbon technologies.
	Price competition and demand fluctuation	• China's dual-carbon goals and trade regulations have created market imbalances in upstream photovoltaic materials. Our granular silicon products face persistent downward price pressure relative to competitors, increasing our exposure to overcapacity risks, price wars, and margin compression.	• Implement flexible capacity management and precise cost control. • Diversify into high-value, differentiated product lines.
Reputation	Stock volatility and declining investors' confidence	• Stakeholders expect stronger climate performance. Weak disclosure or management may lead to reputation damage, lower trust, stock swings, and financing challenges.	• Improve ESG disclosures, increase climate risk transparency, maintain green product leadership, and engage investors on sustainable development progress.

Key Transition Climate Risks

Risk Management

The Group has developed an integrated management process for climate risks and opportunities, incorporating assessments of their significance and financial impact to craft effective response strategies. This creates a closed-loop system for identifying, evaluating, and managing climate risks.

Identification of climate risks and opportunities

- Following IFRS S2 guidelines and considering macroeconomic, industry, and regulatory policies, we identify climate risks (both physical and transition) and opportunities. We then refine this comprehensive list through interviews with stakeholders across the value chain and within the Company.

Risk impact assessment

- Physical risk impact: we assess the level of risk exposure based on geographical information at critical stages of our business value chain, evaluating the impact of these risks alongside our management capabilities.
- Transition risk impact: we conduct an impact assessment by reviewing government, stock exchange, and capital market requirements, investor/customer inquiries, and peer practices, along with management levels in four dimensions: governance, strategy, impact/risk/opportunity management, and metrics/targets.

Financial impact assessment

- We conduct interviews with relevant internal departments and collect financial data related to each risk. By setting financial materiality thresholds, we derive assessments of the financial impact of climate risks and opportunities.

Dual impact assessment of climate risks

- Based on the results of both risk impact and financial impact assessments, we define the priority of each risk and opportunity.

Strategy development

- We analyze the financial implications of addressing or not addressing each risk or opportunity based on its priority and develop targeted response strategies.

Climate Risk and Opportunity Management Process

Indicators and Goals

We continuously advance greenhouse gas emission reductions by deploying intelligent energy monitoring systems, optimizing energy structures, expanding the use of renewable energy, and creating eco-friendly factories, all while setting scientific reduction targets to accelerate our transition to a green and low-carbon operation.

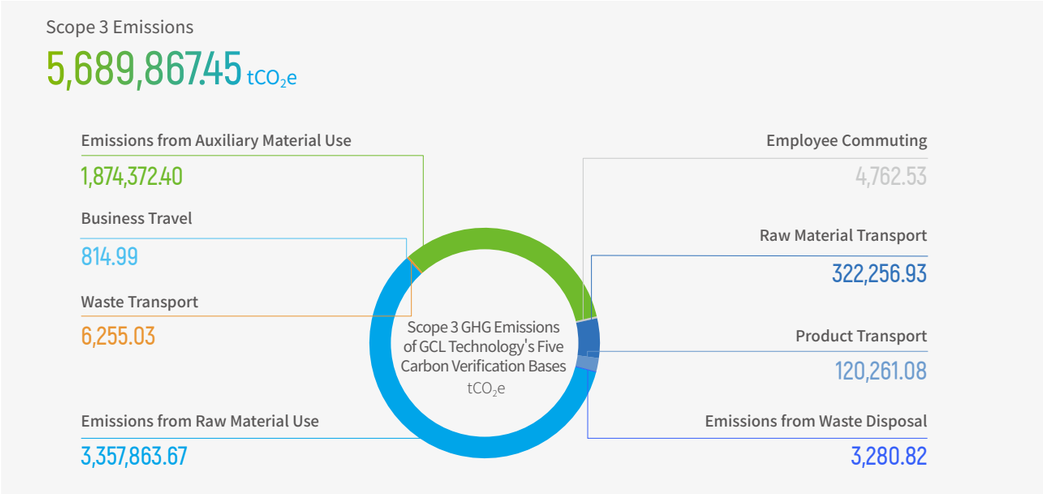
Emissions Overview

Our Scope 1 and Scope 2 GHG emissions mainly arise from the consumption of fossil fuels like coal, gasoline, diesel, natural gas, and purchased electricity. In 2024, we continued to reduce greenhouse gas emissions by deploying intelligent energy monitoring systems, optimizing industrial cooling system efficiency, and expanding distributed solar photovoltaic installations. At the same time, we actively promote the development of green factories, integrating environmental and low-carbon concepts deeply into project life cycles. We drive carbon reduction and energy savings from the outset to accelerate our transition to green and low-carbon operations.

In 2024, the Group continued to carry out third-party verification of Scope 1, 2, and 3 GHG emissions for five bases , including Jiangsu Zhongneng, Xuzhou Photovoltaic, Leshan GCL, Inner Mongolia Xinyuan, and Inner Mongolia Xinhuan. Moving forward, the Group will place greater emphasis on Scope 3 emissions management by tracing carbon footprints across the supply chain and collaborating on emission reduction at key stages, aiming to build a low-carbon ecosystem that spans the entire value chain.

Metrics	Polysilicon			Wafer		
	Unit	2024	2023	Unit	2024	2023
Scope 1 Emissions	tCO_2e	**2,526,329**	2,355,961	tCO_2e	**7,284**	846
Scope 2 Emissions	tCO_2e	**2,549,025**	2,674,477	tCO_2e	**589,594**	984,293
Total GHG Emissions (Scope 1 and 2)	tCO_2e	**5,075,354**	5,030,437	tCO_2e	**596,878**	985, 139
Total GHG Intensity (Scope 1 and 2)	tCO_2e/tonne of polysilicon	**18.85**	21. 66	tCO_2e/MW of wafers	**18.51**	19.29

GCL Technology's GHG Emissions of Polysilicon Segment and Wafer Segment in 2023-2024[1]



Scope 3 GHG Emissions of GCL Technology's Five Carbon Verification Bases

Climate Goals and Performance

We have established short-term greenhouse gas emission targets to actively address the challenges of climate change. In the future, we will incorporate the outcomes of climate change initiatives at other sites to systematically assess our carbon reduction potential. By integrating this assessment with our strategic development plan and perations, we aim to establish medium and long-term carbon reduction targets to further advance our green and low-carbon transition.

GHG Targets	2024 Progress
Polysilicon: A reduction of 11.7 % in GHG intensity by 2026 compared to 2023 (baseline year)	Achieved a 12.97 % reduction compared to 2023 (baseline year) exceeding the 2026 reduction target
Wafer: A reduction of 16.1 % in GHG intensity by 2026 compared to 2023 (baseline year)	Achieved a 4.04 % reduction compared to 2023 (baseline year) representing 25.1% progress toward the target

[1] The GHG accounting methods and coefficients are based on the *Guidelines for Accounting Methods and Reporting of GHG Emissions from 24 Industries* issued by the National Development and Reform Commission (NDRC), ISO 14064-1:2018, and the GHG Protocol, and the purchased electricity is based on the CO_2 Emission Factors for Electricity in 2022.

03 Talent Infinity

GCL Technology believes in the potential and creativity of every employee. Upholding the values of "One GCL", the group is not only committed to technological innovation, but also to empowering its people by fostering growth, development, and well-being. By providing comprehensive resources, promoting an inclusive culture, and maintaining a safe and healthy work environment, we are creating a "Talent Infinity" ecosystem where both employees and the Group flourish together.

Diversity and Inclusion | Talent Attraction and Retention | Talent Cultivation | Health and Safety

SDGs addressed in this chapter

Diversity and Inclusion

GCL Technology is committed to building an open and equitable workplace through a diverse talent pool. The Group places strong emphasis on diversity and the protection of human rights. The Board oversees human rights risk management and employee diversity, while the Sustainability Management Committee delegates execution to the Sustainable Development Center. ESG task forces have been established in all subsidiaries to monitor human rights standards compliance and implement respective risk management practices and diversification projects.

Human Rights Protection

GCL Technology upholds internationally recognized human rights standards, including the *UN Guiding Principles on Business* and *Human Rights* (UNGPs), the *Universal Declaration of Human Rights*, and core conventions of the International Labour Organization (ILO). We have established a comprehensive framework that applies to all subsidiaries and joint ventures, including the *Code of Business Conduct*, *Human Rights Policy*, *Employee Rights Protection Policy*, and *Special Protection Procedures for Child Labor, Underage Workers*, and *Female Employees*. We also work closely with suppliers and partners to promote alignment with these standards. In 2024, no incidents of child labor, forced labor, or other human rights violations were reported across our operations.

Commitment to Human Rights

- Respect and safeguard human rights with zero tolerance for discrimination, harassment, or breaches of employee privacy.
- Ensure decent working conditions and provide social protection, in full compliance with laws on working hours, leave entitlements, and related labor standards.
- Prohibit child labor and forced labor, while upholding the rights to freedom of association and equal pay for equal work.

Due Diligence & Risk Assessment

- Establish processes to identify, assess, and manage potential human rights risks. Conduct regular reviews across operations and value chains to detect risks such as child labor, forced labor, discrimination, and restrictions on freedom of association.

Mitigation & Remedy

- Operate clear and accessible grievance channels for stakeholders and employees. Develop Group-wide mitigation and remediation plans where risks are identified.
- Deliver training to raise awareness of legal rights and protections. Strengthen workplace harassment prevention through joint prevention and accountability mechanisms.

GCL Technology's Human Rights Risk Management Framework

Employment Diversity

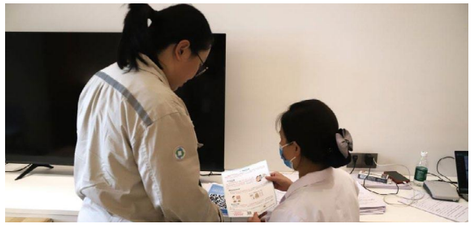
GCL Technology has established the *Diversity, Equity*, and *Inclusion Policy* to foster a diverse workforce across recruitment, compensation, and career development. The Group has established public diversity targets, provides regular DEI training to all employees, and conducts annual internal feedback survey and assessments to foster a culture of equity and inclusion throughout the organization.

Targets	2024 Progress
By 2026, increase the proportion of female employees to 22%	Female employee ratio 21.2% 96% of target completed
By 2026, increase the proportion of female employees in senior management to 18%	Female employee in senior management ratio 19.0% targets achieved

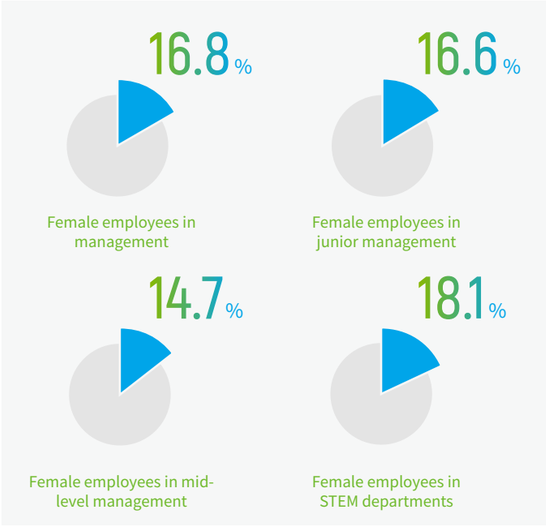
GCL Technology is committed to protecting the rights and interests of female employees in the workplace. The Group has set up nursing rooms and childcare facilities in office areas, exempted breastfeeding employees from night shifts, and provided an additional one-hour daily breastfeeding break. We also offer regular, free health screenings and "two-cancer" (breast and cervical) checks to help raise awareness and promote women's health and self-protection.

In addition, GCL Technology provides equal employment opportunities and benefits for employees with disabilities. In partnership with local disability federations, the Group hired 15 employees with disabilities in 2024 and installed accessible elevators, ramps, and other barrier-free facilities to ensure workplace accessibility and safety.

