



2024

ENVIRONMENTAL, SOCIAL AND
GOVERNANCE REPORT

Golden Concord Holdings Limited

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About the Report

Basic Description



Golden Concord Holdings Co., Ltd. released its first *Social Responsibility Report* in 2013, updated it to a *Sustainability Report* in 2019, and further updated it to an *Environmental, Social and Governance Report* in 2021.

The Report is the fourth *Environmental, Social and Governance Report* issued by Golden Concord Holdings Co., Ltd. In line with the principles of objectivity, standardization, transparency, and comprehensiveness, the Report provides a detailed disclosure of GCL Group's concepts, practices, and achievements in the areas of environment, society, and governance for the year in 2024.

Basis of Preparation



The important standards referred to in the preparation of the Report include:

- » The *Sustainability Reporting – The Guide to Preparation* (GRI Standards) issued by the Global Reporting Initiative
- » The *Self-Regulatory Guidelines No. 17 for Companies Listed on Shenzhen Stock Exchange – Sustainability Report (For Trial Implementation)* issued by Shenzhen Stock Exchange
- » Appendix C2, *Environmental, Social and Governance Reporting Guide to the Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited* of The Stock Exchange of Hong Kong Limited
- » *IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information* and *IFRS S2 Climate-related Disclosures* issued by the International Sustainability Standards Board (ISSB)
- » Sustainability Accounting Standards Board (SASB) standards
- » United Nations Sustainable Development Goals (SDGs)

Reporting Period



The Report covers the period from January 1, 2024 to December 31, 2024 (referred to as the "Reporting Period"). Some information may go beyond this scope according to the needs of information presentation.

Scope of Reporting Entities



The scope of entities covered in the Report includes Golden Concord Holdings Co., Ltd. and its subsidiaries. For the convenience of reading and expression, "Golden Concord Holdings Co., Ltd." is referred to as "GCL Group", "the Group" or "we". The abbreviations of subsidiaries mentioned in the Report are detailed in the appendix. Due to product categories, production processes, and other reasons, individual data only involves some subsidiaries.

Reporting Principles



The Report mainly considers the quantifiability, materiality, balance, and consistency of each specific indicator related to the disclosure of performance on key issues.

Information Sources and Report Approval



The qualitative and quantitative information used in the Report is derived from GCL Group's public information, internal documents, and relevant statistical data. Unless otherwise specified, all monetary amounts in the Report are expressed in RMB. The Report was confirmed by the management and approved by the Board of Directors on September 4, 2025.

Access and Response to the Report



The Report is released in electronic form and can be viewed and downloaded on GCL Group's official website (<http://www.gcl-power.com>). If you have any questions, suggestions or opinions on our ESG management and the Report, please contact us:

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Tel: 86-512-6853 8285
E-mail: esg-committee@gcl-power.com

Message from the President



The year 2024 is one brimming with transformation. The intricate intertwining of global spheres—including the environment, society, economy, and technology—not only profoundly impacts but also reshapes the survival and development trajectories across all sectors and industries. As a core force driving the just transition of global energy, the new energy sector is also undergoing multiple rounds of reshaping, adjustment, and drastic changes.

Having rooted itself in the industry for 35 years, GCL still adheres to its original aspiration, upholds long-termism, and continuously advances corporate sustainable development management and practices in the face of multiple challenges—including full-chain pressure, supply-demand shifts, and trade barriers. To this end, we have set our sights on the goals of "Technology GCL, Digital GCL, Green GCL". With the energy industry as our main focus, technological R&D as our driving force, and digitalization as our foundation, we propel synergistic revolutions in manufacturing and application. Concurrently, we actively promote our internationalization strategy, forging new paths within the energy transition and achieving the historic leap from being a "participant in the energy revolution" to an "architect of zero-carbon systems."



Secretary of the Party
Committee, President
and Chairman of the ESG
Committee of GCL Group

Zhu Yufeng

GCL Group takes "Growth Connected Limitless" as its ESG strategy, adhering to working in unison with partners to build a healthy business ecosystem characterized by standardization, transparency, and sustainable development. With foresight at the Group level, we construct an ecological system from the strategic dimension of ESG, comprehensively optimizing the allocation of ESG resources across our listed and non-listed subsidiaries. Through integrated strength, we unify our development pace, lending richer meaning to "One GCL, One ESG Focus, One Unified Voice." Under the guidance of the strategy, we actively expand into diverse value fields, drive the co-evolution of the industrial chain, and inject green momentum into high-quality development. At the same time, the Group deeply integrates business value with social responsibility across all levels, earnestly fulfills our environmental, social, and governance responsibilities, and jointly moves towards a more inclusive, resilient, and sustainable new future.

Innovation breakthroughs empower the just transition of global energy.

Under the new paradigm of "AI + energy" integration, we have developed the industry's first dynamic carbon footprint management platform, precisely tracking the entire life cycle from source to end-use, exploring the optimal low-carbon pathways for the industry. Thousands of scientific research elites are dedicated to pioneering source technologies, continuously reducing carbon emissions across the industrial chain. The independently developed FBR granular silicon has set the lowest carbon footprint record for silicon materials at home and abroad, becoming a model for promoting the green development in the industry. Perovskite technology significantly lowers the production temperature, reduces manufacturing energy consumption and carbon emissions, while improving the photoelectric conversion efficiency.

To accelerate the upgrade of energy efficiency, GCL integrates core elements such as distributed photovoltaics, energy storage, charging facilities, and industrial loads, and leverages its independently developed virtual power plant platform to advance the integration of wind, solar, storage, and hydrogen energy as well as the integration of source-grid-load-storage, thereby breaking down system barriers, reshaping market structures, and achieving cross-temporal and cross-spatial resource matching and dynamic optimization. At the same time, we have launched the country's first photovoltaic RWA project, utilizing green finance to facilitate industry value restructuring. We have also extended the comprehensive energy service to urban, transportation, and "Belt and Road" cooperation areas, providing customized and high-value sustainable energy solutions for global partners and accelerating the process of the just transition of global energy.

We coexist with nature as lucid waters and lush mountains are the source of sustainability.

We adhere to the principle of "Environment First" and practice the path of green development to achieve harmonious coexistence between humans and nature. By conducting water risk assessments and biodiversity impact assessments, we deeply identify the main impacts, dependencies, risks, and opportunities that critical links have on ecological resources, and enhance the ecological resilience and adaptability of the business system. To avoid potential negative impacts, each industrial sector implements measures such as process innovation, operation optimization, and technology upgrading to effectively improve energy utilization efficiency. At the same time, we are accelerating the construction of photovoltaic power plants at manufacturing bases, expand the scale of renewable energy use, and promote the process of clean transformation of electricity.

Shared value ignites hope and warms thousands of households.

Upholding the concept of "People Focused", we deeply embed a "Family Culture" within our organization. We sincerely listen to our employees' voices and are committed to building a diverse and inclusive ecosystem for growth. We provide free physical examinations, psychological counseling, and cultural and sports activities to comprehensively safeguard the physical and mental health of employees. We attentively address childcare challenges, helping employees balance work and life. Moreover, with a clear promotion path and multi-dimensional empowerment plan, we lay a solid foundation for the growth of every management and professional talent. Simultaneously, we bring the warmth of green energy to rural communities. We innovatively explore the "Agriculture + PV" model, enhancing electricity accessibility in remote areas and stimulating local economic vitality. Over the years, we have been grateful and given back to society, paying attention to educational equity, carrying out educational assistance activities such as "Hand in Hand, Heart to GCL", continuously transmitting the warmth of GCL, and escorting the dreams of children. By the end of 2024, our total external donations exceeded RMB 300 million.

The path ahead is long and arduous, but the traveler with determined steps will reach the destination. Looking to the future, we will take the innovation across the entire industrial chain as our engine to drive the energy transition into a "stabilizer" and "accelerator" for the economy and society. Together with global partners, we will jointly build a sustainable development ecosystem, navigate the waves of technological change with long-termism, and jointly write the next glorious chapter of the high-quality development of China's renewable energy.

About GCL

Golden Concord Holdings Co., Ltd. was founded in 1990 and is a green and low-carbon technology company, with new energy, clean energy, and renewable energy in various forms of wind-solar-storage-hydrogen-ammonia-alcohol systems as its mainstay. As of now, the Group's assets exceed 200 billion yuan, and it owns GCL Technology (03800.HK), GCL SI (002506.SZ), GCL New Energy (00451.HK), and GCL ET (002015.SZ), among others, listed on the A-share and H-share markets. With its outstanding scientific and technological innovation capabilities, deep industrial accumulation, and forward-looking zero-carbon strategy, GCL Group has ranked among the world's top 500 brands and has been among the top in the global new energy top 500 and China's top 500 enterprises in the new energy industry for many years, ranking 43rd among China's top 500 private enterprises and 25th among China's top 100 leading enterprises in strategic emerging industries.

Over the past 35 years, the Group has adhered to technology-driven innovation and digital empowerment, establishing a think tank of 100 external experts led by more than 10 academicians of the Chinese Academy of Sciences and the Chinese Academy of Engineering, more than 20 specialized scientific and technological innovation teams, and a team of over 3,000 domestic and foreign energy technology professionals led by top energy scientists. In fields such as silicon materials, lithium materials, carbon materials, and core materials for integrated circuits, the Group has accumulated over 3,100 patents and intellectual property rights, participated in the formulation of over 300 international, national, and industry standards, and possesses 75 national and provincial-level research platforms. It undertakes over 60 provincial-level or higher research projects annually, with all core enterprises certified as high-tech enterprises.

 **Mission**

Focus on green development and keep improving the living environment of human beings

 **Vision**

To become a respected global new energy and clean energy enterprise

 **Corporate Spirit**

Entrepreneurship, innovation, striving for excellence, leading

 **Core Values**

Value-led, innovation-driven, hardworking-based, collaborative as one

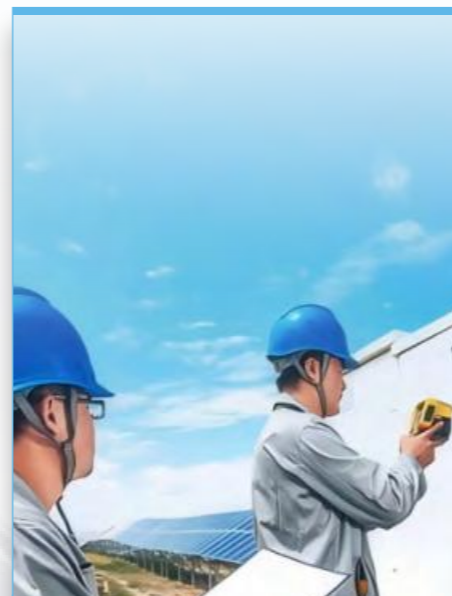


GCL Technology
(03800.HK)

A global leader in R&D and smart manufacturing of high-efficiency photovoltaic materials

GCL SI
(002506.SZ)

A global leader in one-stop smart photovoltaic storage system integration



GCL New Energy
(00451.HK)

A leading comprehensive energy service provider in China

GCL ET
(002015.SZ)

A global leader in energy ecosystem services



GCL Materials Technology

A driver of the high-tech energy materials industry

GCL Group has consistently adhered to the philosophy of technology-driven development, continuously expanding its technological research and development capabilities. In the journey of green and low-carbon transformation, more than 3,000 domestic and foreign energy technology elites work together. Every step of the enterprise's development is deeply in sync with the wave of industry transformation, maintaining a forward-looking layout and practical breakthroughs:

GCL Carbon Chain



The world's **first** photovoltaic carbon chain

New Energy RWA



Financing scale exceeding **RMB 200 million**

Perovskite Single-junction and Tandem Modules



The world's **largest size** and **highest conversion efficiency**

Virtual Power Plant Management



Holding national **first-class qualification** as a "Demand-Side Management Service Provider"

FBR Granular Silicon Technology



The **lowest** carbon footprint in the global industry

UCC Method for High-purity Silane Gas Producer



The world's **largest**

Large-sized silicon wafers and silicon wafers required for advanced process chips



Production capacity ranks among the **top 3** in the world and **No. 1** in Chinese market share

Industry Influence



High-Level Steering Committee Member of the United Nations Global Compact "Belt and Road" Action Platform



Co-chair Member of the Global Solar Council



Chair Member of the Global Green Energy Industry Council



Chair Member of the Asian Photovoltaic Industry Association



Vice Chair Member of the China Electricity Council

GCL's Path to Sustainability

ESG Strategy

Facing the changing global environment, high-quality sustainability is the only way for enterprises to achieve long-term success. GCL Group always adheres to the path of sustainability, centered on the goal positioning of "Technology GCL, Digital GCL, Green GCL", focused on the "carbon peaking and carbon neutrality" goals and new-quality development, recognizing the major technological changes, model iterations, and scenario transitions occurring in the industry, and works together with multiple parties to build a better future.

In 2024, GCL Group celebrated its 35th anniversary. Guided by the core philosophy of "GCL as One, ESG as One, Voice as One," we have officially unveiled the "Growth Connected Limitless" ESG strategy. This strategy builds an ecological system from the strategic perspective, optimizes the allocation of ESG resources across all business sectors of the Group, and unites development efforts through collaborative strength. By partnering with stakeholders across the value chain, we strive tirelessly to create a brighter, more prosperous future for all.

Growth · Connected · Limitless



Strategic Leadership Value Cultivation Growth

Building an efficient and sustainable corporate governance model, driving technological innovation, providing customers with high-quality products and services, empowering the global energy transition, and achieving long-term success.



Technological Innovation and R&D

Product Safety and Service Quality

Just Transition of Energy

Digital Transformation

Information Security and Privacy Protection

Corporate Governance

ESG Management

Compliance and Risk Management

Anti-corruption and Business Ethics

Intellectual Property Protection



Unity and Cooperation Win-Win Synergy Connected

Mobilizing diverse stakeholders to build an ecosystem characterized by diversity, collaboration, and shared value, fostering employee growth, community prosperity, and industry-wide development.



Human Capital Development

Occupational Health and Safety

Sustainable Supply Chain Management

Industry Cooperation and Development

Rural Revitalization and Social Contribution



Symbiosis with Nature Limitless Future Limitless

Embedding low-carbon practices throughout the entire industrial chain, we are building a robust environmental foundation for resource circulation and harmony with nature across multiple dimensions, safeguarding the lifeline of green development, and jointly unlocking boundless possibilities for the future.



Addressing Climate Change

Environmental Management System

Energy Use and Management

Green Products and Services

Emission and Waste Management

Water Resource Management

Biodiversity Conservation

Product Lifecycle Management

Awards and Honors

2024 Fortune China ESG Impact List
 Fortune
GCL Group

Top 50 Chinese Energy Enterprises in Carbon Neutrality Contribution
 China Energy News and other entities
GCL Group

IFF Global Green Finance Award
 International Finance Forum (IFF)
GCL Group

Top 20 Chinese Enterprises in Carbon Footprint Leadership
 China Energy News and other entities
GCL Group

2024 World's Top 500 Brands
 World Brand Lab
GCL Group

2024 Global Top 500 New Energy Enterprises
 China Energy News and other entities
GCL Group

2024 ESG Golden Dawn Award – Best Low-Carbon Harmonious Development Capability, Best Green Environmental Protection Creativity
 Securities Market Weekly
GCL ET

ESG Comprehensive Governance Benchmark Enterprise
 2024 China International Fair for Trade in Services, China International Economic Management and Technology Forum Organizing Committee
GCL ET

2024 Outstanding Sustainability Practices Case Study
 China Association of Public Companies
GCL SI

"Annual Pioneer in Dual Carbon Goals" Award
 NetEase Finance
GCL SI

2024 Annual Corporate Social Enterprises Outstanding Cases in Comprehensive Practice and Social Welfare
 China Electricity Council
GCL ET

2024 Annual Typical Practical Unit for Corporate Culture Development in the Power Industry
 China Electricity Council
GCL ET

ESG New Benchmark Enterprise Award
 Securities Star
GCL SI

2024 Responsible and Progressive Outstanding Enterprise Award
 Sina Finance
GCL SI

2025 Forbes China's Benchmark Enterprise for Industry ESG Development
 Forbes China
GCL Technology

2024 Best Corporate Governance and ESG Award
 Hong Kong Institute of Certified Public Accountants
GCL Technology

ESG Environmentally Friendly Excellence Enterprise
 2024 Gelonghui Golden Grid Award
GCL New Energy

2024 Green Light ESG List Top 10 Environmental Contributions
 China Energy News
GCL New Energy

2024 China ESG Inspirational Case Study
 Forbes China
GCL Technology

Evergreen Award – Sustainable Development Green Excellence Case Study Award
 Caijing Magazine and Social Value Investment Alliance
GCL Technology

ESG Highlights Performance

Green Future

Environmental management investment
RMB **1,272,769,800**

Total GHG emissions within operational scope (Scope 1+Scope 2) decreased by
15,871,974.50 Tons of carbon dioxide equivalent **7.58%**

In 2024, Major environmental pollution incidents
0

Utilization rate of alternative water sources
36.40%

Annual electricity savings from FBR granular silicon production capacity
19.5 billion kilowatt-hours

Register as a supporter of the Task Force on Nature-related Financial Disclosures (TNFD) Adopter

Value Innovation

R&D personnel
3,500

Technology innovation teams
20

Customer satisfaction of subsidiaries
over **96%**

Cumulative total patent applications
over **4,600**

Product recall incidents
0

Perovskite module efficiency reached¹
29.51%

FBR granular silicon carbon footprint breaks record, reaching
14.441 kgCO₂e/kg

Build the industry's first full-life-cycle carbon footprint tracking and management platform—GCL Carbon Chain

Issue China's first photovoltaic real asset RWA²

¹ Data statistics as of August 2025.

² RWA: Real World Assets

Win-Win Synergy

Total number of supplier
2,353

Percentage of core suppliers signing the Code of Conduct
100%

Number of standards formulated under leadership or participation
39

Responsibility for All

Total hours of ESG training
30,000 Hrs

Coverage rate of employees in safety training
100%

Total number of training participants
20,177

Investment in work safety
RMB **316,175,600**

By the end of 2024, the total external donations exceeded
RMB **300** million

Cumulatively supported students
nearly **500,000**

Steady Governance

Cases of administrative and judicial sanctions imposed for violations of laws and regulations in the social and economic fields
0

Hours of anti-corruption and business ethics-related training
15,335 Hrs

Occurrence of information security and privacy leakage incidents
0

Total number of participants in risk management-related training
4,078

Number of employee information security training sessions
12

ESG Influence

As participants and practitioners of sustainability, we actively engage in ESG communication and exchanges and vigorously promote ESG concepts and green development ideas. We are committed to exploring more green innovation paths to contribute to building a community with a shared future for mankind and moving towards a new zero-carbon future together.

Case  Launching the Global Solar Sustainable Alliance (GSSA) Initiative

GCL Group, together with leading global photovoltaic enterprises such as JA Solar, JinkoSolar, and LONGi, jointly releases the *GSSA Initiative*. Guided by the ten principles of the United Nations Global Compact and the United Nations Sustainable Development Goals, the initiative is committed to achieving all-around progress in environmental, social, and governance fields, thereby exerting a positive and far-reaching impact on the international market.



Case  United Nations Global Compact Presents Appointment Letter to Zhu Gongshan

Zhu Gongshan, Chairman of GCL Group, is awarded the appointment letter of "Member of the High-Level Steering Committee of the United Nations Global Compact 'Belt and Road' Action Platform".



Case  The Strategic Partnership Between GCL and CATL Was Comprehensively Upgraded

In August 2024, Zhu Yufeng, Secretary of the Party Committee and President of GCL Group and Zeng Yuqun, Chairman and CEO of CATL, and other leaders held a signing ceremony for a comprehensive strategic cooperation agreement in Ningde, Fujian. The two parties will adhere to the principles of "equality, mutual benefit, complementary advantages, win-win cooperation, and common development" to further deepen their comprehensive strategic cooperation and contribute to the construction of a new power system and a new energy system.



Case  2024 Symposium for Enterprises and Experts

In May 2024, Xi Jinping, General Secretary of the CPC Central Committee, President of the State Council and Chairman of the Central Military Commission, presided over a symposium for enterprises and experts in Jinan. Zhu Yufeng, Secretary of the Party Committee and President of GCL Group, participated in the symposium as the only representative of new energy private enterprises, and said that under the background of global green transformation, GCL has continuously increased the scientific and technological innovation in the field of energy, driven the manufacturing and application revolutions by the material revolution, created high-end, intelligent and green product business cards, and given full play to the leading role of a green "Zero-Carbon" technology pioneer enterprise.



Case 
Initiating the Global Green Carbon Chain Alliance Initiative

GCL Group, in collaboration with over 20 authoritative institutions and leading enterprises including the Global Green Energy Council, the Asian New Energy Industry Association, and the Asian Photovoltaic Industry Association, has jointly launched the Global Green Carbon Chain Alliance Initiative. The initiative commits to establishing a comprehensive system for carbon footprint management standards, processes, and platforms across the entire photovoltaic industry chain. It aims to foster an industrial ecosystem for photovoltaic carbon footprint management while actively advancing research and technical support in carbon footprint management practices.



Case 
Attending the Boao Green Development Forum

GCL Group attended the inaugural conference of the Boao Forum for Asia Global Forum on Urban Green Development and Rural Revitalization (referred to as the "Boao Green Development Forum"). The forum, centered around the theme "Green Development: Illuminating the Future of Cities and Villages," brought together policymakers, corporate executives, economists, and media leaders from Asia and around the world to discuss the path toward a green and low-carbon future. At the conference, GCL Group was invited to become a strategic partner of WIPO GREEN (WIPO's Sustainable Technology Exchange Platform), jointly exploring pathways for green innovation.



Case 
Co-hosting the "Zero-Carbon Zone · New Energy Future" Industry Ecosystem Partner Conference

In December 2024, GCL ET co-hosted the "Zero-Carbon Zone · New Energy Future" Industry Ecosystem Partner Conference with the Wansheng Economic and Technological Development Zone of Chongqing Municipality. At the conference, GCL ET's "GCL Zero-Carbon" solution was officially unveiled. Fei Zhi, Vice Chairman of GCL Group and Vice Chairman and President of GCL ET, stated that the Company will collaborate with government agencies, partners, and other strategic partners to jointly advance the construction and development of "zero-carbon zones."



Case 
Attending the United Nations Global Compact Organization's Climate Justice Transition Roundtable Meeting

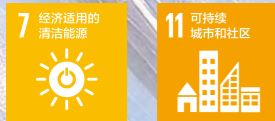
In July 2025, Song Yunbo, Chief Sustainability Officer of GCL Group, attended the United Nations Global Compact Climate Justice Transition Roundtable and stated that GCL Group is actively responding to the "Climate Justice Transition Action Initiative" through concrete actions. The Company is promoting technological innovation to reduce the carbon footprint across the entire supply chain while also ensuring inclusive socioeconomic development, thereby achieving a synergistic win-win outcome between environmental benefits, economic growth, and social equity.



Special Topic 1

Insight-Led, Pioneer in Energy Transition

SDGs:

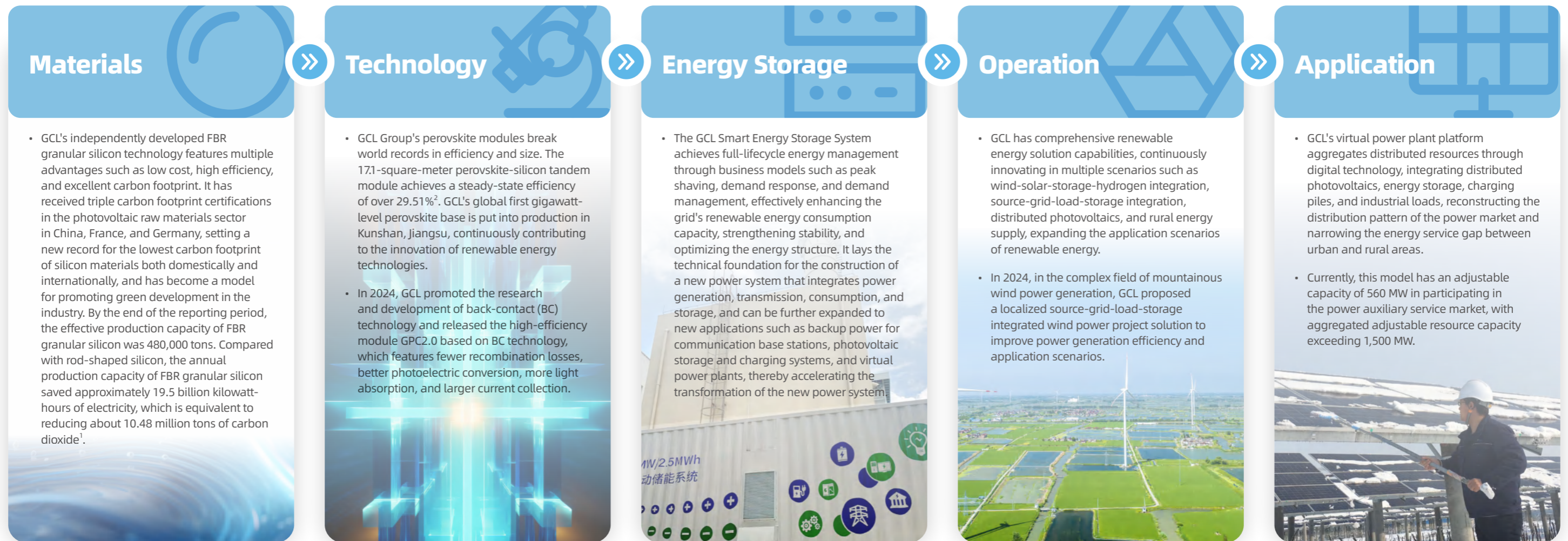


Energy is an important material foundation for the survival and development of human society, as well as a fundamental guarantee for the stable development of society and economy. With the advancement of energy globalization, ensuring that everyone can access affordable, reliable, and sustainable clean energy and achieving a just energy transition have become new global concerns and goals.

As a global leader in new energy, GCL Group, through technological innovation and digital empowerment, integrates the concept of just transition into the entire industry chain and transforms it into a replicable business model. The Group reconstructs interest distribution mechanisms, narrowing development gaps through global collaboration, promotes global clean energy investment, development, and utilization, and provides affordable clean energy solutions for more regions, industries, and people. Under the global energy community with a shared future, GCL Group contributes to building a more sustainable and equitable future for the world.

Technology-Driven: Innovation Chain from Materials to Applications

Through systematic innovation in the entire industry chain, including materials, technology, applications, and energy storage, GCL builds a closed loop of energy inclusion and sustainability, committed to transforming low-carbon solutions from "high-cost patents" to "affordable public goods" and continuously lowering the threshold for global energy transition.



¹ The calculation method for carbon dioxide emissions reduction is: (average electricity consumption per kilogram of rod-shaped silicon production - electricity consumption per kilogram of granular silicon production) * national grid average emission factor * unit conversion factor. The average electricity consumption for ingot silicon is taken from the China Photovoltaic Industry Association's "2024-2025 China Photovoltaic Industry Development Roadmap," which states 54.5 kWh/kg-Si, while the electricity consumption for granular silicon production is 13.8 kWh/kg-Si. The national grid average emission factor is adopted from the "Notice on the Release of the 2022 Power Carbon Dioxide Emission Factors," which specifies the national average power carbon dioxide emission factor for 2022 as 0.5366 kgCO₂/kWh.

² Data statistics as of August 2025.

Digital Empowerment: Digital Transformation Reconstructing Industrial Value

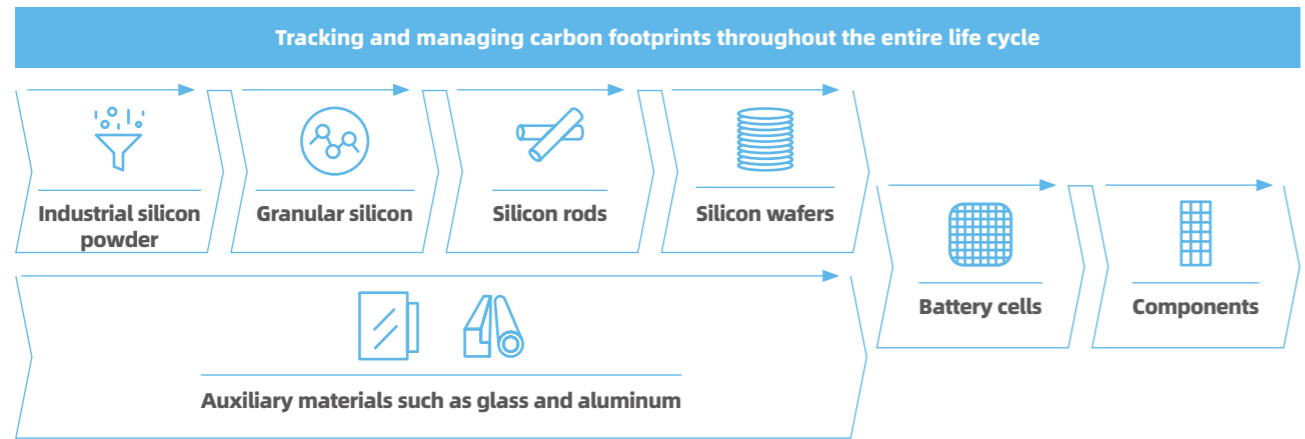
Digital tools not only improve the transparency of the industry chain but also enable a wide range of groups to share information and dividends of green development through innovative participation methods, promoting the reconstruction and transformation of industrial value. GCL creates diversified industry digital empowerment solutions through digital platforms such as blockchain.

GCL Carbon Chain
Digital Solution
for Full-Life-Cycle
Carbon Footprint
Management




GCL Carbon Chain is the first carbon footprint management platform in the photovoltaic industry that leverages low-carbon granular silicon, blockchain technology, and digital intelligence technology. The platform integrates the entire production process from industrial silicon powder to photovoltaic modules, establishing a carbon footprint chain from "source" to "end-user." Based on a blockchain-enabled digital infrastructure, GCL Carbon Chain can disclose and record the carbon value, performance, and qualifications of each product on the blockchain, ensuring that product information is traceable, verifiable, trustworthy, and tamper-proof. Additionally, the platform redefines industry standards for low-carbon factors, breaks down barriers in overseas trade markets, accelerates the industry's low-carbon transition, and provides innovative solutions for the photovoltaic industry's low-carbon transformation.

In the future, we will continue to explore innovative paths for carbon asset digitization, planning to build a three-tier architecture of "physical assets—digital twins—value certificates," ensuring that each carbon asset generates a unique mapping in the digital world. This approach anchors the green foundation of the physical industry while retaining the flexible attributes of digital assets, forming a carbon asset value network that bridges the gap between the physical and digital worlds.



New Energy RWA
Green Finance
Helping Reshape
Industry Value



RWA tokenizes tangible or intangible assets in the real world through blockchain technology, forming programmable, tradable, and divisible digital assets. GCL, in cooperation with Ant Group-Digital Technologies, launches China's first photovoltaic RWA project, tokenizing 82MW distributed photovoltaic power stations, integrating resources of over 3,000 photovoltaic power stations, dividing large-scale, low-liquidity photovoltaic power station assets into smaller parts, and activating data assets in the new energy industry and expanding financing channels.

Currently, the financing scale of this project exceeds RMB 200 million, enabling retail investors to participate in green finance, breaking the dependence of conventional asset securitization on subject credit reporting, and expanding financing channels for green projects. The project effectively empowers farmers to increase their income by integrating rural rooftop photovoltaic resources for them to obtain revenue shares. Based on on-chain data of new energy assets, all parties in the industry chain can achieve low-cost and high-efficiency collaboration with mutual trust, creating new value, forming a joint force to promote green finance development, and promoting high-quality and sustainable economic development.

Integrate photovoltaic power station resources Project financing scale over
3,000+ RMB **200** million



Energy Inclusion: Building a Community with a Shared Future for Mankind

Actively promoting global energy inclusion is a mission that GCL has always adhered to. Through domestic distributed inclusion, the Belt and Road energy infrastructure, and cross-regional resource collaboration, GCL builds a three-level system of "localized survival, regional win-win, global symbiosis", helping everyone enjoy affordable, reliable, and sustainable energy services, and achieving a leap from "energy security" to "a community with a shared future for mankind".

» Rural Revitalization: Becoming Energy Producers and Consumers

GCL adheres to the inclusion path in China and actively develops rural photovoltaic revitalization projects. Through the "self-generation for self-use and surplus power to the grid" model, the Group transforms remote areas from energy input areas to producers and consumers. This not only solves the problem of electricity accessibility but also activates the rural economy through the revenue distribution mechanism, providing a solution in the energy field for China's goal of common prosperity through "self-sustaining" transformation. In 2024, GCL's Shandong village-wide converging project and Shanxi centralized converging project, which developed projects using the roof and courtyard resources of villagers' self-built houses and public buildings for centralized converging, were awarded the "Typical Case of Green Energy Empowering Rural Revitalization".

At the same time, photovoltaic poverty alleviation power stations were built in Qianqiang Banner, and funds were donated to rural revitalization, improving the living conditions of local residents and helping with rural infrastructure construction and social development.



Photovoltaic Assistance Project in Qianqi Banner, Right Banner, Inner Mongolia

» The "Belt and Road Initiative": Sharing Green Energy

GCL Group helps "Belt and Road" countries overcome the high-cost period of power grid construction and promote equality in new energy technologies. GCL cooperates with Ethiopia to develop natural gas projects, promoting local infrastructure construction and achieving clean energy self-sufficiency. The Group invests in the first Sino-Serbian renewable energy investment project in Serbia, creating a model of green energy cooperation under the "Belt and Road Initiative". GCL actively trains over 5,000 photovoltaic technical talents for Belt and Road countries, contributing to the cultivation of global new energy talents. In addition, GCL attaches great importance to local responsibility and carries out diversified localization activities such as the "Lighting Project" plan and friendly football matches, effectively improving local people's livelihood and actively promoting cultural integration, community integration and common development.



