

# GCL Technology Holdings Limited

Corporates | Diversified Manufacturing | **China** | Entity Rating

Rating Type	Rating <sup>a</sup>	Score	Analysis Type
Entity	2	70	Full Entity
Framework	Not Applicable	Not Applicable	Not Applicable

<sup>a</sup> Rating of 1-5, where 1 is the strongest. Date Rating and score assigned: 11 December 2025.

Note: For Framework, analysis types can be green, social, sustainability, sustainability-linked, conventional or other.

## Key Rating Drivers

- Sustainable Fitch has published GCL Technology Holdings Limited's (GCL Tech) Entity Rating of '2', which indicates a good overall ESG profile. This reflects its solar-grade polycrystalline silicon (polysilicon) enabling solar panel manufacturing, which is essential for the low-carbon economy; the polysilicon is also manufactured using a less energy-intensive method.
- The rating is negatively affected by the company's increasing environmental metrics in absolute terms, low workforce gender diversity, and sub-average board diversity and independence levels.
- GCL Tech has an ESG risk management structure. We have not identified major environmental, social or compliance-related incidents in the past three reporting periods.

Source: Sustainable Fitch

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## The Entity - Highlights

GCL Tech manufactures solar-grade polysilicon, silicon wafers and metallurgical-grade silicon (silicon metal). It has 13 production sites in China's Jiangsu Province, Sichuan Province, Henan Province, Inner Mongolia Autonomous Region and Ningxia Autonomous Region. GCL Tech is listed on the Hong Kong Stock Exchange. The company had 9,305 employees as of end-2024.

GCL Tech has around 25% market share of solar-grade polysilicon products in China, which has over 80% global market share in solar PV technology manufacturing. The company prioritises the development of silicon materials with the least cost and carbon footprint to enable the scaling up of solar power capacity in China and overseas markets. GCL Tech invested CNY1.10 billion, or 7.3% of its annual revenue, in product R&D in 2024.

The company made significant investments in the commercial expansion and development of production lines for granular silicon using silane-based fluidised bed reactor (FBR) technology since 2020. The granular silicon product was confirmed by external certification agencies to have achieved a lower cradle-to-gate and gate-to-gate carbon intensity compared to other polysilicon products available in the market.

We view GCL Tech's environmental profile as good, with a rating of '2'. This reflects the established environmental policies and metrics, and no critical environmental incidents in the past three years. The environmental metrics are worsening in absolute terms as the company expands its operation, especially the more carbon-intensive upstream activities.

We view GCL Tech's social profile as average, with a rating of '3'. The company has well-established human and labour rights policies and no critical incidents happened in the past three years. The rating is negatively affected by the weak workforce diversity indicators, which is common to labour-intensive manufacturing companies.

We view the company's governance profile as good, with a rating of '2'. GCL Tech has robust risk management, internal audit and financial reporting practices. The rating is negatively affected by the limited board diversity and independence.

GCL Tech conducted a materiality analysis to identify major ESG risks. The company demonstrated the measures that it has taken to address these ESG risks. It particularly disclosed its analysis of climate and water risks in detail.

GCL Tech established an ESG management structure that is led by the board-level ESG committee. The management structure consists of an executive-level committee, operational-level coordinating unit, and site-level respondents to execute environmental and social initiatives. GCL Tech established short- and long-term quantitative environmental targets and

short-term quantitative social targets that address its key impacts.

GCL Tech publishes annual ESG reports in accordance with the Hong Kong Stock Exchange listing rules. Its 2024 ESG report was externally verified.

In our view, GCL Tech's business activity directly contributes to UN Sustainable Development Goal (SDG) target 7.2 (by 2030, increase substantially the share of renewable energy in the global energy mix). GCL Tech provides life-cycle carbon footprint data of its products to customers, providing further clarity on the environmental benefit of solar PV technology.