Nursing Room



Female Employee Health Screenings



GCL Technology's Employment Diversity in 2024

Employee Communication

GCL Technology respects every employee's right to freedom of association and collective bargaining. The Group has established a robust democratic management framework through the *Statutes of Union at GCL Technology*. In 2024, the Group held a staff representative assembly that, for the first time, used an anonymous online voting process. During the meeting, key collective agreements were signed, including the *Collective Agreement*, *Collective Agreement on the Protection of Female Employees' Rights*, and *Collective Wage Bargaining Agreement*, achieving full coverage across the Group. The assembly approved 15 resolutions in total, addressing areas such as corporate policies, management practices, and employee compensation and benefits, ensuring employees' voices are heard and rights are upheld.

To strengthen engagement, GCL Technology has implemented a structured employee communication mechanism under the *Guidelines on Employee Relations Management*. In 2024, we launched the "Happiness Index" employee satisfaction survey on a sample of employees, covering topics such as company strategy, employee wellbeing, and mindset health. The overall satisfaction rate exceeded 85%. After the survey, we conducted targeted workshops to address key findings and developed actionable plans. We continuously track progress on these initiatives, which helps deepen employee engagement while driving organizational improvement.

In 2024

Coverage rate of collective agreements

100 %

The staff representative assembly approved resolutions

15

Employee satisfaction rate exceeded

85 %

Communication and Dialogue

- Hosted 6 CEO Open Day sessions for direct, face-to-face conversations with employees.
- Held 35 employee forums across bases throughout the year, tailored to different employee groups to encourage open discussion.

Suggestion Collection

- Gathered feedback through HR email, employee hotlines, suggestion boxes, and staff representative meetings. Collected over 100 suggestions via representative meetings, with a 95% resolution rate.
- All employee suggestions related to female care programs were implemented.

Satisfaction Surveys

- Conducted an annual, anonymous employee satisfaction survey to collect candid feedback across the organization.

Complaints and Reporting

- Enforced the *Employee Complaints Policy*, with CEO mailboxes at office locations and public reporting channels (email and hotline) available via desktop and company website.
- All reports are handled with strict confidentiality. Retaliation or discrimination against whistleblowers is strictly prohibited.

GCL Technology's Employee Communication and Grievance Channels

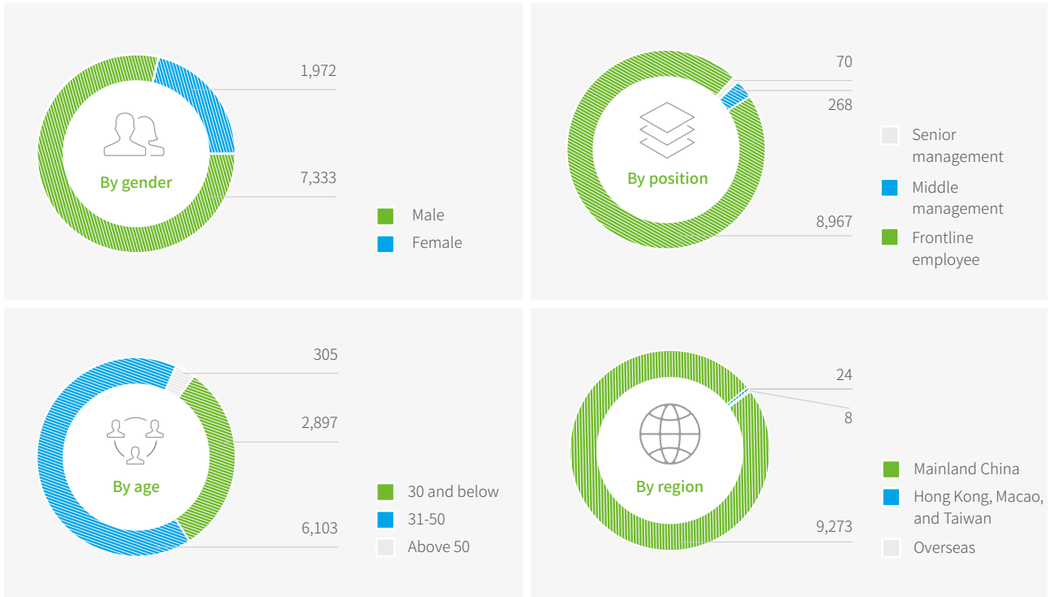
Talent Attraction and Retention

Employee Recruitment

At GCL Technology, we regard talent as our most valuable resource for sustainable growth. Through data-driven talent analysis, we are building a robust and scientific talent management system. We have established a comprehensive talent pipeline, provide clear career development paths based on objective performance evaluations, and continue to optimize our benefits to create a mutually empowering environment for both employees and the Group.

Fully complying with the *Labor Law of the People's Republic of China* and the *Labor Contract Law of the People's Republic of China*, GCL Technology has established internal policies such as the *Recruitment Management Guidelines* and *Human Resources Strategic Planning Management System*. Recruitment plans are aligned with our strategic goals and evolving business needs. In 2024, guided by our "Tech Infinity" strategy, we prioritized the recruitment of highly educated talent in R&D and technical fields. We strengthened partnerships with universities through campus recruitment events and onboarded 20 top-tier candidates—including well-educated R&D professionals and management trainees—via our "Starlight: Global Trainee" Program and "North Star: R&D PhD Hiring" Program. Throughout the year, we have hired 1,007 new employees, with internal candidates accounting for 1.09% of the hires, supporting internal mobility and career progression. As of the end of the reporting period, GCL Technology had 10,844 employees, including 9,305 regular employees and 1,539 non-regular employees.

Total employees	Full-time regular employees	Non-regular employees	New employees	Internal candidates accounting for
10,844	9,305	1,539	1,007	1.09 %



GCL Technology's Regular Employees in 2024

Talent Development

In 2024

Employee stock purchase plan involving

85 employees

With more than

10 million

shares

At GCL Technology, we are committed to creating a transparent and merit-based environment that offers equal opportunities for career growth. We regularly assess and identify high-potential employees within our organization, using multi-dimensional evaluation methods to build a robust talent pipeline and support long-term business growth.

Compensation

Following the principles of "role-based grading, competency-based hiring, and performance-based rewards", GCL Technology has established a fair and performance-driven compensation structure through policies such as the *Compensation Management Policy* and *Employee Performance Management Policy*. The Group continues to increase the proportion of monthly and annual variable pay to incentivize performance. To attract and retain top talent, GCL has implemented long-term incentive programs. Since 2022, the Group has introduced an equity incentive plan with a five-year vesting period, covering over 230 employees. In 2024, an employee stock purchase plan was launched, involving 85 employees and more than 10 million shares.

Performance evaluation

Our comprehensive performance evaluation system is designed to reflect individual contributions while aligning with broader team and corporate objectives. Performance reviews occur monthly, quarterly, or annually, depending on the work scope. Our evaluation process uses a multi-perspective approach that includes input from supervisors, peers, and collaborators. We maintain transparency as a core principle by providing clear appeal procedures and encouraging ongoing dialogue through responsive feedback channels. Managers are expected to hold one-on-one performance discussions, especially with employees who fall short of expectations, to jointly identify areas for improvement and create actionable development plans.

Career ladder

GCL Technology has put in place a clear and structured promotion framework, supported by internal policies such as the *Technical Capability Evaluation* and *Application Policy*, *Internal Job Posting Policy*, and *Promotion and Demotion Management Policy*. Employees can advance along four distinct tracks: management, professional, technical, and skill. In 2024, we launched a holistic capability assessment, evaluating employees across dimensions such as knowledge, value contribution, and core competencies. Results from these assessments are closely tied to role appointments, promotion decisions, and compensation adjustments, encouraging continuous growth and self-improvement.

- Management Track
- Professional Track
- Technical Track
- Skill Track

Employee growth

At GCL Technology, we see employee growth as essential to driving our strategic goals. We have built a structured talent development system that supports employees at all stages and roles.

- For new hires, we run a "Mentorship Program", assigning mentors based on actual project needs at each base to help new employees quickly adapt to their roles. The program combines internal and external expertise and incorporates cross-industry learning opportunities.
- For future leaders, we offer targeted management training to help emerging managers build collaborative, high-performing teams.
- For senior management, we have established a job rotation system and a dual-mentorship model pairing HR leaders with business experts to foster internal knowledge sharing and unlock leadership potential.
- For technical professionals, we provide a wide range of specialized training, including quality-focused programs and role-specific technical upskilling, to enhance their competitiveness and expertise.

Talent retention

To support long-term business growth and maintain a healthy talent pipeline, GCL Technology runs a variety of programs to attract, develop, and retain top talent. The Group also values and supports our employees at every stage of their careers, including retirement. Each retiring employee is honored with a retirement ceremony, and exceptional retirees may be invited back for project-based roles or to fill key positions as needed. In 2024, the Group's overall turnover rate stood at 16.9%. Looking ahead, we will continue to invest in employee engagement and support initiatives, foster open communication, and reinforce our competitiveness as an employer.

Indicator		Unit	2024
Overall Turnover Rate		%	16.9
By Gender	Male	%	17.1
	Female	%	16.2
By Age	30 and below	%	23.6
	31-50	%	13.8
	Above 50	%	7.0
By Region	Mainland China	%	16.9
	Hong Kong, Macao, and Taiwan	%	7.7
	Overseas	%	0

GCL Technology's Employee Turnover Rate[1] in 2024

[1] Due to adjustments in ingot and wafer slicing business, the voluntary turnover rate has been calculated. Voluntary turnover rate refers to the percentage of employees who chose to leave the organization during the year (e.g., resignation, retirement, early retirement).

Employee Well-being

GCL Technology is dedicated to creating a supportive and people-centered workplace. Through the *Employee Benefits Management Policy*, the Group not only provides all statutory benefits—including pensions and medical insurance—but also offers a wide range of non-monetary perks to enhance employee well-being. These include various allowances and subsidies, holiday and birthday bonuses, wedding gifts, free shuttle buses or transportation subsidies, free annual health check-ups, supplemental medical insurance, and staff dormitories. Additional benefits such as family health check-ups, private health insurance, and housing support are provided to core employees. To enrich the employee experience beyond the workplace, GCL Technology has invested in on-site sports facilities and regularly organizes cultural and recreational activities. In 2024, events such as the "You Only Live Once" boxing experience and the "Happy GCL" employee birthday celebrations helped strengthen team cohesion and foster a sense of belonging. Annual employee welfare expenditure reached RMB 123.79 million.

In 2024

Employee welfare expenditure reached

RMB 123.79 million

"You Only Live Once" Boxing Activity

Traditional Lacquer Fan Crafting (Intangible Cultural Heritage)

Employee Birthday Celebrations

Fu Goat Festival Event

"GCL Reading Club" Supports Employee Mental Health

CASE

In April 2024, GCL Technology hosted its third session of the "GCL Reading Club". A licensed psychological counselor was invited to guide employees through a book discussion centered on understanding and managing emotions such as anxiety, fear, sadness, depression, and anger—emotions that often impact both work and personal life. The session helped participants improve emotional awareness and learn practical methods for emotional regulation. The event received overwhelmingly positive feedback from employees.

GCL Technology "GCL Reading Club" Event

Talent Cultivation

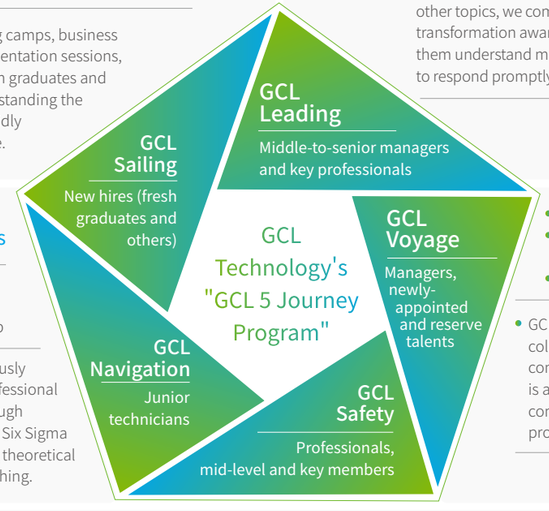
GCL Technology views employee growth and development as a key component of "Talent Infinity". We have established a comprehensive training system covering all levels and functions, offering personalized growth plans for employees. Through a model led by the management center and supported by base companies, we provide development opportunities for all employees.

Training System

GCL Technology prioritizes talent empowerment by establishing a comprehensive talent development system and training programs. We have formulated and revised key policies, including the *Training Management Regulations*, *Internal Lecturer Management Regulations*, and *Mentor-Apprentice Management Standards*. This year, we comprehensively updated our system to clarify the corporate training model and content. This ensures unified training standards across the Group while steadily improving employee capabilities.