A Natural Gas Project in Ethiopia



A Football Friendly Match in Ethiopia

Special Topic 2

Symbiosis of All Things, Guardian of Natural Ecosystems

SDGs:



A complete and stable natural ecosystem not only supports the development of human society but also serves as a strategic foundation for achieving symbiosis between business and nature. While developing its operations, GCL always regards nature and ecological protection as long-term investments, incorporates nature-related factors into its corporate strategy and risk management processes, and actively explores collaborative solutions at the value chain level, committed to achieving mutualism between clean energy development and ecosystem protection.

GCL Group has officially registered as a Task Force on Nature-related Financial Disclosures (TNFD) Adopter and actively adopted the LEAP analysis method proposed by the TNFD disclosure framework. Through four important steps: Locate, Evaluate, Assess, and Prepare, the Group identifies and assesses the main impacts and dependencies on nature, risks and opportunities along the Group's value chain, explores feasible countermeasures, and strives to continuously enhance the ecological resilience and adaptability of its business system.

Identifying Key Areas

Based on GCL Group's industrial and operational maps, we sort out important links and asset locations in the Group's value chain. Combining public data and tools such as WWF's biodiversity risk filter¹ and IBAT², we screen ecologically sensitive areas such as important ecological regions and biological communities, and finally form 15 priority ecological assessment locations, including manufacturing bases, operation and maintenance power stations, and major operation support centers.

On this basis, we use the BIA³ to identify the status and distribution of biodiversity and important ecological protection areas within the 10km, 20km, and 50km radius of priority locations. No operational locations within ecological red line areas are found in this identification.

Number of Identified IUCN Endangered Species (species) ⁴	Identification Range	Number of Identified Nature Reserves (sites)
2	0-10 km	4
5	0-20 km	9
16	0-50 km	31

¹ World Wide Fund for Nature (WWF) Biodiversity Risk Filter.

² Integrated Biodiversity Assessment Tool (IBAT).

³ Biodiversity Impact Assessment Tool (BIA).

⁴ IUCN Endangered Species: Species listed in the IUCN Red List, which is one of the world's most authoritative systems for assessing the conservation status of species.

Assessing Ecological Dependence

Enterprise production and operations not only rely on stable ecosystem services but also affect the natural environment. Based on the selected priority locations, we further map the value chain, using the ENCORE tool⁵ to assess the impacts and dependencies of important value chain links, and sort out potential nature-related risks and opportunities in the industrial chain, striving to enhance ecological value while the Group develops.

» Potential Impacts and Dependencies

Low High
Low High

Value Chain Link	Infra-structure Construction	Raw Material Supply	Manufacturing Link				Storage and Transportation	Other Supportive Operational Activities
			Basic Precious Metals and Other Nonferrous Metals Manufacturing	Battery and Energy Storage System Manufacturing	Power Generation	Power Transmission		
Potential Impacts	Noise and Light Pollution	●	●	●	●	●	●	●
	Emissions of Toxic Soil and Water Pollutants	●	●	●	●	●	●	●
	Generation of Solid Waste	●	●	●	●	●	●	●
	Emissions of Greenhouse Gases	●	●	●	●	●	●	●
	Water Resource Use	●	●	●	●	●	●	●
	Extraction of Other Non-Biological Resources		●					●
Potential Dependencies	Soil Maintenance	●	●	●	●	●	●	●
	Flood Control	●	●	●	●	●	●	●
	Global Climate Regulation	●	●	●	●	●	●	●
	Water Supply	●	●	●	●	●	●	●
	Precipitation Pattern Regulation	●	●	●	●	●	●	●
Solid Waste Remediation	●	●	●	●	●	●	●	

⁵ ENCORE tool: A visual analysis platform based on industry and natural factor correlations, which establishes connections between the dependencies and impacts between different industrial activities and natural assets.

» Nature-related Risks

Risk Category		Risk Description
Physical Risks	Acute Risks	<ul style="list-style-type: none"> Extreme weather caused by climate change (such as heavy rainfall, floods) may lead to emission accidents, increasing the risk of water/soil pollution. Damage or failure of emission control facilities may affect the environmental compliance of the base, cause production interruptions, and increase the cost of stability maintenance and restoration.
	Chronic Risks	<ul style="list-style-type: none"> Climate change may lead to changes in wind speed patterns, increased frequency of extreme high temperatures, and enhanced volatility of light resources, affecting the stability and predictability of wind and photovoltaic power generation efficiency. It may cause power generation to fall short of expectations, affect revenue models and power delivery capabilities, and increase the complexity of power station site selection and operation and maintenance technologies, affecting project evaluation. Land degradation and reduced soil function weaken the land carrying capacity of the base location, such as land subsidence or reduced drainage capacity, increasing the complexity of land use management and the cost of stability maintenance and restoration of the enterprise's power generation plants.

Risk Category		Risk Description
Transition Risks	Policy Risks	<ul style="list-style-type: none"> Ecological red lines and environmental protection regulations on land, water resource use, and pollution emissions are increasingly stringent. Governments may impose higher standards on land use and water pollution control. Enterprises need to increase compliance costs to meet local regulatory standards.
	Technical Risks	<ul style="list-style-type: none"> To cope with market pressure, enterprises need to develop technologies such as low-pollution emissions and green production to reduce environmental impact and dependence on natural supply and regulatory services. Enterprises need to increase investment in green technology research and development, which may lead to financial fluctuations.
	Market Risks	<ul style="list-style-type: none"> Downstream customers, green financiers, etc., are increasingly concerned about the environmental performance of products and green production processes. If there are pollution records or land use disputes, it may affect their green procurement or certification qualifications. If there are related disputes, they may be excluded from downstream green procurement standards, resulting in market loss.
	Reputation Risks	<ul style="list-style-type: none"> As stakeholders gradually pay attention to enterprises' initiatives and disputes regarding nature and ecological impacts, relevant compliance issues may trigger public opinion and legal proceedings. It may face the risk of brand reputation damage and legal proceedings, affecting overseas expansion and capital market image.


» Nature-related Opportunities

Opportunity Category		Opportunity Description
Policy Opportunities	<ul style="list-style-type: none"> The Group promotes projects such as agriculture-photovoltaics complementarity, water surface photovoltaics, and ecological restoration power stations to realize multi-functional utilization of natural resources such as land and water bodies. While improving power generation revenue per unit area, the Group enhances the value of ecosystem services, strengthens the economy of projects, and expands green application scenarios and policy support space. 	
Reputation Enhancement	<ul style="list-style-type: none"> Carrying out biodiversity and ecological protection activities with multi-dimensional stakeholders helps enhance the Group's brand influence globally, meets stakeholders' expectations for the Group's compliance and positive natural impacts, thereby driving international green financing opportunities and advantages in overseas project implementation. 	

Caring for natural ecosystem

The Science Based Targets Network (SBTN) has proposed a framework of "Avoid-Reduce-Restore-Transform", providing a theoretical basis for enterprises to address nature-related issues from multiple dimensions. As a TNFD Adopter, GCL actively avoids interference from enterprise operations and production in ecologically sensitive areas. The Group reduces dependence on natural resources such as land and water, and promotes value chain partners to collaboratively build a new nature-inclusive development system by optimizing site selection and technical paths, improving resource utilization efficiency, and actively participating in industry initiative cooperation.

» Avoiding Ecological Impacts

Case 
Reducing Potential Environmental Impacts of Projects

GCL actively integrates the concept of ecological protection into all processes from design to construction to ensure that projects do not involve environmentally sensitive areas and promote the coordinated coexistence of regional natural ecosystems and enterprise operations. In the Zhejiang Jiande Pumped Storage Power Station Project, GCL entrusts professional institutions to carry out engineering environmental impact assessment work and conducts a comprehensive investigation of ecological characteristics, such as the quantity of key protected species. The Group provides wildlife protection education to construction personnel to enhance their environmental awareness. In the Jiangsu Rudong LNG Receiving Station Project, GCL takes measures such as installing filter screens and trash racks at water intakes, accurately controlling seawater chlorination devices, strictly monitoring the temperature difference of discharged water, and deepening the drainage outlet to minimize the impact of the project on marine organisms. The Group conducts real-time monitoring of the marine environment, formulates emergency monitoring plans, and builds a 400-cubic-meter accident pool to prevent environmental risks, ensuring that the project minimizes interference with the surrounding marine ecosystem during operation.



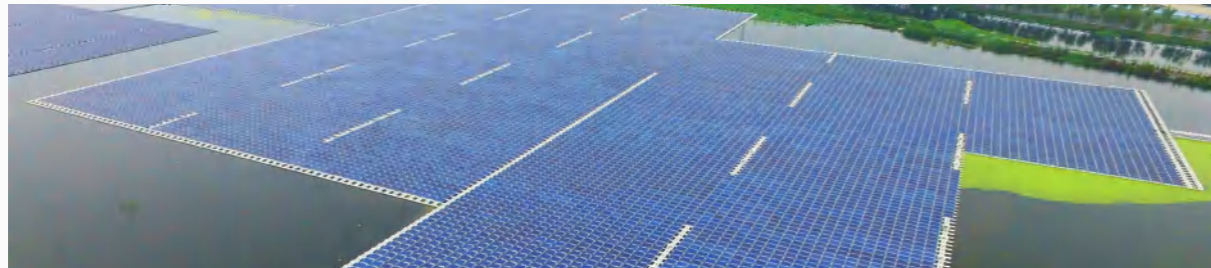
Case 
Building GCL Zero-Carbon R&D Center

As the Group's green office and R&D headquarters, GCL Energy Center actively reduces the dependence of enterprise operations on traditional energy and natural ecosystems and reduces ecological impacts through 100% green electricity consumption and integrated design of green buildings. By retaining the natural ponds on the site, earth excavation and landfilling are reduced, and interference with the land structure and ecological environment is minimized. On this basis, the water body is endowed with multiple functions, including rainwater regulation and storage, water surface photovoltaic testing, etc., to realize efficient utilization and recycling of natural resources. At present, the building energy-saving rate of the park reaches 65.23%, and the green space rate is 40%, demonstrating the practical path of integrating ecological environment protection and green technology.

» Reducing Resource Dependence

Case 
 "Fishery-Photovoltaics
 Complementarity" in Coal Mining
 Subsidence Areas

In the subsidence area of Longdong Coal Mine in Peixian County, GCL makes full use of the fishpond water surface formed by subsidence to build a floating photovoltaic power station, realizing a composite ecological model of "power generation on the upper layer and aquaculture on the lower layer" with environmental protection buoys and high support systems. This project can effectively reduce land occupation, improve the coordinated utilization efficiency of water ecosystem services, and promote ecological integration and efficient utilization of natural resources in the form of "fishery-photovoltaics complementarity".



Case 
 "Agriculture-Photovoltaics
 Complementarity" in Cultivated
 Areas

GCL carries out agriculture-photovoltaics complementarity in accordance with local conditions in Anhui, Shandong, Hunan, and other places. Setting up photovoltaic modules above the original cultivated areas can not only achieve efficient output of clean energy but also, to a certain extent, regulate soil temperature and humidity, reduce water evaporation, and help stabilize and increase crop yields. This model not only improves the three-dimensional utilization efficiency of land but also reduces dependence on new cultivated land resources, exploring more symbiotic paths for regional agriculture and new energy development.



» Strengthening Ecological Restoration

Case 
 Carrying out Ecological
 Compensation Activities in the
 Yangtze River Waters

In 2024, Taicang Port GCL Power Generation Co., Ltd. actively carried out ecological compensation activities in the waters of the wharf reconstruction project. Through stock enhancement and release, the project releases a total of 35,000 Chinese sucker fish (*Myxocyprinus asiaticus*), 31,000 longsnout catfish (*Leiocassis longirostris*), and 85,000 topmouth culter (*Culter alburnus*), helping to restore biodiversity in the Yangtze River waters. The Group also entrusts professional institutions to carry out evaluation of the effect of stock enhancement, protection publicity, and management, effectively reducing the ecological impact of the project on the aquatic germplasm resources reserve and fulfilling the commitment to ecological restoration.

Case 
 Carrying out Ecological
 Cooperation with EcoTree

To realize the biodiversity conservation strategy, GCL SI is committed to building a network of relationships with companies and institutions that share similar biodiversity goals, and actively conducts biodiversity exchanges and sharing with relevant organizations at home and abroad. In 2024, GCL SI signed a strategic cooperation agreement with the international environmental organization EcoTree to jointly carry out ecological planning, research and evaluation, and planted more than 2,000 saplings in Germany, actively carrying out ecological restoration actions.



» Promoting Industry Transformation

Case 
 Leading Industry Ecological
 Cooperation

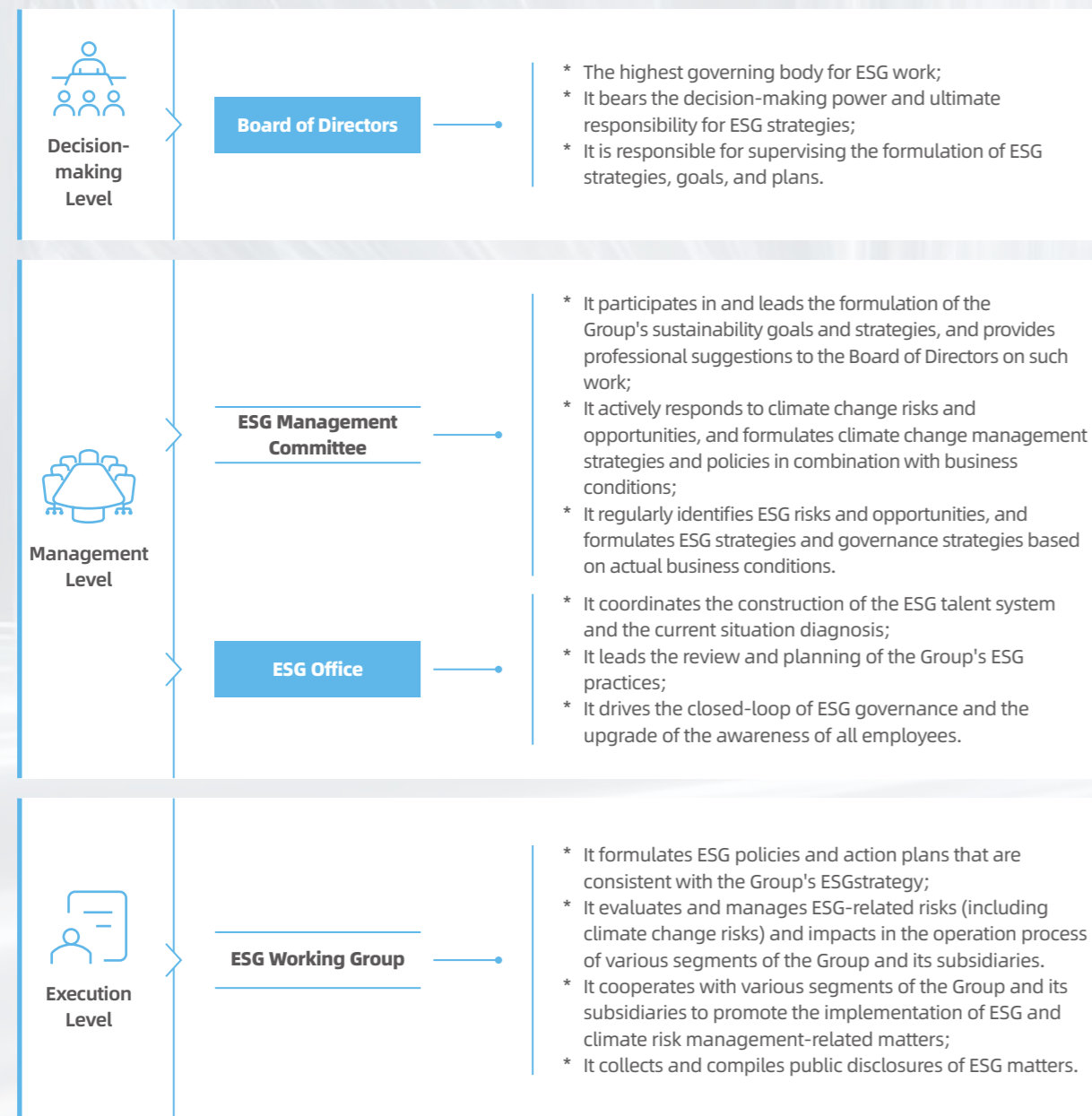
GCL actively carries out industry cooperation and responds to international initiatives. In 2024, GCL, together with multiple partners, jointly launched the "ESG Sustainable Action Initiative: Launching Carbon Removal Action", advocating nature-based solutions centered on "assessment-commitment-transformation-disclosure" to promote more value chain partners to participate in biodiversity conservation, carbon removal, and other actions.



ESG Management

ESG Management Structure

GCL Group establishes a three-tier sustainability governance structure of "decision-making, management, and execution". Through hierarchical authorization, clear responsibilities, and collaborative operations, the Group realizes closed-loop management from strategic top-level design to implementation. In 2024, the Group continued to refine the management process. An ESG office was set up under the Strategic Business Center to coordinate each business segment in conducting a review of the sustainability status.

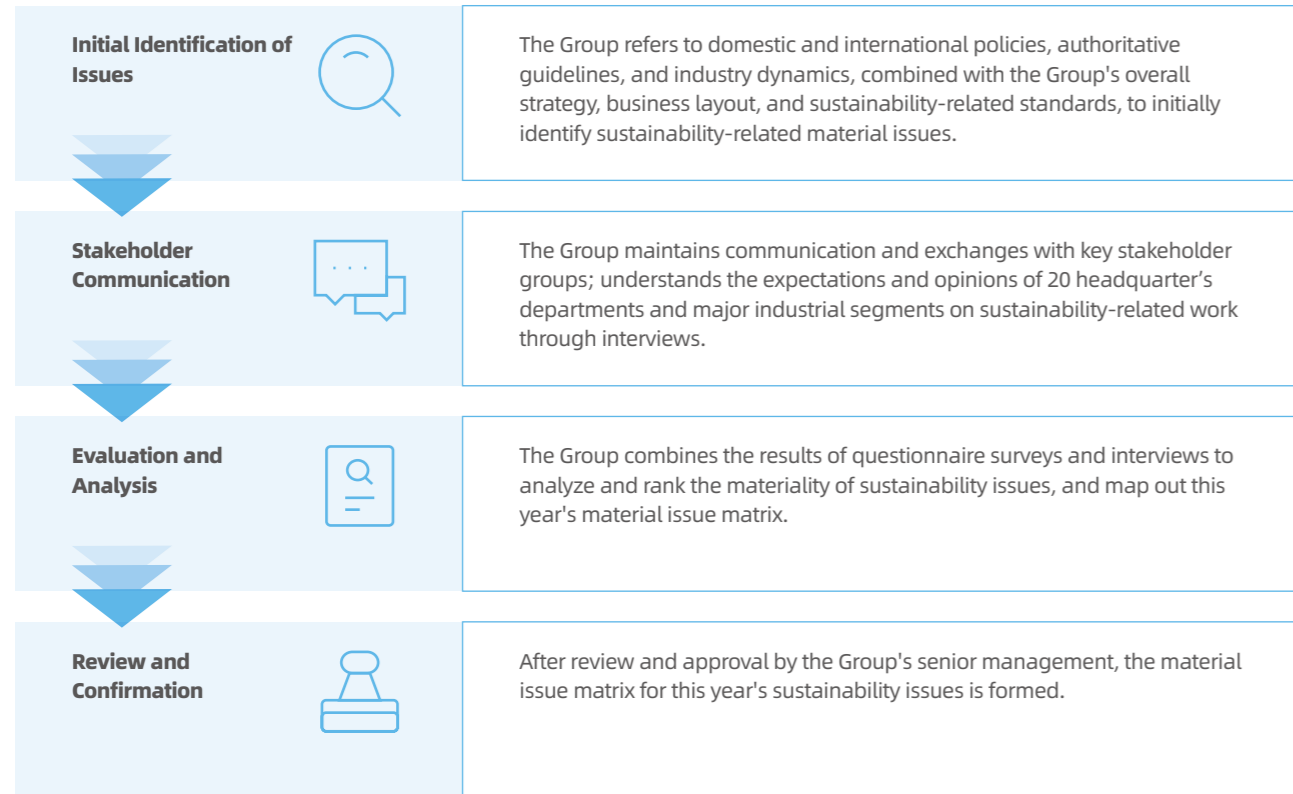


ESG Management Practices

<p>ESG Investment</p> <p>GCL Group actively expands responsible investment. Restone Capital, an corporate venture capital of the Group, officially became a signatory to the PRI (Principles for Responsible Investment) in 2022. ESG factors have been fully integrated into the entire process of fundraising, investment, management, and exit, forming an ESG investment benchmark in line with international standards. For large-scale investment projects, the Group ensures that the invested projects simultaneously achieve social benefits such as energy conservation and emission reduction and employment promotion in the process of technological upgrading and capacity expansion through regular ESG post-investment tracking.</p>	<p>ESG Due Diligence</p> <p>GCL Group guides its subsidiaries to implement supplier ESG due diligence, providing multi-dimensional empowerment and promoting sustainable collaboration in the industrial chain. The Group systematically conducts human rights due diligence and evaluation, gradually establishes risk identification and management processes covering its own operations and supply chain, and focuses on investigating major human rights risks such as child labor, forced labor, and discrimination. For key issues such as environmental compliance, carbon emission management, product quality, employee rights and interests, and business ethics, subsidiaries establish a sound due diligence mechanism to systematically identify, evaluate, and respond to potential negative impacts and risks related to sustainability, and continuously optimize the ESG management system and risk response measures.</p>
<p>ESG Risk Management</p> <p>GCL Group continues to strengthen ESG risk control, incorporating it into key areas of the overall risk governance system, and focuses on ESG compliance risks in terms of international treaties, national regulatory policies, and the Group's independent environmental commitments. To proactively respond to capital market dynamics, the Group establishes an ESG capital market monitoring mechanism, tracks ESG ratings of major domestic and foreign capital markets on a quarterly basis, and releases benchmarking analysis reports to provide early risk warning and strengthen the prediction and management of capital market risks.</p>	<p>ESG Capacity Building</p> <p>GCL Group continues to strengthen internal ESG capacity building and successfully held the first "ESG Mobilization Conference and Learning Day" event. The event was attended and lectured by the Chairman, core management of the Group, and well-known external ESG experts, with more than 700 participants from 8 core business segments. It aims to publicize the materiality and practical paths of ESG strategy to all employees, effectively improving the Group's overall awareness and action consensus on ESG work. In 2024, the Group carried out a total of 30,000 hours of ESG training.</p>

Materiality Assessment




GCL Group actively responds to the expectations of stakeholders. By integrating domestic and international policies, tracking guidelines from authoritative institutions, analyzing trends in industry development, and conducting in-depth analysis and evaluation of material issues, the Group develops this year's material issue matrix, aiming to provide scientific and accurate decision-making support for the Group's sustainability management. In 2024, the Group identified a total of 23 material issues.








Environmental	Social	Governance
Addressing Climate Change	Technological Innovation and R&D	Information Security and Privacy Protection
Environmental Management System	Human Capital Development	Industry Cooperation and Development
Energy Use and Management	Product Safety and Service Quality	Rural Revitalization and Social Contribution
Green Products and Services	Occupational Health and Safety	Digital Transformation
Emission and Waste Management	Sustainable Supply Chain Management	Just Transition of Energy
Water Resource Management		
Biodiversity Conservation		
Product Lifecycle Management		
		Corporate Governance
		ESG Management
		Compliance and Risk Management
		Anti-corruption and Business Ethics
		Intellectual Property Protection

Stakeholder Communication

GCL Group takes in-depth insights as the forerunner. By continuously optimizing communication mechanisms, the Group establishes two-way and efficient communication channels and accurately identifies the core demands and long-term expectations of various stakeholders. The Group actively listens to and respects the voices of all parties, promptly responds to their concerns, and strives to build a mutually beneficial and win-win sustainable ecology.

Stakeholders	Key Concerns of Stakeholders	Communication Channels
Government and regulatory authorities 	<ul style="list-style-type: none"> • Lawful tax payment • Compliant operation • Environmental compliance 	<ul style="list-style-type: none"> • Driving regional industrial development • Creating employment • Supervision and inspection • Work reports • Policy recommendations
Shareholders and investors 	<ul style="list-style-type: none"> • Corporate Governance • Investor relations management • Climate risk management 	<ul style="list-style-type: none"> • R&D Innovation • Intellectual property management • Investor meetings • On-site research activities
Employees 	<ul style="list-style-type: none"> • Equal employment • Remuneration and benefits • Employee rights and interests • Employee care 	<ul style="list-style-type: none"> • Employee development and training • Occupational Health and Safety • Employees' congress • Interviews with new employees • Employee symposiums • Online mailboxes • Employee satisfaction surveys

Stakeholders	Key Concerns of Stakeholders	Communication Channels
Suppliers 	<ul style="list-style-type: none"> • Supply chain management • Business ethics 	<ul style="list-style-type: none"> • Responsible procurement • Mutual benefit and win-win • Supplier communication • Supplier evaluation and assessment • Transparent procurement
Partners 	<ul style="list-style-type: none"> • Promoting industry development • R&D Innovation 	<ul style="list-style-type: none"> • Intellectual property management • Business ethics • Strategic cooperation • On-site research • Industry exchanges
Customers and consumers 	<ul style="list-style-type: none"> • Product quality and safety • Customer service • R&D Innovation 	<ul style="list-style-type: none"> • Responsible marketing • Information security • On-site research • Satisfaction surveys • Customer complaint management • Questionnaire surveys
Community and public 	<ul style="list-style-type: none"> • Community contribution and participation • Eco-friendly 	<ul style="list-style-type: none"> • Biodiversity Conservation • Community activity participation • Public welfare projects • Volunteer services
Media 	<ul style="list-style-type: none"> • Environmental protection • Rights protection 	<ul style="list-style-type: none"> • Information transparency • News reports • Management interviews • On-site research • Industry exhibitions



Green Future

GCL Group stands at the forefront of the new energy field, driving green transformation with ground-breaking technological innovations, practicing green action paths in production and operation, and building an efficient industrial chain ecosystem through full-chain low-carbon practices. Its persistent pursuit of environmental protection and sustainability not only reshapes the industry development pattern but also outlines a grand blueprint for the Earth towards a clean and low-carbon future.

SDGs



Full-chain Low-carbon Management

GCL Group focuses on the "carbon peaking and carbon neutrality" goals, systematically promoting the green development of products throughout their life cycles, and injecting core momentum into carbon reduction and emission reduction across the entire industrial chain.

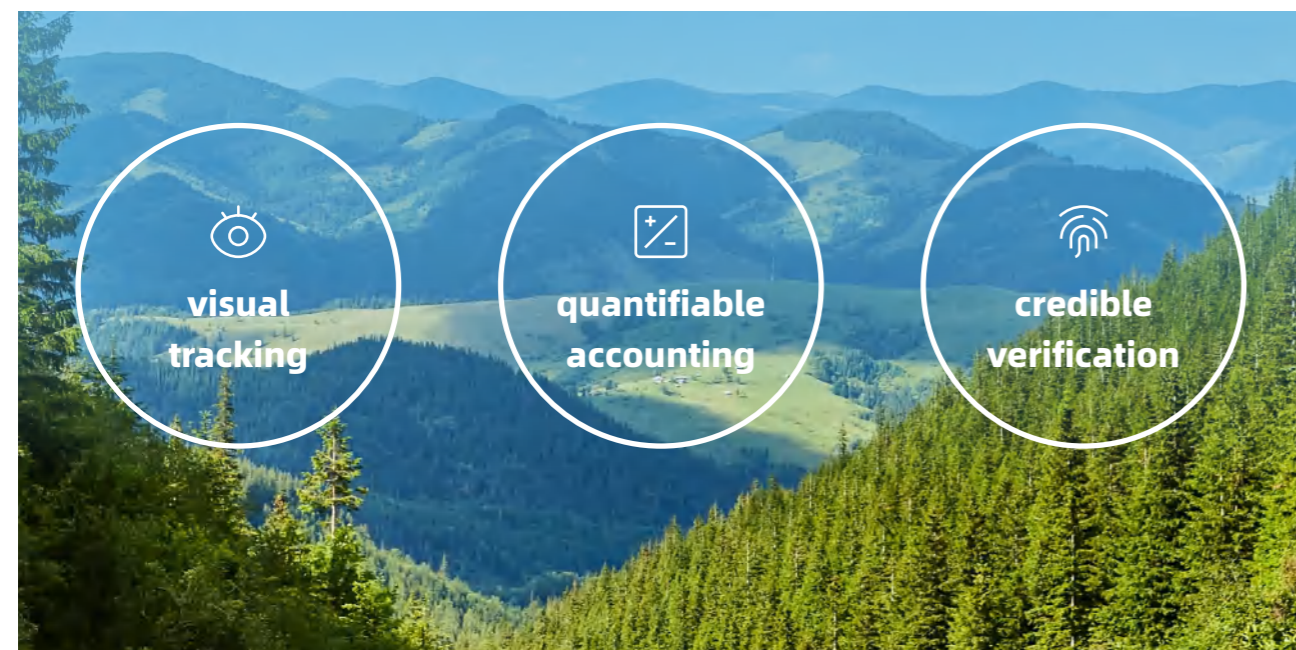
The Group takes FBR granular silicon and perovskite photovoltaic technologies as breakthrough points to reduce carbon emissions in the industrial chain from the source. FBR granular silicon technology leads the world in terms of scale, cost, and carbon footprint, setting a new record for the lowest carbon footprint in silicon materials both domestically and internationally, and enabling significant carbon reduction across the entire supply chain. As of the end of the reporting period, the effective production capacity of FBR granular silicon reached 480,000 tons. Compared to rod-shaped silicon, the annual production capacity of FBR granular silicon corresponds to an energy savings of approximately 19.5 billion kilowatt-hours, equivalent to reducing carbon dioxide emissions by approximately 10.48 million tons. GCL Perovskite's products offer significant environmental benefits during the manufacturing stage, as production temperatures require only 200° C, reducing temperature control requirements by nearly 800° C compared to traditional crystalline silicon products, thereby significantly lowering energy consumption and carbon emissions during manufacturing. During the application stage, their photovoltaic conversion efficiency is significantly higher than that of traditional crystalline silicon products, effectively reducing land development intensity and ecological disturbance.

FBR granular silicon

Annual electricity savings Corresponding reduction in carbon dioxide emissions

19.5 billion kilowatt hours **10.48** million tons

Relying on blockchain technology, GCL builds the industry's first full-life-cycle carbon footprint tracking and management platform, GCL Carbon Chain. Through three core functions of visual tracking, quantifiable accounting, and credible verification, it provides digital solutions for the green transformation of the industrial chain.



Design and Material Selection

- A polysilicon thinning design to maintain the high photoelectric conversion efficiency of products and reduce resource consumption and pollutant emissions
- Modular design and prefabricated equipment components in factories to reduce construction site consumables
- Research, development and breakthrough of FBR granular silicon and perovskite photovoltaic technologies to continuously reduce carbon emissions in the industrial chain

Material Procurement

- Accurate calculation of material usage to avoid over-purchasing and reduce resource waste from the source
- Giving priority to cooperating with suppliers that have obtained carbon footprint certification or have low product carbon footprints

Production and Manufacturing

- Attaching importance to green and lean production, to improve energy and resource utilization efficiency in the product production process through technological upgrading and transformation
- Promoting low-toxicity alternatives, to reduce the use of toxic and harmful substances and lower volatile organic compound emissions by introducing water-based flux

Packaging Selection

- Optimized cladding structure to reduce wood pulp raw material usage by about 30% without reducing the bursting index
- Centralized repair and reuse of used wooden pallets to extend their service life
- Promoting the recycling of packaging containers and materials (such as cartons, cleaning agent-based intermediate bulk containers, flexible freight bags, etc.)

Warehousing and Logistics

- Continuous improvement of resource utilization efficiency in logistics links such as containerization, storage, and transportation by rationally planning factory layout, adopting public railway intermodal transportation, and optimizing transportation routes, to accelerate the construction of a digital low-carbon logistics industrial chain
- Deploying a satellite positioning system for official vehicles relying on the "GCLINKAGE" comprehensive energy management platform to realize full-process digital management and control of vehicles and improve vehicle usage efficiency
- Orderly promoting the replacement of official vehicles from fuel vehicles to electric vehicles, reducing the frequency of fuel vehicle use, and lowering carbon emissions in the transportation link

Operation and Maintenance

- A smart operation and maintenance system for photovoltaic power stations with the help of drone inspections, intelligent monitoring, and robot cleaning technologies. Through data-driven dynamic management of cleaning and tracking schemes, combined with precise water-saving cleaning operations, the Group improves power generation efficiency and reduces water consumption

Recycling

- Collecting and recycling decommissioned photovoltaic modules and product packaging materials, promoting a circular economy, and improving resource recycling efficiency
- Some subsidiaries have joined the photovoltaic recycling organization (PV CYCLE) to promote the effective recycling of scrapped module products together with external partners



Green Action Path

Environmental Management System

GCL Group takes multiple measures in the construction of environmental management systems, efficient utilization of energy and resources, management of emissions and waste, biodiversity conservation, and publicizing and implementation of green culture, continuously reducing the negative impact of production and operations on the environment, and building a practical and effective green development path.

GCL Group always adheres to the concept of "environment is the priority" and strictly abides by laws and regulations related to environmental protection, continuously improving the established environmental management system. The Group formulates ruling system documents such as the *GCL Group EHS Management Manual*, the *Management System of Safety, Health and Environment Incidents*, the *Safety, Health and Environment Emergency Plan* and the *Safety, Health and Environment Assessment Measures* in accordance with laws and regulations such as the *Environmental Protection Law of the People's Republic of China* and the *Circular Economy Promotion Law of the People's Republic of China*, clarifying environmental protection responsibilities and environmental management specifications at all levels.