Source: Sustainable Fitch, GCL Tech annual report 2024, GCL Tech ESG report 2024

## Entity Analysis

### Broader Perspective on Sector

Sector Trajectory	Sustainable Fitch's view
Short Term	<ul style="list-style-type: none"> <li>The energy sector is under pressure to decarbonise its operations and increase renewable energy capacity to support the transition to a net-zero emissions economy. Solar PV stands as the fastest-growing renewable energy source, with the International Energy Agency (IEA) projecting it to account for around 80% of the 5,500GW global renewable capacity growth between 2024 and 2030, becoming the largest renewable source by the decade's end.</li> <li>In 2024, data from the China Photovoltaic Industry Association showed that global solar PV additions reached 530GW. China installed 278GW of new PV installations in 2024, up 28.3% from 2023 and bringing the total capacity to 887GW, but the association forecasts that new installations will be between 215GW and 255GW in 2025. This decrease is due to the impact of policies such as the management measures for distributed PV and the reform to market-oriented renewables pricing from feed-in tariffs.</li> <li>On the manufacturing front, China has dominated the global solar PV supply chain over the past decade, holding market shares of between 80% and 95% across various manufacturing segments, such as high-purity polysilicon, wafers, PV cells and PV modules, according to the IEA. This dominant position is largely driven by low labour costs, competitive electricity prices, a mature and vertically integrated supply chain, large-scale production, and government support, among other factors.</li> <li>Various stages of solar PV manufacturing can be resource intensive, particularly the manufacturing of polysilicon that requires substantial energy, water and chemical consumption. Some less carbon-intensive processes are emerging, such as the FBR method and the upgraded metallurgical grade method.</li> <li>In addition, there are concerns regarding the working conditions associated with solar PV manufacturing. In the near term, it is essential to focus on improving environmental performance, disclosing more robust labour rights protection measures, and ensuring transparency in supply chain due diligence.</li> </ul>
Long Term	<ul style="list-style-type: none"> <li>Transitioning to the use of only low-emissions energy is an integral part of meeting the Paris Agreement goals and limiting the global temperature rise to 2°C above pre-industrial levels with a more ambitious target of 1.5°C. This necessitates a significant shift towards renewable energy technologies by mid-century, such as solar, wind, hydropower and geothermal, along with battery storage and smart grid infrastructure.</li> <li>Solar PV capacity needs to reach 18,800GW under the IEA's Net Zero Emissions by 2050 Scenario, making up 51% of the total capacity of the electricity sector by 2050. This suggests continued strong deployment rates for solar PV technology and underscores its pivotal role in the global energy transition.</li> <li>Cost competitiveness and technological advancement will be key for solar PV</li> </ul>

### Broader Perspective on Sector

Sector Trajectory	Sustainable Fitch's view
	<p>manufacturers to maintain market share. The industry has undergone a disruptive revolution over the past decade with emerging technologies.</p> <ul style="list-style-type: none"> <li>Disruptions include the transition from P-type passivated emitter and rear contact cells to N-type tunnel oxide passivated contact cells, and the development of heterojunction technology, back contact technology and highly-efficient perovskite-silicon tandem cells, among others. We expect innovations in the solar PV manufacturing sector to continue and drive efficiency improvements.</li> <li>Regarding sustainability, manufacturers will have to address embodied carbon, with fully renewable-powered solar manufacturing becoming the industry standard. Circular economy principles focusing on PV module designs optimised for material recovery and regulations requiring high recyclability will also be increasingly important.</li> <li>On the social side, scrutiny of labour and human rights practices across the solar supply chain will also continue to be a material topic and manufacturers will be facing stakeholder demands for greater transparency.</li> </ul>