The Group has developed the "GCL 5 Journey Program" training system to share our strategies, culture, knowledge, and skills. This standardized, multi-level system provides targeted development plans for employees at various career stages. In parallel with the "GCL 5 Journey Program", base companies also offered training courses concerning quality, safety, and environment, as well as business ethics to all employees. These constantly optimized training resources fueled our sustainable growth.

GCL Technology's "GCL 5 Journey Program" Training System and number of employee covered in 2024



GCL Sailing — 1,007 employees
- Campus hire training camp
- New hire orientation
- Through intensive training camps, business training programs, and orientation sessions, we assist newly-hired fresh graduates and other employees in understanding the corporate culture and rapidly adapting to the workplace.

GCL Leading — 1,002 employees
- PV industry trend updates
- Through lectures on digital transformation, quality, and other topics, we comprehensively boost employees' transformation awareness and leadership thinking, helping them understand market trends and enabling the company to respond promptly to market changes.

GCL Voyage — 42 employees
- Middle-to-senior talent training camp
- Middle-to-senior manager innovation workshop
- Data-empowered management practices
- GCL Technology aims to build collaborative and efficient teams, driving continuous improvement efforts, which is a part of our strategy to cultivate a composite talent pipeline that is young, professional, and has a global perspective.

GCL Navigation — 38 employees
- Entry-level QA
- R&D training camp
- Digital thinking boot camp
- GCL Technology continuously enhances employees' professional knowledge and skills through courses such as the "Lean Six Sigma Basic Edition", integrating theoretical learning with project coaching.

GCL Safety — 31 employees
- Intermediate QA boot camp
- IP boot camp
- Through joint lectures by internal and external instructors, and job-specific and professional skills training concerning actual problems, to continuously strengthen employees' project management capability.

In 2024, the Group recorded a total of 9,305 training participants, with an annual training investment of RMB 8.36 million. The total training hours for all employees reached 779,737.81 hours, averaging 83.8 hours per employee.

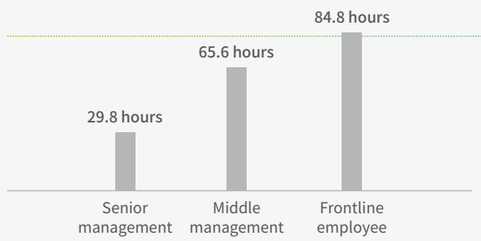
▼ Training coverage by job level

Senior management
Middle management
Frontline employee

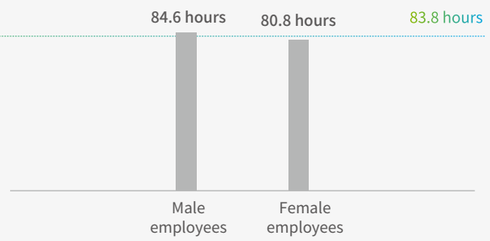
▼ Training coverage by gender

Male employees
Female employees

Number of training participants	Annual training investment of	Total training hours for all employees reached	Average training hours per employee
9,305	RMB 8.36 million	779,737.81 hours	83.8 hours



▲ Average training hours by job level



▲ Average training hours by job level

GCL Technology's Employees Training in 2024

GCL Tech's Digital Library 2.0

CASE

In August 2024, to implement the "Digital GCL" strategy and foster a learning-oriented organization, GCL Technology officially launched the "Digital Library 2.0", developed in collaboration with China Machine Press. From a catalog of over 2,500 digital resources, 548 high-quality selections were curated, including business management e-books, audiobooks, and video courses. With the launch of the Digital Library, GCL Technology introduced the "GCL Selection" column. Each month, 21 carefully selected e-books are featured based on GCL's corporate culture, business priorities, and management focus, covering themes such as GCL culture, digital transformation, lean management, and corporate operations. This initiative enhances employees' professional skills and overall competencies.

GCL Tech's Digital Library

Employee Empowerment

GCL Technology encourages all employees, including part-time staff and contract workers, to obtain professional qualifications and provides financial assistance for degree advancement. GCL Technology actively collaborates with educational institutions and universities to offer external training and skill enhancement opportunities. In 2024, 50 employees graduated from a joint education program with China University of Petroleum; a cooperative education program with Jiangsu University is in progress, with 26 employees expected to graduate in 2025; 14 employees are projected to graduate in 2026 through a joint training program with Zhongwei Senior Technical School for advanced technical professionals. What's more, GCL Technology has partnered with Hohai University and Nanjing University of Information Science and Technology for degree advancement programs, with project introductions already completed.

During the Reporting Period

19 employees
obtained the Quality and Safety Officer Certificate

26 employees
obtained the SA8000 Internal Auditor Certificate

8 employees
obtained the Quality Management System Internal Auditor Qualification

Graduation Ceremony co-hosted by China University of Petroleum and GCL Technology

Training and research program at Zhongwei Senior Technical School

Health and Safety

Health and Safety Management System

As of the end of the Reporting Period

GCL Technology

12 bases

were certified with **ISO 45001** Occupational Health and Safety Management System

The GCL Technology Administrative Management Center, Xuzhou Photovoltaic, Ningxia Photovoltaic, and Jiangsu Zhongneng

4 bases

were certified with **SA 8000** Social Accountability Management System

In accordance with the *Law of the People's Republic of China on Work Safety, the Law of the People's Republic of China on Prevention* and *Control of Occupational Diseases*, and other applicable laws and regulations, we developed 24 safety standard policies, such as the *Safe Production Management System*, *Occupational Health Management System*, *Emergency Response Management System*, and *Contractor Evaluation and Management System*, to ensure the health and safety of our employees and contractors.

GCL Technology has established the EHS Management Committee to oversee safety-related policies, goals, and work plans, ensuring the implementation of regulations and procedures. Additionally, an EHS office has been set up to enforce the Group's EHS policies, relevant laws, regulations, and standards, while also analyzing and evaluating the Group's EHS performance. We set safety expectations through the signing of the *Safety Responsibility Agreement*, which sets out safety targets and duties. As of the end of the reporting period, 12 of our production bases were certified with ISO 45001 Occupational Health and Safety Management System, with a certification coverage rate of 92.3%. The GCL Technology Management Center, Xuzhou Photovoltaic, Ningxia Photovoltaic, and Jiangsu Zhongneng were certified with SA 8000 Social Accountability Management System.

Targets		2024 Progress
Lost time injury frequency rate per 200,000 hours (employees and contractors): <1.5	Rectification rate of safety hazards: 100%	"Achieved"
Closure rate for corrective actions on all accidents and incidents: 100%	Compliance rate in occupational hazard assessments: 100%	

GCL Technology's Safe Production Targets

Safe Production

During the Reporting Period

Conducted quarterly safety inspections

48 times

Rectification rate of safety hazards

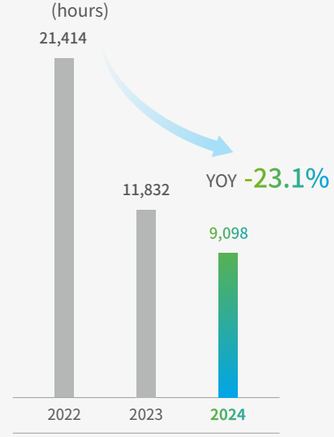
100%

We apply rigorous safety controls throughout the entire lifecycle of hazardous chemicals, covering raw material procurement, transportation, storage, production, and disposal, to safeguarding processes involving hazardous chemicals. Prioritizing risk management, we have established a long-term safety control mechanism. The Group requires its subsidiaries to regularly identify, inspect, and assess potential risks and hazards. Under this dual prevention system, we have developed the *Risk Classification* and *Control List*. In the event of significant risks, these must be reported to the Group promptly, and effective control measures must be taken according to the risk priority. To further enhance workplace safety, we conduct quarterly safety inspections to identify and eliminate safety hazards. During the reporting period, 48 inspections were carried out, identifying 1,415 safety hazards, all of which were rectified with a 100% remediation rate, effectively reducing safety risks.

Contractor safety is another key focus. All contractors are fully integrated into the Group's health and safety management system. In 2024, the Group introduced several new policies, including the *Contractor Evaluation* and *Management System*, *Safe* and *Civilized Construction Management System*, *Standardized Manual for Safe* and *Civilized Construction Projects*, *Detailed Rules for the Management of High-Risk Projects*, *and Construction Safety Standardization Handbook*. As part of the onboarding process, GCL Technology conducts thorough safety qualification reviews for all contractors and requires them to sign a comprehensive safety responsibility agreement before commencing work. We conduct strict admission reviews of contractor safety qualifications and require the signing of Safety Responsibility Agreements. We have also developed the *Project Safety Assessment Guidelines*, as an appendix to project contracts, which categorizes risks into red, orange, yellow, and blue levels. We conduct in-process evaluations through comprehensive safety patrols, daily inspections, self-checks, and other measures to mitigate contractor-related risks. In addition, we hold monthly safety meetings, training sessions, and emergency drills to raise safety awareness among contractors.

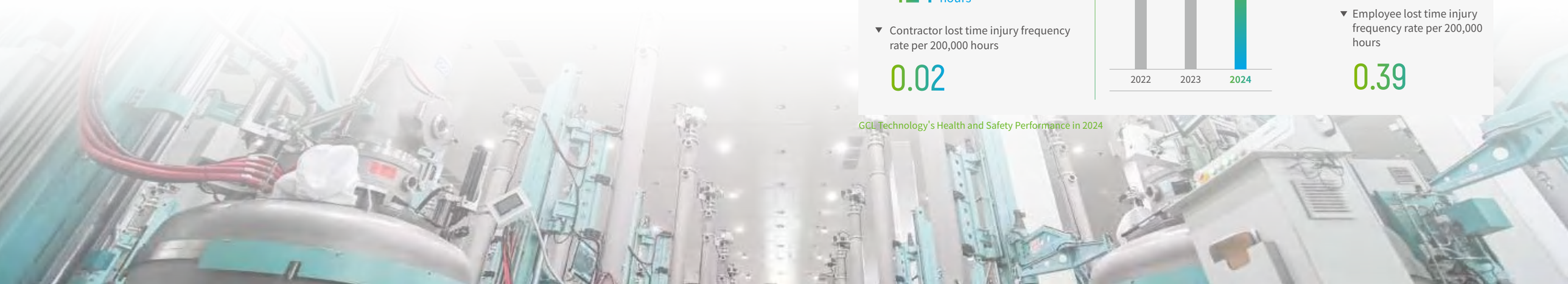
- Contractor fatalities: 0
- Number of contractor injury incidents: 4
- Hours lost due to contractor injuries: 424 hours
- Contractor lost time injury frequency rate per 200,000 hours: 0.02

- Hours lost due to employee injuries (hours)



- Employee fatalities over the past three years: 0
- Number of employee injury incidents: 36
- Employee lost time injury frequency rate per 200,000 hours: 0.39

GCL Technology's Health and Safety Performance in 2024



Occupational Health

Annual protective equipment investment

RMB 19.84 million

We are committed to providing a safe, healthy, and risk-controlled working environment that ensures the occupational safety of employees. During the reporting period, we arranged occupational health check-ups for all employees exposed to occupational hazards. No suspected or confirmed cases of occupational diseases were found. Additionally, RMB 19.84 million was invested in personal protective equipment.

Targets	2024 Progress
0 cases of occupational disease confirmed by authorities	"Achieved"
100% health check-up coverage for employees	

GCL Technology's Occupational Health Measures for Employees and Contractors

- Engaging third-party agencies to regularly monitor occupational hazard factors and distribute hazard notification cards. Installing and conducting regular maintenance of safe production equipment and automation systems.
- Establishing employee occupational health monitoring records with a 100% coverage of occupational health check-ups.
- Providing personal protective equipment such as earplugs, dust masks, and safety goggles on schedule and ensuring proper usage through supervision.
- Establishing green channels for medical emergencies and supplying medical equipment such as first-aid kits and AEDs to enhance medical support.