GCL Group builds and improves a three-level environmental management organizational system of "group-sector-enterprise". At the group level, the Group sets up an EHS Committee and an EHS Committee Office to coordinate the EHS management work of the entire group, while each sector and enterprise is responsible for the specific implementation of relevant work.

Environmental Management Organizational System

Group Headquarters



- Based on national policies, provide macro-guidance on the safety, health and environmental work of business sectors and subordinate subsidiaries.
- Formulate and issue relevant regulatory documents concerning environmental protection and environmental protection targets.
- Carry out supervision, dispatching and inspection work.
- Verify and handle major environmental protection issues.

Industrial Sectors



- Implement and promote the work deployed by the Group.
- Implement environmental protection plans and schemes.
- Establish and improve environmental management systems.
- Promote subordinate subsidiaries to carry out relevant work.

Front-line Companies



- Strengthen the management of environmental protection facilities and equipment.
- Implement various environmental monitoring requirements.
- Formulate emergency plans for environmental pollution and ecological damage.
- Organize and carry out relevant training and drills.

2024

Environmental management investment

RMB 1,272,769,800

Major environmental pollution incidents

0

The Group regularly conducts internal and external environmental management system audits and establishes a closed-loop management mechanism. The Group's subordinate enterprises conduct internal audits at least once a year and actively promote external audits. By the end of the reporting period, 22 subordinate enterprises had obtained ISO 14001 environmental management system certification.

GCL Group actively carries out risk assessments of potential environmental incidents and formulates corresponding preventive measures. During the reporting period, the Group did not have any major environmental pollution incidents.

To fully stimulate employees' enthusiasm for environmental protection and tap the potential of environmental management, each company has established an environmental protection incentive mechanism to commend or provide material rewards to outstanding collectives and individuals who have made remarkable contributions to environmental protection. Environmental protection management departments at all levels of the Group push messages on environmental protection policies and regulations, environmental protection knowledge and typical cases through channels such as webpages, WeChat Work and monthly reports to enhance the environmental protection awareness of personnel at all levels.



Drill of Ammonia Leak in Denitration System of Xuzhou Recycling



Drill of Emergency Response Plan for Environmental Pollution Incidents of Zhongshan Gas Turbine

Energy Management

GCL Group strictly complies with the requirements of laws and regulations such as the *Energy Conservation Law of the People's Republic of China* and the *Cleaner Production Promotion Law of the People's Republic of China*. The Group comprehensively promotes all industrial sectors and subordinate enterprises to establish and improve internal rules and regulations, including the Energy Management Manual and the Energy Management System Procedures, and continuously deepens the construction of energy management systems. The Group's subordinate enterprises actively promote energy management system certification. By the end of the reporting period, 8 subordinate enterprises have obtained ISO 50001 energy management system certification.

In 2024, subsidiaries of GCL Group effectively improved energy utilization efficiency by implementing measures such as process innovation, operation optimization, and technological upgrading. All subsidiaries continue to expand the use of renewable energy and make every effort to promote the green transformation of the energy structure. In 2024, the proportion of clean energy usage in GCL Group reached 48.61%.

Main Measures for Energy Management

Strengthening energy management

- **Improving the institutional system:** improving energy management responsibility, assessment and monitoring systems, building an energy management system and conducting management system evaluation;
- **Whole-process energy-saving control:** strengthening energy target and indicator management, embedding energy-saving supervision into the whole conversion process of "fuel acceptance-chemical energy-thermal energy-mechanical energy-electrical energy" to reduce energy conversion loss;
- **Digital and intelligent empowerment upgrading:** promoting intelligent operation and maintenance and big data analysis tools to accurately capture energy-consuming abnormal equipment and improve energy consumption supervision efficiency.

Energy-saving technical transformation and equipment upgrading

- **Equipment energy efficiency improvement:** reforming air conditioners, machine room equipment or systems, and improving equipment energy efficiency and reducing energy consumption, such as electricity/heat during operation by upgrading equipment configuration (such as replacing high-efficiency motors and frequency conversion transformation);
- **Energy recycling:** unblocking energy circulation paths through energy-saving transformation (such as recycling waste heat for heating and recycling cooling water) to reduce energy waste and improve overall energy utilization efficiency.

Optimizing energy mix

- **Independent green electricity development:** using idle spaces such as factory rooftops to build distributed photovoltaics, and adopting the "self-generation for self-use and surplus power to the grid" model to directly increase the proportion of clean power supply;
- **Purchasing external green energy:** indirectly introducing external clean energy by purchasing green electricity and green certificates to expand the sources of green energy for enterprises.

Case

The Group Develops Low-Temperature Deposited Amorphous Silicon Technology to Reduce Energy Consumption in the Production Process

GCL SI actively optimizes the production process to reduce carbon emissions during product production. In 2024, the Group adopted low-temperature deposited amorphous silicon technology in the battery production process, successfully reducing the deposition temperature from the traditional 610° C to 550° C. Test results show that while the photoelectric conversion efficiency of the product remains at a high level, energy consumption in the production process is reduced by 30% and carbon emissions are reduced by 25%.

Case

All Manufacturing Bases Accelerate the Construction of Photovoltaic Power Stations to Promote Clean Transformation of Electricity

In 2024, GCL Group accelerated the construction of photovoltaic power stations in all manufacturing bases, adopting the "self-generation for self-use and surplus power to the grid" model to help the clean transformation of electricity. Hefei GCL of GCL SI completed the construction of a 17.6 MW rooftop photovoltaic power station in September 2024, with an annual power generation of about 17.61 million kWh. Funing GCL is preparing to build a 14.5 MW distributed photovoltaic power station, with an estimated annual power generation of 16 million kWh. Wuhu GCL has built a 15.73 MW photovoltaic power station, with an annual power generation of about 16 million kWh, and is preparing to build a 2.3 MW Phase III project. All the power generated after completion will be used for self-consumption in the factory area. In addition, Rudong Thermal Power of GCL ET invests in a 1.4 MW distributed photovoltaic project, which is expected to generate 1.4 million kWh annually after commissioning.



Wuhu GCL Photovoltaic Power Station



GCL ET Distributed Photovoltaic Power Generation Project

Case
Intelligent Operation and Maintenance of Photovoltaic Power Stations Builds a "Digital Defense Line" for Energy Management

GCL New Energy deploys high-precision optical power prediction devices and a unified monitoring platform to realize remote intelligent operation and maintenance of power stations. The prediction device collects data in real time and outputs accurate predictions combined with algorithm models; data is accessed to the monitoring platform to realize real-time monitoring of power station operation and job scheduling; the mobile APP supports managers to view and direct remotely. After implementation, the power generation efficiency is effectively improved, the accuracy of fault early warning reaches 90%, the fault handling time is significantly shortened, and business continuity and management efficiency are significantly improved.



Interface of "GCLINKAGE" Integrated Energy Management Platform

Energy Consumption

Indicator	Unit	2024
Natural gas	Cubic meter	2,234,778,590.27
Liquefied petroleum gas	Ton	7.56
Gasoline	Ton	501.10
Diesel fuel	Ton	2,819.50
Coal	Ton	2,669,816.48
Purchased heat	GJ	14,791,351.00
Direct energy consumption	Ton of standard coal equivalent	4,884,164.01
Direct energy consumption intensity	Ton of standard coal equivalent/RMB 10,000 revenue	1.16
Indirect energy consumption	Ton of standard coal equivalent	1,942,240.70
Indirect energy consumption intensity	Ton of standard coal equivalent/RMB 10,000 revenue	0.46
Comprehensive energy consumption	Ton of standard coal equivalent	6,826,404.70
Comprehensive energy consumption intensity	Ton of standard coal equivalent/RMB 10,000 revenue	1.62

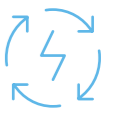
2024

Purchased electricity

8,881,197.67 MWh

Renewable energy electricity consumption

2,815,790.12 MWh



Proportion of renewable energy electricity consumption (of purchased electricity)

31.71%

Proportion of clean energy consumption¹

48.61%



Resource Management

GCL Group adheres to the concept of resource conservation and recycling, and deeply integrates efficient resource management into the entire process of production and operation. With system construction and technological innovation as the dual engines, the Group continuously improves the utilization efficiency of core resources such as water resources and materials.

Water Resources Management

GCL Group deeply recognizes the key significance of water resources to global sustainability and the robust operation of enterprises. The Group strictly abides by relevant laws and regulations and continuously promotes the construction of water resources management systems. The Group and its subsidiaries actively carry out water resource risk assessment and management work, and take multiple measures to improve water resource utilization efficiency.



¹ Proportion of clean energy use = (Clean energy consumption / Total energy consumption) × 100%

Water Risk Management

GCL Group refers to the Water Risk Filter of the World Wildlife Fund (WWF), and conducts a systematic assessment of water resource risks at 20 domestic operation locations¹ around 12 risk indicators such as the importance of biodiversity, the status of ecosystem services, water shortage, flood, and water quality from three dimensions of physical risk, regulatory risk, and reputational risk.

Risk Type	Risk Description
Basin Physical Risk	<p>Risks to water quantity, water quality, and aquatic ecosystems caused by human activities and natural factors, including four major risk categories: water scarcity risk, flood risk, water quality risk, and dependence on ecosystems.</p> <p>Response Measures</p> <ul style="list-style-type: none"> Strengthen water resource management and improve water resource utilization efficiency through water-saving technological transformation and reclaimed water reuse; Pay attention to extreme weather such as rainstorms and floods, and improve relevant emergency plans; Attach importance to the protection of biological habitats and local water and soil during project construction and operation.
Basin Regulatory Risk	<p>Risks caused by government supervision of water resources, such as water use rights, wastewater discharge pricing, water quality standards, etc., including four major risk categories: policy environment risk, institutional and governance risk, management tool risk, infrastructure and financial risk.</p> <p>Response Measures</p> <ul style="list-style-type: none"> Strictly abide by national and local laws and regulations on basin protection, and pay attention to the latest changes in regulations; Strictly follow the regulations for water intake and drainage; Maintain communication with local governments and environmental protection departments.
Basin Reputational Risk	<p>Potential risks brought by negative public opinion, mainly reflected in the public's understanding of water, the density of local cultural quantity, and media attention, mainly considering four indicators: the importance of water in local culture and local biodiversity, media attention, and the risk of hydrological conflicts.</p> <p>Response Measures</p> <ul style="list-style-type: none"> Carry out public welfare projects and voluntary activities for water resource protection to enhance the corporate brand image.

¹ The operational locations include GCL SI's main production base and GCL Technology's main production base and administrative management center.



Water Resource Conservation

The Group and its subsidiaries have adopted diversified measures, including establishing a quantitative water resource management mechanism, deepening the recycling system, and advancing water-saving technological innovation and equipment iteration & upgrading. Through these efforts, they have comprehensively improved water use efficiency and solidly promoted water conservation work.

Water-saving Measures

Optimizing Management and Quantitative Control



- Establish and improve the water resource management system, including water-saving and water-use management systems, metering management systems, maintenance systems, reward and punishment systems, etc.;
- Formulate water resource management goals, track the progress of goal achievement regularly, and continuously promote lean water resource management;
- Carry out water balance testing, clarify problems in water use links through data collection and analysis, and provide a basis for water-saving management.

Strengthening Water Resource Recycling and Reuse



- Hefei GCL: Carry out air conditioning condensate recovery to reduce the amount of new water used and reduce sewage discharge. After implementation, the annual water saving is 5,760 tons;
- Inner Mongolia Xinhuan: Significantly reduce water resource consumption by recycling and reusing steam condensate and mechanical seal cooling water.

Carrying out Water-saving Technological Transformation and Equipment Renovation



- GCL New Energy: Self-developed intelligent operation and maintenance robots to realize solar power supply, all-around cleaning, and water-free cleaning, which greatly reduces water consumption in the process of power station operation and maintenance.
- Funing GCL: Night water storage and cooling measures to reduce the operation time of chillers during the day, effectively reducing the evaporation of cooling water in refrigerators, with an annual water saving of about 2,880 cubic meters.
- Inner Mongolia Xinhuan: Changed the lime slurry dosing to use pretreated water, and uses evaporated distillate for sodium sulfate dosing. The optimization measures significantly reduce the consumption of production water. After the transformation, the annual production water saving is 45,900 tons.

The Group actively works with employees and suppliers to promote water-saving actions. The Group's subsidiaries regularly organize special training to explain water-saving methods and practical cases to employees in production operations and office scenarios, effectively strengthening employees' water-saving awareness and standardizing water-saving operation procedures.

Case 
 The Group Implements Comprehensive Water-Saving Measures to Significantly Reduce Product Water Consumption

In 2024, Wuhu GCL implemented comprehensive water-saving measures, including regular inspections to avoid water leakage and wastage; feeding back equipment whose water consumption is not within the monitoring range to relevant authorities and requiring rectification; reducing the overflow of each overflow tank on the premise that the production process ensures product quality; and strengthening the reuse of instrument water in the pure water station. After comprehensively using various water-saving measures, the unit water consumption of products decreased by 39% compared to 2023.

Water Resources Usage¹

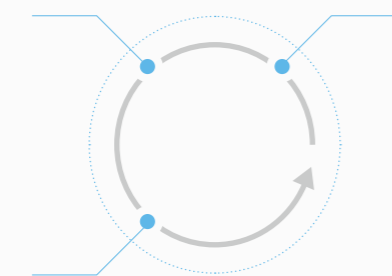
Indicator	Unit	2024
Total water consumption	10,000 tons	5,831.67
Water use intensity	Ton/RMB 10,000 revenue	13.81
Usage of alternative water sources	10,000 tons	2,122.93
Utilization rate of alternative water sources	%	36.40

Circular Economy

GCL Group adheres to the concept of circular economy and continuously promotes the green transformation of material management. By implementing diversified measures such as source reduction, renovation and maintenance, and recycling, the Group effectively improves the comprehensive utilization rate of materials, reduces resource consumption intensity, and achieves a win-win situation of economic and environmental benefits.

Reduce

- Accurately calculate material consumption to avoid over-purchasing and reduce resource waste from the source;
- Reduce the use of wood pulp raw materials by about 30% by optimizing the structure of the coaming without reducing the bursting index.



Reuse

- Regularly inventory electronic equipment in stock, renovate the hard disks and shells of old laptops to extend their service life and improve the utilization rate of relevant electronic equipment;
- Connect with upstream and downstream partners to recycle cartons at the component delivery end;
- Concentrate on repairing and reusing used wooden pallets to extend their service life cycle;
- Realize the reuse of square ingot packaging materials and cleaning agent-based intermediate bulk containers;
- Realize cross-process reuse of flexible freight bags that are originally to be discarded in polycrystalline, monocrystalline, and slicing factories.

Recycle

- Actively recycle waste steel, concrete, etc. during construction to realize resource recycling.

Case 
 Xuzhou Photovoltaic Carries Out Multi-Scenario Recycling Project of Waste Flexible Freight Bags

In 2024, Xuzhou Photovoltaic actively carried out technological transformation and innovatively designed a flexible freight bag cleaning and reuse process. With this process, flexible freight bags that are originally to be discarded can be reused across processes in polycrystalline, monocrystalline, and slicing factories. This achievement forms a standardized operation process and is promoted in various production units. It is estimated that the annual cost savings can reach RMB 138,000.

Case 
 GCL SI Promotes Product Component Recycling and Obtains PV CYCLE and WEEE Certificates

GCL SI is committed to promoting the development of the circular economy, exploring ways for the recycling and high-value regeneration of "retired" photovoltaic modules, and actively carrying out component recycling projects. GCL SI strictly follows the *EU Waste Electrical and Electronic Equipment (WEEE) Recycling Directive* to properly handle scrapped photovoltaic module equipment and has obtained organizational certification. GCL SI has joined the PV CYCLE as a member and works with external partners to promote the effective recycling and utilization of scrapped component products.



¹ The data statistics cover GCL Group's subsidiaries GCL Technology, GCL SI, GCL New Energy, GCL ET.

Emission and Waste Management

GCL Group abides by relevant laws and regulations, continuously builds and improves the management system for sewage and waste, and formulates detailed specifications for the treatment processes and emission monitoring of wastewater, air pollutants, and solid waste. With compliant emission and disposal as the bottom line, the Group strives to reduce the negative impact of production and operation activities on the environment and implement the "Green GCL" strategy.

Wastewater Management

GCL Group strictly complies with laws and regulations such as the *Water Pollution Prevention and Control Law of the People's Republic of China*, formulates and improves management systems related to wastewater discharge. In accordance with the principle of separate treatment of wastewater, the Group implements classified collection, specialized treatment, and compliant discharge for various types of wastewater. The Group has installed online monitoring equipment at the total discharge outlets of various production wastewater to conduct real-time dynamic monitoring of the quality of discharged water, ensuring compliant discharge of wastewater.

In addition, the Group actively promotes the iteration and upgrading of process flows, continuously strengthens wastewater recycling, and significantly reduces the total amount of wastewater discharge. During the reporting period, GCL Group did not have any illegal wastewater discharge incidents. Among them, Leshan GCL, Inner Mongolia Xinyuan, and Inner Mongolia Xinhuan achieved "zero discharge" of production wastewater, setting an example for green production in the industry.

Wastewater Discharge¹

Indicator	Unit	2024
Total wastewater discharge	Ton	15,964,750.19
Wastewater discharge intensity	Ton/RMB 10,000 revenue	3.78

Case

GCL SI Upgrades GPC Battery Process Flow to Reduce the Pressure of Wastewater Ammonia Nitrogen Treatment

In the production process of photovoltaic cells, compared with the traditional acid polishing process, the alkali polishing process uses KOH/NaOH alkaline solution for polishing, which can effectively reduce the ammonia nitrogen content in wastewater and reduce environmental pollution. In 2024, GCL SI upgraded the original acid polishing process to the alkali polishing process in the production of GPC batteries, which effectively reduces the ammonia nitrogen discharge of wastewater while improving battery performance.

Case

Ningxia Photovoltaics Develops "Dynamic Dosing Model" to Achieve Refined Control of Wastewater Treatment

In 2024, focusing on the goal of cost reduction and efficiency improvement, Ningxia Photovoltaic proposed to establish a "dynamic dosing model" for chemical dosing to address the problem of high wastewater treatment costs. By real-time monitoring 12 indicators such as raw water turbidity and pH value, and implementing gradient dosing combined with flow changes, the chemical dosing is optimized from a "fixed mode" to a "dynamic customized mode". This refined control model is extended to other chemicals such as PAM (polyacrylamide) and liquid caustic soda, forming a replicable standardized operation manual, which effectively reduces the economic cost of wastewater treatment.

¹ The data statistics cover four listed subsidiaries of GCL Group, GCL Photoelectric, and Xin Hua Semiconductor.

Waste Gas Management

GCL Group strictly complies with laws and regulations such as the *Atmospheric Pollution Prevention and Control Law of the People's Republic of China*, and systematically builds and improves the waste gas emission management system. According to the characteristics of air pollutants generated in production and operation processes, the Group applies targeted waste gas treatment technologies to ensure that waste gas is discharged up to standard after treatment. During the reporting period, the Group did not have any illegal waste gas discharge incidents.

GCL Group's subsidiaries in the sectors effectively reduce the total amount of waste gas emissions through measures such as technological transformation and upgrading, and the promotion of green design. In 2024, GCL SI adopted a polysilicon thinning design, reducing the thickness of the polysilicon film from the original 180nm to 120nm, which significantly reduces the amount of waste gas generated at the production end while maintaining the high photoelectric conversion efficiency of the product.

Waste Gas Emission²

Indicator	Unit	2024
Nitrogen oxides (NO _x)	Ton	2,548.57
Sulfur oxides (SO _x)	Ton	750.79
Particulate matter (PM)	Ton	235.90

Case

Upgrade of Xuzhou Crucible Kilns to Effectively Reduce Waste Gas Emissions

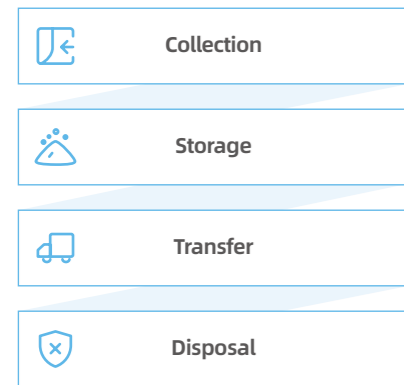
In 2024, Xuzhou Crucible actively promoted equipment renewal and upgrading, and built a new kiln in the factory area to replace the original old kiln and some drying ovens. The new kiln has advanced low-nitrogen combustion technology, which effectively reduces sulfur dioxide emissions by 2.21 tons, nitrogen oxides by 0.91 tons, and particulate matter from smoke and dust by 5.92 tons within the year.

Case

Polysilicon Thinning Design Reduces Waste Gas Emissions

In 2024, GCL SI began its efforts by focusing on product design, aiming to reduce the amount of waste gas emissions. GCL SI uses a polysilicon thinning design, reducing the thickness of the polysilicon film from the original 180nm to 120nm. Test results show that after adopting the polysilicon thinning design, while maintaining a high level of photoelectric conversion efficiency of the product, the consumption of chemicals such as silane and phosphorus oxychloride is reduced, and the emission of end-of-pipe waste gas is reduced, which has significant environmental benefits.

² The data statistics cover four listed subsidiaries of GCL Group, GCL Photoelectric, and Xin Hua Semiconductor.



Waste Management

GCL Group strictly complies with laws and regulations such as the *Solid Waste Pollution Prevention and Control Law of the People's Republic of China* and the *National Catalogue of Hazardous Wastes* and formulates and improves internal systems such as the *Management System of Solid Waste* and *Management and Control Procedures for Waste and Hazardous Waste*. The Group's subsidiaries in various sectors strictly implement the waste classification management system, and impose standardized requirements on the entire process of collection, storage, transfer, and disposal of general industrial solid waste and hazardous waste to ensure that all types of waste are disposed of in compliance. During the reporting period, the Group did not have any incidents of illegal disposal of solid waste, effectively building a solid defense for ecological environment security. During the reporting period, the Group's subsidiaries in various sectors focused on upgrading solid waste treatment technologies and vigorously promoted waste recycling, significantly reducing the amount of waste generated.

Solid Waste Emission¹

Indicator	Unit	2024
Total waste generated	Ton	2,487,758.98
General industrial solid waste generated	Ton	1,205,700.58
Hazardous waste generated	Ton	76,368.35
Hazardous waste treated	Ton	99,751.49

Measures for Solid Waste Treatment

- | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>R&D of solid waste treatment and recycling systems</p> <ul style="list-style-type: none"> The Group carries out the research and development of a new solid waste treatment and recycling system, promoting the fine-wire slicing technology. The Group also cooperates with specialized environmental protection scientific research institutions to jointly develop waste recycling technologies. | <p>Resource utilization of drum filter residue</p> <ul style="list-style-type: none"> The Group innovatively applies the drying and purification process to convert drum filter residue into high-purity silicon powder, which is further made into cold hydrogenation raw materials, successfully realizing the resource recycling and reuse of drum filter residue, providing a demonstration sample for industrial solid waste treatment. | <p>Plate and Frame Filter Upgrading Project</p> <ul style="list-style-type: none"> The Group implements the plate and frame filter upgrading project, using the principle of high-pressure mechanical dewatering, through the synergistic effect of multi-layer filter plates, greatly improving the solid-liquid separation efficiency, and realizing the green upgrading of sludge treatment. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



¹ The data statistics cover four listed subsidiaries of GCL Group, GCL Photoelectric, and Xin Hua Semiconductor.

Biodiversity Conservation

GCL Group attaches great importance to the protection of ecological resources and continuously strengthens the implementation of biodiversity conservation measures. Under the guidance of the *Wild Animal Conservation Law of the People's Republic of China*, *Regulations of the People's Republic of China on Nature Reserves*, and laws and regulations related to biodiversity in the locations where it operates, the Group continues to promote the construction of relevant institutional systems. In 2024, subsidiaries of GCL Group actively took measures to reduce the impact of the entire project life cycle on the ecosystems in the locations of their business operations. GCL SI, a subsidiary of GCL Group, also formulates a biodiversity conservation strategy with reference to the United Nations Convention on Biological Diversity and the EU's 2030 Biodiversity Strategy, and carries out in-depth biodiversity conservation work.

In 2025, GCL Group officially registers as a supporter of the Task Force on Nature-related Financial Disclosures (TNFD) Adopter. In the future, the Group will continue to promote biodiversity conservation work and enhance natural risk management capabilities.







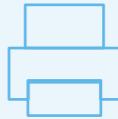



Green Operations

The culture of green and low-carbon is deeply rooted in the core of GCL Group's corporate culture. With the creation of green buildings adapted to local conditions as the carrier, the Group makes efforts from multiple dimensions, such as energy conservation and consumption reduction, resource conservation, promotion of green travel, and implementation of waste classification. In the process of building an all-around green office environment, the green concept penetrates into every detail, guiding employees to naturally practice a low-carbon lifestyle and building a unique green cultural ecosystem.

In terms of green culture, we build a corporate low-carbon cultural atmosphere and carbon ecosystem, cultivate employees' low-carbon habits, and make the concept of green life deeply rooted in the hearts of the people. We also regularly carry out environmental protection knowledge training and emergency drills for sudden environmental accidents for employees to comprehensively improve their environmental protection awareness and skills. In 2024, the duration of environmental protection training was 1,925,277 hours, with an attendance of 49,937.

Green Operation Measures

<p>Zero-Carbon Park</p> 	<ul style="list-style-type: none"> GCL Energy Center, the headquarters of GCL Group, achieves 100% green electricity use by consuming a high proportion of green electricity, implementing energy conservation and emission reduction, and purchasing green electricity certificates, and has obtained the "Carbon Neutrality Certificate". 	<p>Electricity Conservation</p> 	<ul style="list-style-type: none"> Replace with LED energy-saving lamps and promote "turning off lights when leaving" Set air conditioning temperatures according to seasons
<p>Ecological Park</p> 	<ul style="list-style-type: none"> Create rooftop greening to improve the thermal insulation effect and the landscape effect of the roof The green landscape of the park takes the original natural pond as the core ecological water feature, strengthening the landscape in the park, and building an eco-friendly office space 	<p>Water Conservation</p> 	<ul style="list-style-type: none"> Strengthen employees' awareness of water conservation through publicity and posting slogans Regularly check water pipes, faucets, and other equipment to prevent water leakage and wastage, and carry out timely repairs
<p>Green Buildings</p> 	<ul style="list-style-type: none"> An integrated design of renewable energy, integrating green technologies such as natural lighting, ground-source heat pumps, and photovoltaic power generation to reduce the energy consumption of office buildings The Phase II scientific research building obtains the national three-star green building design label certification and the first prize for the green building category in the Jiangsu Excellent Engineering Survey and Design Industry Award 	<p>Green Travel</p> 	<ul style="list-style-type: none"> Strengthen the management of official vehicles, accurately control to reduce fuel consumption, and promote the replacement of fuel vehicles with electric vehicles Encourage employees to take public transportation and advocate carpooling
<p>Reduction of Material Consumption</p> 	<ul style="list-style-type: none"> Comprehensively promote a paperless office, advocate double-sided printing, and adopt electronic ledger management Reuse idle office supplies across departments to strengthen resource recycling 	<p>Waste Classification and Recycling</p> 	<ul style="list-style-type: none"> Promote waste classification management to promote effective recycling and utilization of resources



Case
Carbon Planet: Launch of the Employee Carbon Incentive Platform

GCL SI officially launches the employee carbon incentive platform: Carbon Planet. With the real-time data collection capability of GCL Carbon Chain, the platform accurately records the carbon emission reduction of each low-carbon action and generates transparent and credible data records. It is applied to four low-carbon scenarios: "green office", "green life", "green learning", and "green travel", with multiple subdivided emission reduction items. Employees can receive carbon points rewards when they participate in emission reduction behaviors. By building a mechanism for employees' voluntary carbon emission reduction that is "recordable, measurable, profitable, and recognized", it quantifies employees' personal energy-saving and carbon-reduction environmental protection behaviors, and cultivates employees' good habits of low-carbon behaviors in daily life and work.



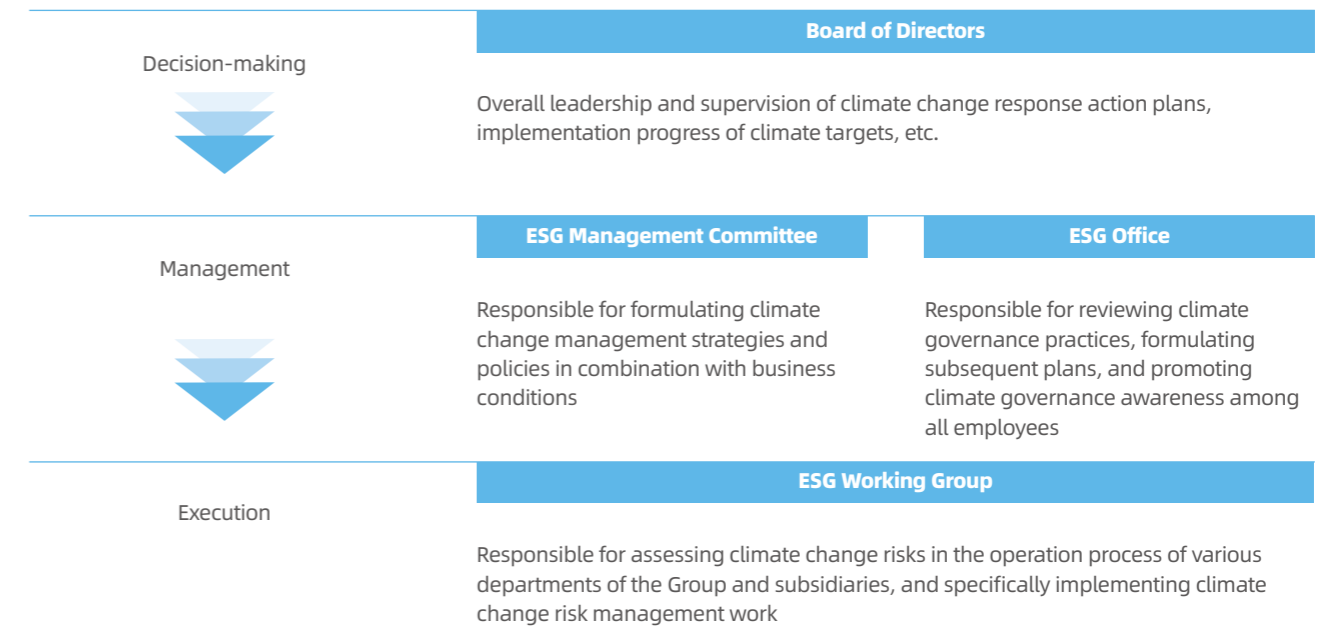
Addressing Climate Change

With the frequent occurrence of extreme weather, climate risk has become a major challenge for mankind today. With reference to IFRS S2 Climate-related Disclosures issued by the International Sustainability Standards Board (ISSB), GCL Group actively identifies and assesses climate risks and opportunities from four dimensions: governance, strategy, risk management, and metrics and targets, and comprehensively builds a climate change management system.

Governance

GCL Group fully incorporates the responsibilities of climate risk governance into the existing ESG management framework and constructs a three-level climate governance structure of "decision-making, management, and implementation" to ensure that the climate change management strategy is implemented at all levels.

Climate Governance Architecture



Case
GCL Technology Holds "GCL Earth Hour" Event

On March 23, 2024, the "Building a Carbon Neutrality Future: 2024 GCL Earth Hour" event was fully launched at all bases of GCL Technology. Through activities such as the "turn off lights for one hour" ceremony, employees sharing "how we spend the hour with lights off" and "showing my carbon footprint", the event demonstrates the positive attitude and practical actions of GCL employees towards environmental protection. In May, GCL Technology's "GCL Earth Hour" program won the first prize of the Characteristic Cultural Brand Highlight Program at the "Centennial Corporate Culture Brand Innovation and Development Experience Exchange Conference" held by the China Culture Administration Association.



Case
Leshan GCL National Tree Planting Day Event

On March 12, 2024, the "National Tree Planting Day", Leshan GCL organized a volunteer event with the theme of "GCL Tree Planting Day: Green in New Energy". The event attracted more than 50 employee representatives to participate. A total of 20 sweet osmanthus (*Osmanthus fragrans*) saplings and 20 "Golden Stem" (*Styphnolobium japonicum*) saplings were planted in the Leshan GCL park, adding a touch of lush greenery to the park.



Strategy

On the basis of referring to IFRS S2, the Group systematically analyzes climate risks, formulates targeted response measures, and actively identifies and seizes potential opportunities brought by climate change.