Source: Sustainable Fitch

## Entity Analysis

### Broader Perspective on Company

Sector Trajectory	Sustainable Fitch's view
Short Term	<ul style="list-style-type: none"> <li>GCL Tech is one of China's major polysilicon manufacturers for solar PV. It reported a 25% market share as of December 2024. The company has quickly expanded its production volume since 2021. The year-on-year increase of polysilicon production volume as of end-2022, end-2023 and end-2024 was 120%, 122% and 16%, respectively. However, GCL Tech does not anticipate further significant expansion in production capacity.</li> <li>In June 2023, GCL Tech ceased production of rod silicon using the Siemens method and switched to granular silicon production with the FBR method. GCL Tech's granular silicon product is proven to have a 75% lower electricity consumption intensity compared to other available less-carbon-intensive rod silicon products. GCL Tech reported that the year-on-year cost of its own granular silicon production dropped by 10% as of end-2024, and expects further room for cost reduction.</li> <li>GCL Tech measures and reports the life-cycle carbon footprint of its products through blockchain technology. Such transparency is beneficial for customers who aim to measure their product carbon footprint and advances in their environmental profiles. This enables more uptake of solar power by the market. The silicon products could be better received by more environmentally conscious markets, such as the European market, by being transparent on life-cycle carbon footprint and proving the carbon intensity to be lower than the market benchmark.</li> <li>GCL Tech deployed a silicon metal production line in 2023 to mitigate the risk of raw material shortage. This production line is energy and carbon intensive because it involves the use of coal, which significantly contributed to the rapid increase of the company's absolute carbon emissions between 2022 and 2023.</li> </ul>
Long Term	<ul style="list-style-type: none"> <li>GCL Tech will continue to enjoy a growing market given the strong demand for solar PV technology. GCL Tech is strengthening its market share through cost leadership, innovation for lowering the carbon footprint of its products and enhancement of the conversion efficiency of its solar PV products.</li> <li>GCL Tech is still using fossil fuels or fossil fuel-powered electricity for over 80% of its production in 2024. Its parent company GCL Group is joining RE100 and we therefore expect GCL Tech to progress to using 100% renewable energy in its production facilities. This commitment is strengthened as GCL Tech announced a Scopes 1 and 2 carbon neutrality target by 2040.</li> <li>There has been a significant increase in uptake of renewable energy in 2024. Solar PV can achieve carbon reduction that can compensate for life-cycle emissions associated with its manufacturing phase, but solar PV technology will be more sustainable if the manufacturing is driven by renewable energy.</li> </ul>

Source: Sustainable Fitch

## Entity Analysis

### Business Activities

#### Company Material

#### Core Contributions

#### Solar material business

Rating **2**

- The activities of this segment include the manufacturing and selling of polysilicon and silicon wafer for downstream manufacturing of PV panels, processing of customers' silicon materials and selling of ingots. GCL Tech's product portfolio mainly comprises granular silicon produced by silane-based FBR technology and PV silicon wafers.
- In 2024, GCL Tech manufactured 269,199 tonnes of polysilicon.
- PV silicon wafers are manufactured by slicing silicon ingots. In 2024, GCL Tech produced 32,243MW of silicon wafers.
- GCL Tech manufactures silicon metal for self-consumption. Some of those are sold externally and may not be used for producing solar PV wafers by its customers.

#### Share percent

Represents 99.07% of 2024 revenue.

#### Sustainable Fitch's View

#### Environmental

#### Social

- Polysilicon is the primary material for the manufacture of solar cells and modules. We view this as environmentally positive because it enables the development of solar power generation capacity throughout the economy. Solar power is currently one of the most reliable renewable energy technologies, and solar electricity generation substantially contributes to climate change mitigation. The technology is necessary for the decarbonisation of the economy.
- The manufacturing of solar-grade polysilicon involves the thermal deposition process of silicon-containing gases, such as silane (SiH<sub>4</sub>) and trichlorosilane (SiHCl<sub>3</sub>). The result of such processes is multi-crystalline silicon with a purity of 99.9999%. The Siemens method is the market-dominating technique to manufacture polysilicon.
- A peer-reviewed academic paper reported that the carbon intensity of polysilicon made using the Siemens method can reach 113kgCO<sub>2</sub>e per kg of solar-grade silicon, assuming there is no renewable energy input. The operating temperature of the Siemens method can reach over 1,000°C.
- The FBR method is an alternative chemical vapour deposition method to manufacture polysilicon. GCL Tech highlighted that the carbon footprint of its polysilicon product made with the FBR method is 80% lower than the polysilicon product made with the Siemens method, and is the lowest among polysilicon products available in the market.
- The gate-to-gate carbon footprint per kg of granular silicon produced by one of the GCL Tech plants in Inner Mongolia was 14kgCO<sub>2</sub>e, according to the French Agency for Ecological Transition in 2025. TÜV SÜD confirmed that the cradle-to-gate carbon footprint per kg of granular silicon was 41kgCO<sub>2</sub>e.
- The China Quality Certification Centre confirmed in 2024 that the cradle-to-gate carbon footprint per kg of granular silicon produced by the Leshan plant was 27kgCO<sub>2</sub>e.
- The FBR method is less carbon and water intensive than the traditional Siemens method; however, the environmental impact of the manufacturing of polysilicon, such as emission of air pollutants, is yet to be fully mitigated.