Safety Culture

GCL Technology is dedicated to cultivating strong safety awareness throughout the workforce based on continuous improvement of safety training and emergency response systems. We have established policies such as the *Emergency Response Management System* and *EHS Education Management System*. We continue to organize various emergency drills and training and put in place a three-tiered safety training framework, where all new employees must complete training and pass hands-on safety skill assessments before starting work. During the annual "Safe Production Month", our employees and contractors participate in activities such as knowledge competitions, safety harness experiences, and mini safety classes. These activities reinforced their safety skills and boosted their safety awareness.

Safety Training

Safety On-site Training

GCL Technology Held "Safety and Health Cup" Safety Knowledge Competition

CASE

In 2024, as part of the national "Safe Production Month", we held a safety knowledge competition themed "Everyone Speaks Safety, Everyone Knows Emergency Response: Keeping Life Pathways Clear". Twelve teams from various departments participated, showcasing strong safety knowledge and excellent teamwork. The engaging activity enhanced the safety awareness and skills of the employees.

GCL Technology's Safety Knowledge Competition

Employee safety training coverage: 100%	Contractor safety training coverage: 100%
Total employee safety training hours: 125,784	Total contractor safety training hours: 16,321.5
Employee emergency drill sessions: 1,943	Contractor emergency drill sessions: 32

GCL Technology's Safety Training Performance

04 Value Infinity

GCL Technology has been creating both economic and social value grounded in its comprehensive governance system and sound operations. We align internal management with rigorous compliance standards; pursue coordinated development across the industry chain through sustainable supply chain management; and fulfill social responsibilities while broadening our social impact through sustained acts of goodwill along the way.

Sound Operations | Sustainable Supply Chain | Contributing to a Better Society

SDGs addressed in this chapter

Sound Operations

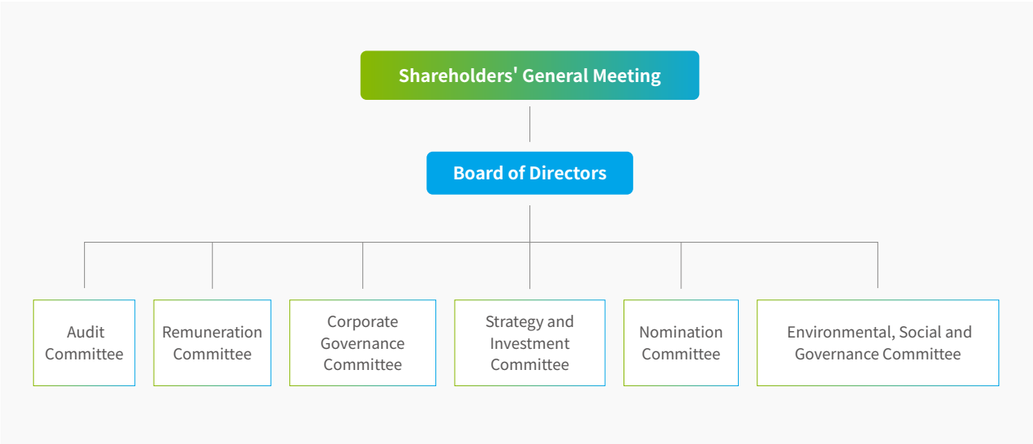
Corporate Governance

GCL Technology has established a well-structured management system adhering to the principle of integrity-based operation and compliance-first practices. We have been enhancing governance efficacy and risk resilience while rigorously safeguarding the red line of information security, thereby driving sustainable high-quality development.

In compliance with laws and regulations such as the *Company Law of the People's Republic of China* and *Enterprise Income Tax Law of the People's Republic of China*, we have formulated and progressively refined internal regulations, including the *Articles of Association*, the *Rules of Procedures for Shareholders' General Meeting*, the *Rules of Procedure of the Board of Directors* and the *Rules of Procedure of the Board of Supervisors*. These frameworks underpin the Group's efficient and standardized operations.

Number of Shareholders' General Meetings held	1
Number of resolutions passed	8
Number of Board meetings held	19
Director attendance rate	100 %
Number of resolutions passed	84
Number of Supervisory Board meetings held	17
Supervisor attendance rate	100 %
Number of resolutions passed	46

Corporate Governance Highlights



GCL Technology Governance Structure

Board independence

The Group attaches great importance to board independence. We faithfully implement the *Independent Director Policy* and require all independent directors to submit an Annual Independence Confirmation, ensuring their impartial performance institionally. As of the end of the reporting period, GCL Technology's Board of Directors comprises 10 directors, including 4 independent directors, representing 40% of the Board.

Board diversity

Guided by our Board Diversity Policy, we are committed to building a diverse and professional *Board of Directors*. Appointment decisions are made to form a visionary Board with professional expertise, taking into account candidates' professional experience, educational background, gender, age, cultural perspective, etc. As of the end of the reporting period, the Company had one female director on the Board, representing 10% of its members.

GCL Technology Board Members

Zhu Gongshan
(Chair, Joint CEO)
Serving as Executive Chair, Vice Chair, and Vice President across multiple photovoltaic and renewable energy industry associations

Zhu Yufeng
(Vice Chair)
Graduated from George Brown College (Business Administration Faculty), and he has rich experience in respective fields

Zhu Zhanjun
(Vice Chair)
He obtained a Master's degree in Business Administration from China Europe International Business School (CEIBS) in 2013

LAN Tianshi
(Joint CEO)
Nearly 20 years of experience in chemical manufacturing and business administration

Sun Wei
(Executive Director)
Awarded a Doctorate in Business Administration in 2005, Ms. Sun has over 25 years of experience in corporate finance, financial strategy and management

Yeung Man Chung, Charles
(Chief Financial Officer and Company Secretary)
With a Bachelor of Business degree, he is a member of The Hong Kong Institute of Certified Public Accountants and The Australian Society of Certified Practicing Accountants with over 30 years of experience in accounting

Ho Chung Tai, Raymond
(Independent Non-executive Director)
Over 60 years of experience in the fields of civil, structural, environmental and geotechnical engineering and direct project management of mega-size engineering projects

Yip Tai Him
(Independent Non-executive Director)
A practicing accountant in Hong Kong with over 25 years of experience in accounting, auditing and financial management, he is also a member of the Institute of Chartered Accountants in England and Wales and the Association of Chartered Certified Accountants in the United Kingdom

Shen Wenzhong
(Independent Non-executive Director)
Dr. Shen has participated in various science and technology research programs in China, and published papers in international journals and books on photovoltaic subjects

Li Junfeng
(Independent Non-executive Director)
An expert in the renewable energy sector with extensive research in energy economics, energy-environment theory, and strategy on climate change

Male	Female	Bachelor degree and below	Master degree	Doctoral Degree
9	1	5	2	3

Board Diversity

Executive remuneration management

We established and publicly disclosed the *Remuneration Management Policy for Directors, Supervisors and Senior Executives*, providing clear guidelines for executive compensation, which consists of base salary and performance-based bonuses. A clawback mechanism is in place to prevent unjust enrichment by executives and protect shareholders' interests. In terms of ESG performance integration, the Group has linked the annual performance evaluation of directors, supervisors, and senior executives with ESG performance, aligning leadership's personal performance with the Company's sustainable development. In 2024, in response to pronounced operational and market changes, all executive directors voluntarily reduced their annual remuneration by over 91% for the period ending December 31, 2025.

Board empowerment

We proactively strengthened Board members' awareness of compliance and decision-making skills through annual training programs, covering business ethics, anti-corruption policy interpretation, and corporate governance risk management. In November 2024, a dedicated TCFD (Task Force on Climate-related Financial Disclosures) training was carried out for the Board, so that the potential impacts of ESG factors such as climate change on corporate finance and long-term development can be better considered in strategic decision-making.

Investor engagement

GCL Technology is committed to delivering sustainable value to investors. The Group has formulated the *Investor Relations Management Policy*, maintaining diversified communication channels and enhancing transparency through timely, effective disclosures to keep stakeholders fully informed. Focusing on investors' major concerns, in 2024, we enhanced investor engagement through various events such as stakeholder meetings and earnings briefings. During the reporting period, we hosted 296 investor engagement sessions and issued 55 announcements/press releases. Our exceptional performance and results in investor relations were recognized by Zhitong Finance, which awarded GCL Technology the "Best IR Team" accolade.

During the reporting period

We hosted investor engagement

296 sessions

issued announcements/ press releases

55

Risk Control

GCL Technology has strengthened operational risk control, enhanced its risk management framework, and elevated compliance standards for sound development.

Risk management framework

We established regulations such as the *Internal Audit Work Regulations*, the *Guidelines for Internal Control Effectiveness Evaluation*, and the *Guidelines for Internal Control Effectiveness Evaluation Application*, and revised the *Comprehensive Risk Management Guidelines*, thus enhancing the Three Lines of Defense for risk management by delineating responsibilities across operational management, and to strengthen risk identification, assessment, mitigation, and oversight, and consolidate the institutional foundation for corporate risk management.

"Three lines of defense" of Risk Management

I
Business Units & Functional Departments
Bearing primary responsibility for risk management, they execute basic risk management processes and implement targeted strategies and methods.

II
Dedicated Risk Management Department
It oversees risk management daily, including the formulation of mechanisms and general goals and conducting risk assessment and monitoring.

III
Audit Committee (Under Board of Directors)
As the supreme decision-making body, it oversees the development of risk management framework and reviews specialized reports.

Risk assessment

We prioritize risk identification and mitigation. Referencing the *Comprehensive Risk Management Guidelines for Central State-owned Enterprises*, and taking into account the Group's operational context, our dedicated risk management department has established a tier-1 risk classification framework (covering strategy, operation, compliance, finance, market, capital and resources) with corresponding database templates, which clearly defines dimensions and application protocols, and standardized risk terminology. Quarterly risk monitoring and assessments are carried out, with reports generated to prevent major risks.

Internal control and audits

Leveraging internal and external collaboration, we carry out internal control and audits tailored to concrete requirements to ensure compliant business operations. During the reporting period, the Group identified 296 internal control issues through self-inspections and self-correction initiatives, including 94 medium- and high-risk items. Among these, 224 issues required corrective follow-ups, 97% had remediation completed.

- **Internal Review**
  Initiatives such as specialized risk screening, procurement audits, executive management reviews, and internal control evaluations were carried out to identify operational vulnerabilities and risks. During the reporting period, the Group completed 22 audit and internal control assessment programs.

- **External Audit**
  In collaboration with third-party institutions, we conducted the 2024 comprehensive audit program to evaluate the effectiveness of the Group's risk management framework and operational compliance, enabling the identification and assessment of potential business risks.

Culture promotion

We vigorously foster a sound risk management culture to enhance employees' risk awareness and response capabilities. In 2024, the Group conducted 34 internal control and risk management training sessions, achieving 100% coverage of all employees.

During the reporting period

Risk issues completed rate 97%

Completed audit and internal control assessment programs 22

Internal control and risk management training sessions 34

Achieving coverage 100%

Business Ethics

GCL Technology maintains zero-tolerrance towards any forms of corruption, bribery, money laundering, and fraudulent practices. The Group has formulated and publicly disclosed the *Code of Business Conduct* and the *Anti-Fraud (Including Anti-Corruption) & Whistleblowing Management Standards and Shareholder Communication Policy*. Through robust institutional frameworks, governance structures, and highlight measures, the Group implements efficient and compliant anti-corruption measures to foster an ethical business ecosystem. During the reporting period, GCL Technology engaged in no lobbying or political financing activities and recorded no incidents of corruption or violations of business ethics or laws.

During the Reporting Period,

GCL Technology did not experience any incidents of business ethics violations.

0
Corruption or bribery

0
Discrimination and harassment

0
Conflict of interests

0
Money laundering or insider trading

Policy framework

Based on the *Law of the People's Republic of China Against Unfair Competition* and other business ethics-related laws and regulations, we established internal policies and regulations, including the *Code of Business Conduct* and the *Capital Management System*. In 2024, the Group updated its *Anti-Commercial Bribery Compliance Management Guidelines* and *Compliance Obligation List*, clarifying ethical responsibility requirements and comprehensively outlining consequences for violations and corresponding measures. Additionally, the Group required all employees to sign codes of conduct such as the *Employee Compliance with GCL Group Anti-Corruption Regulations Pledge* and the *Special Technology Confidentiality Agreement* to strengthen integrity building.