Main Climate Risks and Response Measures

Risk Category	Risk Factors	Potential Impacts	Impact Period	Response Measures
Physical Risks	Acute Risks Climate disasters such as typhoons/floods/heavy rains	<ul style="list-style-type: none"> Damage to plants and equipment, affecting power generation efficiency and increasing maintenance costs Supply chain disruptions, reducing the ability to fulfill product supply commitments Threats to employees' health and safety, affecting production 	Short-term/ Medium-term	<ul style="list-style-type: none"> Conduct targeted inspections on the disaster resistance of operating facilities and production equipment according to seasonal meteorological characteristics Formulate emergency plans for extreme weather and conduct regular emergency drills
	Chronic Risks Frequent high-temperature weather	<ul style="list-style-type: none"> Continuous high temperatures lead to increased electricity bills and high-temperature subsidies 	Medium-term/Long-term	<ul style="list-style-type: none"> Energy-saving equipment to reduce electricity consumption
	Water scarcity	<ul style="list-style-type: none"> Affect the normal operation of units or production equipment, reducing output and income 	Medium-term/Long-term	<ul style="list-style-type: none"> Use water-saving equipment and technologies, and strengthen measures such as wastewater reuse to improve water resource utilization efficiency Conduct water resource risk analysis and assessment
	Sea-level rise	<ul style="list-style-type: none"> Manufacturing bases in coastal areas are threatened and forced to relocate 	Medium-term/Long-term	<ul style="list-style-type: none"> Continuously track the risk of sea-level rise and formulate dynamically adjusted response plans
Transition Risks	Policy Risks Countries continue to introduce increasingly strict carbon emission reduction policies and environmental protection regulations	<ul style="list-style-type: none"> With increasingly strict national environmental and climate change policies, the Group's exported products may need to meet higher carbon emission standards, weakening product price competitiveness The rise in carbon market prices and the implementation of carbon taxes lead to increased operating and procurement costs 	Short-term/ Medium-term	<ul style="list-style-type: none"> Continuously pay attention to changes in relevant regulatory requirements Establish a sound compliance system and a guarantee mechanism
Market Risks	Changes in market demand	<ul style="list-style-type: none"> Customers tend to choose low-carbon products; failure to adjust product layout strategies in a timely manner will lead to a decline in market share 	Medium-term/Long-term	<ul style="list-style-type: none"> Continuously pay attention to changes in market demand and adjust market and service strategies in a timely manner according to market demand Conduct product carbon footprint certification
Technical Risks	Iteration of climate-related technologies	<ul style="list-style-type: none"> The technology in the photovoltaic industry updates and iterates rapidly. The Group needs to continuously increase R&D investment. If the technology lags behind, product competitiveness will decline 	Medium-term/Long-term	<ul style="list-style-type: none"> Formulate R&D strategies, increase R&D investment, and deploy new technologies in advance
Reputation Risks	Climate-related environmental controversies	<ul style="list-style-type: none"> If climate-related controversies occur or climate actions are not as good as peers, it will damage the corporate image and affect investors' confidence and financing costs 	Medium-term/Long-term	<ul style="list-style-type: none"> Disclose information related to climate actions and strengthen communication with stakeholders

Main Climate Opportunities and Response Measures

Opportunity Category	Opportunity Description	Response Measures
Policy	Different countries introduce energy transition policies to encourage the use of new energy; expanding business scope to countries and regions with urgent demand can increase the Group's income	<ul style="list-style-type: none"> Actively explore overseas market opportunities and make strategic adjustments in a timely manner according to relevant overseas policies
Market	Increased market demand for clean energy, low-carbon products, and low-carbon services	<ul style="list-style-type: none"> Increase the proportion of renewable energy in business layout Continuously develop low-carbon technologies and products Provide services such as green electricity trading, integrated energy management, and "photovoltaic-storage-charging-calculation" integration to provide zero-carbon solutions for multiple industries
Technology	The use of renewable energy, such as photovoltaics, can help enterprises save energy costs and reduce operational risks caused by rising fossil energy prices	<ul style="list-style-type: none"> Deploy distributed photovoltaic equipment in factories to increase the proportion of self-generated and self-used photovoltaics

Risk Management

GCL Group deeply integrates climate risk management methods into the existing risk management system. Based on the risks faced by its own operations, the characteristics of daily production and operation, as well as the value chain and the concerns of stakeholders, the Group systematically sorts out potential important climate impacts and determines risk categories and impact scopes. Through overall planning at the Group level and hierarchical implementation by subsidiaries, the Group builds a full-chain climate risk control mechanism, and continuously improves the risk resistance capability of the business in the context of climate change, laying a solid resilience foundation for the sustainable operation of the enterprise.

Indicators and Objectives

Subsidiaries of GCL Group continue to optimize the internal greenhouse gas (GHG) emission management system, systematically promoting carbon inventory and carbon verification, and achieving refined control of energy consumption and carbon emissions. By the end of the reporting period, a total of 9 manufacturing bases completed GHG inventories. Among them, sectors such as GCL SI and GCL Technology included Scope 3 emissions in the organizational carbon inventory system and disclosed information in accordance with regulations.

GHG Emissions¹

Indicator	Unit	2024
Direct GHG emissions (Scope 1)	Tons of carbon dioxide equivalent	10,167,368.69
Energy indirect GHG emissions (Scope 2)	Tons of carbon dioxide equivalent	5,704,605.81
Total GHG emissions within operational scope (Scope 1 + Scope 2)	Tons of carbon dioxide equivalent	15,871,974.50
GHG emission intensity within operational scope (Scope 1 + Scope 2)	Tons of carbon dioxide equivalent/RMB 10,000 revenue	3.76
Other indirect GHG emissions (Scope 3) ²	Tons of carbon dioxide equivalent	27,639,599.05

¹ The scope of statistics covers four listed companies of GCL Group.

² The scope of statistics covers GCL Technology, GCL SI.

Value Innovation

We are well aware that scientific and technological innovation is a powerful engine for the energy revolution, driving us to break through traditions and move towards an efficient, clean, and sustainable energy future. We focus on intellectual property protection, safeguard every innovative achievement, and ensure that innovative advantages are transformed into market victories. We adhere to the target positioning of "Digital GCL", integrating the improvement of digital capabilities throughout the entire production and operation chain, and are committed to providing high-quality products and services to society.

SDGs



Innovation in Cutting-edge Technology

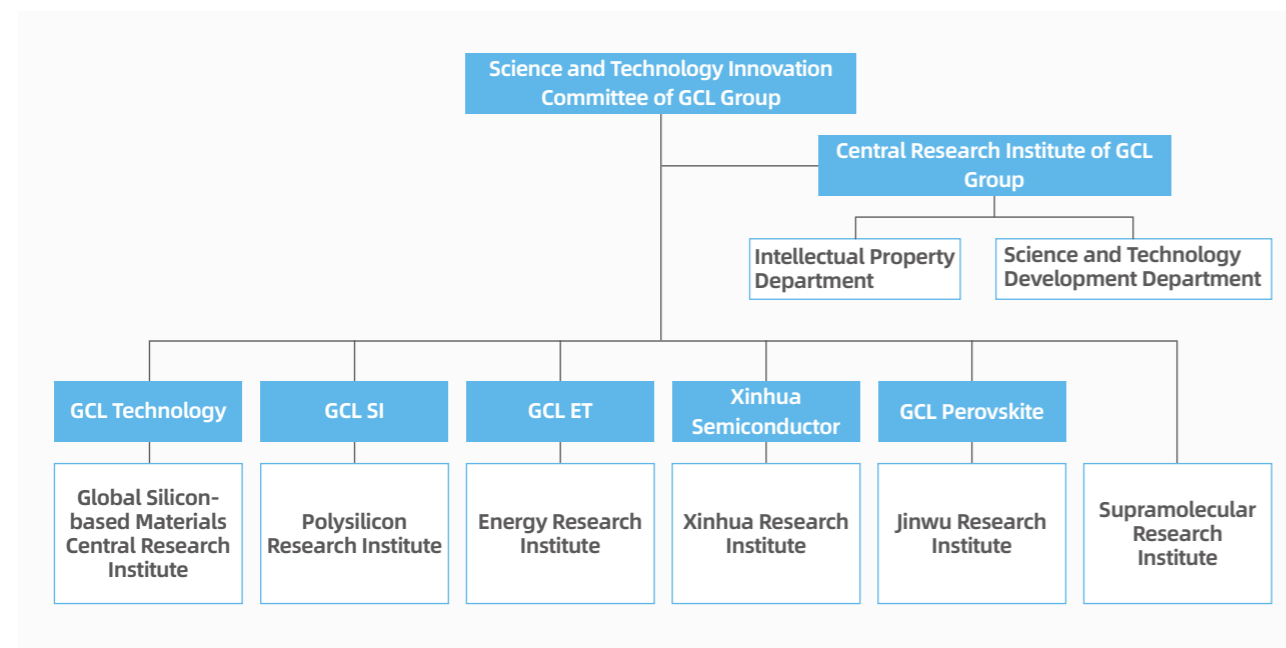
R&D Strength

Scientific and technological innovation is the foundation for driving GCL's sustainable development and the lifeline of GCL's survival and development. Over the years, GCL Group has increased R&D investment, strengthened technical strength, and adhered to granular silicon and perovskite technologies as the core, continuously enhancing technical advantages and improving product competitiveness.

R&D Innovation System

GCL Group continues to pioneer in innovation, continuously optimizing the R&D system structure, and strengthening the effectiveness of top-level design. The Group establishes research institutes as core R&D institutions, among which the Science and Technology Innovation Committee serves as the highest decision-making body to coordinate and plan scientific and technological innovation work; the Central Research Institute, as the implementation entity, has an Intellectual Property Department and a Science and Technology Development Department, and leads various special research institutes covering fields such as silicon-based materials, battery-level modules, battery swapping technology, and energy storage, to synergistically promote the efficient implementation of the science and technology strategy.

Organizational Structure System of GCL Group Research Institutes



Science and Technology Innovation Committee of GCL Group

As the highest decision-making body for the Group's science and technology management, it coordinates scientific and technological progress and innovation work.

Central Research Institute of GCL Group

It integrates the Group's scientific research forces, raises scientific research funds, strengthens intellectual property management, optimizes digital platform construction, and tracks cutting-edge technological developments at home and abroad.

Main Research Institutes

It focuses on special innovative R&D in fields such as silicon-based materials, battery-level modules, battery swapping technology, semiconductor materials, supramolecular technology, energy storage materials, and digital technology.

2024

R&D investment

RMB **5,000** million

Technology innovation teams

20

Strengthening Innovation Capability

In recent years, GCL Group has continuously increased investment in innovation. By integrating domestic and foreign resources, the Group builds a think tank of 100 experts led by dozens of academicians of the Chinese Academy of Sciences and the Chinese Academy of Engineering, and forms a research force composed of 20 scientific and technological innovation teams and more than 3,000 outstanding R&D personnel. To maintain innovation vitality, GCL formulates the *Management System of Science and Technology Reward* and establishes normalized and standardized reward standards. The Group implements the scientific research exemption system and the Technology Partner mechanism, and provides comprehensive guarantees for scientific researchers in medical care, housing, life, children's education, and family elderly care.

Relying on global innovation resources, GCL Group establishes world-class R&D centers and incubation institutions in the United States, Japan, Singapore, Shanghai, Suzhou, Xuzhou, and other places. The Group actively cooperates with universities and research institutes to build industry-university-research platforms. Partners include the Institute of Process Engineering of the Chinese Academy of Sciences, the Ningbo Institute of Materials Technology and Engineering of the Chinese Academy of Sciences, Zhejiang University, Nankai University, Fudan University, Xi'an Jiaotong University, Central South University, Henan University, etc. In 2024, the Group cooperated with Xi'an Jiaotong University to promote the project of high-temperature silicon liquid centrifugal granulation and efficient waste heat recovery, and with Henan University to promote the research on silicon powder pretreatment technology.

Case

Soochow University and GCL Group Sign an Agreement on Co-constructing a Provincial Key Laboratory

GCL Group and Soochow University sign a strategic cooperation agreement to jointly establish the Jiangsu Key Laboratory of Advanced Negative Carbon Technologies, working together to solve key core technical problems in the new energy field. According to the co-construction agreement, the laboratory will integrate Soochow University's accumulation of cutting-edge basic research in materials science, chemical engineering and other disciplines, together with GCL Group's resource advantages in new energy industry strategy, capital operation and market transformation, focusing on tackling core technologies such as photovoltaic technology application, photovoltaic catalytic coupling, and photothermal synergistic catalysis. The parties will build an entire industry-university-research-application innovation ecosystem through initiatives such as co-creating national-level scientific research projects, sharing large-scale instruments and equipment, and establishing a dual-appointment mechanism for talents, injecting new momentum into China's green and low-carbon transformation.



Case

Global Green Energy Development Center and GCL Perovskite R&D Center Unveil in Singapore

On April 24, 2024, the Global Green Energy Development Center and GCL Perovskite R&D Center were officially established in Singapore's one-north. The Global Green Energy Development Center is an international green energy industry innovation and development platform integrating "learning, research, production, trade, and sales". Relying on the resource advantages of organizational members, it strives to seize the development opportunities of the "Belt and Road Initiative" and the RCEP agreement. GCL Perovskite R&D Center is oriented to perovskite scientific research talents all over the world, aiming to build a global perovskite scientific research platform, with the mission of accelerating the academic research and industrialization of perovskites, and promoting the transformation and upgrading of global green energy technology and application revolution.

During the event, representatives of GCL Group signed relevant cooperation agreements with teams from Wuxi National High-tech District, Academician Science and Technology Innovation Development, and Solar Energy Research Institute of Singapore (SERIS) of the National University of Singapore, and stated that GCL will accelerate the construction of the Singapore GCL Natural Gas Trading Center and GCL Perovskite R&D Center to help global carbon neutrality actions.



Strategy	Technology GCL
	Digital GCL
	Green GCL

Cutting-edge Innovation Achievements

In response to the national call for "orderly development of optical energy, silicon energy, hydrogen energy, and renewable energy", GCL Group, centering on the strategies of "Technology GCL, Digital GCL, Green GCL", makes a comprehensive layout in the field of clean energy production and services. The Group continuously improves the R&D capabilities and innovation levels in areas such as materials, batteries, modules, energy integration, and comprehensive services, promoting industrial chain upgrading, and strives to create industry-leading comprehensive solutions for renewable energy, contributing to the global green energy transformation.

Advanced Materials Development



- Silicon powder**
 - The Group artificially synthesizes high-purity quartz sand using **high-purity silicon powder** to realize the high added value of high-purity silicon powder.
- Granular Silicon**
 - The Group develops **alternative graphite materials** in the production process of granular silicon, effectively extending the service life of graphite internal parts
 - High-temperature silicon liquid centrifugal granulation and efficient waste heat recovery
 - The Group develops liquid catalysts through the high-efficiency catalyst project for trichlorosilane disproportionation reaction, promoting the reaction efficiency of the core reaction section, realizing the **recycling of catalysts**, and improving service life
- Silicon wafers**
 - The Group forms a complete crystal pulling process and equipment reserve through the Rainbow Project to realize the mass sales of **CCz silicon wafers**.
 - The Group uses tungsten wire thinning technology to break through the thinning limit of traditional carbon steel wires, improving silicon wafer cutting efficiency and wafer yield.
 - The Group develops cutting technology suitable for G12 large silicon wafers, solves multiple technical difficulties through the **"reverse cutting reverse" technology**, and improves efficiency and precision

Battery and Module Innovation



- N-type TOPCon Batteries**
 - The average battery efficiency at storage reaches **25.4%**, which is **0.2%** higher than that of mainstream industry manufacturers, ranking first in the industry
 - 6** star products successfully pass the strict review of TÜV Rheinland and win the ISO 14067 product carbon footprint certificate
- Zero Busbar (OBB) Mass Production Line Modules**
 - The Group completely eliminates the busbar, only retains the finger, and the welding strip is directly interconnected with the finger to export current, significantly reducing the cost of silver paste in module production
 - The Group reduces internal resistance loss and incidence angle modifier (IAM) loss, increasing the component power to **650W** and the conversion efficiency to more than **23.2%**
 - The Group reduces the thermal stress on the battery sheet during the welding process, effectively reducing the occurrence of hidden cracks, and ensuring high reliability of the modules
- GPC Lotus Modules**
 - The Group improves the optical and electrical performance of modules, which can effectively increase power generation by **7%** compared with that of TOPCon technology
 - The power generation is effectively increased by **7.5-12%**
 - It can be applied in various application scenarios such as industrial and commercial, household distributed, and ground power stations
- Perovskite Modules**
 - Based on **gradient energy band engineering optimization and interface passivation** strategies, the Group significantly reduces the interface recombination loss of perovskite modules
 - The Group precisely regulates the composition of top and bottom batteries through simulation based on independently developed **optical coupling collaborative optimization algorithms**
 - The Group adopts **large-area thin film deposition control technology and defect density regulation process** to realize steady-state power output of perovskite single-junction modules
 - The Group applies **packaging process optimization and ion migration inhibition methods** to improve the safety and reliability of single-junction modules

Multi-scenario Comprehensive Applications



- Virtual Power Plant**
 - Relying on an energy management platform, a scheduling platform, and a set of coding systems, the Group builds a **"1+1+1" system** for flexible resource services to help grid balance
 - The user-side management capacity exceeds **16** million kVA, and the aggregated adjustable resource capacity is **1,500** MW
 - The Group holds the national first-class and second-class qualifications of "Demand-Side Management Service Institution"
- Energy Storage Containers**
 - The 20-foot 5MWh energy storage containers improve land utilization, reduce the overall station cost, and meet the market demand for cost-effective energy storage power stations
 - The 372kWh pre-installed industrial and commercial liquid-cooled energy storage systems improve energy use quality and **reduce energy use costs**
 - The 125kW/232kWh industrial and commercial liquid-cooled all-in-one machines obtain **TUV MARK and CE certifications**, meeting the access standards of the EU market
 - One-stop household energy storage solutions are equipped with Smart management systems to achieve self-sufficiency in household electricity

Case

FBR Granular Silicon

GCL Technology continues to lead innovation in the photovoltaic materials sector, successfully developing cutting-edge zero-carbon technology products—FBR (silane fluidized bed method) granular silicon—significantly reducing energy consumption and carbon emissions during production. Certified by the French Agency for the Environment and Energy Management (ADEME), the latest granular silicon product has a carbon footprint of 14.441 kgCO₂e/kg, a 61% reduction from the 2021 figure of 37.00 kgCO₂e/kg, once again breaking the global industry record and setting the lowest carbon footprint record for silicon materials worldwide, providing critical support for deep carbon reduction across the entire photovoltaic supply chain. By the end of 2024, the effective production capacity of FBR granular silicon will reach 480,000 tons. Compared to rod-shaped silicon, the annual production capacity of FBR granular silicon corresponds to an electricity savings of approximately 19.5 billion kilowatt-hours, equivalent to reducing carbon dioxide emissions by approximately 10.48 million tons.

Case

GPC2.0 High-efficiency Modules

GCL SI uses a series of cutting-edge technologies, such as back contact (BC), and releases high-efficiency modules GPC2.0, which enhances the stability and durability of modules in complex environments. The components are subject to multi-layer gradient dielectric film technology and a high light-trapping pyramid structure to effectively improve light absorption efficiency. Combined with high-quality, low-impurity FBR granular silicon raw materials, it significantly improves photoelectric conversion efficiency and realizes maximum light utilization. Relying on composite tunnel passivation contact technology and high-efficiency passivation film process, the components achieve power generation gain, helping users reduce the levelized cost of electricity of photovoltaic systems and contributing more "GCL wisdom" to the global energy transformation.

Case

Perovskite AI High-throughput Equipment

The equipment is positioned for laboratory-level perovskite battery research and development, integrating cutting-edge achievements in chemistry, materials science, automation, and AI fields. It realizes the embodied integration of AI autonomous learning and perovskite high-throughput equipment for the first time, effectively improving performance in terms of R&D speed, preparation efficiency, accuracy, and iterability. The equipment builds an autonomous closed loop of "Perception → Decision → Action → Learning" and can realize the value re-evaluation of negative data. The close combination of AI autonomous learning and high-throughput experiments in GCL Perovskite promotes the improvement of R&D efficiency.

Case

Virtual Power Plant

With the mission of "focus on green development and keep improving the living environment of human beings", GCL Group is committed to developing low-carbon, market-oriented, integrated, and intelligent models, building a new power system from production to energy storage, and providing users with multi-dimensional matrix integrated energy services. Based on large models and multi-agent collaboration technology, GCL ET builds a virtual power plant (VPP) that aggregates adjustable resources, with a cumulative valley-filling electricity of about 80 GWh and carbon emissions reduction of about 45,000 tons of carbon dioxide¹.

¹ Data statistics as of August 2025.

Intellectual Property Protection

GCL Group attaches great importance to the protection of achievements and continuously improves internal policies such as the *Intellectual Property Management Standard*, *Intellectual Property Application Management Process*, and *GCL Group's 14th Five-Year Intellectual Property Strategic Action Plan*. In August 2024, the Intellectual Property Protection Office was established to clarify the responsibilities and work processes of various departments and comprehensively strengthen intellectual property protection work. To fully stimulate innovation vitality, the Group actively advocates the concept of "everyone can apply for patents", formulates reward standards and declaration procedures, and fully opens the patent declaration channel for employees.

GCL Group formulates an annual intellectual property inspection plan every year and regularly conducts panoramic statistics and in-depth analysis. The Group forms special reports on patents in key industries and plans the layout of core fields. To strengthen intellectual property protection, the Group, together with the supervision, legal affairs, and confidentiality offices, conducts special inspections on intellectual property protection, sorts out and investigates all behaviors that damage the Group's interests. The Group improves the reward system for reporting intellectual property infringement and sets up an intellectual property protection report hotline to further mobilize internal forces to participate in supervision.

The Group links multiple departments to systematically enhance employees' awareness of intellectual property protection, and continuously deepens knowledge popularization and capacity building by inviting industry experts to conduct special training, compiling and publishing intellectual property learning manuals, and organizing intellectual property publicity week activities.

Case

Police-Enterprise Workstation for Intellectual Property Protection Officially Unveils

On October 31, under the organization and coordination of the Group's Discipline Inspection and Supervision Department, the unveiling ceremony of the "Police-Enterprise Workstation for Intellectual Property Protection" and the police-enterprise co-construction forum were held in Xinhua Semiconductor Technology Co., Ltd. The workstation focuses on carrying out patent infringement clue verification, trade secret protection collaboration, and related legal consulting services, builds an integrated protection mechanism of "prevention, monitoring, disposal", and builds a legal barrier for core technologies.



Case 
Intellectual Property Protection Training

GCL SI refines the content of intellectual property protection training, dividing the training into two major sections: basic training and special training. Basic training is for technical personnel, including batteries and modules, covering R&D, process, equipment, and other positions and departments; special training is conducted 4-5 times a month with relevant R&D and technical personnel according to different technologies and product types, focusing on solving difficult intellectual property problems and accurately empowering innovation vitality.

2024

Applied for

789 patents

Obtained

402 granted patents

Applied for

247 invention patents

Obtained

65 granted invention patents

By the end of the reporting period

Cumulative total patent applications

over **4,600**

Cumulative total valid patents

over **3,100**

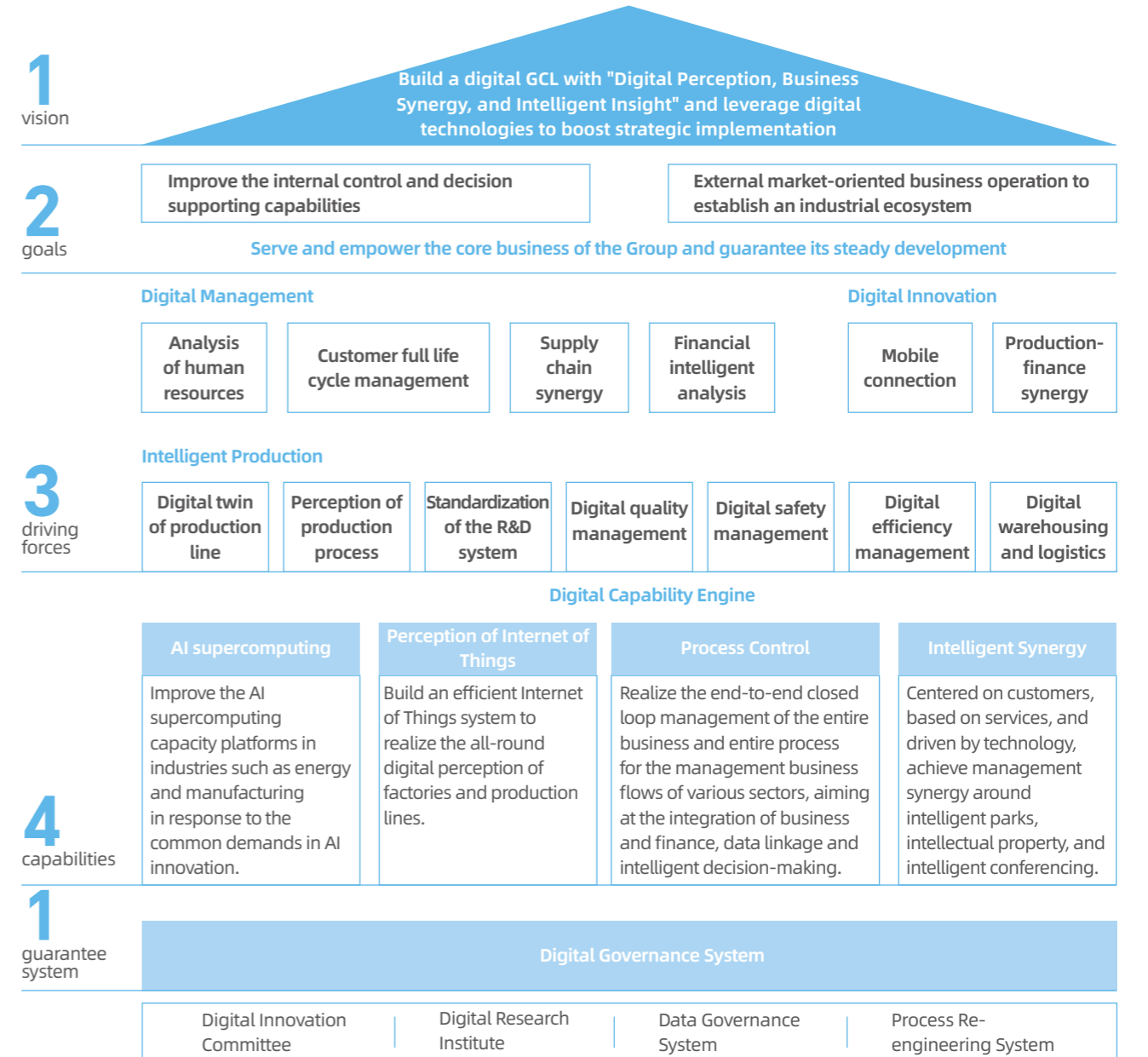


Smart Digital Transformation

GCL Group takes "Technology GCL, Digital GCL, Green GCL" as the core goals, main themes of work, and key areas during the "14th Five-Year Plan" period. Combined with the theoretical framework of "three models and one data", the Group follows the progressive path of "datamation, digitalization, and digital intelligence", relying on the information foundation, seizing the opportunities of industrial upgrading and management reform, and striving to promote digital transformation, digital upgrading, and intelligent upgrading of manufacturing.

Digital Planning

To build a digital GCL with "Digital Perception, Business Synergy, and Intelligent Insight" and leverage digital technologies to boost strategic implementation, GCL Group continuously improves the digital management system. With the help of core technologies such as AI supercomputing platform, Internet of Things perception system, end-to-end process control, and intelligent collaboration, the Group empowers management, production, and operation links, thereby improving coordination and work efficiency, enhancing decision-making accuracy, and ensuring the efficient and robust development of the Group and its subsidiaries.



Digital Transformation Process

In the surging wave of digitalization, GCL Group takes the advanced information system as a solid foundation and accurately grasps the dual opportunities of management reform and industrial upgrading. The Group fully promotes digital transformation, and drives the enterprise to a new journey of high-quality development with innovation as the engine.

Management Digitalization

By building diversified digital platforms and intelligent management systems, GCL Group integrates information flows across the entire business chain, empowers key areas such as human resources, finance, business, legal affairs, auditing, party building, and supply chain, entering a new stage of intelligence, and achieves a breakthrough improvement in the operational efficiency of the Group and its subsidiaries.

Establish a digital recruitment platform "GCL Talent Pool" to integrate multiple channels for unified management, improve the rational allocation of recruitment resources, assist in employment decisions, and provide feedback on the completion of recruitment work in real time.

Manage financial data relying on RPA, big data and AI technologies, build a platform covering financial master data management, business-financial data management, and digital financial innovation application, and promote the Group's financial sharing.

Realize integrated integration, build a system of "digital operation + intelligent finance + tax management with data + fund coordination", build a business-finance integration accounting platform, and deepen the application of the SAP system.

Guided by the Group's strategy, build a goal management model, compile business budgets by category and driver, integrate the needs of various functional systems, and improve the level of refined budget management.

Human Resources Management

Financial Basic Data Management

Business-Finance-Tax-Fee Management

Comprehensive Budget Management

Office Efficiency Improvement

Build a mobile office platform "GCL Synergy", relying on communication tools such as the enterprise WeChat system, EIP portal, and email system to improve the overall efficiency of daily collaborative work. The platform superimposes various security measures on Tencent Cloud to build an all-around protection system.

Contract Compliance Management

Create a "GCL Contract" management system, build a unified digital seal management system for the Group covering seal creation, printing, use, and security prevention and control, implement full-process closed-loop management, effectively avoid the risk of differences between online and offline contracts, and improve data analysis capabilities and compliance.

Digital Archive Management

Build the "GCL Library" archive management system, integrate discrete data into data assets such as documents and knowledge bases, and realize a full-life-cycle intelligent archive management system.

Supply Chain Collaboration

Build a digital procurement integration platform "GCL Intelligent Chain", covering the entire chain of supplier management, sourcing, e-mall, and procurement collaboration. In 2024, the supplier module was fully upgraded and deeply integrated with the archive and contract management systems to comprehensively improve procurement efficiency.

Audit Process Monitoring

Build the "GCL Intelligent Audit" intelligent audit platform, based on "one database, two ends, and four centers", to realize the full-process management of audit projects from notification, execution, problem discovery, to rectification tracking.

Digital Party Building

The Group continues to implement digital party building and build "one center and four platforms". In 2024, the second phase of the Group's digital party building system was developed, implemented, and delivered, which was recognized by national authoritative institutions and experts, and obtained three patent certificates for digital party building projects issued by the China National Intellectual Property Administration.



Intelligent Production

Promoting the intellectualization of production links is an important way for enterprises to reduce costs and increase efficiency. Guided by the "Digital GCL" strategy, various subsidiaries accelerate the building of digital workshops, smart factories, and intensive service platforms, continuously empowering the leap of production efficiency and the breakthrough of operation quality.

» Intelligent Central Control Platform

GCL integrates Manufacturing Execution System (MES), Quality Management System (QMS), Advanced Planning and Scheduling (APS), and other systems to realize intelligent production management. The Group builds a comprehensive intelligent central control platform, which integrates multi-source data, strengthens the data storage and calculation capabilities of links such as people, machines, and materials, improves predictive analysis and operational optimization, and uses man-machine collaboration to enhance production and manufacturing efficiency. The platform has data visualization, multi-dimensional analysis, and machine learning algorithm development functions, supporting process innovation, process optimization, and intelligent production, and realizing the digital management of enterprises.

 Funing GCL was listed in the 2024 "Jiangsu Intelligent Manufacturing Factory" list and won the honor of "Efficient Photovoltaic Module Intelligent Manufacturing Factory".

 Wuhu GCL won the honor of "Enterprise with Outstanding Achievements in Digital Transformation".

» Production-Packaging-Storage Integrated System

The production-packaging-storage integrated system is a collaborative operation system integrating automatic packaging, intelligent warehousing, and a digital management platform. Automatic packaging greatly improves efficiency and consistency, and intelligent warehousing optimizes space utilization and access speed through precise material scheduling. As the core, the digital platform collects and analyzes operational data in real time, providing strong support for decision-making.



» Smart Logistics Platform for Distributed Power Stations

The smart logistics platform optimizes warehouse management and scheduling processes through digital technologies. The platform integrates three links: procurement and warehousing, intelligent warehouse patrol scheduling, and full-process logistics tracking. Relying on core functions such as intelligent delivery, automatic task allocation, intelligent warehouse patrol, track tracking, and order confirmation, it realizes the intelligent closed-loop management of the whole process. Integrating with the large-scale development business of distributed photovoltaics, it builds an e-commerce-based supply chain, warehousing, and logistics management system.



Clock in/Clock out

Driver Queue Status

Submit Pickup Request

Flexible Automated Production Line Industrial Brain				
Intelligent + Human-Machine Collaboration	AR Remote Maintenance Assistance	EL Automated Defect Review	Key Workstation Facial Recognition	Packaging Collaborative Robot
Intelligent + Predictive Analytics	Gear Distribution Prediction	Material Matching Recommendation	Battery Supply Analysis	Production Anomaly Prediction
Intelligent + Operations Optimization	AGV Logistics Scheduling	Air Compressor Energy Optimization	Intelligent Production Scheduling	Plant-wide Safety Linkage

Digital Operation

The Group comprehensively builds a digital operation system. Through the digital platform, the Group deeply empowers operational management and business processes, realizing the systematic breakthrough of group operation efficiency and the leap of innovative models.

» Unified Smart Energy Platform

The unified smart energy platform, relying on big data, cloud computing, the Internet, and intelligent technologies, realizes the integrated comprehensive energy operation of "source-grid-load-storage-charging-swapping". By aggregating diversified energy service scenarios, the platform builds an energy flow network with energy storage, photovoltaics, microgrids, and charging-swapping stations as the core, comprehensively promoting the intelligent upgrading and sustainability of services.



» Intelligent Operation and Maintenance Management Platform for Distributed Power Stations

The intelligent operation and maintenance management of distributed power stations focuses on the whole life cycle management of power station assets, realizing the traceability of asset operation and maintenance from construction to operation, covering the whole-process control and tracking of online inspection, offline comprehensive inspection and quality rectification after the power station is connected to the grid. It comprehensively promotes the digital coverage of business processes, improves operation and maintenance efficiency and asset management level, and ensures the safe, stable, and efficient operation of power stations.



High-quality Products and Services

Quality is the foundation of survival, and service is the foundation of development. GCL Group and its subsidiaries strictly abide by relevant laws and regulations, continuously improve product quality with a spirit of excellence, and constantly optimize service quality with customer focus, helping the Group stand out in industry competition and win customers' trust and market recognition.