- We view this business segment as having an overall average social impact, as it is balanced by a combination of positive and negative social impact.
- The production of polysilicon is associated with air and water pollution, which can negatively affect human health if not properly managed. The company implemented mitigation measures and complied with statutory requirements to monitor and control exhaust gas emissions and effluent discharge.
- The negative health impact is counterbalanced by the end use of polysilicon and wafers, which is solar power generation. The activity does not release air and water pollutants during the power generation phase compared to traditional fossil fuels-based power generation.

## Entity Analysis

### Business Activities

#### Company Material

#### Core Contributions

#### Environmental

#### Sustainable Fitch's View

#### Social

#### Solar material business

Rating 2

- The manufacturing of wafers from polysilicon involves ingot formation, shaping and slicing into wafers, and wafer surface treatment. High temperature and thus intensive energy use is required for ingot formation. We have not identified any less energy-intensive alternative process for wafer manufacturing.
- GCL Tech deployed a silicon metal production line in 2023 to mitigate the risk of raw material shortage. Such products are both consumed internally and sold externally. This production line is energy and carbon intensive because it involves the use of coal, which significantly contributed to the rapid increase of the company's absolute carbon emissions.
- Through engagement, we understand that over 80% of externally sold silicon metal is used for production of solar-grade polysilicon, and subsequently solar cells, contributing to climate change mitigation.

#### Solar farm business

Rating 2

- The activities of this segment include managing and operating five solar farms in China with a total installed capacity of 133MW, and solar farms in the US with a total installed capacity of 18MW. GCL Tech also has a minority interest (9.7%) in solar farms in South Africa with a total installed capacity of 150MW. The electricity sales volumes of the solar farm business in China and overseas in 2024 were 162GWh and 25GWh, respectively.
- Solar power substantially contributes to climate change mitigation. Solar power activities are included in various taxonomies; we used the EU taxonomy to assess environmental impact. Solar power is aligned with the EU taxonomy substantial contribution criteria, given that no alignment thresholds currently apply.
- We view the generation and sale of solar power as socially neutral, as there is no evidence to suggest that these activities directly contribute to any of the social SDGs, based on the available information.

#### Share percent

Represents 0.93% of 2024 revenue.

Source:  
GCL Tech annual report 2024

Source:  
Sustainable Fitch, based on GCL Tech annual report 2024, GCL Tech ESG report 2024, engagement with GCL Tech

## Entity Analysis

### Environmental View

Rating: 2

Profile	Sustainable Fitch's View	Rating
Policies	<ul style="list-style-type: none"> <li>GCL Tech's management centre enacted an environmental protection management standard that applies to the entire group. The standard addresses the control of air, water, noise and solid waste pollution across the construction of new facilities and the manufacturing processes.</li> <li>The standard requires GCL Tech to conduct an environmental impact assessment in accordance with local regulations, and avoid disturbance to natural habitats during the construction of new facilities. The standard also outlines the responsibilities of various departments on the implementation of environmental measures.</li> <li>The environmental management systems of 12 out of 13 subsidiaries are ISO 14001:2015 certified. The non-certified subsidiary was not fully operating.</li> <li>GCL Tech issued a climate change and energy policy, and biodiversity policy for the group. The former states a high-level commitment of reducing carbon emissions and enhancing energy efficiency in the long run; the latter states a high-level commitment to not directly and indirectly damaging biodiversity and ecosystems during operations and extraction of raw materials.</li> <li>Energy consumption is the major environmental impact of GCL Tech's business activities. The company invested in enhancing the energy efficiency of its manufacturing processes. It increased its use of renewable energy significantly in 2024 through purchase of electricity from renewable sources.</li> <li>GCL Tech aims to reduce water consumption by enhancing the water efficiency of equipment and deploying water-reuse systems in the plants.</li> <li>GCL Tech conducted a water risk assessment for all production sites and concluded that five of the 14 sites assessed have moderate physical water risks. Such risks include flooding, water scarcity and water quality.</li> <li>The company determined measures to manage water risk, such as to increase the reuse of wastewater, and enhance the proportion of utilising alternative water sources. It also established an early-warning system for floods. Alternative water sources refer to greywater (supplied externally) and rainwater collected on site.</li> </ul>	1
Disclosure	<ul style="list-style-type: none"> <li>GCL Tech disclosed its Scopes 1 and 2 emissions and its carbon emissions intensity on a production volume basis for silicon wafers and silicon materials, which are the major subsegments of the "solar material business" segment. It also disclosed the group-wide Scopes 1 and 2 emissions.</li> <li>The carbon emissions intensity specifically for its silicon metal business, which we consider carbon intensive, is not available. The company considers the carbon emissions for the solar farm business to be negligible based on our communication with the company, so it does not disclose the data in its annual ESG report.</li> <li>In 2023, the company launched Scope 3 emissions accounting for five of its production plants that account for around 88% of the group's total output. The</li> </ul>	1