Organizational structure

GCL Technology has established a business ethics governance framework with the Board Audit Committee as the highest oversight body, the audit department as the supervisory body, and management teams at various levels responsible for implementation. This top-down structure ensures the effective implementation of business ethics management mechanisms to safeguard compliant and ethical operations.

Compliance audits

We conduct company-wide audits of business ethics policies and their implementation at least once every three years. In 2024, the Group carried out ethics audits including executive departure reviews and procurement-specific audits, comprehensively assessing potential bribery and corruption risks. The audits produced written reports detailing specific findings and recommended corrective actions. As of the end of the reporting period, the remediation completion rate for identified risks reached 97%.

Culture promotion

We proactively foster a culture of integrity by conducting anti-corruption training and awareness programs for board members and all employees. During the reporting period, 67 business ethics training sessions were organized, totaling 13,367.20 hours, with an average of 13.27 hours per employee. Ethics training coverage for board members reached 100%.

Anti-corruption training for the Board

CASE

In December 2024, the Group conducted an annual anti-corruption training for board members, covering critical areas including the latest graft prevention information, anti-graft regulations, and anti-graft roles and responsibilities for listed companies. This initiative aimed to strengthen anti-corruption awareness at the management level. The training achieved a 100% participation.

The training achieved a

100 %

participation rate

Integrity and Compliance Training Series For Employees

CASE

In December 2024, the Group carried out an anti-corruption trianing for all employees both online and onsite, covering various topics including "GCL's Ten Commandments" and "integrity and compliance advocacy", enhancing awareness of business ethics, legal knowledge regarding anti-corruption practices, and knowledge of occupational crimes through specific cases.

Integrity and compliance promotion practices

GCL Technology Anti-corruption Training

Number of training sessions

67

With an average of

13.27 hours

per employee

Business ethics training hours for directors

506.73 hour

Training hours for employees

13,367.20 hour

Percentage of directors and employees trained

100 %

Complainant and whistleblower protection

In strict compliance with internal requirements prescribed in the *Anti-Fraud (Including Anti-Corruption) and Whistleblowing Management Standards and Shareholder Communication Policy*, we established a well-defined reporting mechanism with rights and responsibilities delineated and procedures smooth and streamlined. The reporting channels are accessible 24/7 through a dedicated hotline and email address. Employees across all operational locations and other stakeholders are encouraged to promptly report any misconduct observed during daily operations through various channels including mail, email, phone calls, or in-person meetings. GCL Technology strictly adheres to confidentiality principles, ensuring complete protection of both reported materials and whistleblower identities. The Group maintains a zero-tolerance policy towards any form of retaliation against whistleblowers, with stringent disciplinary measures enforced against violators.

Reporting and complaint channels

Phone: 0512-68533870 (7*24 hours)

Email: xxpvjubao@gcl-power.com

Information Security and Privacy Protection

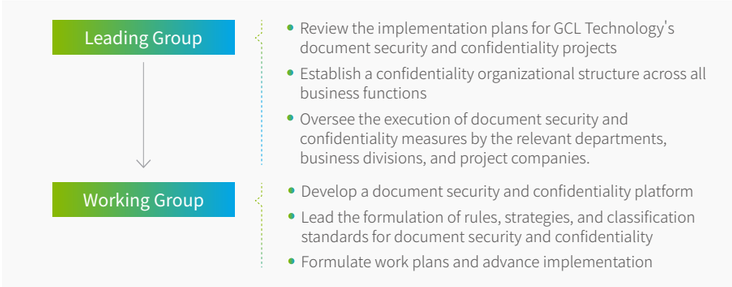
We strictly comply with applicable laws and regulations across all operational sites, including the *Cybersecurity Law of the People's Republic of China*, the *Data Security Law of the People's Republic of China*, and the *Personal Information Protection Law of the People's Republic of China*. We strengthened our management systems, enhanced technical safeguards, and stepped up staff training to comprehensively fortify information security defenses and protect data privacy. In 2024, Jiangsu Zhongneng's tier-3 backbone office network system obtained the Classified Protection of Information System Filing Certificate. No incidents of customer information or privacy breaches were reported during the year.

Policy framework

GCL Technology has established internal regulations such as the *Information Management System* and the *Information Security Management System*, supplemented by the newly formulated the *Personal Information Security Management System* to standardize information security protocols during the reporting period. The Group has also enhanced the *Customer Privacy Protection Policy*, implementing classified and tiered management of customer information.

Organizational structure

A dedicated team has been established to advance information security and confidentiality, ensuring unified and standardized management of privacy and data security matters.



GCL Technology Information Security managment Structure

Management measures

The Group conducts regular internal and external information security audits and tests on an annual basis to ensure compliant and effective management of information systems. We implement comprehensive security measures including centralized control platforms, anti-leakage mechanisms, protection systems, and desktop management solutions. Furthermore, information security training programs and cybersecurity drills are carried out on regularly to safeguard corporate information assets and maintain secure, stable operations.

Anti-leakage measures

Data loss prevention technologies are introduced to guard against information leaks and cyber threats;

Document transfer procedures are regulated and standardized, with audit trails and monitoring protocols in place to prevent employee-related data breaches.

Terminal security protection

A robust vulnerability detection and management system has been deployed to ensure timely security patch updates for all PC endpoints, significantly reducing system vulnerability to cyberattacks.

Software management

A centralized system manages software across all PC endpoints, including installation, removal, and updates, ensuring compliance with information security standards throughout the organization

Emergency response management

Comprehensive contingency preparation and response procedures have been developed to effectively address IT system disruptions and cybersecurity incidents.

Information Security Management

During the reporting period

The Group held

3

information security training sessions

and conducted cybersecurity drills at Jiangsu Zhongneng, Leshan GCL, and Inner Mongolia Xinyuan, with

100%

employee coverage.

Launch of Integrated Terminal Security Management Platform

CASE

In June 2024, GCL Technology implemented the integrated terminal security program and developed a unified management platform, which consolidates multiple functions, including document transfer auditing, endpoint antivirus protection, anti-ransomware measures, and desktop management, all well coordinated. For instance, the document transfer auditing module enables real-time monitoring of file transfers and can activate endpoint antivirus protection and anti-ransomware modules once an anomalous transfer or malware infiltration from untrusted sources is detected. This ensures the containment of potential threats, maintaining the optimal effectiveness of the security ecosystem.

Standardized information handling

GCL Technology strictly adheres to the principles of "purpose limitation," "explicit consent," "data minimization," and "security assurance" throughout the entire customer information management lifecycle. In accordance with our data classification and grading policy, the Group implements tiered security measures tailored to the sensitivity levels of different customer data categories, ensuring full-process compliance and protection.

Training and exercises

Various information security training sessions were carried out to enhance employees' capabilities in this area. In 2024, the Group held 3 information security training sessions and conducted cybersecurity drills at Jiangsu Zhongneng, Leshan GCL, and Inner Mongolia Xinyuan, with 100% employee coverage.

Red Versus Blue Team Exercises

CASE

In November 2024, GCL Technology carried out a four-day cyber range exercise simulating hacker attacks. The drill identified three critical vulnerabilities, with no medium- or low-risk vulnerabilities detected. Upon discovery, the technical team promptly responded with remediation measures. The exercises significantly strengthened the Group's information security defenses.

Cybersecurity Operations Platform Training

CASE

In January 2024, GCL Technology organized specialized cybersecurity operations platform training for its IT security personnel. The program focused on critical competencies including cyber risk assessment and incident response, significantly enhancing participants' technical proficiency and emergency response efficiency.

Sustainable Supply Chain

GCL Technology continues to enhance its supplier management framework and system, incorporating ESG principles throughout the entire supplier lifecycle. Through ESG due diligence and multi-dimensional supplier empowerment efforts, we work hand in hand with upstream and downstream partners to achieve sustainability across the value chain.

Supply Chain Management

GCL Technology has established a comprehensive supply chain management structure that ensures top-down implementation and resilience through policy refinement and digital transformation.

Organizational structure

We operate under a four-tier supply chain governance framework consisting of the Supply Chain Management Committee, the Supply Chain Administrative Management Center, the Functional Departments of the Administrative Management Center, and the Supply Chain Departments at Different Bases. In 2024, we further clarified responsibilities at each level to ensure stable and efficient supply chain operations.

Supply Chain Management Committee	Formulates decisions on the number, quality, and future demand of key procurement categories in line with GCL Technology's strategic development goals and operational objectives.
Supply Chain Administrative Management Center	Oversees the revision of supply chain policies, and coordinates supplier quality audits, performance evaluations, and training sessions.
Functional Departments of the Administrative Management Center	Conduct supplier qualification reviews from legal and compliance risk perspectives, and perform periodic checks on policy implementation, offering rectification recommendations as needed.
Supply Chain Departments at Different Bases	Draft and update the *Supplier Management Policy* at the production base level, manage supplier audits and onboarding, and monitor the execution of performance evaluations.

GCL Technology's Supply Chain Governance Structure

System development

GCL Technology has established a comprehensive set of internal policies to guide supplier management, including the *Supplier Management Rules*, the *E-commerce Shopping Center Management Rules*, and the *Product Information Traceability Standard*. These policies provide the institutional foundation for the full lifecycle of supplier engagement, from onboarding and evaluation to performance improvement and elimination. In 2024, the Group updated seven key policy documents, including the *Procurement Management Policy* and the *Logistics Management Policy*, to further clarify the responsibilities of functional departments and refine supplier lifecycle management processes.

Supplier Onboarding → **Evaluation** → **Tiered management** → **Elimination**

- **Supplier Onboarding**: Suppliers are invited to register on the GCL Intelligent Chain management platform and submit their basic information, as well as product/service certifications. Following a qualification review and site inspection, suppliers who pass this stage proceed to the final approval stage. Once approved, they are formally recognized as qualified suppliers.
- **Evaluation**: Through the GCL Intelligent Chain management platform, the Group conducts quarterly performance evaluations of suppliers based on their contract fulfillment. Suppliers are then categorized into four tiers—from Level I (highest) to Level IV (lowest)—to facilitate tiered management.
- **Tiered management**: Suppliers scoring between 70 and 80 are required to implement improvement measures, which are tracked and reported on the platform, aiming to enhance contract fulfillment capabilities.
- **Elimination**: Suppliers involved in fraud, information leaks, equity conflicts, major environmental or safety incidents, or with performance scores below 70 are subject to disqualification.

GCL Technology's Supplier Management System

[1] Konca Solar and GCL Optoelectronics are not applicable to the relevant policy documents.

Management objectives

In 2024, GCL Technology identified four strategic priorities to strengthen supply chain management: driving cost reduction through competitive tendering, increasing the adoption of framework agreements, developing a comprehensive data dashboard, and ensuring full compliance across the supply chain.

	Objective	Achievement	
Cost reduction via tendering	Strategically drive cost reduction, improve procurement efficiency, and optimize capital utilization through tendering.	As of the end of the reporting period, reduced RMB 767 million	with a rate of over 18.68 %
Increased framework agreement signing	Promote the signing of framework agreements for recurring procurement categories.	Over 90 % of targeted framework agreements were signed in 2024	
Data dashboard development	Develop a data dashboard to identify critical issues, support efficient decision-making, and drive continuous business value.	Enabled real-time visibility of inventory levels for raw and auxiliary materials, and conducted predictive analysis on material consumption, pricing, and abnormal orders.	
Supply chain compliance	Ensure 0 major supplier non-compliance or disciplinary incidents in 2024.	Achieved 100 % compliance	

Supply Chain Management Goals and Achievements

2024

Total number of suppliers	By region: China	By region: Overseas
2,532	2,529	3

Number of Suppliers of GCL Technology

Sustainable Supply Chain

GCL Technology takes a top-down approach to underpinning sustainable supply chain management. The Board of Directors assumes ultimate responsibility for supply chain sustainability, while the ESG Committee and the Sustainability Management Committee oversee related initiatives and resource allocation. In 2024, the Group was certified to ISO 20400 Sustainable Procurement Guidelines Assessment.