Quality Management System

GCL Group implements the corporate quality culture of "Enterprises in my heart, quality in my hands". The Group strictly abides by laws and regulations such as the *Product Quality Law of the People's Republic of China* and the *Standardization Law of the People's Republic of China*, and establishes and improves the quality management system. To achieve quality control goals, subsidiaries at all levels establish special quality management departments according to business segments, set up quality inspection, assessment, and evaluation procedures, and strictly implement product recall policies.

2024

Product recall incidents

0

Major liability accidents related to product and service safety and quality

0

Organizational Structure and System Construction

- Actively build a quality management system and set up a special quality management department
- The Quality Management Center has a customer engineering team, a product quality team and a system team internally
- Issue the *Integrated Quality Policy* to optimize and upgrade the quality management system

Performance-Driven and Continuous Improvement

- Formulate quality control goals
- Quality indicators are included in monthly/annual assessments, and performance assessments are linked to salaries and bonuses
- Internal and external audits promote quality inspection and evaluation

Quality Traceability and Information Management

- Module products are provided with unique barcodes to ensure full-process traceability of product quality
- Introduce a production management system, MES, and AI technology to monitor the production process
- Independently develop a full-process quality management information system for products for traceability and data analysis
- Use five major quality tools to systematically analyze quality status and potential factors

Risk Prevention and Emergency Management

- Formulate product recall policies and strictly control quality risks

Quality Training and Capacity Improvement

- Carry out special quality activities to comprehensively improve internal quality capabilities

Certification Performance



Case

GCL Technology Conducts Multi-Dimensional Special Inspections on Product Quality

In 2024, the Quality Management Center of GCL Technology focused on improving product quality and systematically carried out multi-dimensional special inspection actions with remarkable results. The quality system maturity inspection accurately identified 332 potential risks, and 100% of the problems were closed through effective rectification. The anti-mixing special inspection, in response to customer feedback, successfully intercepted 40 mixing risks and mobilized all employees to identify risk points, forming the *Quality Management Measures for the Crystal Growth and Slicing Business Department*. After the special inspection, there were "zero occurrences" of low-level customer complaints related to mixing for six consecutive months. The special inspection on product standard implementation effectively solved 61 quality risks, strongly ensuring that product quality remains in the top tier of client evaluations. The special inspection on change management discovered 21 implementation problems and formulated a comprehensive rectification plan covering unified classification, standard processes, systems, approval mechanisms, and regular supervision, laying a solid foundation for standardized management.

To consolidate the foundation of quality, subsidiaries of the Group improve relevant training systems, create a strong quality culture atmosphere, and comprehensively ensure the steady improvement of product quality. Various subsidiaries carry out special training and various themed training to fully grasp key links and operating specifications, and integrate quality concepts and operating specifications into daily work.

Case

GCL SI Conducts Quality Skills Competition

In May 2024, Funing GCL, a subsidiary of GCL SI, innovatively launched the "Battlefield Inspection" quality-themed series of events. Breaking through the traditional model, this event, on the basis of conventional quality awareness training and testing, focused on seven core post skills, and carefully organized post quality skills competitions with themes such as solar stringer ribbon replacement, stacking and returning sheet replacement, EL image inspection, lamination and framing, junction box welding machine head replacement, cleaning inspection and effect evaluation, and packaging skills. Through the practical form of "training through competition", Funing GCL effectively strengthens the awareness of all employees' participation in quality management and practically improves the quality skills of front-line employees in key positions.



2024

Total number of quality and safety training sessions

1,018

Total attendance of quality and safety training

30,819



Customer service

Subsidiaries of GCL Group adhere to the customer-centric concept, strictly comply with relevant laws, regulations, and standards, and systematically build and continuously improve the customer service system. By updating and formulating internal systems for customer service processes and refining management requirements, they effectively ensure service quality and consolidate the foundation of customer relationships. The subsidiaries attach great importance to customer feedback and open diversified communication channels, ensuring that feedback issues are responded to and resolved effectively. The subsidiaries form closed-loop management, and thus continuously improve customer satisfaction.

01 Improving Institutional Norms

- Issue *Global Marketing Center Pricing Management System, Customer Complaint and Feedback Management Standards, Customer Differentiated Demand Management System*
- Revise *Customer Complaint Management System, Dealer Management System*

02 Establishing and Improving Processes

- Pre-sales consultation, in-sales communication, after-sales response
- Inform customers of privacy policies and standardize data usage processes
- Hold weekly customer complaint regular meetings

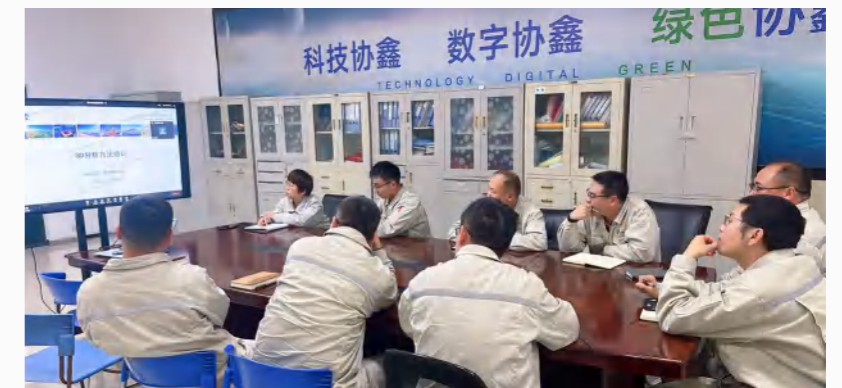
03 Unlocking Communication Channels

- Fully launch a 400 customer service hotline
- Establish regular return visits by the after-sales department
- Open customer service channel systems such as public email and official WeChat accounts

Case

GCL Technology Focuses on Customer Perspective and Invites Customers to Conduct Training

In 2024, GCL Technology innovatively adopted a customer-centric approach and invited customers to conduct special training for employees in key positions such as quality, technology, and production. The training focuses on the pain points in customer service and the direction of product quality optimization, aiming to improve service capabilities and product quality in a targeted manner. During the reporting period, a total of 205 employees participated. After the training, each base company immediately conducts an in-depth analysis and review based on the recent actual customer complaint cases, and effectively transforms customer feedback into effective actions to improve service and product quality.



2024

Customer satisfaction of subsidiaries over

96%

among which GCL New Energy reached

100%



Win-Win Synergy

CL Group actively integrates into the in-depth collaboration of the green industrial chain, steadily strengthens the supplier management responsibility system, and is committed to achieving more efficient and resilient operation of the supply chain. The Group takes the initiative to participate in industry dialogues, standard setting and technological innovation, jointly promotes the innovation and upgrading of the green value chain, and works with partners to build a more open and win-win new energy industry ecosystem.

SDGs



Responsible Supply Chain

GCL Group implements responsible procurement and business ethics guidelines and strengthens the compliance and transparency of the upstream procurement chain. By leveraging the "GCL Intelligent Chain" to promote digital and visual collaboration in the supply chain, the Group improves sustainable management and risk response capabilities. This lays a solid foundation for the Group to achieve the goal of building an end-to-end supply chain system and carrying out supply chain management solutions, integrating production, supply, and marketing.

Supplier Management

GCL Group has established a full-process controlled supplier management system to ensure that the qualifications of cooperative suppliers meet the standards for sustainable cooperation. Subsidiaries of the Group build management systems and clarify job responsibilities according to their own operational conditions, laying an organizational foundation for the efficient operation of the supply chain management system.

Responsibility System	Personnel Composition	Main Responsibilities
Group Supply Chain and Bidding Committee	Committee members	<ul style="list-style-type: none"> Core coordinating body Responsible for reviewing decisions and overall coordination
Group Supply Chain Management Center	Personnel of the Supplier Management Department	<ul style="list-style-type: none"> Formulate the Group's Supplier Management System Supporting the overall management of the quantity and quality of suppliers Conducting pre-review, compliance inspection, and assessment of suppliers Carrying out training for supplier managers
Supply Chain Management Departments of Business Segments and Divisions	Segment supplier managers and supply chain heads	<ul style="list-style-type: none"> Formulating segment supplier management systems Guiding the work of supplier managers Managing supplier performance evaluation Conducting compliance inspections and assessments throughout the supplier life cycle
Supply Chain Management Departments of the Group Directly Affiliated Companies and Project Companies	Supplier managers and supply chain heads of group directly affiliated companies and project companies	<ul style="list-style-type: none"> Supplier information review Specific implementation of supplier inspection and performance evaluation Onboarding process and dynamic management of suppliers

As of the end of the reporting period

Total number of suppliers¹

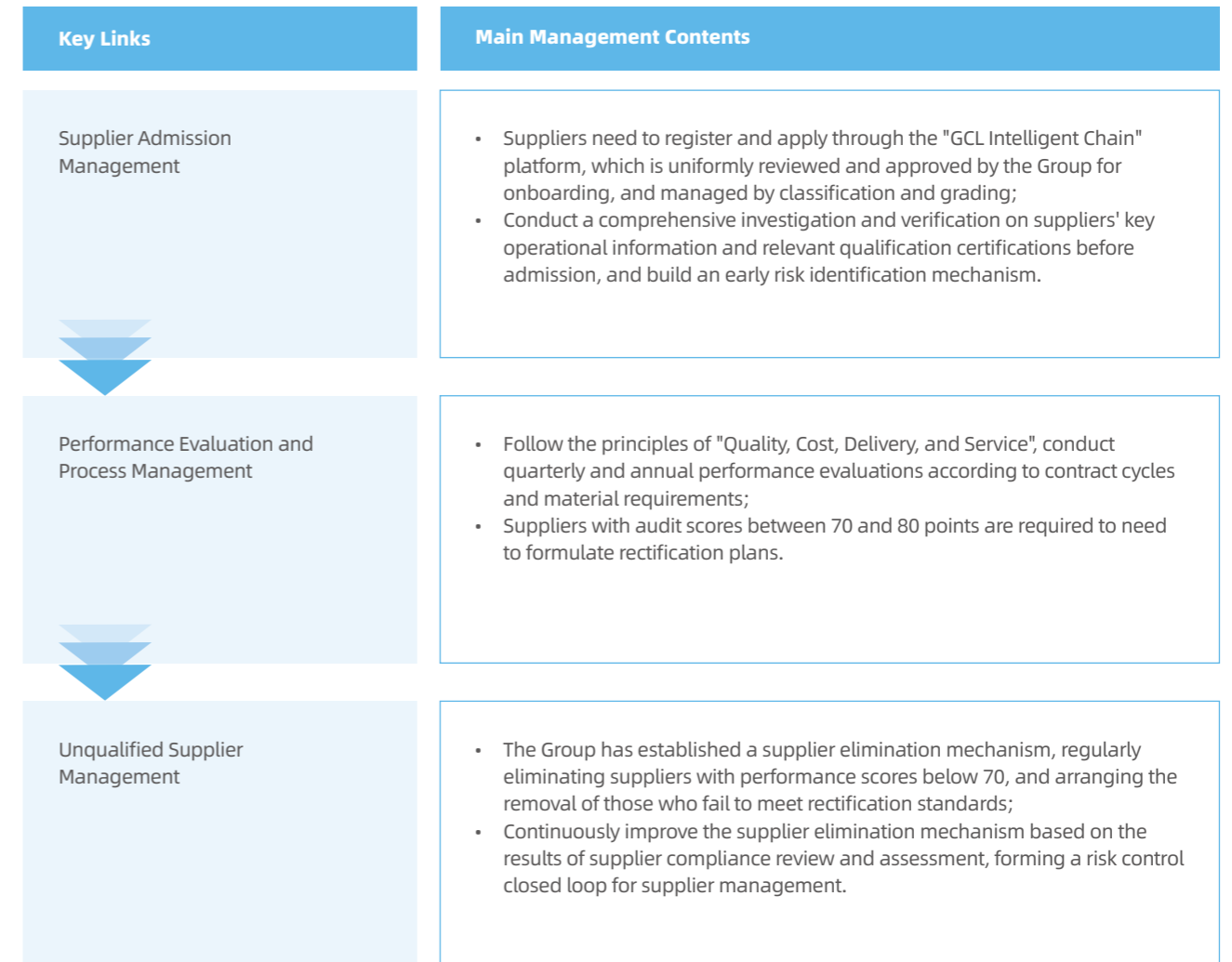
2,353

Among them, the number of core suppliers²

60

GCL Group complies with laws and regulations such as the *Bidding Law of the People's Republic of China*, and has established an institutional framework with *Supply Chain Management System* and *Procurement Management System* as the core. In 2024, the Group revised and updated 7 systems, including the *Supplier Management System* and *Bidding and Negotiation Management Standards*, formulated and issued professional guidance documents such as the *guideline on Standardizing the Setting of Bidding Approval Process Nodes*, the *Group Supply Chain Internal Control Manual*, and the *Implementation Rules for Centralized Procurement Management*. These measures strengthen the compliance, consistency, and transparency of management processes and important control links, and promote the development of a scientific supplier management system.

With full-life-cycle management as the core, the Group continuously improves the supplier management process. By controlling the access quality through pre-review and hierarchical review, strengthening periodic evaluation and validity management during the performance process, and implementing differentiated rectification measures and elimination mechanisms, the Group gradually forms a risk prevention and control closed loop covering the pre-event, in-event, and post-event stages, improving supply chain stability and management efficiency.



¹ Suppliers with high procurement amounts.

² The number of the Company's core suppliers, and the data statistical definition is defined by the Company based on internal conditions.

Sustainable Supply Chain



To ensure the sustainability of the supply chain, GCL Group and its subsidiaries continue to strengthen the identification and control of sustainability risks, integrating ESG concepts into supply chain risk management, steadily promoting the construction of responsible procurement mechanisms, improving the integrity and compliance system, and promoting the Group's value chain to develop in a standardized, transparent and sustainable direction.

Strengthening Risk Management

GCL Group takes "safety, sustainability, competitiveness, and flexibility" as the core goals of supply chain management, and systematically strengthens the internal supply chain risk control mechanism. In 2024, the Group revised and issued 11 special risk control systems and 45 management notices. The Group formulates the *Group Supply Chain Internal Control Manual*, comprehensively promoting the continuous optimization and upgrading of supply chain risk management and procurement bidding processes, and enhancing supply chain risk response capabilities. The Group also carries out review measures such as quotation IP address screening, and regular inspections of compliant and reasonable business, aiming to improve supply chain risk identification and supervision capabilities.

Implementing Responsible Procurement

To ensure the compliance and rationality of the procurement process, GCL Group formulates internal management systems such as the *Procurement Management System*, specifying that priority should be given to suppliers that have obtained quality management system certification (ISO 9001), environmental management system certification (ISO 14001) and occupational health and safety management system certification (ISO 45001) under the same conditions. On this basis, the Group continues to strengthen supplier selection criteria, incorporating carbon footprint product certification (ISO 14067) into supplier qualification assessment. The Group requires production and manufacturing suppliers to provide environmental management system certification certificates as needed, ensuring that the entire production process and life cycle of purchased products are green, eco-friendly, safe, and compliant. The Group actively promotes subsidiaries to carry out ESG due diligence on suppliers and form relevant institutional documents, comprehensively strengthening the identification and management of supply chain environmental and social risks, and standardizing supply chain ESG management behaviors from multiple dimensions.

Case

GCL Technology Continuously Improves Supply Chain ESG Management Procedures

GCL Technology actively establishes and improves supplier due diligence procedures and formulates management documents such as *GCL Technology Supply Chain Due Diligence Guidelines*, specifying that supply chain due diligence should be carried out once a year. GCL Technology standardizes risk identification, assessment, management, and appeal mechanisms, and provides guidance for due diligence. In 2024, GCL Technology, in conjunction with an independent third-party institution, carried out ESG due diligence on 18 core material (such as silicon Metal and graphite) suppliers, identified and proposed 564 risk management suggestions and urged rectification, and completed the *2024 GCL Technology Supply Chain Due Diligence White Paper* to continuously improve the compliance management level of the supply chain.

As of the end of the reporting period

Suppliers holding certificates of Quality Management System Certification

1,982

Suppliers holding certificates of Environmental Management System Certification

1,693

Suppliers holding certificates of Occupational Health and Safety Management System Certification

1,641

Case

GCL Technology Obtained the Sustainable Procurement Assessment Statement

TÜV SÜD officially issued a statement that GCL Technology has passed the ISO 20400 Sustainable Procurement Assessment Statement, affirming its practical achievements in sustainable procurement and supply chain management, reflecting GCL Technology's active exploration and continuous improvement in integrating Environmental, Social, and Governance factors into the supply chain management system.



In addition, the Group attaches great importance to the construction of the due diligence capabilities of heads of procurement, and regularly conducts empowerment training for relevant employees, continuously strengthening their professional capabilities in ESG review, investigation, and evaluation, and promoting the construction of a responsible, standardized, green, and sustainable supply chain system.

Case

GCL Technology Conducted Supply Chain Internal Auditor Training

GCL Technology has organized specialized training for internal auditors of the sustainable supply chain, systematically explaining the requirements of corporate social responsibility and the key points and operation processes of CSR due diligence in the supply chain, aiming to further strengthen the professional capabilities and practices of internal auditors in due diligence.

2024

Percentage of core suppliers signing the Code of Conduct

100%

Standardize the Code of Conduct

GCL Group puts forward clear requirements for suppliers in aspects such as environmental management, occupational health and safety, and employment management to jointly promote the construction of a responsible supply chain. At the same time, the Group encourages suppliers to provide Environmental, Social, and Governance reports, promoting their continuous improvement in ESG performance and enhancing the transparency and sustainability of the supply chain.

Consolidate Business Ethics

To ensure the openness, transparency, and efficient operation of the procurement process, the Group has constructed a standardized transparent procurement management system. With the help of the "GCL Intelligent Chain" platform, the entire process from procurement application, quotation, review to contract signing can be operated online, improving the level of information disclosure and facilitating process supervision and liability tracing. At the same time, the Group has established a supervision mechanism led by the Discipline Inspection and Supervision Department of GCL Group to monitor the bidding activities throughout the process. The Group also strengthens the awareness of personnel risk prevention and control through regular job rotations of sensitive positions and integrity and compliance education and training. In addition, the Group requires all cooperative suppliers to sign anti-commercial bribery and integrity agreements to further strengthen the line of integrity and compliance.

Conflict Minerals Management

The GCL Group requires its subsidiaries to establish and implement a conflict mineral management policy, and at the same time issue corresponding commitments externally, clearly prohibiting the procurement and use of minerals and raw materials directly or indirectly sourced from areas affected by armed conflicts. In the case of specific minerals such as tantalum, tin, tungsten, gold, cobalt, or their derivatives sourced being used in production, suppliers must trace the origin of the minerals and provide a *Conflict-Free Minerals Statement* and relevant traceability materials as support to ensure the compliance of raw material procurement and safeguard human rights and ethics responsibilities.

Digital Management of the Supply Chain

The GCL Group attaches great importance to the digital management of its supply chain. To improve the quality of supply chain data and management efficiency, the Group compiled and issued professional documents such as the *Implementation Guidelines for Supply Chain Data Governance and Material Coding Management Measures* in 2024. At the same time, through the "GCL Intelligent Chain" digital cloud information platform, the Group has implemented unified management of both active and inactive suppliers, promoting the integrated and visualized management of supply chain information, and improve the management efficiency and coordination capabilities of the supply chain.

At present, the digital platform supports the full-life cycle and data quality management of suppliers. On the basis of ensuring the accuracy and reliability of data, GCL Group continuously strengthens the refined management of data classification, generation, and optimization to improve procurement efficiency and compliance, achieving cost reduction and efficiency improvement. At the same time, the Group promotes the online management of key activities such as performance evaluation, on-site inspection, rectification, and withdrawal, aiming at significantly improving the efficiency of supplier management and providing a high-quality and convenient means for management process tracing and supervision.



Key Contents of Digital Management of Supplier Information

<p>Suppliers' master data</p> 	<ul style="list-style-type: none"> The core master data of suppliers are verified via a third-party platform to ensure data accuracy.
<p>Management of suppliers' subject matter</p> 	<ul style="list-style-type: none"> Suppliers are linked to business through subject matter, and their qualifications and materials are dynamically controlled based on the validity period. For the supply area, hierarchical and classified management is implemented according to different subject matters and enterprise types. Establish a corresponding management mechanism for the brands involved by agents.
<p>Management of the subject matter repository</p> 	<ul style="list-style-type: none"> Through the sorting and integration of the subject matter repository, reduce the number and levels of subject matters, achieve effective and accurate association between suppliers and subject matters, and optimize the bidding process. Maintain the information of all qualified subject matters in the repository and establish the hierarchical and classified standards. Refine the professional qualification requirements according to industry and national requirements.
<p>Management of supplier performance evaluation</p> 	<ul style="list-style-type: none"> Fully promote the online management of performance evaluation, and implement online rectification for suppliers that need rectification according to the system.
<p>On-site review of suppliers</p> 	<ul style="list-style-type: none"> Put forward standard requirements for personnel participating in reviews and implement online management.
<p>Management of supplier withdrawal</p> 	<ul style="list-style-type: none"> Utilize data of sourcing and the validity period of subject matters to conduct irregular sorting of suppliers. Use the data of third-party platforms to eliminate suppliers that are deregistered or have their business licenses revoked.

Supplier Enabling

On the basis of deepening collaborative supply chain management, GCL Group and its subsidiaries actively build stable cooperative relationships with their suppliers by establishing an efficient communication mechanism, carrying out quality training and technical exchanges, and expanding innovative cooperation models, aimed at continuously promoting the formation of a mutually beneficial and win-win ecological system.

In specific businesses, GCL Group and its subsidiaries publicize and interpret ESG activities through various forms and actively guide suppliers to jointly practice green production and technological innovation, covering aspects such as the promotion of clean energy, the optimization of energy-saving processes, and the reduction of packaging materials. In 2024, GCL Group developed a carbon chain management system. At present, this system has the ability to serve internal and external enterprises, and in coordination with the "GCL Intelligent Chain", it provides favorable support for the digital transformation of ESG management of the value chain. At the same time, GCL Group has reviewed contract execution of some cooperative suppliers to help them improve their compliance levels.

Case

GCL Technology carries out Diversified Training Programs for Suppliers

In 2024, GCL Technology launched an online training program for suppliers on "Collaborative Operation of GCL Contract and GCL Intelligent Chain Systems", organized suppliers to sign the *Code of Social Responsibility for GCL Technology's Supply Chain Partners*, and carried out follow-up visits on issues such as supplier material use and after-sales service, and promoted the implementation of rectification.

In addition, GCL Technology has organized and carried out training related to supply chain due diligence, systematically explaining aspects such as ESG policy trends, management practices, due diligence norms, and supplier audit requirements, further enhancing suppliers' professional understanding and responsibility-fulfilling capabilities in the ESG management field.



Supplier Due Diligence Training

2024

Number of supplier training sessions

419¹

Total hours of supplier training

658²



¹ The data statistics cover GCL Group's, GCL Technology and GCL ET.

² The data statistics cover GCL Group's, GCL Technology and GCL ET.

Promoting Industry Development

GCL Group has always played a pivotal role in the industry to promote the development of green energy and drive the collaborative upgrading of the entire industry chain and supply chain. In 2024, the Group actively participated in multi-level industry exchanges and standard formulation, integrated industry-university-research and financial resources, promoted the continuous improvement of standards related to new energy and sustainable governance, facilitated the popularization of emerging technologies and business models, and continuously expanded the boundaries of cross-industry, cross-regional, and cross-national cooperation to jointly build a green, intelligent, and shared clean energy ecosystem.

Industry Cooperation

Government



- GCL Group, in cooperation with the China Energy Research Society and Suzhou Energy Group, carried out the first landing of the Future Energy Conference in Suzhou to create a "City + Energy" IP matrix.

Upstream and downstream of the industry chain



- GCL Group signed a cooperation agreement with the Jiangsu Leading Tendering Center.
- GCL Group carried out supply chain business exchanges and cooperation with Huawei.
- GCL Group signed a comprehensive strategic cooperation agreement with CATL to jointly build a new power and energy system on the "dual carbon" track.

Professional institutions



- GCL, in collaboration with Ant Digital Technologies and TÜV Rheinland, created the industry's first full-life-cycle accurate carbon footprint dynamic tracing and management platform - "GCL Carbon Chain", aiming at promoting and enabling the low-carbon transformation of the entire industrial chain.
- GCL signed a strategic cooperation agreement with Ant Digital Technologies. The two parties will carry out comprehensive cooperation in new power systems, green finance, and artificial intelligence in areas such as distributed photovoltaic power plants, industrial and commercial photovoltaic power plants, household photovoltaic power plants, energy storage, and comprehensive energy.

International cooperation



- GCL Group reached a commercial development agreement for a natural gas project with relevant departments in Ethiopia, and the first-phase project started as scheduled.
- GCL Group was invited to become a strategic partner of WIPO GREEN (WIPO's sustainable technology trading platform).

Case

GCL Signed a Strategic Cooperation Agreement with Ant Digital Technologies.

In December 2024, GCL ET, signed a strategic cooperation agreement with Ant Digital Technologies in Suzhou. The two parties will cooperate in aspects such as the construction of a new power system, green finance, and artificial intelligence in scenarios such as distributed photovoltaic power stations, energy storage power stations, and comprehensive energy services. On the same day, they issued RWA (Real World Assets) based on photovoltaic physical assets. It is reported that this is the first domestic RWA of photovoltaic physical assets, which will effectively help connect domestic green assets with overseas funds efficiently.



案例

The Strategic Partnership Between GCL and CATL Was Comprehensively Upgraded

In August 2024, Zhu Yufeng, Secretary of the Party Committee and President of GCL Group, and Zeng Yuqun, Chairman and CEO of CATL, along with other leaders, held a signing ceremony for a comprehensive strategic cooperation agreement in Ningde, Fujian. The two parties will adhere to the principles of "equality, mutual benefit, complementary advantages, win-win cooperation, and common development" to further deepen their comprehensive strategic cooperation and contribute to the construction of a new power system and a new energy system.



Industry exchanges

GCL Group actively participates in various domestic and international new energy and smart energy exchange forums. Taking multiple cooperation and dialogue opportunities, it strengthens technical exchanges and industrial cooperation, and continuously promotes the high-quality development of the new energy industry.

Case

The 17th China Industry Forum in 2024

On December 28, the 17th China Industry Forum was successfully held by China Industry News, and GCL Group was invited to attend the conference. In the round-table dialogue session, the Chief Brand Officer of GCL Group shared insights on the topic of "Transformation in the 'New' Green Era" and stated that the Group will continue to efficiently amplify the carbon control and reduction effects of the entire photovoltaic industry chain, provide the world with more low-carbon module products, and empower the green and high-quality transformation and development of energy.



Case

The 2nd China International Supply Chain Expo

From November 26 to 30, 2024, as an outstanding enterprise representative, GCL ET delivered keynote speeches at the China International Supply Chain Promotion Expo on topics such as "Leading a New Chapter in Rural Revitalization with Zero-Carbon Development" and "Exploration and Practice of Green Electricity Energy Conservation in Zero-Carbon Solutions". At the same time, the Shandong Whole-Village Confluence Project and Shanxi Centralized Confluence Project invested and constructed by GCL ET were recognized as "Typical Cases of Green Energy Empowering Rural Revitalization", providing practical experience for the industry in innovative new energy development solutions.



Case

The China Silicon Industry Conference in 2024

On September 12, Zhu Gongshan, Chairman of GCL Group, was invited to attend the China Silicon Industry Conference. In the opening speech, Zhu Gongshan recognized the excellent performance of the silicon industry in Baotou, Inner Mongolia, emphasizing the importance of scientific and technological innovation and green low-carbon for the high-quality development of the industry. At the same time, the Co-Chief Executive Officer of GCL Technology participated in a high-level dialogue themed on the high-quality development of the silicon industry at the conference, sharing the technical advantages of granular silicon and the Company's overseas expansion strategy.



Case

The 2024 SNEC 17th International Photovoltaic Power Generation and Smart Energy Conference & Exhibition

On June 11, Zhu Gongshan, Chairman of GCL Group, attended and delivered a keynote speech titled *The Great Change Era of Photovoltaic under the Background of New Quality Productive Forces* as the executive chairman of the conference. At the same time, he and several guests in the new energy field were jointly awarded the honor of "Global Solar Leader".

On June 13, the GCL Theme Pavilion attracted a large number of visitors by displaying green energy technology and global energy transformation scenarios in a 1,200-square-meter exhibition area. Mr. Zhu also accepted interviews from several mainstream media, who introduced GCL's latest achievements in digital energy and scientific research, receiving widespread attention.



Case

The Real Economy Development Conference in 2024

On November 28, at the Real Economy Development Conference, Zhu Gongshan, Chairman of GCL Group, as the only entrepreneur representative, was invited to have an in-depth dialogue with industry experts and scholars on the integrated application of "AI + Energy", jointly exploring the breakthrough and long-term strategies for the development of China's AI-enabled manufacturing under the background of the new development pattern.



Case

The GCL Special Event of the New Quality Productive Forces Development Forum of the "Golden Harvest Plan" New Energy Industry in 2024

On May 30, 2024, the New Quality Productive Forces Development Forum for the New Energy Industry and the GCL Group Special Event under CICC's "Golden Harvest Plan" were successfully held in Suzhou, creating opportunities for onsite exchanges among multiple ecological partners. Zhu Yufeng, Vice Chairman and President of GCL Group, pointed out that developing green new quality productive forces is the top priority. He stated that GCL will work together with partners in the industry chain, innovation chain, and capital chain to jointly build a low-carbon/zero-carbon new world.



Case

Jiangsu-Africa Economic and Trade Cooperation Exchange Meeting

On November 14, 2024, as the only energy enterprise invited, GCL Group participated in the Jiangsu-Africa (Ethiopia) Economic and Trade Cooperation Exchange Meeting. During the meeting, the Group reported on the construction progress of the Ethiopian natural gas project, and stated that it will accelerate the project construction to inject new momentum into the economic development and people's livelihood and well-being construction of Ethiopia.

Standard Formulation

GCL Group and its subsidiaries actively have participated in the formulation of a number of industry standards, management regulations, and ESG information disclosure guidelines, contributed professional experience, promoted the formation of a more complete standard system for the new energy and related industries in terms of sustainable governance, technological innovation, and responsibility management, and helped the healthy development of the industry.

ESG evaluation standards

General ESG Enterprise Evaluation Specifications, ESG Evaluation Guidelines for the New Energy Industry, and Environmental, Social, and Governance (ESG) Evaluation Guidelines for Power Enterprises

ESG disclosure standards

ESG Information Disclosure Guidelines for the New Energy Industry and Environmental, Social, and Governance (ESG) Information Disclosure Guidelines for Power Enterprises

Photovoltaic module performance testing standards

Natural Exposure Test Method and Performance Evaluation of Photovoltaic Glass in Extreme Cold Atmospheric Environment (National Standard Plan No.: 20241933-T-609) Work on the Natural Exposure Test Method and Performance Evaluation of Photovoltaic Glass in Marine Environment (National Standard Plan No.: 20241938-T-609)

Silicon material property testing standards

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

Responsibility for All

By safeguarding employees' rights and interests, facilitating talent growth, carrying out social public welfare and rural revitalization activities, GCL Group deeply integrates social responsibility into enterprise operations. While creating economic value, it gives back to social livelihood, achieving the symbiosis and common prosperity of the enterprise and society, and fully demonstrating corporate responsibility.

SDGs



Creating a Happy Workplace

Under the guidance of the "family culture" concept, GCL Group always regards employees as the foundation of its development. By effectively safeguarding rights and interests, building a growth platform, and transmitting organizational warmth, it achieves the harmonious resonance between individual value and enterprise development.

Protection of Employees' Rights and Interests

2024

The signing rate of employment contracts for GCL Group employees was

100%

Compliance in Employment

Upholding the people-oriented concept, GCL Group strictly complies with laws and regulations such as the *Labor Law of the People's Republic of China* and the *Labor Contract Law of the People's Republic of China*, and continuously revises and improves the standards such as the *Employee Recruitment and Employment Management System*. A standardized full-process mechanism of "recruitment-interview-onboarding-regularization" has been established. With the help of intelligent technologies such as anonymization and AI screening, the fairness, impartiality, and openness of the employment process are ensured. At the same time, to create a harmonious and stable labor-relationship, the Group and its subsidiaries legally sign labor contracts with employees and establish labor unions to effectively protect employees' legitimate rights and interests.



Case

GCL Technology Implemented Human Rights Risk Management

In accordance with the *United Nations' Guiding Principles on Business and the Human Rights (UNGPs)*, the *Universal Declaration of Human Rights*, and the core convention rules of the International Labour Organization (ILO), GCL Technology has formulated documents such as the *Code of Business Conduct*, *Human Rights Policy*, the *Employee Rights and Interests Protection Policy*, and the *Special Protection Procedures for Child Labor, Juvenile Workers, and Female Workers*. These are overall controlled by the Board of Directors, specifically managed by the Sustainable Development Center, and implemented, supervised, and managed for compliance by the ESG Action Group.

Case

Seven Subsidiaries of the Group Passed the SA8000 Certification

The subsidiaries are continuously improving employees' working environment and interests, continuously raising standards in work safety, environmental protection, fire protection, employee welfare, and occupational health, and carrying out special training for all management and front-line employees to enhance the Company's capabilities in human rights protection, labor management, and social responsibility. In 2024, seven subsidiaries such as Funing GCL, Hefei GCL, Xuzhou Photovoltaic, and Ningxia Photovoltaic passed the SA8000 social responsibility certification.

2024

Number of ethnic minority employees

857

Number of disabled employees

18

Number of disabled people in management

3

2024

The coverage rate of employees' social insurance was

100%

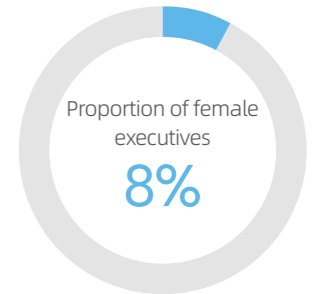
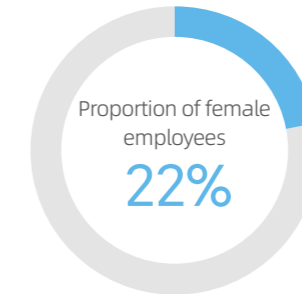
2024

The employee satisfaction was

90.8%

Diversity and Equal Opportunity

GCL Group is committed to building a diverse and inclusive social ecosystem, providing equal welfare and employment opportunities. For employee recruitment and promotion, the Group strictly prohibits the employment of child labor and any form of forced labor, and resolutely eliminates discriminatory behaviors based on factors such as race, skin color, religious belief, gender, age, nationality, disability status, sexual orientation, or family status. At the same time, the Group has actively promoted the "Women's Leadership Development Plan" to systematically cultivate female management talents. In 2024, the proportion of promoted female employees reached 22.2%. In addition, the Group pays attention to the living and employment issues of people with disabilities, provides them with equal benefits and employment opportunities, and installs facilities such as barrier-free elevators and ramps to fully guarantee the safety and convenience of employees.



Remuneration and Benefits

GCL Group has formulated the *Remuneration Management System*, continuously improved the remuneration and welfare system, paid the full amount of social insurances and housing fund in accordance with the law to meet the basic living needs of employees. According to the actual situation, a variety of non-monetary benefits have been offered by the Group to provide comprehensive support to employees, enhancing their sense of belonging and loyalty. For example, various allowances and subsidies, holiday gifts, wedding gifts, transportation subsidies, free physical examinations, supplementary medical insurance, employee dormitories, etc. To ensure that employees' remuneration is competitive in the industry, the Company closely monitors industry and market trends and adjusts the remuneration level in a timely manner. During the process, GCL Group has fully implemented the policy of equal pay for equal work for men and women, and actively created an equal and inclusive workplace environment.

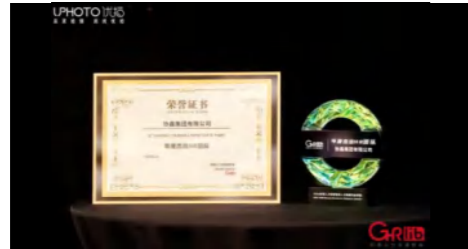
Employee Communication

According to the *GCL Basic Law*, GCL Group has established a three-level workers' congress system covering the Group, industrial sectors, and enterprises, clarifying the participation processes and methods of employees in the three major mechanisms of decision-making, management, and coordination. At the same time, the Group actively collects employees' opinions through online and offline channels, establishes an employee satisfaction research system, accurately identifies the pain points of employees' experience, optimizes systems and measures in a timely manner, and enhances employees' sense of belonging. Therefore, the Group has established a hierarchical response mechanism, such as the system of time-limited feedback for ordinary demands and special group follow-up for complex problems. A special institution is responsible for tracking, coordinating and implementing solutions to employees' problems.

Employee communication channels	Online	online mailbox, satisfaction survey, and internal information release
	Offline	employees' representative congress, interviews with newly hired employees, employee symposiums, general manager reception day, and visits to employees' dormitories

Annual Outstanding HR Team

Global Human Resources Think Tank



Best Employer Award in Greater Suzhou

Best Employer Committee in Greater Suzhou



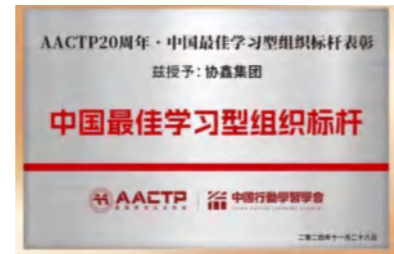
Employer Brand Favored by Chinese College Students

51Job



Benchmark of China's Best Learning-Oriented Organization

American Society for Training & Development



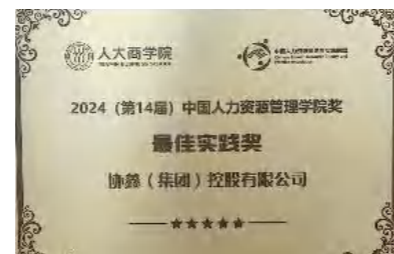
Top 100 Advanced Organizations of Chinese Enterprise Education

Organizing Committee of the Top 100 Chinese Enterprise Education



Best Practices Award

Business School of Renmin University of China



Total number of employees in the Group

24,873



By gender:

Female Male

5,528

19,345

By age:

< 30 years old 30-50 years old > 50 years old

7,601

15,685

1,587

By job level:

Senior management Middle management Front-line employee

61

981

23,831



Focus on Employee Development

new employees

4,546

Talent Introduction

In accordance with the goal of international development, GCL Group introduces elite talents at home and abroad through multiple channels such as social recruitment, campus recruitment, school-enterprise cooperation, and management trainee programs. Among them, the Group has launched a special activity for introducing top-notch talents, and introduced talents above the senior director level through targeted search and discovery. In order to improve the efficiency of talent retrieval and screening, the Group has constructed a talent resource database, used artificial intelligence and machine learning technologies to support human resources strategic decisions, and implemented hierarchical, classified and tagged management to achieve accurate matching of people and positions.

Performance Appraisal and Incentives

In 2024, the Group updated 12 management standards such as the *Reward and Punishment Management Measures* and the *Internal Competition and Employment Management Standards*. To implement the development strategy, GCL Group breaks down the annual appraisal objectives step by step to each business sector, forming the annual, quarterly, and monthly performance objectives of senior executives, departments, and employees. The Group's Business Planning Department has signed the organizational target responsibility agreement with its subsidiaries. The Group adopts the corporate performance model of "double hundred-mark system", "starting from the C position", and comprehensive performance objectives, conducts monthly and quarterly appraisals, and applies the results to remuneration adjustment, bonus calculation, position adjustment, job transfer, and training and development.

Organizational Performance Model	Double hundred-mark system	Starting from the C-position	Comprehensive performance objective
Performance Appraisal Cycle	Quarterly	Quarterly	Monthly
Performance Appraisal Indicators	Main value indicators + strategic tasks/key matters	Basic performance targets + key value matters + supervision	Comprehensive performance targets (8 aspects) + supervision

In addition, GCL Group continuously deepens the "Partner" plan and carefully arranges the incentive system that covers diversified medium-term and long-term incentive tools such as restricted stocks, stock options, and virtual stocks, and accurately binds core talents in different positions and levels.

The "Partner" plan includes

Entrepreneurial Partner



Career Partner



Excellent Talent Partner



Technology Partner



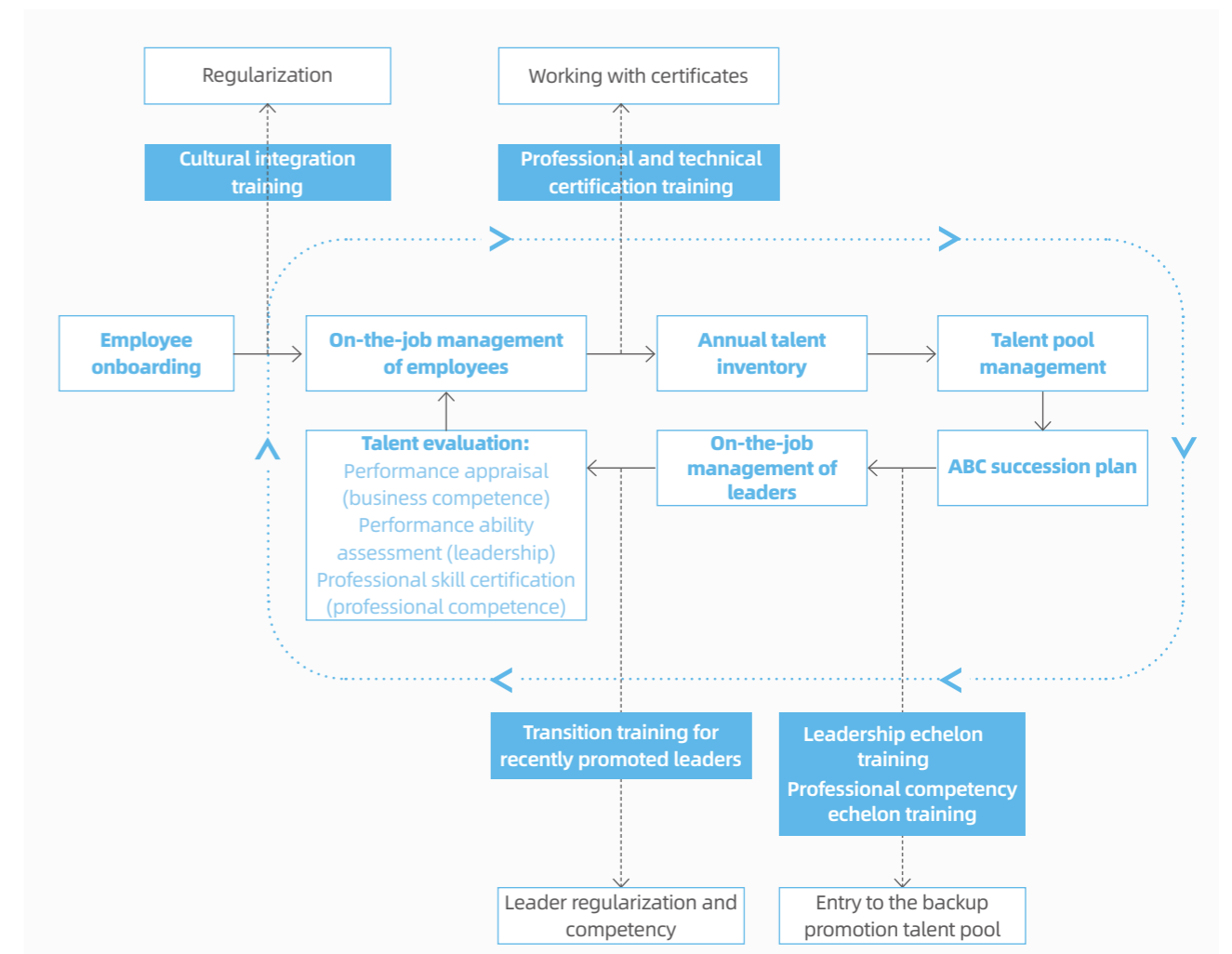
- M** Management Sequence
- P** Professional Sequence
- T** Technical Sequence
- O** Skill Sequence

Promotion Path

Under the guidance of the principles of "grading by position, hiring by ability, separating evaluation and employment, and changing salary when changing positions", GCL Group has established a clear job level system. In order to accurately distinguish the talent development channels, according to the characteristics of positions, this system is constructed in four sequences: management sequence (M), professional sequence (P), technical sequence (T), and skill sequence (O), and includes 16 job levels under each sequence based on the actual requirements of business development. For new employees, job levels are set according to their academic qualifications, interview scores, professional qualifications, and other basic job qualifications. Every year in the second quarter, the Human Resources Department starts the job promotion and appointment work to ensure that talents are matched with their positions to the optimal degree.

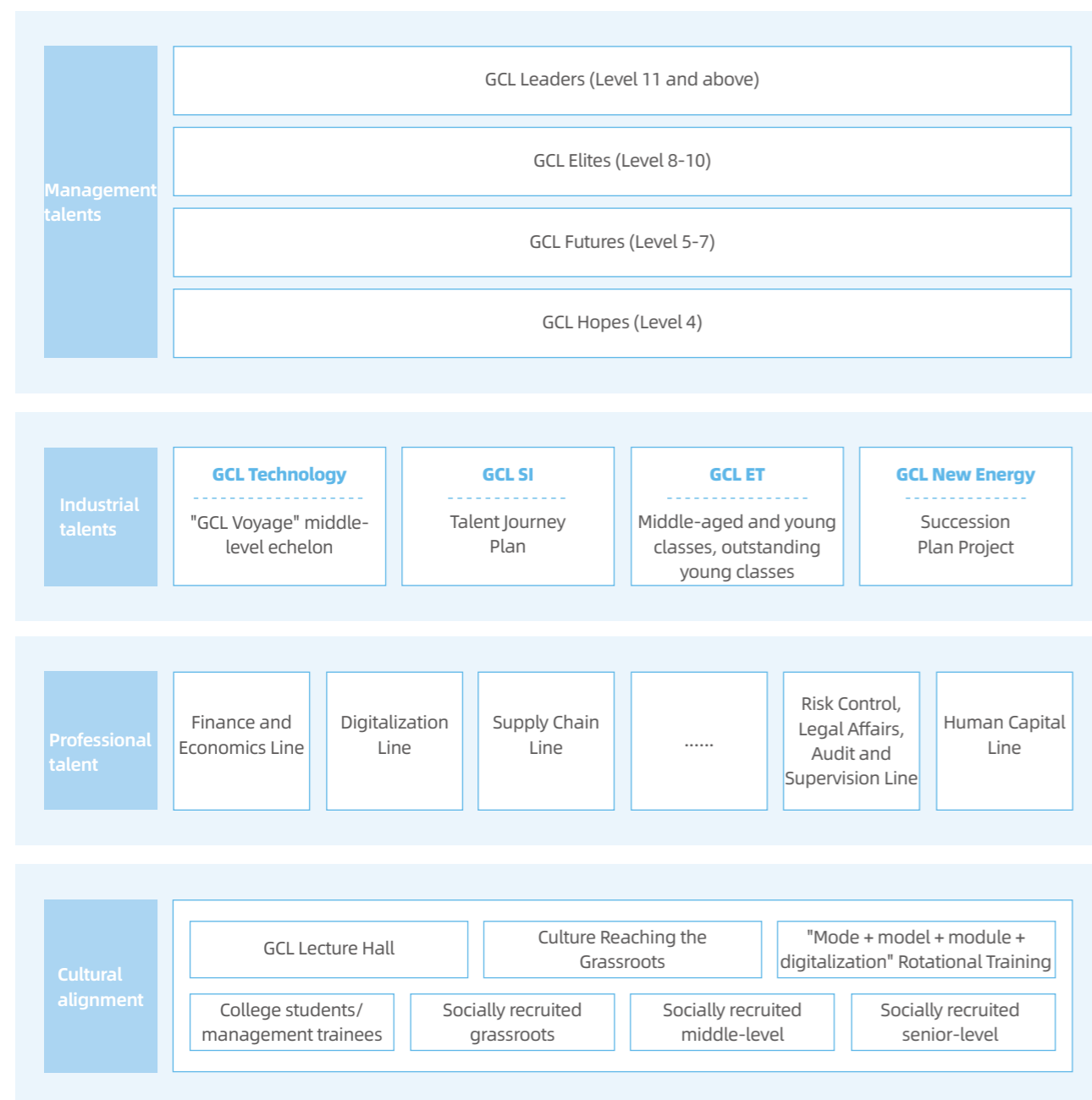
Training Plan

Talent development is a bridge for the common growth of employees and enterprises. GCL Group has established and improved a talent cultivation system, creating a three-level training network of "GCL University - branch school - base", aiming at promoting the four-stage talent cultivation process of "entry - on-the-job - reserve - transition", implementing an all-around and multi-dimensional talent empowerment project, and accurately meeting the differential ability requirements from the grassroots to senior executives.



The Group systematically improves employees' cultural literacy, professional skills, and leadership and management abilities through layered and classified special projects, forging a talent team with strong comprehensive strength. Among them, GCL University has set up a talent cultivation project that conforms to the Group's development strategy - the "Four GCL Echelons", aiming at selecting and cultivating leading talents with entrepreneurial spirit; based on industrial development and professional technical needs, the industrial and professional branch schools will identify, cultivate and select young high-potential talents in various fields. In terms of cultural identity, the Group regularly conducts corporate culture training to strengthen the cultural consistency of new and old employees, maintain cultural purity, and enhance team cohesion.

Talents Emerge in an Endless Stream, and Excellent Generals Are as Abundant as a Tide



Case

Leadership Project - Four GCL Echelons

Based on the concept of "mode + model + module + digitalization", GCL Group focuses on business scenarios and creates a leadership training project - "Four GCL Echelons" in a demand-oriented manner. It continuously optimizes the curriculum system in terms of strategic thinking, business awareness, and international perspective. At the same time, the Group introduces a high-quality team of instructors, establishes a digital platform, and carries out scenario-based case teaching and practical guidance, providing a talent echelon reservoir for the Group's strategic transformation and sustainable development.

Four GCL Echelons



Case

The "Eagle of GCL" New Employee Training Camp of GCL University

To help new employees quickly understand and identify with the GCL culture, GCL University has held the "Eagle of GCL" New Employee Training Camp for many years. The aim is to help new employees quickly adapt to job requirements, enhance their sense of belonging and identification with the Company, and facilitate the common growth of the Company and new employees through systematic curriculum training and practical activities.



To strengthen talent competitiveness, the Group captures the hot topics of the times, meets internal needs, and continuously innovates the curriculum system and upgrades the course content and training platforms. In 2024, the employee course satisfaction rate reached 92%, and the accumulated number of cases/courses increased by 50% year-on-year.

2024

The employee course satisfaction rate reached

92%

The accumulated number of cases/courses increased by

50% year-on-year



Developed and optimized nearly **280** in-person courses; added **2,234** online courses



The composite system of "professionalism + management + culture + knowledge inheritance" achieved a **95%** coverage rate



The Company has **510** regular lecturers, and in 2024, it trained and empowered nearly **150** lecturers



Case

"GCL knowledge platform" Digital Learning Platform

GCL Group has built the "GCL knowledge platform" learning platform, realizing the full-process connection and intelligent management of the Group's talent development data. The platform not only supports course management, examination and evaluation, AI-assisted development, and data analysis, but also provides comprehensive and accurate big data support for human resource decision-making, serving as a key driver for GCL Group to build a learning organization. The platform has nearly 20,000 active users, with an average active time of 11.2 hours per person and an average of 7.6 learning programs participated in per person. Throughout the year, 4,463 online exams were organized, with a pass rate as high as 95%.

Case

Management Trainee "Dual-Track Growth" Plan

The Group has innovatively launched a dual-track training model of "job rotation + ESG practice" to deeply integrate social responsibility into the training system for management trainees. In the two-year project, management trainees need to complete cross-departmental job rotations, which systematically cover core areas such as R&D, production, and CSR. At the same time, to enhance leadership, the Group requires their in-depth participation in social innovation project practices, such as leading or supporting special tasks like the construction of an inclusive workplace in overseas factories, thus effectively improving their understanding of and actions on sustainable development issues.

Case

The Group Builds the International Competence of the Talent Echelon

To improve the international capabilities of the core talent team, GCL Group has listed English training as a compulsory course for "GCL Echelon" trainees. This project provides professional training by introducing an international curriculum system and senior lecturers, and organizes trainees to conduct benchmarking learning in internationally leading enterprises to broaden their international perspective. At the same time, GCL Group, in response to different business needs, provides special courses on "Cross-Cultural Communication" and organizes overseas training camps for personnel in key positions to strengthen their cross-cultural collaboration capabilities.



The Group unblocks the channels for school-enterprise cooperation, carries out targeted training and scholarship programs with universities, and promotes the "Industry Mentor Program" to build a bridge for students from campus to society. At the same time, the Group builds a platform for employees to improve their academic qualifications, actively promotes the "dual advancement" of academic qualifications and professional capabilities, and provides strong support for employees' further studies. In addition, to improve employees' professional capabilities, the Group conducts an independent evaluation of professional titles and qualifications, and promotes the "work with a certificate" system for important positions.

Case

The Group Jointly Launched the GCL MBA Master Program with Renmin University of China

In 2024, GCL Group achieved its training performance goals and established a platform for employees to pursue further education and enhance their academic qualifications. In collaboration with Renmin University of China, the Group has provided exclusive preferential policies and learning support, effectively fostering the career development of employees while strengthening the Group's talent pipeline.

Talent Development Awards

2024-2025 ATD Best Learning Organization Award
ATD (Association for Talent Development)

China Talent Development Lighthouse Award · Model Enterprise
CSTD (China Society for Talent Development)

Top 100 Advanced Organizations of Chinese Enterprise Education
Top 100 Advanced Organizations of Chinese Enterprise Education

Benchmark of China's Best Learning-Oriented Organization
China Society for Action Learning

Outstanding Enterprise in Talent Development
Training Magazine

Brand Learning Project
Training Magazine

Golden Cradle
Ingenuity of Teaching · 2024 Corporate In-house Trainer Certification Conference

Overall Excellence Award in Seizing the Trend
Foretell Business School

Industry Innovation Award
Global Innovation Institute of Shanghai Jiao Tong

Best Practices Award
Renmin Business School

Key Achievements in Talent Development

Total number of training participants¹

20,177



Employee training hours²

1,069,264.81 Hrs



Total ESG training hours

30,000 Hrs



¹ The statistical scope covers four listed subsidiaries of GCL Group.

² The statistical scope covers four listed subsidiaries of GCL Group.

Employee care

GCL Group always cares about its employees, conveys GCL's care through practical actions, and is committed to creating a warm and harmonious team atmosphere. Based on the needs of different employees, the Group paid special welfare visits to help employees in difficulty, and holds retirement ceremonies for retired employees, making every GCL employee feel warmth and care.

The Group pays attention to the protection of female employees' rights and interests and their physical and mental development, and conveys humanistic care through multi-dimensional measures. According to the needs of different life stages, it ensures that all female employees enjoy exclusive holidays such as marriage leave, maternity leave, and breastfeeding leave. It also builds mother-and-baby rooms, and at some bases, childcare facilities are provided to offer considerate convenience for new mothers. The Group optimizes physical examination items, regularly provides free gynecological special examinations and "two-cancer screenings" for female employees, and comprehensively protects their physical and mental health.

At the same time, the Group pays attention to employees' childcare problems, has opened an internal summer children's day-care service center for many years, and regularly carries out a series of parent-child theme activities to help employees balance work and childcare, making employees feel warmth and obtain support in their career development.

In addition, GCL Group has organized various cultural and sports activities and workplace gyms, built platforms for physical fitness and stress relief, improved team cohesion and collaboration efficiency, and created a positive working atmosphere. At the same time, the Group invites external doctors to visit the Company, offers psychological courses, provides employees with psychological counseling rooms and decompression spaces, and creates a closed-loop for physical and mental health.

Case

The Suzhou Federation of Trade Unions, the Labor Union of GCL Group, and the Labor Union of GCL ET Jointly Expressed Sympathy to Front-line Employees

In August 2024, the fourth-level researcher of the Suzhou Federation of Trade Unions in Jiangsu Province, the vice-chairperson of the Labor Union of GCL Group, and the vice-chairperson of the Labor Union of GCL ET went to the production site of Suzhou Lantian to extend cordial greetings to front-line employees who had been sticking to their posts and bravely facing the high temperature for many days and had contributed to regional energy supply during the peak periods in summer.



Case

Special Lecture on Women's Breast Health

The Group invited gynecological experts from Suzhou Municipal Hospital to give a special lecture on female breast health, popularizing health knowledge such as breast disease prevention, self-examination methods, and scientific diagnosis and treatment, and answering questions to enhance female employees' health awareness. At the same time, the medical team of Suzhou Municipal Hospital provided free breast ultrasound examination services, and experts provided one-to-one result interpretation and subsequent health guidance.

Case

The Theme Activity of "Collecting Spring Scenery and Starting a Wonderful Strawberry-picking Journey"

The Group Headquarters, jointly with the sector management center, organized more than 70 female employees and their families to carry out the theme activity of "Collecting Spring Scenery and Starting a Wonderful Strawberry-picking Journey". With the theme of "green experience + ecological science popularization", this activity included special sessions such as watching red-billed gulls by Taihu Lake and picking organic strawberries, effectively improving the sense of gain and happiness of employees and their families, and transforming humanistic care into an internal driving force for the high-quality development of the enterprise.

Case

The Nursery Service Center Builds a Bridge Between Life and Work

In July 2024, GCL SI opened a public-welfare summer daycare class, offering activities such as subject tutoring, outdoor expansion, and educational games. While enhancing the emotional communication between parents and children, it also reduced the family care burden of employees. At the same time, GCL ET held the "GCL Baby · Energy Tour" theme activity, inviting employees' families to visit the modern factory area and observe the production process of silicon wafers. This project was selected as a typical innovative case of the key work of the Power Industry Labor Union in 2024.



Case

The Badminton Competition Demonstrates the GCL Spirit

In July 2024, the badminton team of the Labor Union of GCL ET, together with badminton members from industrial sectors of GCL Group, formed the GCL representative team to participate in the "Suzhou East Station Cup" Wusong Bay Future City Badminton Invitational Tournament. In August, Wuhu GCL under GCL SI held the "Swinging GCL Color, Competing for Supremacy" Badminton Competition. Such competitions have improved the physical quality and teamwork ability of GCL employees and effectively enhanced internal cohesion.



Case

"GCL Reading Club" Helps Employees with Emotional Management

In April 2024, GCL Technology launched a company-wide reading activity called "GCL Reading Club". Under the guidance of psychological counselors, employees gained an in-depth understanding of emotions such as anxiety, fear, sadness, depression and anger that affect work and life, and reflected on the negative impact of unhealthy emotions on themselves. At the same time, by mastering the methods of emotion management in the works, employees' psychological resilience was enhanced. While accelerating personal growth, work concentration and efficiency were also improved.



Enhancing a Solid Safety Defense Line

GCL Group conscientiously implements the decisions and arrangements on work safety decisions of the CPC Central Committee and the State Council, complies with laws and regulations such as the *Work Safety Law*, adheres to the principle of "safety first, prevention foremost, and comprehensive management", and establishes and effectuates the GCL EHS management concept of "safety is the root, efficiency is the basis, and environment is the priority". The Group also sets up and improves the work safety responsibility system for all and strengthen safety risk management to consolidate the safety defense line.

Work Safety

GCL Group has prepared a series of internal documents including the *EHS Management Manual* and the *Safety and the Health and Environment Management System*. It further strengthens the standardization of work safety, actively advances the digitalization of work safety, enhances team-level safety management, and focuses safety management efforts on the frontline teams of enterprises to continuously consolidate the foundation of work safety. In 2024, 25 subsidiaries of GCL Group passed ISO 45001 Occupational Health and Safety Management System certification, and 37 subsidiaries were awarded work safety standardization enterprise certificates.

EHS policies
safety first, prevention foremost, and comprehensive management

EHS objectives
Zero injury, zero accident, and zero pollution

EHS concepts
Safety is the root, efficiency is the basis, and environment is the priority

2024

Investment in work safety

31,617.56 Ten thousand RMB

GCL Group built a systematic and comprehensive EHS organizational responsibility system, and developed a three-level EHS management structure of "Group - Business Segment - Enterprise", which clarifies the responsibilities of each level and promotes the Group's EHS management work from top to bottom. Safety target responsibility agreements were signed at each level, with safety management focus placed on teams and safety responsibilities assigned to all employees.

GCL Group's Work Safety Management Structure

GCL Group EHS Committee



- Implement the requirements of national EHS-related policies and regulations, research and deploy the EHS work of the Group, coordinate and solve major problems, and assess the implementation of EHS work in industrial sectors and directly affiliated companies.

Office of GCL Group EHS Committee



- Implement the requirements of national EHS-related policies and regulations and the deployment requirements of the Group's EHS committee, supervise the implementation of work safety responsibilities by sector enterprises, and put forward assessment opinions on the EHS work of industrial sectors and directly-affiliated companies.

EHS Committee of Each Sector



- Implement national and industry policies, regulations as well as the Group's deployment requirements, inspects and supervises the EHS work of its subordinate enterprises, coordinates and resolves major issues, and conducts assessments on the implementation of EHS work in subordinate enterprises.

EHS Committee of Each Enterprise



- Implement the superior EHS management requirements, comply with EHS-related laws, regulations, standards and specifications, fulfill the enterprise's main responsibility for work safety, and ensure the enterprise's work safety.

Key Measures for GCL Group to Strengthen Work Safety Management

Improve the systems

- Establish system documents such as the *Safety, Health and Environment Management System*, the *Management System of Safety, Health and Environment Incidents*, the *Safety, Health and Environment Assessment Measures*, and the *Safety, Health and Environment Emergency Plan*.

Implement the work safety responsibility system

- Implement the list management for the safety performance of enterprise principals, and refine the assessment method for the safety performance of enterprise principals.
- The Group's EHS Office conducts in-depth enterprise research and inspection every month, supervises and guides enterprises in each sector to improve safety management work, and coordinates and helps solve their safety management problems to enhance the overall level of safety management.
- Inspect and promote the implementation of the principle that "those in charge of business must be in charge of safety, and those in charge of production and operation must be in charge of safety".

Equipment upgrade and transformation

- Ensure investment in work safety and continuously promote the upgrading and transformation of equipment. AI safety recognition radars are installed on forklifts to detect surrounding personnel and decelerate the forklifts automatically.

Digitalization of work safety

- Actively promote the digitalization of work safety, conduct research to formulate the Group's work safety digital platform development plan, guide and promote the digitalization of enterprise work safety. All hazardous chemical enterprises have established platforms to effectively control personnel positioning, hazardous work permits, and risk hazards.

Case

[Remotely Monitor and Guarantee EHS Management Implementation with VR and AR Technologies](#)

On April 10, 2024, the operation technology company successfully completed the docking test of AR intelligent equipment with the "GCLINKAGE" integrated energy management platform, and successfully realized real-time data transmission and interaction. Operation and maintenance personnel wore AR smart glasses and received task work orders in real-time, and the equipment would conduct visual marking and provide operation guidance; in case of problems, remote assistance and expert consultation could be initiated to achieve visual inspection and path planning. After application, the comprehensiveness and accuracy of inspection were improved, the reliability and stability of the power station were enhanced, and the effective implementation of EHS management was ensured.



Hidden Danger Inspection and Emergency Management

To enhance the safety risk control capabilities of each enterprise and guide enterprises of each sector to correctly and comprehensively identify and effectively control safety risks, GCL Group has prepared and issued the *GCL Group Safety Risk Control Guidance Manual (Trial)* in accordance with industry standards and specifications and the actual work safety conditions of various business formats. The Group organizes all employees to study the training manual to master safety risk control methods. In addition, GCL Group arranges all sectors to revise and improve the criteria for identifying major accident hazards, and regularly organizes an inspection of major accident hazards to eliminate the hazards in a timely manner and to prevent accidents.

2024

Number of hidden danger inspections

2,488



Operation Risk Control at Xinhua Semiconductor



Risk and Hidden Danger Inspection at GCL Perovskite



Monthly Inspection of Fire Extinguishers at GCL ET



On-site Inspection Conducted at GCL ET

Case

Studies and Compilation of the *Safety Risk Control Guidance Manual of GCL Group*

Based on its own enterprise production experience, GCL Group has conducted studies and compiled the *Safety Risk Control Guidance Manual of GCL Group*. With a large number of actual cases, it explains in simple terms the methods and precautions for safety risk identification, assessment, and control, effectively improving the front-line execution ability of enterprise safety risk management. To promote the transformation of knowledge and the grounding of capabilities, the Group has carried out several rounds of special training at different levels and for different types of work around the core content of the *Guidance Manual* to comprehensively strengthen the systematic operation efficiency of the Group's safety risk management.

2024

Number of safety emergency drills

3,535

Number of major work safety accidents

0

Number of employee deaths caused by work-related injuries

0

GCL Group's headquarters, business segments, and enterprises have all developed emergency response plans. Based on the potential risk hazards at production sites and seasonal characteristics, the Group organizes emergency response plan drills, including those for fires, electric shocks, confined spaces, hazardous chemical leaks, and typhoon/flood prevention, to enhance emergency response and emergency rescue capabilities.



Emergency Training Conducted at GCL SI



Emergency Drill for Confined Space Accidents at GCL Perovskite



Accident Emergency Drill at Xinhua Semiconductor



Fire Emergency Drill Conducted at GCL SI

Case

Drill for Handling Power Outage Accidents in Factory

On August 27, 2024, a subsidiary of GCL ET conducted an on-site response drill for a factory power outage accident. This drill enhanced employees' emergency response capabilities in dealing with factory power outages to effectively ensure the safety of unit equipment.



Safety Culture Construction

GCL Group has established a multi-level safety culture publicity and guidance system. It regularly carries out safety culture promotion activities targeting managers at all levels, frontline employees, and contractor operators. By organizing themed activities such as Work Safety Month, Fire Protection Publicity Month, safety knowledge competitions, safety speeches, and safety skills competitions, and by promoting safety knowledge through multiple channels, the Group integrates safety culture into all links of production and operation, and creates a strong safety culture atmosphere.



Safety Training at GCL Technology



Safety Belt Use Experience Device at GCL Technology



Safety Regulation Training Conducted at GCL ET



CPR Practical Training Organized by GCL ET



Construction Safety Thematic Education and Training at GCL Perovskite



Fire Safety Training at GCL Perovskite

Case

Wuhu GCL Conducted an Expert Knowledge Lecture During the "Work Safety Month"

In June 2024, Wuhu GCL carried out a special knowledge lecture activity for the "Work Safety Month", aiming to enhance employees' safety awareness and strengthen the enterprise's work safety management. During this lecture, senior work safety experts were invited to deeply interpret three major themes: the current work safety situation, enterprise safety risk control, and a standardized all-employee safety responsibility system. It also analyzed practical cases and systematically explained the implementation path and optimization direction of enterprise work safety management.



Case

GCL Group Conducted 2024 Safety, Health and Environment Training

In December 2024, GCL Group held annual centralized training for personnel in EHS lines. Senior domestic safety training instructors were specially invited to give lectures. Centering on the theme of improving the performance capabilities of safety management personnel, the training course provided systematic training covering various aspects of basic safety management work, ranging from advanced safety management concepts and safety culture development to the establishment of corporate safety management systems and mechanisms, team safety management, safety inspections, safety education and training, and emergency management. Safety concepts and practical methods such as the "point-line-plane" safety management system, refined safety management processes, the "broken windows" effect, and Heinrich's Law thereof brought inspiration and reflection to the trainees.