ISO 20400 Certification

ESG integration in the supply chain

GCL Technology prioritizes ESG topics such as environmental protection, labor rights, ethical compliance, and workplace safety. The Group developed and signed the *GCL Technology Supply Chain Partner Code of Social Responsibility* with its partners. Preference is given to suppliers with relevant ESG certifications, and ongoing efforts are made to encourage continuous ESG performance improvement. In 2024, the Group introduced new governance documents including the *Sustainable Procurement Policy* and the *Supply Chain Due Diligence Guidelines*. Core suppliers were required to sign the *Conflict Minerals Declaration* to ensure responsible sourcing and enhanced ESG risk control. These measures are part of a broader effort to standardize ESG practices and elevate sustainability performance across the supply chain.

Environmental protection	Suppliers must comply with all applicable environmental laws and regulations. GCL prioritizes working with suppliers that hold environmental certifications such as ISO 14001 (Environmental Management Systems) and ISO 14067 (Product Carbon Footprint), and that possess valid permits for waste emissions.
Labor rights and workplace safety	In line with the *GCL Technology Supply Chain Partner Code of Social Responsibility*, the Group has updated key policies, such as the *Safe Construction Management Policy* and the *High-Risk Project Guidelines*, to enhance supplier safety oversight. Suppliers with ISO 45001 (Occupational Health and Safety) are preferred. Safety goals and responsibilities are clearly defined in signed agreements to ensure production safety.
Conflict minerals	All core suppliers are required to sign the *Conflict Minerals Declaration*[1], and conflict mineral use is a key focus in GCL's due diligence process.
Ethical compliance	We have set clear compliance expectations for suppliers and continue to provide training and awareness programs on integrity and anti-corruption. Our WeChat official account and other social media channels are also used to communicate related integrity requirements.
Quality management	Supplier performance and qualifications are carefully assessed. We give preference to suppliers certified under ISO 9001 (Quality Management Systems).

GCL Technology's ESG Expectations for Suppliers

Signing rate of the *GCL Technology Supply Chain Partner Code of Social Responsibility* among core suppliers
100 %

Number of suppliers certified under ISO 14001 Environmental Management System
127

Number of suppliers certified under ISO 9001 Quality Management System
154

Number of suppliers certified under ISO 45001 Occupational Health & Safety System
124

Signing rate of supplier safety responsibility letters
100 %

Signing rate of the *Conflict Minerals Declaration* among core suppliers
100 %

Suppliers' ESG Performance Highlights in 2024

[1] Conflict minerals include tantalum, tin, tungsten, gold, cobalt, or their derivatives sourced from the Democratic Republic of the Congo or adjoining countries, as defined by internationally recognized borders.

ESG due diligence and risk management

GCL Technology has issued the *Supplier ESG Due Diligence Guidelines*, outlining the annual due diligence process and formalizing risk identification, assessment, management, and appeal mechanisms. In 2024, the Group engaged an independent third party to assist in ESG due diligence for 18 core suppliers covering key materials such as Industrial Silicon and graphite. A total of 564 risk items were identified, with rectification measures implemented. The findings and actions were summarized in the *2024 GCL Technology Supply Chain Due Diligence White Paper*.

Risk identification and pre-assessment
Utilizing the *Supplier ESG Risk Audit Checklist* and *Supplier Self-assessment Form* to conduct comprehensive online and offline evaluations.

Risk rectification
Non-compliance items are prioritized by severity. Critical findings, significant findings, and minor findings are expected to be resolved within 3 months, 6 months, and 1 year, respectively.

Appeal
Suppliers dissatisfied with their assessment results may appeal via phone or email.

GCL Technology's Risk Management Mechanism

Proportion	Category	Non-compliance issues	Suggested supplier actions
14.55%	Environmental	> Lack of biodiversity protection policies	Develop biodiversity protection policies, define protected zones, and implement training programs
		> Absence of GHG emissions records	Establish monitoring systems and report emissions monthly
40.25%	Social	> Lack of emergency equipment and evacuation plans	Provide adequate first-aid resources and conduct regular emergency drills
28.72%	Governance	> Not certified under ISO 37001 Anti-Bribery Management System	Launch ISO 37001 certification and assign employees to oversee the process
		> Lack of business ethics risk reporting	Conduct quarterly ethics risk assessments and implement improvements
16.48%	Traceability	> ESG policies not communicated across the supply chain	Establish clear communication channels to ensure ESG standards are understood and followed
		> Lack of supply chain risk reporting	Conduct regular ESG risk assessments and develop formal reports to track environmental and social impacts

Key findings and rectification suggestions

Supplier Empowerment

GCL Technology supports its suppliers through a hybrid approach that combines online platforms with in-person training programs. The Group actively supports local suppliers and explores innovative collaboration models with high-performing partners through regular training sessions and on-site audits. By working closely with suppliers, GCL Technology aims to drive shared growth and build a more sustainable future. During the reporting period, GCL Technology hosted 343 training sessions, totaling 468 hours of instruction. Across all business units, 1,019 suppliers participated in various types of training throughout the year.

Sustainable Supply Chain Internal Auditor Training

CASE

In July 2024, GCL Technology held a training program for internal auditors on sustainable supply chain practices. The program covered key topics such as corporate social responsibility (CSR), supplier due diligence procedures, and audit workflows, enabling auditors to strengthen their ability to evaluate ESG performance across the supply chain.

Sustainable Supply Chain Internal Auditor Training

Supplier ESG Empowerment

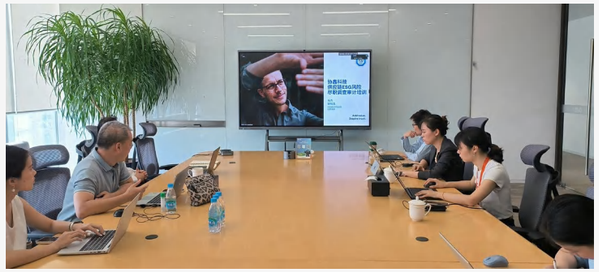
CASE

In 2024, GCL Technology launched an online training program on the coordination of the "GCL Contract" and the GCL Intelligent Chain management platform. During the program, suppliers were guided to sign the *GCL Technology Supply Chain Partner Code of Social Responsibility*. The program also included follow-up visits addressing material usage and after-sales service issues, ensuring timely rectification.

Supplier Due Diligence Training

CASE

In July 2024, GCL Technology conducted a supplier due diligence training session. The training covered ESG trends and regulations, ESG management practices, due diligence requirements, and supplier audit processes, enhancing suppliers' capabilities in ESG risk management.



Supplier Training

GCL Technology's subsidiaries support suppliers in improving product quality through various collaborations and on-site equipment upgrades. In 2024, the Group launched several Quality Improvement Teams (QIT) projects, with suppliers participating in 21 of them. Suppliers also proactively proposed five improvement projects, including fine wire process optimization and reduction of chipping in black sealing, which generated approximately RMB 20 million in economic value.

QIT projects generated approximately

RMB 20 million

in economic value

In 2024

Number of supplier training sessions	Total training hours	Number of participating suppliers
343	468 hour	1,019
Number of anti-corruption training sessions	**Anti-corruption training coverage rate**	**Supplier integrity agreement signing rate**
322	100 %	100 %

Supplier Training Performance

Contributing to a Better Society

GCL Technology views public welfare as a vital expression of its corporate social responsibility. In 2024, we continued to give back to the communities we serve, creating a positive impact through a diverse range of initiatives focused on environmental protection, charitable giving, and children's well-being.

2024 Highlights

GCL Technology invested approximately

RMB 13.48 million

in community development and philanthropy programs

During the reporting period

GCL Technology's employees participated in volunteer activities for

517 person-time

contributing a total of

406 hours

Leshan GCL was honored with

the Red Cross Medal of Dedication

Leshan GCL Awarded Red Cross Medal for Donating to Frontline Medical Staff

Jiangsu Zhongneng was recognized as

Xuzhou's Leading Organization in Voluntary Blood Donation

Jiangsu Zhongneng Recognized as Xuzhou's Leading Organization in Voluntary Blood Donation

"Eggs of Love": Donated 24,330 Communities Across China With 238,000 Eggs

CASE

On September 4, 2024, GCL Technology launched the "Kindness in Action, Let Love Flow" campaign, encouraging employees to donate virtual eggs via Alipay's Ant Forest platform. In just four days, employees donated 238,043 eggs, reaching 40,487 individuals across 24,330 communities, and supporting 14,927 charitable projects. The campaign encouraged daily acts of kindness and inspired a culture of gratitude and generosity, reflecting our belief that small actions can make a big difference.

Poster for GCL Technology's 2024 "Eggs of Love" Campaign

Supporting Frontline Heroes in the Heat

CASE

In August 2024, Suzhou GCL expressed appreciation for frontline officers working in scorching heat by delivering cold beverages to local police, traffic officers, firefighters, and urban management and law enforcement officers. Serving as a gesture of gratitude, this act strengthened the ties between the Group and the local community.

Suzhou GCL Delivered Summer Refreshments to Community Service Staff

GCL Technology encourages employees to engage in volunteer service as a way of spreading care and compassion. During the reporting period, our employees participated in 517 volunteer events, contributing a total of 406 hours to meaningful causes.

Sunshine Initiative for Children with Autism

CASE

Ahead of Children's Day in 2024, Jiangsu Zhongneng held the 13th Sunshine Initiative at Qihang Rehabilitation Center in Peixian County. Nearly 30 youth volunteers brought joy and support to children with autism, offering companionship and warmth to brighten their day and inspire hope for their futures.

Jiangsu Zhongneng's 13th Sunshine Initiative

Suzhou GCL's Environmental Volunteering

CASE

In December 2024, over 20 Suzhou GCL employee volunteers participated in an environmental awareness campaign at Wangshan Ecological Park in Suzhou. Volunteers picked up litter and promoted eco-consciousness through practical action, reinforcing GCL Technology's commitment to sustainability and inspiring greater environmental responsibility.

Suzhou GCL Volunteers in Action at an Environmental Campaign

ESG Performance Indicators

KPIs		Unit	2024	2023	2022
Green Infinity					
Emissions					
Emissions of waste gas	Nitrogen oxides (NO_x)	tonne	463.76	499.65	21.68
	Sulfur oxides (SO_x)	tonne	434.70	344.36	0.59
	Particulate matter (PM)	tonne	157.31	203.38	16.25
Discharge of wastewater	Total wastewater discharge	ten thousand tonnes	674	933	837
	Wastewater discharge intensity	ten thousand tonnes/MW of wafers	0.003	0.005	0.009
Disposal of hazardous waste	Hazardous waste	tonne	1,405	2,218	1,233
	Hazardous waste generation intensity	tonne/MW of wafers	0.006	0.013	0.014
Disposal of non-hazardous waste	Non-hazardous waste	tonne	187,910	159,374	79,679
	Non-hazardous waste generation intensity	tonne/MW of wafers	0.867	0.900	0.900
Use of resources					
Energy consumption	Coal	tonne	858,794	1,129,944	1,033,122
	Gasoline	tonne	83	115	80
	Diesel	tonne	1,122	1,064	264
	Natural gas	ten thousand m^3	21,477	16,238	5,634
	Purchased electricity	MWh	7,950,370	7,863,177	4,060,148
	Purchased thermal power	GJ	4,492,684	6,427,463	4,294,027
	Comprehensive energy consumption	MWh	19,268,363	17,985,903	11,865,553
	Comprehensive energy intensity	MWh/MW of wafers	88.88	102	134
Water consumption	Total water usage	ten thousand tonnes	2,673	2,823	2,730
	Total water usage intensity	tonnes /MW of wafers	123.32	159.38	308.30
	Total water withdrawal	ten thousand tonnes	563	696	N/A
	Total water withdrawal intensity	tonnes /MW of wafers	25.98	39.32	N/A
	Total water consumption	ten thousand tonnes	1,761	N/A	N/A
	Total water consumption intensity	tonnes /MW of wafers	81.21	N/A	N/A
Packaging material use	Total use of packaging materials	tonne	24,052	25,058	13,525
	Packaging material intensity	tonne/MW of wafers	0.11	0.14	0.15
Responses to climate change					
GHG emissions	Scope 1 emissions	tCO_2e	3,423,445	3,041,801	2,161,981
	Scope 2 emissions	tCO_2e	5,208,754	5,891,811	3,098,435
	Total GHG emissions (Scope 1 and 2)	tCO_2e	8,632,199	8,933,612	5,260,416
	Total GHG emission intensity (Scope 1 and 2)	tCO_2e/MW of wafers	39.82	50.45	59.41
Talent Infinity					
Employment					
Number of employees		person	10,844	15,002	11,527
By employment type	Regular	person	9,305	12,446	11,019
	Non-regular[1]	person	1,539	2,556	508
By job level[2]	Senior management	person	70	62	80
	Middle management	person	268	281	299
	Frontline employee	person	8,967	12,103	11,148
By gender[2]	Male	person	7,333	9,853	9.037
	Female	person	1,972	2,593	2,490
By age[2]	30 and below	person	2,897	4,346	3,953
	31-50	person	6,103	7,827	7,262
	Above 50	person	305	273	312
By region[2]	Chinese mainland	person	9,273	12,414	11,492
	Hong Kong, Macao, and Taiwan	person	24	25	23
	Overseas	person	8	7	12
Number of new hires by age	30 and below	person	408	N/A	N/A
	31-50	person	583	N/A	N/A
	Above 50	person	16	N/A	N/A
Number of new hires by job level	Senior management	person	3	N/A	N/A
	Middle management	person	4	N/A	N/A
	Frontline employee	person	1,000	N/A	N/A
Number of middle and senior management roles by gender	Female	person	45	39	N/A
	Male	person	293	304	N/A
Number of middle and senior management roles by age	30 and below	person	1	2	N/A
	31-50	person	258	273	N/A
	Above 50	person	79	68	N/A
Employee turnover					
Overall turnover rate		%	16.9	22.9	18.5
By gender	Male	%	17.1	23.2	18.7
	Female	%	16.2	22.0	17.7

[1] Non-regular employee refers to labour dispatch employees and interns, etc.
[2] The number of employees by position, gender, age and region in 2022 include non-regular employees.