2024

Coverage rate of employees in safety training

100%

Number of work-safety-related training sessions

7,561

Total number of employees participating in work-safety-related training activities

222,324

Occupational Health Management

GCL Group strictly complies with the requirements of laws and regulations such as the *Law of the People's Republic of China on the Prevention and Control of Occupational Diseases* and the *Regulations on Work-related Injury Insurance*. It has formulated internal management measures such as the *Occupational Health Management Standard* and established a complete occupational safety and health management system. Relying on this, it provides all-round guidance and supervision for the work on occupational health and safety protection of its subordinate sectors and subsidiaries, committed to creating a healthy and safe working environment for employees.



Occupational Health and Safety Management Measures

Identification, notification, and label management of occupational hazard factors

- Set up clear safety signs and warning signs to remind employees of occupational hazard factors;
- Regularly detect occupational hazard factors to ensure that all factors meet national standards.

Implement occupational health surveillance

- Regularly carry out occupational health examinations and establish the *Personal Occupational Health Surveillance File*;
- Strengthen employees' medical security and promote the orderly connection of multi-level medical security.

Enhance the awareness of occupational safety protection

- Carry out three-level safety education and training for new employees;
- Regularly carry out special training on labor protection, chemical use, mechanical injury, electrical safety, etc.;
- Organize the publicity week activity of the *Law of the People's Republic of China on the Prevention and Control of Occupational Diseases*.

Prevent occupational hazard risks

- Equip employees with labor protection products, facilities, and tools suitable for occupational health protection;
- Supervise the use of labor protection products and regularly inspect and update facilities and equipment;
- Formulate preventive measures and adopt measures such as engineering control, ventilation and purification, and noise reduction to reduce hazard risks.

Building a Better Society Together

Social Public Welfare and Rural Revitalization

GCL Group actively assumes its social responsibilities and engages in public welfare and charity. It has carried out and participated in more than a hundred public welfare projects in multiple fields such as environmental protection, poverty alleviation, orphan care, disability assistance, education assistance, and disaster relief. By the end of 2024, the total external donations exceeded RMB 300 million.

GCL Group actively responds to the country's "carbon peaking and carbon neutrality" strategy and the call for rural revitalization, committed to promoting educational equity with green technology and creating a public welfare model for sustainable development. The Group established the Jiangsu GCL Sunshine Charity Foundation, fulfilling its mission of empowering rural revitalization with photovoltaics. A total of 1390 MW of rural revitalization photovoltaic power plants have been built, exploring a sustainable development model of "agriculture, fishery, animal husbandry, poultry + photovoltaics", and a total of 42,000 rural households have been assisted. At the same time, the foundation has been paying long-term attention to the development of education. It has funded nearly 500,000 students with a total funding amount of RMB 150 million, continuously lighting up the future of children with the "GCL power".

Case

The Photovoltaic Public Welfare Projects of GCL SI Was Implemented in Guizhou and Hong Kong

In 2024, GCL SI joined hands with the Sunshine Charity Foundation to carry out public welfare photovoltaic system construction in Guizhou and Hong Kong. GCL SI plans to donate and build a distributed photovoltaic system with an installed capacity of 111 kWp at Mabai Primary School in Guoquanyan Township, Nayong County, Bijie City, Guizhou Province. The total project investment is RMB 532,400. At Wah Yan College, Kowloon, Hong Kong, GCL SI plans to donate and build a 13.8 kWp distributed photovoltaic system. The estimated total investment is about RMB 324,000. The project will be implemented by a qualified local institution.

Case

GCL ET Carried out the 8th "Hand in Hand, Heart to GCL" Public Welfare Education Assistance Action

Since 2021, GCL ET has adhered to the concept of "Green Energy, Giving Back to Society" and continuously carried out the "Hand in Hand, Heart to GCL" public welfare education-assistance project in Jinzhai County, Anhui Province. In November 2024, the Company donated teaching, office, and living materials to the primary school department of Jinzhai Sihe Experimental School and Lenin Primary School, conveying employees' care and helping to improve rural education. After the donation, the GCL public welfare team also visited the former site and exhibition hall of Lenin Primary School to deeply study the red history of Jinzhai.



GCL ET Carried out the 8th "Hand in Hand, Heart to GCL" Education Assistance Activity

Case

The "Children's Heart Harbor Provided by GCL" Public Welfare Photovoltaic Roof Project Empowers Left-Behind Children in Rural and Pastoral Areas

GCL Group always adheres to using green technology to empower public welfare, exploring the integration path of sustainable development and rural revitalization. Since 2022, the Group has deeply cooperated with the Baotou Municipal Party Committee, the municipal government and local public welfare organizations, focused on the issues of caring for left-behind children in rural and pastoral areas, and continuously promoted the "Children's Heart Harbor Provided by GCL" public welfare plan. It has donated a total of RMB 700,000 to help 7 schools upgrade their software and hardware environments.

To ensure the sustainability of education assistance under the project, the GCL Sunshine Charity Foundation, in conjunction with the Baotou Youth League Committee, plans to launch the "Public Welfare Photovoltaic House" plan in 2025 and will participate in the 3.71-megawatt photovoltaic power generation project of the Darhan Muminggan United Banner Photovoltaic Assistance Program. The stable green income generated by this project will be continuously used to support the growth, care, and education of disadvantaged youth groups in Baotou City, including daily care services, mental health support, public welfare research activities, scholarship distribution, teacher training, and the improvement of teaching facilities.

Case

GCL SI Responded to the Call of "Hundred Enterprises Revitalize Hundred Villages" and Helped Rural Revitalization Through Industrial Assistance

Wuhu GCL SI responded to the call of "Hundred Enterprises Revitalize Hundred Villages" in Wanzhi Development Zone and actively paired up with Henggang Community for assistance. During the Spring Festival in 2025, GCL SI purchased RMB 300,000 worth of agricultural and sideline product gift boxes from enterprises subordinate to the community, helping local farmers increase their income.



GCL SI Assisted in Building Hualong Rural Power Station and Contributed to Rural Revitalization

Participation in Overseas Public Welfare Activities

During the construction of overseas projects, GCL Group actively fulfills its corporate social responsibilities, improves local people's livelihood and well-being with green technology, and helps local sustainable development.

Case

GCL New Energy Carried out a Number of Public Welfare Projects Including the "Lighting Project" in Ethiopia

In the Ethiopian project, GCL New Energy actively fulfilled its social responsibilities and provided public welfare support to the local community by donating photovoltaic streetlights and clinics. The project team planned the "Brightening Project". In the first stage, more than 250 photovoltaic streetlights were designed and installed in Dobawei and Shilabo towns, providing clean, safe, and long-lasting night lighting for the local community. To alleviate the water shortage problem in the Somali Region, the Company built small dams and reservoirs to provide domestic water for the camp and surrounding residents, while also covering the production water needs of the oil and gas fields, effectively relieving the dual pressure of drought on livelihoods and industries.

Volunteer Activities

GCL Group carries out diverse forms of volunteer activities, encouraging employees to engage in diverse public welfare initiatives such as environmental protection and community services. By deeply integrating the public welfare spirit into its corporate culture, the Group has enhanced employees' sense of social responsibility and team cohesion.

Case

Wuhu GCL Carried out the "Lei Feng Month" Activity to Care for Special Children

On March 6, 2024, the volunteer service team of Wuhu GCL went to Qizhi School in Wanzhi District to carry out an activity of caring for special children and assisting teaching. By accompanying the children in handicraft teaching including paper-cutting and painting, sports activities and reading interactions, the volunteers enhanced the children's hands-on skills, social skills and self-confidence, conveying the corporate warmth and public welfare responsibility through their actions.



Suzhou Photovoltaic Organized Employee Volunteers to Carry out Environmental Protection Activities in Wangshan



GCL New Energy Organized Employees for a "Police-Enterprise Heart-to-Heart" Welfare Visit

Steady Governance

GCL Group adheres to leading the modernization of governance with high-quality Party building, comprehensively constructs the "big risk control system" that covers key modules such as compliance management, risk control, internal audit and integrity supervision. It continuously optimizes the organizational system and supervision mechanisms, strengthens the execution of systems and the ability to prevent and control risks, and builds a solid strategic foundation for robust operation and sustainable development.

SDGs

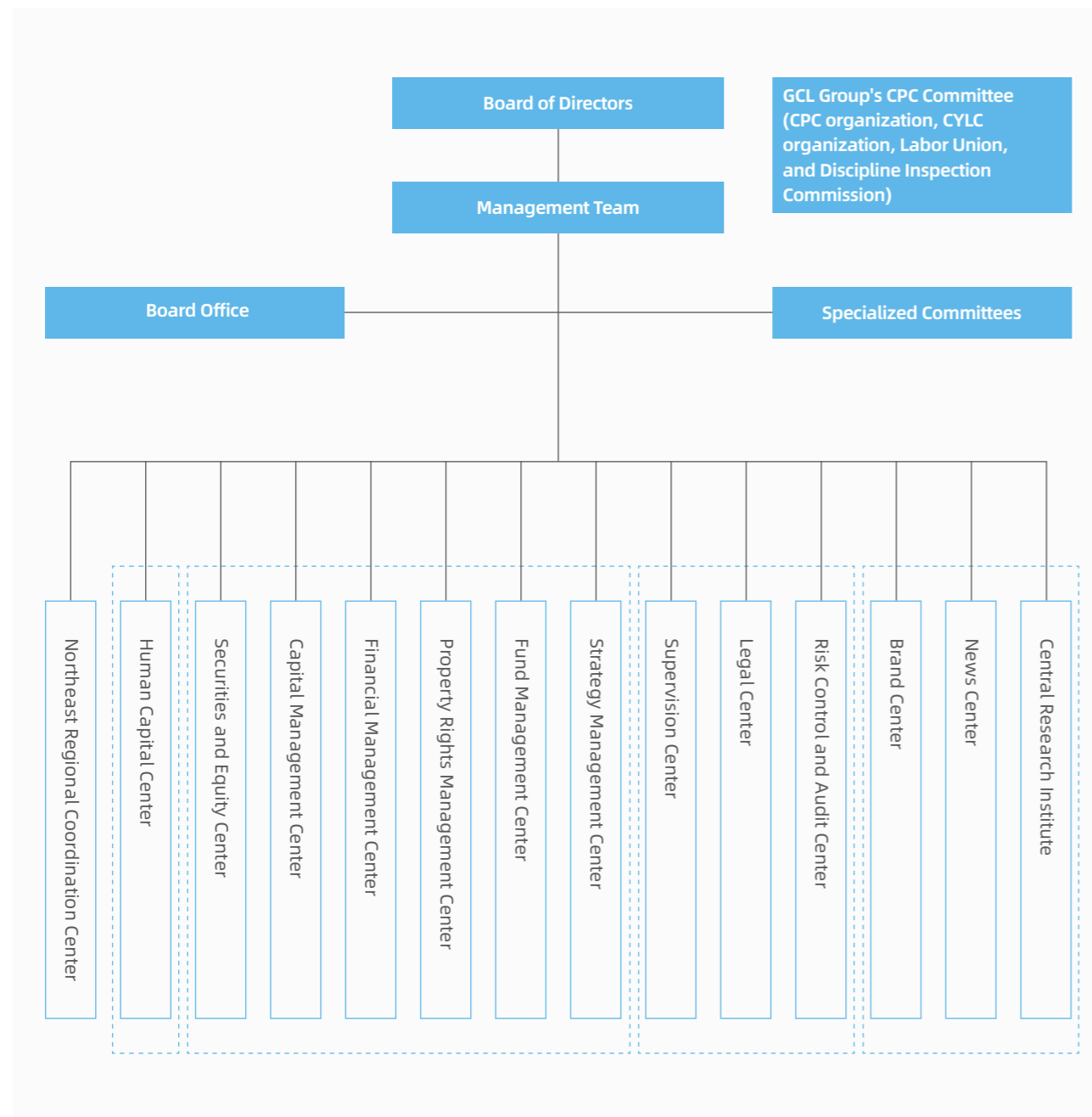


Compliant and Robust Operation

Corporate Governance

Robust operation is the foundation for the sustainment and development of an enterprise. By continuously improving its corporate governance system, GCL Group has strengthened its compliance and risk control mechanisms, deepened efforts in anti-corruption, integrity building, and business ethics development, thus laying a solid institutional guarantee for the high-quality development of the enterprise.

GCL Group continuously improves the corporate governance system, constantly optimizes the governance structure and internal control mechanism, providing strong guarantee for the robust development of the Group. We have established a governance structure with the Board of Directors as the highest decision-making body, and set up 11 management committees to coordinate the overall development of the Group, consolidate the business management foundation, and comprehensively improve the quality of decision-making and execution efficiency.



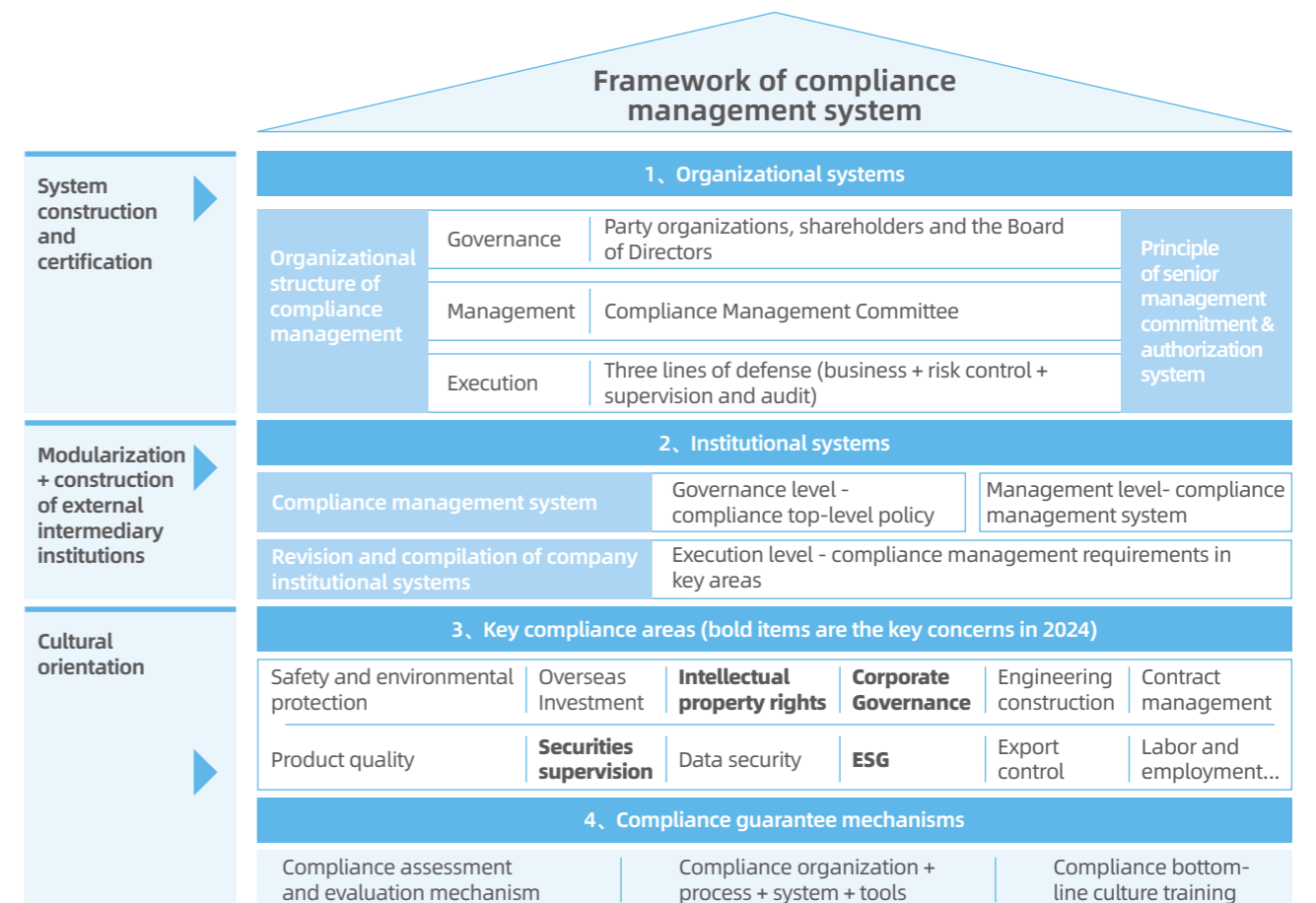
Compliance and Risk Management

GCL Group continues to improve its compliance and risk management system. In response to operational risks across multiple dimensions such as strategy, law, and health, safety & environment (HSE), we have clarified the responsibilities of the "four lines of defense" (namely, business units, functional departments, risk control functions, internal audit functions, and supervision functions), strengthened the collaborative linkage mechanism, and coordinated multiple management lines. These efforts aim to conduct regular communication and collaboration, thereby consolidating the foundation for robust operations.

In 2024, the Group continued to focus on the four major modules of risk control, internal control, audit, and project audit, actively promoted two innovative transformations of process optimization and digitalization, and explored the path of "taking listing compliance as the bottom line, digital transformation as the driving force, process reform as the foundation, intelligent audit as the means, and value creation as the goal", further enhancing management resilience and execution efficiency.

Compliance Management

GCL Group has established a three-step compliance system path featuring "cultural infiltration + modular management in key areas + third-party certification". Meanwhile, it is continuously strengthening institutional guarantees to promote the standardization and systematization of compliance management. In order to strengthen compliance management in key areas, the Group issued the *Corporate Governance Compliance Management Guidelines*, the *Anti-Commercial Bribery Compliance Management Guidelines*, the *Intellectual Property Compliance Management Guidelines* and the corresponding *Compliance Obligation Lists*, systematically sorted out external laws and internal institutional regulations, clarified compliance obligations and risks, consequences of violations and response measures, and provided action references for compliance identification and management work. In August 2024, the Group revised the *Compliance Management Measures*, further clarifying the compliance management responsibilities of the Board of Directors, the management team, the compliance management department and the business departments, and adding compliance management requirements for key business activities and key positions. In addition, the Group issued the *Handbook of Authorized Knowledge for Functional Executives*, helping senior managers to master the authorization norms, approval authorities, decision-making mechanisms, and paths within their jurisdiction, and further strengthening the Group's compliance management mechanism.



2024

Number of penalties imposed on the Group by external regulatory authorities

0

Number of supervisory queries

0

Driven by the dual engines of research and practice, GCL Group has improved the construction path of its group-wide compliance system. In 2024, the Group conducted external compliance research, closely followed the *Guidelines for Sustainability Reports of Listed Companies*, the *Interim Measures for the Management of Shareholders' Reduction of Shares in Listed Companies* and other key new regulations, focused on the business areas of four subsidiaries listed on the stock market, coordinated the research on compliance risks, and issued the *Compliance Risk Distribution Map*.

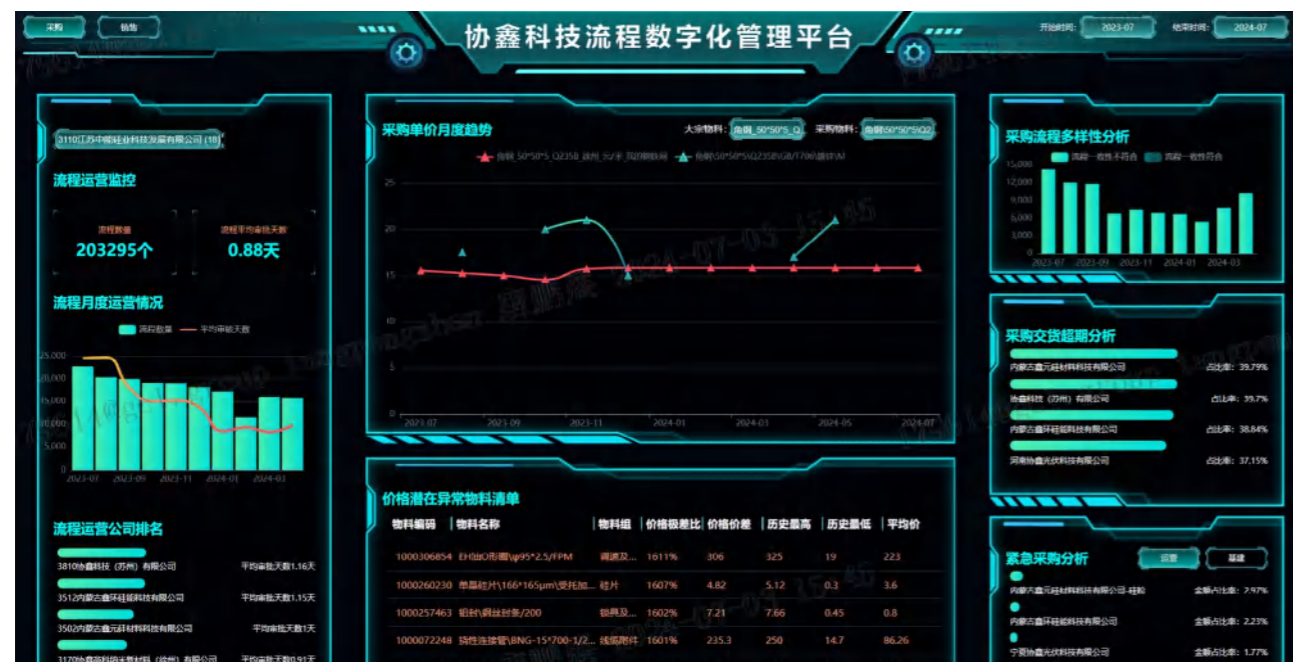
In addition, the Group has continued to advance the digital transformation of compliance work, developed an intelligent "Institution Tree" management system, and standardized the management process of institutional documents in a unified manner. This system provides accurate and timely information support, effectively reducing the risks of information leakage or misuse of incorrect versions. It also facilitates information sharing and collaboration among employees, further improving work efficiency.

Risk Management

GCL Group attaches great importance to enterprise risk prevention and control and continues to improve the construction of risk management system. To strengthen the Board of Directors' management of compliance risks related to the Group's investment projects, key businesses, and critical personnel, the Group established a Risk Committee in June 2024. This committee is responsible for guiding work such as operational risk management, internal control and compliance risk control, and digital transformation of risk control, as well as reviewing the work ideas and plans of the risk control and audit lines.

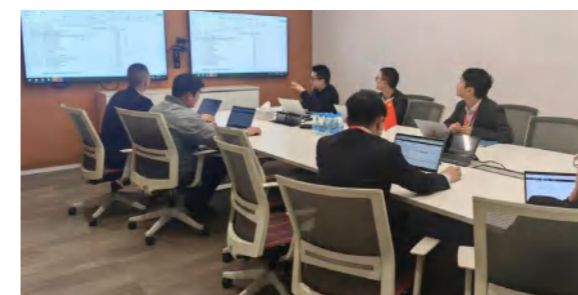
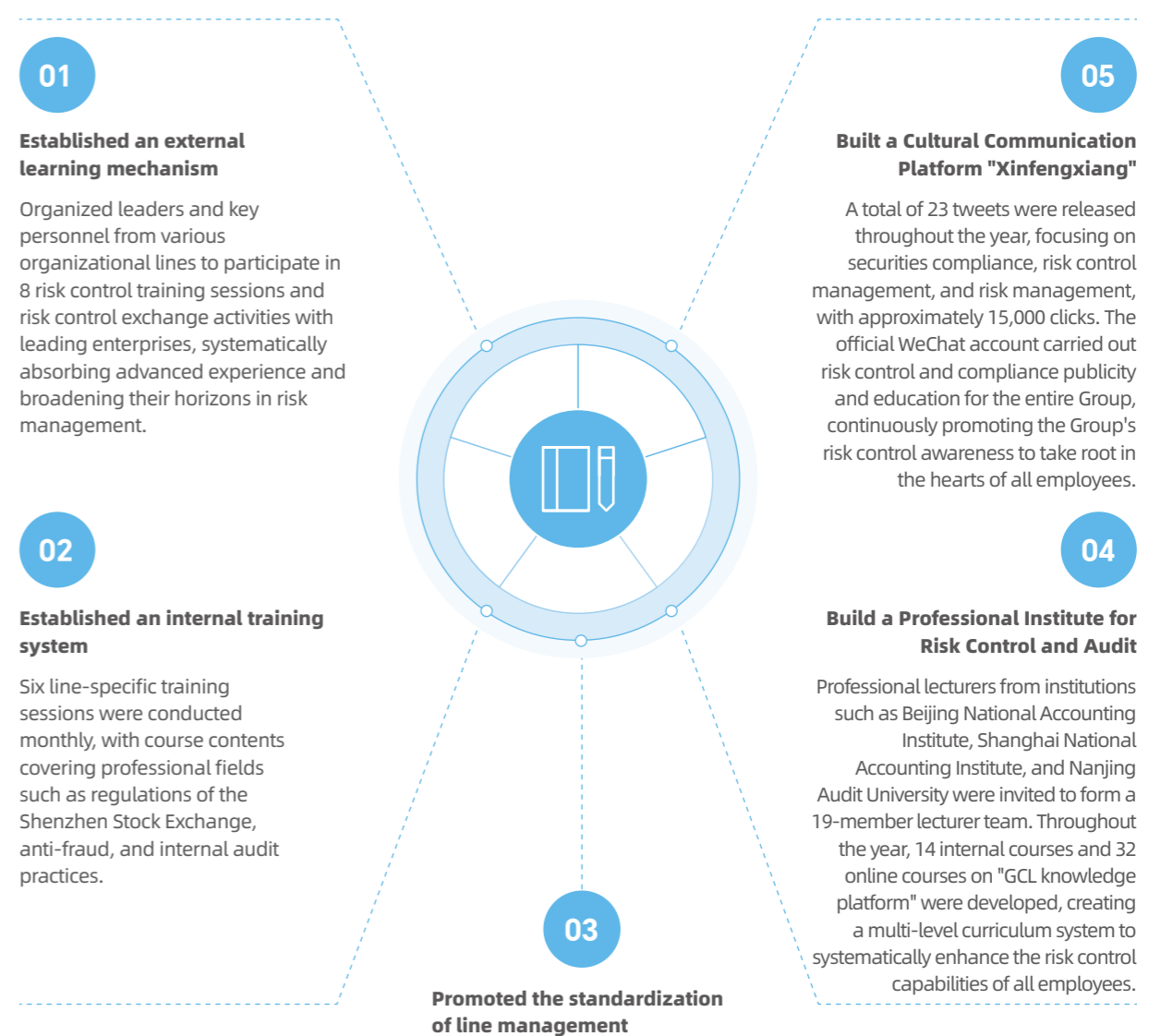
The Group conducts regular risk assessments and special risk sorting to enhance its risk response capabilities and forward-looking management level. The Group has carried out inspections in high-risk, highly volatile, and strongly regulated areas, compiled relevant reports, and released the *GCL Group Risk Management Report* every quarter. This report dynamically presents the main risk types, levels, and changing trends of each business segment, and puts forward corresponding response measures. In 2024, the Group released a total of 3 issues of securities regulatory and external benchmarking analysis reports, tracking the regulatory dynamics and market performance of listed companies within the Group and benchmarking enterprises to support the formulation of risk response strategies.

With the help of a digital platform, the Group continues to advance risk management, enabling real-time monitoring and dynamic early warning of risks. In 2024, the Group established a risk management platform, integrated the financial and operational data infrastructure, and used data to objectively reflect the effectiveness of risk management work. Meanwhile, the process mining platform has been fully launched at both the Group and business sector levels. Through the visualization of process management in systems such as EC and SAP, and based on real-time monitoring of procurement, sales, expenses, and other business operations, the platform is used to analyze process closed-loop, approval timeliness, and standardization, and dynamically optimize risk control in business processes.



Process Digital Management Platform

To enhance all employees' risk awareness and management capabilities and foster a positive atmosphere where everyone participates in risk management, GCL Group has continuously strengthened the building of corporate risk management culture through organizing training sessions, compiling training materials, operating official WeChat accounts, and publishing internal newsletters and magazines.



Employee Training on Risk Control and Compliance



Employee Training on Risk Control and Compliance

Case
GCL's Risk Control and Compliance Experience was Exchanged and Promoted at the National Governance Seminar

On December 13, 2024, at the invitation of the Talent Exchange Service Center of the All-China Federation of Industry and Commerce, GCL Group attended the "Training Program for Enhancing the Capability of Private Enterprises in Governance Reform in the New Era" held by the Central Institute of Socialism, and delivered specific presentation on the construction of risk control and compliance systems to outstanding young entrepreneurs from across the country.



Risk Control and Compliance External Activities



Exchange Activities with Sino-Singapore Group



Tianneng Holdings Visits GCL Group for Exchange and Learning

Total number of participants in risk-management-related training

4,078

Total number of risk-management-related training sessions

92

Total hours of risk-management-related training

42 Hrs

2024

Number of cases of administrative and judicial sanctions imposed for violating laws and regulations in the social and economic fields

0

Number of special audit projects carried out

78

Anti-corruption and Business Ethics

Total number of participants in anti-corruption and business ethics-related training

4,500

Total hours of anti-corruption and business ethics-related training

15,335 Hrs

Total number of anti-corruption and business ethics-related training sessions

110

Internal Audit

GCL Group continues to improve its modern internal audit system with the principle of "risk-oriented and system-based", which fully covers key areas such as financial compliance, operational efficiency, internal control, and cadre economic responsibilities, forming a supervision framework featuring "comprehensive coverage and prominent focuses".

The Group has formulated systems such as the *Internal Audit Work System* and the *Measures for the Management of Leaders' Tenure Audits* to promote the standardized operation of audits, and has embedded economic responsibility audits into the cadre management mechanism. The Group adheres to both ex-ante prevention and ex-post supervision. It conducts audit training through internal audit training sessions, warning education, project kick-off meetings, etc., and has established a ledger for sharing case clues. Meanwhile, the Group has systematically advanced the construction of the "GCL Intelligent Audit" platform, which covers the headquarters and six core business sectors. This platform enables full-process closed-loop management of 18 major businesses and strengthens the Group's capabilities in vertical management of audits.



"GCL Intelligent Audit" Operation Management Platform

GCL Group adheres to the principles of honest operation and fair competition, pursues the corporate culture of clean and honest employment, continuously improves the anti-corruption system, strengthens supervision in key areas and the mechanism for reporting protection, and focuses on building "Clean GCL".

Anti-Corruption and Integrity

GCL Group continues to strengthen the construction of anti-corruption system and strictly control corruption. In 2024, the Group revised and improved the *Anti-Corruption Regulations* and the *Reward and Punishment Management Measures*, comprehensively advanced the investigation of corruption cases, inspection tours, and integrity promotion, and strengthened the closed-loop rectification of problems.

To curb corruption, the Group severely cracked down on all kinds of illegal behaviors, covering key positions and risk areas, and built a clean, fair, and transparent enterprise ecosystem. GCL Group strictly abides by the principle of fair competition, continuously strengthens the anti-unfair competition management mechanism, and regulates market behaviors. In 2024, the Group handled a total of 70 corruption cases, covering occupation, theft, non-public bribery, and supplier collusion. Disciplinary sanctions were imposed on 46 employees, and the accumulated economic losses were recovered by RMB 10,031,500, effectively fortifying the integrity defense line.

The Group has strengthened the construction of an incorruptible culture and continued to build an incorruptible corporate culture. In 2024, the Group conducted 27 integrity trainings covering Ningxia, Sichuan, Nanjing, Baotou, and other regions, and invited external experts to carry out 11 special training sessions on intellectual property protection.



Corporate Internal Anti-Corruption Governance Training



Symposium on Comprehensive Management of Internal Corruption in Enterprises



"Clean GCL, Clean Future" Learning Day Activity

Reporting hotline

0512-68538110

Reporting email

jubao@gcl-power.com

Reporting address

Discipline Inspection and Supervision Department, 3rd Floor, Phase I, GCL Energy Center, 28 Xinqing Road, Suzhou Industrial Park

Reporting on WeChat

Follow "Clean GCL" official WeChat account to report violations.



Reporting Handling

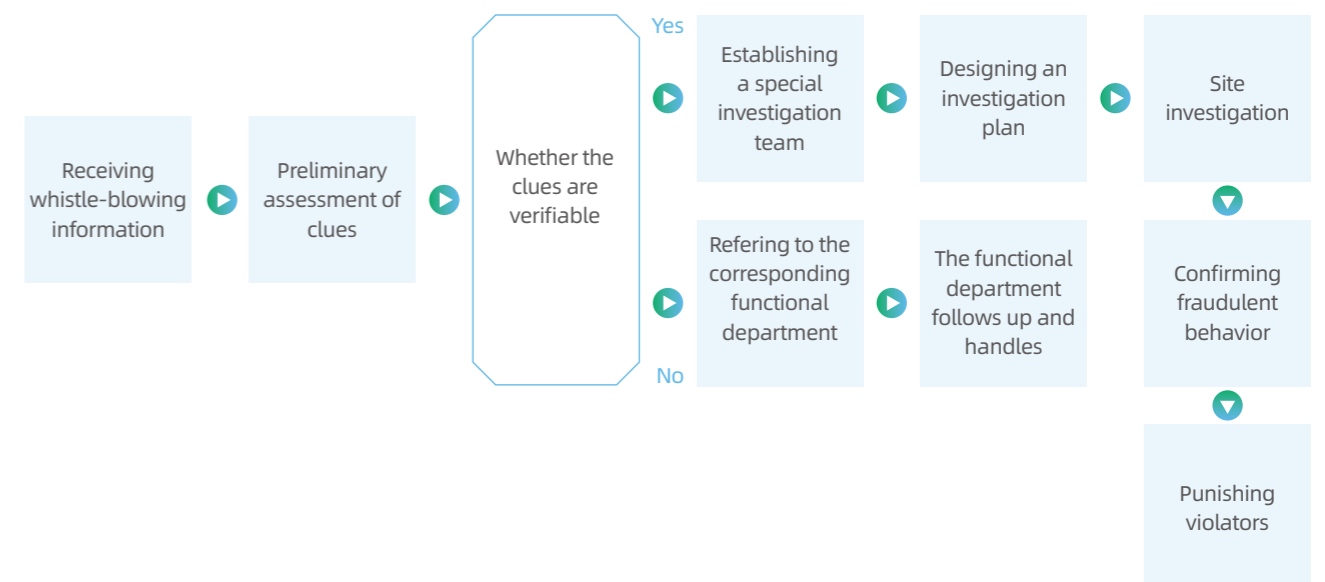
GCL Group has established a whistleblower management system covering various systems, platforms, processes, and protection mechanisms, formulated a whistleblower acceptance system and whistleblower protection mechanism, standardized the entire reporting process, and created a fair, just, and transparent supervision atmosphere.