KPIs		Unit	2024	2023	2022
By age	30 and below	%	23.6	32.4	25.9
	31-50	%	13.8	17.9	15.8
	Above 50	%	7.0	16.5	6.9
By region	Chinese mainland	%	16.9	23.0	19.2
	Hong Kong, Macao, and Taiwan	%	7.7	0	11.5
	Overseas	%	0	0	0
Employee training and development					
Annual number of training participants		person	9,305	12,446	15,329
Total hours of training		hour	779,738	980,137	1,183,399
Average hours of training per employee		hour	83.80	78.75	77.2
Occupational health and safety					
Number of employee injury incidents		/	36	38	29
Employee fatalities		person	0	0	0
Hours lost due to employee injuries		hour	9,098	11,832	21,414
Employee lost time injury frequency rate per 200,000 hours		/	0.39	0.31	0.27
Tech Infinity					
Technological innovation					
R&D investment		RMB billion	1.102	1.873	1.686
R&D investment accounting for the annual revenue		%	7.3	5.56	4.69
Number of patents	Number of patents applied	/	259	219	139
	Number of patents granted	/	207	110	108
	Total number of patents granted	/	1,282	1,067	N/A[1]
Customer services					
Average customer satisfaction rate		%	96.80	96.85	91.00
Number of customer complaints		/	136	289	N/A
Customer complaint resolution rate		%	100	100	100
Value Infinity					
Corporate governance					
Number of shareholders' meetings		/	1	1	N/A
—Resolutions approved		/	8	N/A	N/A
Number of board meetings		/	19	28	N/A
—Attendance rate		%	100	N/A	N/A
—Resolutions approved		/	84	N/A	N/A
Number of board committee meetings		/	17	3	N/A
—Attendance rate		%	100	N/A	N/A

[1] N/A indicates data not collected. From 2023 onwards, indicator management has been standardized to enable more detailed disclosures. Same applies below.

KPIs		Unit	2024	2023	2022
—Resolutions approved		/	46	N/A	N/A
Number of directors by gender	Male	/	9	9	N/A
	Female	/	1	1	N/A
Number of directors by education level	Bachelor's degree or below	/	5	N/A	N/A
	Master's degree	/	2	N/A	N/A
	Doctoral degree	/	3	N/A	N/A
Supplier management					
Total number of suppliers		/	2,532	2,957	1,764
Number of suppliers in China		/	2,529	2,954	1,761
Number of overseas suppliers		/	3	3	3
Signing rate of the *GCL Technology Supplier Code of Conduct for Corporate Social Responsibility* among core suppliers		%	100	N/A	N/A
Number of suppliers certified with ISO 14001 Environmental Management System		/	127	N/A	N/A
Number of suppliers certified with ISO 45001 Occupational Health & Safety System		/	124	N/A	N/A
Signing rate of supplier safety responsibility letters		%	100	N/A	N/A
Signing rate of the *Conflict Minerals Declaration* among core suppliers		%	100	N/A	N/A
Number of suppliers certified with ISO 9001 Quality Management System		/	154	N/A	N/A
Supplier training sessions		/	343	371	N/A
Total training hours		hour	468	582	N/A
Number of participating suppliers		/	1,019	1,348	N/A
Anti-corruption training sessions		/	322	N/A	N/A
Anti-corruption training coverage		%	100	100	N/A
Supplier integrity agreement sign-off rate		%	100	N/A	N/A
Community investment and participation					
Annual total expenditure on community investment and volunteer activities		RMB 10,000	1,348.47	240	1,320.7
Times that employees participating in philanthropic/volunteer activities		person-time	517	395	4,800
Hours of employee participation in philanthropic/volunteer activities		hour	406	583	13,788
Business ethics training					
Total training sessions		/	67	18	N/A
Training for Board members		hour	506.73	13.5	N/A
Board training coverage		%	100	100	N/A
Training for employees		hour	13,367	5,000	N/A
Employee training coverage		%	100	100	100
Number of concluded legal cases regarding corrupt practices		/	0	1	N/A

HKEX Environmental, Social and Governance Reporting Code Index

Subject Areas	Aspect	KPIs	Section in this report
Environmental	A1 Emissions	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	Green Infinity > Pollution Prevention and Control
		A1.1 The types of emissions and respective emissions data.	Green Infinity > Pollution Prevention and Control
		A1.2 Direct (Scope 1) and energy indirect (Scope 2) greenhouse gas emissions (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Green Infinity > Pollution Prevention and Control
		A1.3 Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Green Infinity > Pollution Prevention and Control
		A1.4 Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Green Infinity > Pollution Prevention and Control
		A1.5 Description of emission target(s) set and steps taken to achieve them.	Green Infinity > Pollution Prevention and Control
	A2 Use of Resources	General Disclosure Policies on the efficient use of resources, including energy, water and other raw materials.	Green Infinity > Resource Management
		A2.1 Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility).	Green Infinity > Resource Management
		A2.2 Water consumption in total and intensity (e.g. per unit of production volume, per facility).	Green Infinity > Resource Management
		A2.3 Description of energy use efficiency target(s) set and steps taken to achieve them.	Green Infinity > Resource Management
		A2.4 Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency target(s) set and steps taken to achieve them.	Green Infinity > Resource Management
		A2.5 Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.	Green Infinity > Resource Management
	A3 The Environment and Natural Resources	General Disclosure Policies on minimising the issuer's significant impacts on the environment and natural resources.	Green Infinity > Environmental Management
		A3.1 Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	Green Infinity > Environmental Management
Social	B1 Employment	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	Talent Infinity > Diversity and Inclusion
		B1.1 Total workforce by gender, employment type (for example, full- or part-time), age group and geographical region.	Talent Infinity > Diversity and Inclusion
		B1.2 Employee turnover rate by gender, age group and geographical region.	Talent Infinity > Diversity and Inclusion
Social	B2 Health and Safety	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	Talent Infinity > Health and Safety
		B2.1 Number and rate of work-related fatalities occurred in each of the past three years including the reporting year.	Talent Infinity > Health and Safety
		B2.2 Lost days due to work injury.	Talent Infinity > Health and Safety
		B2.3 Description of occupational health and safety measures adopted, and how they are implemented and monitored.	Talent Infinity > Health and Safety
	B3 Development and Training	General Disclosure Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.	Talent Infinity > Talent Cultivation
		B3.1 The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	Talent Infinity > Talent Cultivation
		B3.2 The average training hours completed per employee by gender and employee category.	Talent Infinity > Talent Cultivation
	B4 Labour Standards	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	Talent Infinity > Human Rights Protection
		B4.1 Description of measures to review employment practices to avoid child and forced labour.	*Talent Infinity > Human Rights Protection*
		B4.2 Description of steps taken to eliminate such practices when discovered.	*Talent Infinity > Human Rights Protection*
	B5 Supply Chain Management	General Disclosure Policies on managing environmental and social risks of the supply chain.	Value Infinity > Sustainable Supply Chain
		B5.1 Number of suppliers by geographical region.	Value Infinity > Sustainable Supply Chain
		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.	Value Infinity > Sustainable Supply Chain
		B5.3 Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored.	Value Infinity > Sustainable Supply Chain
		B5.4 Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	Value Infinity > Sustainable Supply Chain
	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	Tech Infinity > Technological Innovations Tech Infinity > Enhancing Service Quality
		B6.1 Percentage of total products sold or shipped subject to recalls for safety and health reasons.	Tech Infinity > Enhancing Service Quality
		B6.2 Number of products and service related complaints received and how they are dealt with.	Tech Infinity > Enhancing Service Quality
		B6.3 Description of practices relating to observing and protecting intellectual property rights.	Tech Infinity > Technological Innovations

Subject Areas	Aspect	KPIs	Section in this report
Social	B6 Product Responsibility	B6.4 Description of quality assurance process and recall procedures.	Tech Infinity > Enhancing Service Quality
		B6.5 Description of consumer data protection and privacy policies, and how they are implemented and monitored.	Value Infinity > Sound Operations
	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.	Value Infinity > Business Ethics
		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.	Value Infinity > Business Ethics
		B7.2 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.	Value Infinity > Business Ethics
		B7.3 Description of anti-corruption training provided to directors and staff.	Value Infinity > Business Ethics
	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.	/
		B8.1 Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	Value Infinity > Contributing to a Better Society
		B8.2 Resources contributed (e.g. money or time) to the focus area.	Value Infinity > Contributing to a Better Society

Climate-related Disclosures

Climate-related Disclosures	Governance	Governance	Green Infinity > Climate Change Response
	Strategy	Climate-related risks and opportunities	Green Infinity > Climate Change Response
		Business model and value chain	Green Infinity > Climate Change Response
		Strategy and decision-making	Green Infinity > Climate Change Response
		Financial position, financial performance and cash flows	Green Infinity > Climate Change Response
		Climate resilience	Green Infinity > Climate Change Response
	Risk Management	Risk Management	Green Infinity > Climate Change Response
	Metrics and Targets	Greenhouse gas emissions	Green Infinity > Climate Change Response
		Climate-related transition risks	Green Infinity > Climate Change Response
		Climate-related physical risks	Green Infinity > Climate Change Response
		Climate-related opportunities	Green Infinity > Climate Change Response
		Capital deployment	Green Infinity > Climate Change Response
		Internal carbon prices	Green Infinity > Climate Change Response
		Remuneration	Green Infinity > Climate Change Response
		Industry-based metrics	Green Infinity > Climate Change Response
		Climate-related targets	Green Infinity > Climate Change Response
		Applicability of cross-industry metrics and industry-based metrics	Green Infinity > Climate Change Response

GRI Index

Instructions	GCL reported the information cited in this GRI content index with reference to GRI standards from January 1 to December 31, 2024
GRI 1 applied	GRI 1: Basics 2021