The Group implements a strict whistleblower information confidentiality and anti-retaliation mechanism, prioritizing the confidentiality of whistleblowers, and all whistleblower information, whistleblower identities, and materials are included in the control process to prevent leakage or loss. The Group explicitly prohibits any form of retaliation. If the whistleblower suffers retaliation, they can report to the Group Monitoring Center as soon as possible. Meanwhile, the Group will deal severely with retaliatory acts of any form in accordance with national laws and regulations as well as the Company's rules and regulations; if the circumstances are serious and suspected of violating the law, the Group will refer the case to judicial authorities for handling.

2024

Total number of reports received	86	Number of cases investigated	70
Number of cases closed	58	Number of personnel dealt with	46
Amount of funds recovered from losses	RMB 10,031,500		

Whistleblowing handling process



Information Security Management

GCL Group has placed information security and network security at the top of the enterprise's digital transformation. By establishing the Information Security Management Standard, the Network System Management Standard and other relevant systems and norms, GCL Group clarifies the processes and procedures of basic prevention and control facilities, daily vulnerability inspection, emergency drill management, and other activities, and comprehensively improves the safety management efficiency with the help of digital technology.

Infrastructure	Emergency management
Deployed advanced security protection equipment such as security firewalls, intrusion detection systems (IDS), and vulnerability scanning systems.	Developed complete emergency preparedness and response procedures to effectively respond to IT system outages and cyber-attack incidents.
Daily inspection	Digital empowerment
Conducted comprehensive security inspections and vulnerability scanning work regularly on a quarterly basis to promptly identify potential risks and quickly repair security vulnerabilities.	Established a unified information security threat detection platform (situation awareness), optimized the network environment of the Group Headquarters and pilot project companies, and significantly enhanced the protection capabilities.

2024

Number of information security and privacy leakage incidents

0

Number of employee information security training sessions

12

In terms of privacy protection, the Group and its subsidiaries implemented relevant laws and regulations to standardize data processing activities. For customer information, each subsidiary implemented a classification and grading management approach to ensure the security and compliance of data throughout the entire processing process, and comprehensively strengthened the customer privacy protection barrier.

In addition, GCL Group and its subsidiaries have actively built a defense line of safety awareness among all employees, carried out systematic and diversified information security and privacy protection training, covering various aspects such as information security knowledge and information system operation, and deeply publicized and implemented data security policies and sensitive data protection requirements to ensure that employees have a deep understanding and master the necessary protection knowledge and operational skills.

Case

GCL Technology Carried out Red-Blue Network Attack and Defense Drills

In November 2024, GCL Technology carried out a four-day real-world network attack and defense drill, simulating real hacker attacks to test the defense system. The drill accurately located 3 high-risk security vulnerabilities, and no medium-and low-risk vulnerabilities were found. In response to the major risks identified, the technical team reacted quickly, immediately analyzed and proposed effective repair solutions, This has significantly enhanced the overall information security protection level of the Company, and provided real-world experience for dealing with complex threats.

Case

Terminal Security Integrated Security Management Platform

In June 2024, GCL Technology constructed an integrated terminal security management platform, which integrated key protection capabilities, and organically integrated modules such as file external audit, terminal anti-virus, anti-ransomware, and desktop management. The outstanding advantage of this platform lies in the deep linkage and collaboration of functional modules, significantly improving the threat response speed and handling efficiency, strengthening the initiative and effectiveness of terminal security protection as a whole, and building a more intelligent and solid terminal security defense line for the Company.

Appendix

Key Performance Indicators

Topics	Indicator	Unit	2024	2023	2022
Waste Gas Management ¹	Nitrogen oxides (NO _x)	Ton	2,548.57	2,039.13	2,136.94
	Sulfur oxides (SO _x)	Ton	750.79	308.28	376.74
	Particulate matter (PM)	Ton	235.90	90.32	78.43
Wastewater Management ²	Total wastewater discharge	Ton	15,964,750.19	13,753,493.79	7,788,859.20
	Wastewater Discharge Density	Ton/RMB 10,000 operating revenue	3.78	2.28	1.51
Emissions	Total waste generated	Ton	2,487,758.98	1,090,202.43	1,163,031.72
	General industrial solid waste generated	Ton	1,205,700.58	1,038,155.02	1,094,791.71
	Hazardous waste generated	Ton	76,368.35	52,047.41	68,240.01
	Hazardous waste treated	Ton	99,751.49	/	/
GHG emission	Scope 1	tCO ₂ e	10,167,368.69	11,819,648.75	9,201,244.85
	Scope 2	tCO ₂ e	5,704,605.81	5,353,404.69	2,349,323.03
	GHG emissions within the scope of operation ⁴	tCO ₂ e	15,871,974.50	17,173,053.45	11,550,567.88
	GHG emission intensity (per unit of revenue) within the scope of operation	tCO ₂ e/RMB 10,000 operating revenue	3.76	2.84	2.24
	Scope 3 ⁵	tCO ₂ e	27,639,599.05	19,419,778.40	/

¹ The data statistics cover four listed subsidiaries of GCL Group, GCL Photoelectric, and Xin Hua Semiconductor.

² The data statistics cover four listed subsidiaries of GCL Group, GCL Photoelectric, and Xin Hua Semiconductor.

³ The data statistics cover four listed subsidiaries of GCL Group, GCL Photoelectric, and Xin Hua Semiconductor.

⁴ The statistical scope covers four listed subsidiaries of GCL Group.

⁵ The data statistics cover GCL Group's subsidiaries GCL Technology, GCL SI.

Topics	Indicator	Unit	2024	2023	2022
Energy consumption	Natural gas	CBM	2,234,778,590.27	2,248,007,261.04	1,962,037,985.05
	LPG	Ton	7.56	5.18	3.76
	Gasoline	Ton	501.10	1,202.24	237.59
	Diesel	Ton	2,819.50	3,102.87	1,811.55
	Coal	Ton	2,669,816.48	2,990,375.72	3,126,142.14
	Purchased heat	GJ	14,791,351.00	/	/
	Purchased electricity	MWh	8,881,197.67	8,344,795.59	3,336,621.91
	Renewable energy electricity consumption	MWh	2,815,790.12	/	/
	Proportion of renewable energy electricity use (percentage of purchased electricity)	%	31.71	/	/
	Proportion of clean energy consumption ¹	%	48.61	/	/
	Direct energy consumption	tce	4,884,164.01	5,008,419.14	4,845,503.05
	Direct energy consumption intensity	tce/RMB 10,000 operating revenue	1.16	0.83	0.94
	Indirect energy consumption	tce	1,942,240.70	1,025,885.76	606,763.84
	Indirect energy consumption intensity	tce/RMB 10,000 operating revenue	0.46	0.17	0.12
	Comprehensive energy consumption	tce	6,826,404.70	6,034,304.90	5,452,266.89
Comprehensive energy consumption intensity	tce/RMB 10,000 operating revenue	1.62	1.00	1.06	
Resource use	Total water consumption	10,000 tons	5,831.67	5,355.30	3,965.96
	Water use intensity	Ton/RMB 10,000 operating revenue	13.81	8.86	7.68
	Volume of alternative water sources used	10,000 tons	2,122.93	3,531.71	/
	Utilization rate of alternative water sources	%	36.40	/	/
Innovation R&D	R&D input	RMB 10,000	500,000	/	/
	Number of R&D personnel	/	3,500	3,000	3,000

¹ Proportion of clean energy use = (Clean energy consumption / Total energy consumption) × 100%

Topics	Indicator	Unit	2024	2023	2022	
Innovation R&D	Number of patents applied	/	789	626	533	
	Number of invention patents applied for	/	247	260	/	
	Number of authorized patents	/	402	453	368	
	Authorized invention patents	/	65	91	45	
	Cumulative patent applications	/	4,600	5,000	/	
	Accumulated valid patents	/	3,100	3,000	3,000	
	Product quality and safety	Number of major safety and quality liability accidents related to products and services	/	0	/	/
Total number of quality and safety training sessions		/	1,018	/	/	
Total attendance of quality and safety training		/	30,819	/	/	
Number of product recall incidents		/	0	0	0	
Supplier Management	Proportion of core suppliers signing the <i>Code of Conduct</i>	%	100	/	/	
	Total number of suppliers	/	2,353	2,867	3,525	
	Number of core suppliers	/	60	/	/	
	Supplier training	Number of supplier training sessions	/	419 ²	/	/
		Total hours of supplier training	Hrs	658 ³	/	/
Standard Formulation	Number of standards formulated under leadership or participation	/	39	29	/	
Employment	Total number of employees	/	24,873	40,749	/	
	Total number of employees divided by gender	Male	/	19,345	31,540	/
		Female	/	5,528	9,209	/
	Total number of employees divided by age	30 years old and below	/	7,601	13,952	/
		31-50 years old	/	15,685	24,982	/
		Over 50 years old	/	1,587	1,815	/

² The data statistics cover GCL Group's, GCL Technology and GCL ET.

³ The data statistics cover GCL Group's, GCL Technology and GCL ET.

Topics	Indicator	Unit	2024	2023	2022	
Employment	Total number of employees divided by job level	Front-line employee	/	23,831	38,464	/
		Management	/	981	1,731	/
		Senior management	/	61	554	/
	Management employees divided by gender	Male management	/	864	/	/
Female management		/	178	/	/	
Employment	Protection of Employees' Rights and Interests	Proportion of labor contracts signed	%	100	100	/
		Coverage of social insurance	%	100	100	/
		Physical examination coverage of employees	/	100	/	/
		Discrimination and harassment incidents	/	0	/	/
		Employee satisfaction	%	90.80	/	/
Diversity	Proportion of female employees	%	22	23	/	
	Proportion of female employees in management	%	17	/	/	
	Proportion of female executives	%	8	/	/	
	Number of ethnic minority employees	/	857	/	/	
	Number of employees with disabilities	/	18	/	/	
Employee Training	Total hours of ESG training	Number of disabled people in management	/	3	/	/
		Total number of training participants ¹	/	20,177	/	/
		Employee training hours ²	Hrs	1,069,264.81	1,477,577.54	/
Health & safety	Investment in work safety	Total hours of ESG training	Hrs	30,000	/	/
		Work Safety	RMB 10,000	31,617.56	19,953.40	27,260.72
Social engagement activities	Investment in rural vitalization	Total number of employee attendance involving in work safety-related training activities	/	222,324	198,655	130,525
		Public welfare participation	RMB 10,000	330,000	/	/
Risk control compliance	Compliance management	Accumulated public welfare investment	RMB 10,000	30,000	/	/
		Total number of attendance involving in risk management-related training	/	4,078	/	/
		Total number of risk-management-related training sessions	/	92	94	/
		Total hours of riskmanagement-related training	Hrs	42	/	/

Topics	Indicator	Unit	2024	2023	2022	
Risk control compliance	Major fines and non-monetary sanctions for violations of laws and/or regulations in the social and economic fields	Total value of major fines	RMB	0	/	/
		Number of cases of administrative and judicial sanctions imposed for violating laws and regulations in the social and economic fields	/	0	/	/
		Number of times punished by external regulatory authorities	/	0	0	/
		Number of regulatory inquiries	/	0	/	/
Business ethics	Training on anti-corruption and business ethics	Audit and internal control evaluation projects carried out	/	78	/	/
		Number of attendance involving in anti-corruption and business ethics-related training	/	4,500	/	/
Information Security and Privacy Protection	Employee information security training	Hours of anti-corruption and business ethics-related training	Hrs	15,335	/	/
		Number of anti-corruption and business ethics related training sessions	/	110	/	/
		Confirmed incidents of corruption and actions taken	/	70	/	/
Risk control compliance	Compliance management	Number of employee information security training sessions	/	12	/	/
		Number of attendance involving in employee information security training	/	1,300	/	/
		Occurrence of information security and privacy leakage incidents	/	0	0	/
		Specific amount involved in information security incidents	RMB	0	/	0
Risk control compliance	Compliance management	Specific amount involved in customer privacy breach incidents	RMB	0	/	/

¹ The statistical scope covers four listed subsidiaries of GCL Group.

² The statistical scope covers four listed subsidiaries of GCL Group.

Index of Indicators

GRI standards	Disclosure	Location
	2-1 Organizational details	About the Report, About GCL
	2-2 Entities included in the organization's sustainability reporting	About the Report
	2-3 Reporting period, frequency and contact point	About the Report
	2-6 Activities, value chain and other business relationships	About GCL
	2-7 Employees	4.1.1. Protection of Employees' Rights and Interests
	2-9 Governance structure and composition	ESG Management, 1.2.1. Environmental Management System, 2.1.1. R&D Strength, 2.3.1. Quality Management System, 3.1.1. Supplier Management, 5.2.1. Corporate Governance
	2-11 Chair of the highest governance body	5.2.1. Corporate Governance
GRI 2: General Disclosures	2-12 Role of the highest governance body in overseeing the management of impacts	ESG Management, 5.2.1. Corporate Governance, 5.2.2. Compliance and Risk Management
	2-13 Delegation of responsibility for managing impacts	ESG Management, 5.2.1. Corporate Governance
	2-14 Role of the highest governance body in sustainability reporting	ESG Management
	2-15 Conflicts of interest	5.2.2. Compliance and Risk Management, 5.2.3. Anti-corruption and Business Ethics
	2-16 Communication of critical concerns	Stakeholder Communication
	2-17 Collective knowledge of the highest governance body	ESG Management, 4.1.2. Focus on Employee Development, 5.2.2. Compliance and Risk Management, 5.2.3. Anti-corruption and Business Ethics
	2-18 Evaluation of the performance of the highest governing body	4.1.2. Focus on Employee Development
	2-19 Remuneration policies	4.1.1. Protection of Employees' Rights and Interests

GRI standards	Disclosure	Location
	2-20 Process to determine remuneration	4.1.1. Protection of Employees' Rights and Interests
	2-22 Statement on sustainable development strategy	ESG Strategy
	2-23 Policy commitments	ESG Management, 3.1.3. Conflict Mineral Management, 4.2.1. Work Safety
	2-24 Embedding policy commitments	3.1. Responsible Supply Chain, 4.2.1. Work Safety
	2-25 Processes to remediate negative impacts	2.1.2. Intellectual Property Protection, 2.3. High-quality Products and Services, 5.2.3. Anti-corruption and Business Ethics
GRI 2: General Disclosures	2-26 Mechanisms for seeking advice and raising concerns	Stakeholder Communication, 4.1.1. Protection of Employees' Rights and Interests, 5.2. Compliant and Robust Operation
	2-27 Compliance with laws and regulations	1.2. Green Action Path, 2.3.1. Quality Management System, 3.1.1. Supplier Management, 4.1.1. Protection of Employees' Rights and Interests, 5.2.2. Compliance and Risk Management
	2-28 Membership associations	Industrial Highlights, 3.2. Promoting Industry Development
	2-29 Approach to stakeholder engagement	Stakeholder Communication, 4.1.1. Protection of Employees' Rights and Interests, 5.2.3. Anti-corruption and Business Ethics
	2-30 Collective bargaining agreements	4.1.1. Protection of Employees' Rights and Interests, 5.2.3. Anti-corruption and Business Ethics
	3-1 Process to determine material topics	Analysis of Material Issues
GRI 3: Material Topics	3-2 List of material topics	Analysis of Material Issues
	3-3 Management of material topics	Analysis of Material Issues





GRI standards	Disclosure	Location
GRI 201: Economic Performance	201-1 Direct economic value generated and distributed	About GCL, Key Performance Indicators
	201-2 Financial implications and other risks and opportunities due to climate change	1.3. Addressing Climate Change
	201-3 Defined benefit plan obligations and other retirement plans	4.1.1. Protection of Employees' Rights and Interests
GRI 203: Indirect Economic Impacts	203-1 Infrastructure investments and services supported	About GCL, Special Topic 1: Insight-Led, Pioneer in Energy Transition, Special Topic 2: Symbiosis of All Things, Guardian of Natural Ecosystems, 2.1. Innovation in Cutting-edge Technology, 4.3.1. Social Public Welfare and Rural Revitalization
	203-2 Significant indirect economic impacts	3.1. Responsible Supply Chain, 3.2. Promoting Industry Development
GRI 205: Anti-corruption	205-1 Operations assessed for risks related to corruption	5.2.3. Anti-corruption and Business Ethics
	205-2 Communication and training about anti-corruption policies and procedures	5.2.3. Anti-corruption and Business Ethics
	205-3 Confirmed incidents of corruption and actions taken	5.2.3. Anti-corruption and Business Ethics
GRI 206: Anti-competitive Behavior	206-1 Legal actions for anti-competitive behavior, antitrust, and monopoly practices	5.2.3. Anti-corruption and Business Ethics
	207-3 Stakeholder engagement and management of concerns related to tax	Stakeholder Communication
GRI 301: Materials	301-1 Materials used by weight or volume	1.2.3. Resource Management
	301-2 Recycled input materials used	1.2.3. Resource Management
	301-3 Reclaimed products and their packaging materials	1.2.3. Resource Management
GRI 302: Energy	302-1 Energy consumption within the organization	1.2.2. Energy Management
	302-2 Energy consumption outside of the organization	1.2.2. Energy Management
	302-3 Energy intensity	1.2.2. Energy Management
	302-4 Reduction of energy consumption	1.2.2. Energy Management
	302-5 Reductions in energy requirements of products and services	Special Topic 1: Insight-Led, Pioneer in Energy Transition, 1.2.2. Energy Management, 1.3. Addressing Climate Change



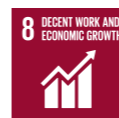
GRI standards	Disclosure	Location
GRI 303: Water and Effluents	303-1 Interactions with water as a shared resource	1.2.3. Resource Management
	303-2 Management of water discharge-related impacts	1.2.4. Emission and Waste Management
	303-3 Water withdrawal	1.2.3. Resource Management
	303-4 Water discharge	1.2.3. Resource Management
	303-5 Water consumption	1.2.3. Resource Management
GRI 304: Biodiversity	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Special Topic 2: Symbiosis of All Things, Guardian of Natural Ecosystems, 1.2.5. Biodiversity Conservation
	304-2 Significant impacts of activities, products and services on biodiversity	Special Topic 2: Symbiosis of All Things, Guardian of Natural Ecosystems, 1.2.5. Biodiversity Conservation
GRI 305: Emissions	305-1 Direct (Scope 1) GHG emissions	1.2.2. Energy Management, Key Performance Indicators
	305-2 Energy indirect (Scope 2) GHG emissions	1.2.2. Energy Management, Key Performance Indicators
	305-3 Other indirect (Scope 3) GHG emissions	1.2.2. Energy Management, Key Performance Indicators
	305-4 GHG emissions intensity	1.2.2. Energy Management, Key Performance Indicators
	305-5 Reduction of GHG emissions	1.2.2. Energy Management, Key Performance Indicators
	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	1.2.2. Energy Management, Key Performance Indicators
GRI 306: Waste	306-1 Waste generation and significant waste-related impacts	1.2.4. Emission and Waste Management
	306-2 Management of significant waste-related impacts	1.2.4. Emission and Waste Management
	306-3 Waste generated	1.2.4. Emission and Waste Management
	306-4 Waste diverted from disposal	1.2.4. Emission and Waste Management
	306-5 Waste diverted to disposal	1.2.4. Emission and Waste Management





GRI standards	Disclosure	Location
GRI 308: Supplier Environmental Assessment	308-1 New suppliers that were screened using environmental criteria	3.1. Responsible Supply Chain
	308-2 Negative environmental impacts in the supply chain and actions taken	3.1. Responsible Supply Chain
GRI 401: Employment	401-1 New employee hires and employee turnover	Key Performance Indicators
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	4.1.1. Protection of Employees' Rights and Interests
GRI 403: Occupational Health and Safety	403-1 Occupational health and safety management system	4.2. Enhancing a Solid Safety Defense Line
	403-2 Hazard identification, risk assessment, and incident investigation	4.2. Enhancing a Solid Safety Defense Line
	403-3 Occupational health services	4.2. Enhancing a Solid Safety Defense Line
	403-4 Worker participation, consultation, and communication on occupational health and safety	4.2. Enhancing a Solid Safety Defense Line
	403-5 Worker training on occupational health and safety	4.2. Enhancing a Solid Safety Defense Line
	403-6 Promotion of worker health	4.2. Enhancing a Solid Safety Defense Line
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	4.2. Enhancing a Solid Safety Defense Line
	403-8 Workers covered by an occupational health and safety management system	4.2. Enhancing a Solid Safety Defense Line
	403-9 Work-related injuries	4.2. Enhancing a Solid Safety Defense Line
	403-10 Work-related ill health	4.2. Enhancing a Solid Safety Defense Line
GRI 404: Training and Education	404-1 Average hours of training per year per employee	4.1.2. Focus on Employee Development, Key Performance Indicators
	404-2 Programs for upgrading employee skills and transition assistance programs	4.1.2. Focus on Employee Development
	404-3 Percentage of employees receiving regular performance and career development reviews	4.1.2. Focus on Employee Development
GRI 405: Diversity and Equal Opportunity	405-1 Diversity of governance bodies and employees	4.1.1. Employee Rights and Protections
	405-2 Ratio of basic salary and remuneration of women to men	4.1.1. Employee Rights and Protections, Key Performance Indicators





GRI standards	Disclosure	Location
GRI 406: Non-discrimination	406-1 Incidents of discrimination and corrective actions taken	4.1.1. Employee Rights and Protections
GRI 408: Child Labor	408-1 Operations and suppliers at significant risk for incidents of child labor	4.1.1. Employee Rights and Protections
GRI 409: Forced or Compulsory Labor	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	4.1.1. Employee Rights and Protections
GRI 413: Local Communities	413-1 Operations with local community engagement, impact assessments, and development programs	4.3. Building a Better Society Together
GRI 414: Supplier Social Assessment	414-1 New suppliers that were screened using social criteria	3.1.2. Sustainable Supply Chain
	414-2 Negative social impacts in the supply chain and actions taken	3.1.2. Sustainable Supply Chain
GRI 416: Customer Health and Safety	416-1 Assessment of the health and safety impacts of product and service categories	2.3.1. Quality Management System
	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	2.3.1. Quality Management System
GRI 417: Marketing and Labeling	417-1 Requirements for product and service information and labeling	2.3. High-quality Products and Services
	417-2 Incidents of non-compliance concerning product and service information and labeling	2.3.1. Quality Management System
GRI 418: Customer Privacy	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	5.3. Information Security Management

Responding to the UN Sustainable Development Goals

Sustainable Development Goals	Description	Our Actions	Corresponding Sections
	No Poverty End poverty in all its forms everywhere	<ul style="list-style-type: none"> Engage in public welfare and charity undertakings, carry out and participate in over 100 public welfare programs in multiple fields through donations, educational assistance, industrial support, etc. By the end of 2024, the total external donations accumulated to over RMB 300 million. 	<ul style="list-style-type: none"> Building a Better Society Together
	Good Health and Well-being Ensure healthy lives and promote well-being for all at all ages	<ul style="list-style-type: none"> Strictly control work safety, safeguard occupational health, and provide platforms for childcare, fitness, psychological counseling, etc., to comprehensively protect the physical and mental health of employees. Improve the EHS management system, carry out hidden danger investigation, emergency management and safety training activities, and create a healthy and safe working environment for employees. 	<ul style="list-style-type: none"> Creating a Happy Workplace Enhancing a Solid Safety Defense Line
	Quality Education Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	<ul style="list-style-type: none"> Improve employees' professional capabilities and cultural identity relying on GCL University, and smooth school-enterprise cooperation to provide a platform for employees to improve their academic qualifications. Promote educational equity, carry out public welfare programs such as "Children's Heart Harbor Provided by GCL" and "Hand in Hand, Heart to GCL", and have funded nearly 500,000 students with a total funding of RMB 150 million. 	<ul style="list-style-type: none"> Creating a Happy Workplace Building a Better Society Together
	Gender Equality Achieve gender equality and empower all women and girls	<ul style="list-style-type: none"> Strictly prohibit gender discrimination, implement equal pay for equal work between men and women, and actively promote the "Women's Leadership Development Program". In 2024, the proportion of promoted female employees reached 22.2%. Meet the needs of women at different stages, set up exclusive holidays, mother-and-baby rooms, gynecological examinations and "breast and cervical cancers screening" to comprehensively protect physical and mental health. 	<ul style="list-style-type: none"> Creating a Happy Workplace

Sustainable Development Goals	Description	Our Actions	Corresponding Sections
	Clean Water and Sanitation Ensure availability and sustainable management of water and sanitation for all	<ul style="list-style-type: none"> Carry out water risk assessment in operating locations, and promote recycling, technological innovation, equipment upgrading and other measures to improve the efficiency of water resources management and utilization. Control the compliance of wastewater discharge and strengthen wastewater recycling. Three subsidiaries achieve "zero discharge" of production wastewater. 	<ul style="list-style-type: none"> Green Action Path
	Affordable and Clean Energy Ensure access to affordable, reliable, sustainable and modern energy for all	<ul style="list-style-type: none"> Empower the strength of the entire industry chain, and each sector consolidates the links of low-carbon materials, efficient technology, comprehensive operation, intelligent application and stable energy storage. Develop low-carbon, low-cost and high-conversion rate technologies such as FBR granular silicon, BC, perovskite modules, etc., to reduce the threshold of global energy transformation. Aggregate distributed resources, continue to expand the application scenarios of wind, solar, storage and hydrogen, and source-grid-load-storage integration, and help the energy transformation in remote mountainous areas and "Belt and Road" countries. 	<ul style="list-style-type: none"> Special Topic 1: Insight-Led, Pioneer in Energy Transition Whole-chain Low-carbon Management Innovation in Cutting-edge Technology
	Decent Work and Economic Growth Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	<ul style="list-style-type: none"> Improve the salary and welfare system to ensure employees' basic rights and living needs, and ensure that salaries are externally competitive. Clarify the performance appraisal system, promotion channel and training plan, accurately meeting the differentiated needs of all levels, and encourage employees to enhance their own strength. 	<ul style="list-style-type: none"> Creating a Happy Workplace

Sustainable Development Goals	Description	Our Actions	Corresponding Sections
	Industry, Innovation, and Infrastructure Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	<ul style="list-style-type: none"> Relying on industry-university-research cooperation, strengthen innovation capabilities, and continuously promote core technology research and development and industrialization. Promote the digital reform process, use big data, cloud computing and other technologies to improve their own management and production efficiency, and provide customers with intelligent and high-quality energy services. 	<ul style="list-style-type: none"> Innovation in Cutting-edge Technology Smart Digital Transformation
	Reduced Inequalities Reduce inequality within and among countries	<ul style="list-style-type: none"> Strictly prohibit discrimination based on race, gender, disability, etc., and provide equal welfare and employment opportunities. 	<ul style="list-style-type: none"> Creating a Happy Workplace
	Sustainable Cities and Communities Make cities and human settlements inclusive, safe, resilient and sustainable	<ul style="list-style-type: none"> Expand the application scenarios of renewable energy, actively develop rural photovoltaic revitalization projects, solve the problem of electricity access in remote areas, and stimulate the rural economy. Cooperate with Ethiopia to develop natural gas, invest in the first renewable energy investment project in China and Serbia, promote local infrastructure construction, and achieve self-sufficiency in clean energy. Practice the concept of low carbon in terms of green electricity use, park planning, architectural design, material consumption, etc. In 2024, its subsidiary launched the employee carbon inclusive platform. 	<ul style="list-style-type: none"> Special Topic 1: Insight-Led, Pioneer in Energy Transition Green Action Path
	Responsible Consumption and Production Ensure sustainable consumption and production patterns	<ul style="list-style-type: none"> Commit to the operation and protection of ecological symbiosis, identify biodiversity in important aspects and asset points in the value chain, and reduce potential negative impacts. Expand the use of renewable energy, improve the efficiency of energy and resource utilization, ensure the compliance of wastewater/gas/solid waste discharge, and adhere to the concept of circular economy. Strengthen quality control and customer service processes, and give priority to suppliers that have passed the quality management system certification, environmental management system certification and occupational health and safety management system certification under the same conditions. 	<ul style="list-style-type: none"> Special Topic 2: Symbiosis of All Things, Guardian of Natural Ecosystems Green Action Path High-quality Products and Services Responsible Supply Chain

Sustainable Development Goals	Description	Our Actions	Corresponding Sections
	Climate Action Take urgent action to combat climate change and its impacts	<ul style="list-style-type: none"> Build a climate governance structure, identify and respond to climate-related risks and opportunities, and meticulously control carbon emission targets and processes. Effectively improve energy utilization efficiency and expand the use of renewable energy through process innovation, operation optimization and technological upgrading. 	<ul style="list-style-type: none"> Addressing Climate Change Green Action Path
	Life on Land Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	<ul style="list-style-type: none"> Become a signatory of the Taskforce on Nature-related Financial Disclosures (TNFD), identify and assess the impact and dependence of the value chain on nature, risks and opportunities, mitigate potential environmental impacts, reduce resource dependence, and strengthen ecological restoration. 	<ul style="list-style-type: none"> Special Topic 2: Symbiosis of All Things, Guardian of Natural Ecosystems Green Action Path
	Peace, Justice, and Strong Institutions Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	<ul style="list-style-type: none"> Clarify the responsibilities of the "four lines of defense", promote compliance, risk control, and audit digital platforms, crack down on various illegal and irregular behaviors, and improve management resilience and execution efficiency. Establish diversified employee communication channels and employee reporting mechanisms to create a fair, just and transparent supervision atmosphere. 	<ul style="list-style-type: none"> Responsible Supply Chain Compliant and Robust Operation
	Partnerships for the Goals Strengthen the means of implementation and revitalize the global partnership for sustainable development	<ul style="list-style-type: none"> Reach cooperation agreements with multiple international organizations, jointly initiate supply chain initiatives such as the Global Green Carbon Community Alliance Initiative and the Global Solar Sustainable Alliance, and work together with partners to promote the high-quality development of the industry. 	<ul style="list-style-type: none"> Responsible Supply Chain Promoting Industry Development

Names of Companies Mentioned in the Report

Company Name	Abbreviation
Golden Concord Holdings Co., Ltd.	GCL Group
GCL Technology Holdings Limited	GCL Technology
GCL Energy Technology Co., Ltd.	GCL ET
GCL SI Technology Co., Ltd.	GCL SI
GCL New Energy Holdings Co., Ltd.	GCL New Energy
Kunshan GCL Optoelectronic Materials Co., Ltd.	GCL Perovskite
Jiangsu Xinhua Semiconductor Material Technology Co., Ltd.	Xinhua Semiconductor
Jiangsu GCL Silicon Material Technology Development Co., Ltd.	Xuzhou Photovoltaic
Xuzhou GCL Environmental Energy Co., Ltd.	Xuzhou Recycling
Xuzhou Xinyu Photovoltaic Technology Co., Ltd.	Xuzhou Xinyu
Xuzhou GCL Solar Energy Materials Co., Ltd.	Xuzhou Crucible
GCL Huidong Liquefied Natural Gas (Rudong) Co., Ltd.	GCL Huidong
Wuxi Lantian Gas Turbine Thermal Power Co., Ltd.	Wuxi Lantian
Kunshan GCL Lantian Distributed Energy Co., Ltd.	Kunshan Lantian
Jiangsu Zhongneng Silicon Technology Development Co., Ltd.	Jiangsu Zhongneng
Suzhou GCL Photovoltaic Technology Co., Ltd.	Suzhou Photovoltaic
Suzhou Industrial Park Lantian Gas Thermal Power Co., Ltd.	Suzhou Lantian

Company Name	Abbreviation
Jiaxing GCL Environmental Thermal Power Co., Ltd.	Jiaxing Thermal Power
Henan GCL Photovoltaic Technology Co., Ltd.	Henan Photovoltaic
Leshan GCL New Energy Technology Co., Ltd.	Leshan GCL
Sichuan GCL Lithium Battery Technology Co., Ltd.	Sichuan GCL Lithium Battery
Inner Mongolia Xinhuan Silicon Energy Technology Co., Ltd.	Inner Mongolia Xinhuan
Inner Mongolia Xinyuan Silicon Material Technology Co., Ltd.	Inner Mongolia Xinyuan
Funing GCL Renewable Resources Power Generation Co., Ltd.	Funing GCL
Suzhou Industrial Park North Gas Turbine Thermal Power Co., Ltd.	Northern Gas Turbine
Gaozhou GCL Gas Distributed Energy Co., Ltd.	Gaozhou Gas Turbine
Taicang GCL Garbage Incineration Power Generation Co., Ltd.	Taicang Recycling
Lanxi GCL Environmental Protection Thermal Power Co., Ltd.	Lanxi Thermal Power
Guangzhou GCL Lantian Gas Thermal Power Co., Ltd.	Guangzhou Lantian
Wuhu GCL SI New Energy Technology Co., Ltd.	Wuhu GCL
Taicang Port GCL Power Generation Co., Ltd.	Taicang Port GCL Power Generation
Hefei GCL SI New Energy Technology Co., Ltd.	Hefei GCL
Rudong GCL Environmental Protection Thermal Power Co., Ltd.	Rudong Thermal Power
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