Disclosure issue/ number	Description	Section in this report
GRI 2: General Disclosure 2021		About this Report
Organization and its reporting		
2-1	Organizational details	About GCL Technology
2-2	Entities included in an organization's sustainability report	About this Report
2-3	Reporting period, frequency and contact point	About this Report
2-4	Restatements of information	About this Report
Activities and workers		
2-6	Activities, value chain and other business relationships	About GCL Technology Sustainable Supply Chain
2-7	Employees	Employee Recruitment
2-8	Workers who are not employees	Employee Recruitment
Governance		
2-9	Governance structure and composition	Corporate Governance
2-10	Nomination and selection of the highest governance body	Corporate Governance
2-11	Chair of the highest governing body	Corporate Governance
2-12	Role of the highest governance body in overseeing the management of impacts	Corporate Governance
2-13	Delegation of responsibility for managing impacts	Corporate Governance
2-14	Role of the highest governance body in sustainability reporting	Corporate Governance
2-15	Conflicts of interest	Business Ethics
2-16	Communication of critical concerns	Stakeholder Engagement Highlights in 2024
2-17	Collective knowledge of the highest governance body	Corporate Governance
2-19	Remuneration policies	Corporate Governance
2-20	Process to determine remuneration	Corporate Governance
Strategy, policies and practices		
2-22	Statement on sustainable development strategy	ESG Management
2-23	Policy commitments	ESG Management
2-25	Processes to remediate negative impacts	Stakeholder Engagement Highlights in 2024
2-26	Mechanisms for seeking advice and raising concerns	Business Ethics
2-27	Compliance with laws and regulations	Corporate Governance

Disclosure issue/ number	Description	Section in this report
Stakeholder engagement		
2-29	Approach to stakeholder engagement	Stakeholder Engagement Highlights in 2024
GRI 3: GRI 3: Material Topics 2021		
3-1	Process to determine material topics	Materiality Assessment
3-2	List of material topics	Materiality Assessment
3-3	Management of material topics	See topics addressed in each chapter
Economy		
GRI 201: Economic Performance		
201-2	Financial implications and other risks and opportunities due to climate change	Risk Management
201-3	Defined benefit plan obligations and other retirement plans	Employee Well-being
GRI 205: Anti-corruption		
205-2	Communication and training about anti-corruption policies and procedures	Business Ethics
205-3	Confirmed incidents of corruption and actions taken	Business Ethics
GRI 206: Anti-competitive Behavior 2016		
206-1	Legal actions for all anti-competitive behavior, anti-trust, and monopoly practices	Business Ethics
Environment		
GRI 101: Biodiversity 2024		
101-1	Policies to halt and reverse biodiversity loss	/
101-2	Management of biodiversity impacts	/
101-3	Access and benefit-sharing	/
101-4	Identification of biodiversity impacts	/
101-5	Locations with biodiversity impacts	/
101-6	Direct drivers of biodiversity loss	/
101-7	Changes to the state of biodiversity	/
101-8	Ecosystem services	Ecological Protection
GRI 302: Energy 2016		
302-1	Energy consumption within the organization	Energy Management
302-2	Energy consumption outside of the organization	Energy Management
302-3	Energy intensity	Energy Management
302-4	Reduction of energy consumption	Energy Management

Disclosure issue/ number	Description	Section in this report
302-5	Reductions in energy requirements of products and services	Energy Management
GRI 303: Water		
303-1	Interactions with water as a shared resource	Water Management
303-2	Management of water discharge-related impacts	Water Management
303-3	Water withdrawal	Water Management
303-4	Water discharge	Water Management
303-5	Water consumption	Water Management
GRI 304: Biodiversity 2016		
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	Ecological Protection
304-2	Significant impacts of activities, products and services on biodiversity	Ecological Protection
304-3	Habitat protected or restored	Ecological Protection
GRI 305: Emissions 2016		
305-2	Energy indirect (Scope 2) GHG emissions	Indicators and Goals
305-3	Other indirect (Scope 3) GHG emissions	Indicators and Goals
305-4	GHG emissions intensity	Indicators and Goals
305-5	Reduction of GHG emissions	Indicators and Goals
305-7	Nitrogen oxides (NO_x), sulfur oxides (SO_x), and other significant air emissions	Waste Gas
GRI 306: Waste		
306-1	Waste generation and significant waste-related impacts	Solid Waste
306-2	Management of significant waste-related impacts	Solid Waste
306-3	Waste generated	Solid Waste
306-4	Waste diverted from disposal	Solid Waste
306-5	Waste directed to disposal	Solid Waste
GRI 308: Supplier Environmental Assessment		
308-1	New suppliers that were screened using environmental criteria	Sustainable Supply Chain
308-2	Negative environmental impacts in the supply chain and actions taken	Sustainable Supply Chain
Society		
GRI 401: Employment		
401-1	New employee hires and employee turnover	Talent Development
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Employee Well-being
401-3	Parental leave	Employee Well-being

Disclosure issue/ number	Description	Section in this report
GRI 403: Occupational Health and Safety		
403-1	Occupational health and safety management system	Health and Safety Management System
403-2	Hazard identification, risk assessment, and incident investigation	Safe Production
403-3	Occupational health services	Occupational Health
403-4	Worker participation, consultation, and communication on occupational health and safety	Safe Production
403-5	Worker training on occupational health and safety	Safety Culture
403-6	Promotion of worker health	Occupational Health
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Occupational Health
403-8	Workers covered by an occupational health and safety management system	Health and Safety Management System
403-9	Work-related injuries	Safe Production
403-10	Work-related ill health	Safe Production
GRI 404: Training and Education		
404-1	Average hours of training per year per employee	Employee Empowerment
404-2	Programs for upgrading employee skills and transition assistance programs	Training System
404-3	Percentage of employees receiving regular performance and career development reviews	Talent Development
GRI 405: Diversity and Equal Opportunity		
405-1	Diversity of governance bodies and employees	Employment Diversity
GRI 406: Non-discrimination		
406-1	Incidents of discrimination and corrective actions taken	Human Rights Protection
GRI 407：Freedom of Association and Collective Bargaining		
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Employee Communication
GRI 408: Child Labor		
408-1	Operations and suppliers at significant risk for incidents of child labor	Human Rights Protection
GRI 409: Forced or Compulsory Labor		
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Human Rights Protection
GRI 413: Local Communities		
413-1	Operations with local community engagement, impact assessments, and development programs	Contributing to a Better Society
GRI 414: Supplier Social Assessment		
414-1	New suppliers that were screened using social criteria	Sustainable Supply Chain
GRI 418: Customer Privacy		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	Providing Satisfying Services to Internal and External Customers

Assurance Statement

SGS

ASSURANCE STATEMENT
CN25/00002568

SGS-CSTC 'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE *GCL TECHNOLOGY HOLDINGS LIMITED 2024 ENVIRONMENTAL,SOCIAL AND GOVERNANCE REPORT*

NATURE OF THE ASSURANCE/VERIFICATION
SGS-CSTC STANDARDS TECHNICAL SERVICES CO., LTD. (hereinafter referred to as SGS) was commissioned by GCL TECHNOLOGY HOLDINGS LIMITED (hereinafter referred to as GCL Technology) to conduct an independent assurance of the Chinese version of *GCL Technology Holdings Limited 2024 Environmental, Social and Governance Report* (hereinafter referred to as the Report).

INTENDED USERS OF THIS ASSURANCE STATEMENT
This Assurance Statement is provided with the intention of informing all GCL Technology's Stakeholders.

RESPONSIBILITIES
The information in the Report and its presentation are the responsibility of the responsibility of Environmental,Social and Governance Committee, Sustainability Management Committee and the Sustainable Development Center. SGS has not been involved in the preparation of any of the material included in the Report.

Our responsibility is to express an opinion on the text, data, graphs and statements within the scope of assurance with the intention to inform all GCL Technology's stakeholders.

SGS hereby states that it shall not be held responsible or liable for any direct, indirect, incidental, or consequential damages or losses arising from or in connection with the use of information provided in this report.

ASSURANCE STANDARDS, TYPE AND LEVEL OF ASSURANCE
The SGS ESG & Sustainability Report Assurance (SRA) protocols used to conduct assurance are based upon internationally recognised assurance standards including the AA1000 series of standards and ISAE3000.

The assurance of this report has been conducted according to the following Assurance Standards:

Assurance Standard Options	Level of Assurance
AA1000AS v3 Type 2	Moderate

SCOPE OF ASSURANCE AND REPORTING CRITERIA
The scope of the assurance included evaluation of quality, accuracy and reliability of specified performance information as detailed below and evaluation of adherence to the following reporting criteria:

Reporting Criteria Options	
1	Appendix C2 to the Listing Rules of HKEX –HKEX Environmental, Social and Governance (ESG) Reporting Guide (effective from 31 December 2023)
2	GRI standards 2021 (Reference)

ASSURANCE METHODOLOGY
The assurance comprised a combination of pre-assurance research, interviews with relevant employees located at the headquarters of GCL Technology, GCL Energy Center,No.28,Xinqing Road, Suzhou Industrial Park,Suzhou City, Jiangsu Province,P.R.China; documentation and record review and validation where relevant.

LIMITATIONS AND MITIGATION
Data drawn directly from independently audited financial accounts has not been checked back to source as part of this assurance process.

The greenhouse gas emission related data of the Jiangsu Zhongneng,Leshan GCL,Inner Mongolia Xinyuan, Inner Mongolia Xinhuan,Xuzhou Photovoltaic in the Report has been directly adopted from the independent third party verification data and has not been double verified in this audit.

The greenhouse gas emissions related data of the remaining subsidiaries in the Report has not undergone verification by an independent third-party auditor. In the context of the present assurance engagement, our procedures were limited to sample-based validation.

This assurance engagement was restricted to the group level of GCL Technology and did not include traceability of original data from all subordinate institutions.

STATEMENT OF INDEPENDENCE AND COMPETENCE
The SGS Group of companies is the world leader in inspection, testing and certification, operating in multiple countries and providing services. SGS affirm our independence from GCL Technology, being free from bias and conflicts of interest with the organisation, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment.

FINDINGS AND CONCLUSIONS

ASSURANCE/VERIFICATION OPINION
On the basis of the methodology described and the assurance engagement performed, the specified performance information included in the scope of assurance is accurate, reliable, and has been fairly stated.

CONCLUSIONS, FINDINGS AND RECOMMENDATIONS
The assurance team concludes that the *Report* is presented in accordance with the reporting principles, mandatory disclosure requirments and the KPIs disclosures of *Appendix C2 to the Listing Rules of HKEX – HKEX Environmental, Social and Governance (ESG) Reporting Guide (effective from 31 December 2023)*, it also refers to the requirements of *GRI Standards 2021*.

FINDINGS AND RECOMMENDATIONS
All observations pertaining to commendable practices, sustainable development activities, and managerial recommendations identified throughout the assurance process have been thoroughly documented in the *Internal Management Report on Sustainability Reporting Assurance*. This report has been officially presented to the relevant management divisions of GCL Technology to serve as a reference for their ongoing efforts towards continuous improvement.

Signed:

For and on behalf of SGS-CSTC

David Xin
Sr. Director – Business Assurance
16/F Century Yuhui Mansion, No. 73, Fucheng Road, Beijing, P.R. China

Apr. 22nd, 2025
WWW.SGS.COM

Your Feedback

Dear reader,

Thank you for taking time to read the *2024 GCL Technology Environmental, Social, and Governance (ESG) Report*. To consistently enhance the preparation of this report and further the Group's work in ESG, we hope to listen to your opinions and suggestions. Please feel free to share your thoughts with us.

1. How would you rate the overall impression of this report?

○ Very Good ○ Good ○ Fair ○ Poor

2. How would you rate the clarity, accuracy and completeness of the information and data disclosed in this report?

○ Very Good ○ Good ○ Fair ○ Poor

3. How would you rate the comprehensiveness of this report in reflecting the Group's environmental responsibilities?

○ Very Good ○ Good ○ Fair ○ Poor

4. How would you rate the comprehensiveness of this report in reflecting the Group's social responsibilities?

○ Very Good ○ Good ○ Fair ○ Poor

5. How would you rate the comprehensiveness of this report in reflecting the Group's governance responsibilities?

○ Very Good ○ Good ○ Fair ○ Poor

6. How would you rate the design and layout of this report regarding reading convenience?

○ Very Good ○ Good ○ Fair ○ Poor

7. Which area do you think require the most improvement in this report?

○ Environment ○ Society ○ Governance ○ Safety ○ Employee ○ Supply chain

8. Are there any topics you hoped to see in this report but were not covered? (Please specify)

9. Do you have any comments or suggestions regarding the Group's ESG efforts or this report?

How to submit your feedback

1、For digital feedback, please scan the QR code on the right

2、For hard copy feedback, please mail to: Sustainable Development Center, GCL Technology Holdings Limited No. 28, Xinqing Road, Suzhou Industrial Park, Suzhou, Jiangsu Province, China

GCL