### Environmental View

Rating: 2

Profile	Sustainable Fitch's View	Rating
Evolution	<ul style="list-style-type: none"> <li>2024 Scope 3 emissions report covered purchased goods and services (split to raw material use at 3.36 million tCO<sub>2</sub>e and auxiliary material use at 1.87 million tCO<sub>2</sub>e), transportation (upstream at 322,000tCO<sub>2</sub>e, employee commuting at 4,700tCO<sub>2</sub>e, business travel at 815tCO<sub>2</sub>e and downstream at 120,000tCO<sub>2</sub>e) and emissions from waste disposal (3,300tCO<sub>2</sub>e).</li> <li>Scope 3 emissions categories 10 (processing of sold products) and 11 (use of sold projects) are not covered, but these are relatively less material for companies at the upstream of solar PV value chain.</li> <li>GCL Tech disclosed other environmental performance metrics for the entire group, silicon wafer business and silicon material business, which include energy consumption (non-renewable and renewable), energy consumption intensity on a production volume basis, amount of wastewater discharged, emission of exhaust gas, hazardous and non-hazardous waste volume, water consumption, water intensity, and volume of packaging materials used. It also disclosed energy consumption by fuel type for the entire group. However, the waste recycling rate is not available.</li> <li>The 2024 environmental metrics were verified by an external verifying applying AA1000 assurance standard, except for the carbon emissions data from five key production plants. Separately, the carbon emissions data from the five production plants were reasonably assured by another external party with ISO 14064:2018 as verification criteria.</li> <li>The denominator of the environmental metrics intensity, which is MW of wafers manufactured, does not refer to the amount of actual wafers manufactured. Instead, it is the outcome of converting the output of silicon material business line and wafer business line to a same unit based on internal methodology. Any intensity metrics reported by GCL Tech are not calculated using a denominator that includes the production volume of externally sold silicon metal.</li> </ul>	4
Evolution	<ul style="list-style-type: none"> <li>In absolute terms, all environmental metrics worsened between 2021 and 2024. GCL Tech explained that this was due to an increase of year-on-year production volume, and an upstream extension of silicon metal manufacturing that involves processes that are energy and waste intensive.</li> <li>Its Scopes 1 and 2 emissions increased to 8.93 million tCO<sub>2</sub>e in 2023 from 3.82 million tCO<sub>2</sub>e in 2021. The emissions reduced by 3.37% to 8.63 million tCO<sub>2</sub>e in 2024. Its Scopes 1 and 2 carbon emissions intensity decreased year-on-year to 39.8tCO<sub>2</sub>e/MW of wafers manufactured in 2024 from 68.5tCO<sub>2</sub>e/MW of wafers manufactured in 2021. The intensity also captured the emissions associated with silicon metal manufacturing activities, which we consider carbon intensive.</li> <li>GCL Tech only reports Scopes 3 emissions for two years, and we cannot assess the evolution trend without at least four years of data.</li> </ul>	7

## Entity Analysis

### Environmental View

Rating: 2

Profile	Sustainable Fitch's View	Rating
	<ul style="list-style-type: none"> <li>Total energy consumption increased by 114% between 2021 and 2024 to over 19,000GWh. Energy intensity decreased by 45% to 88.8MWh/MW of wafers manufactured.</li> <li>The renewable energy consumption rate in 2024 was 14%, while 2023's rate was close to 0%. GCL Tech confirmed through engagement that it consumed some renewable energy in 2021 and 2022, but the amount was not recorded.</li> <li>GCL Tech reports water withdrawal, which measures the amount of fresh water drawn directly from natural water bodies and municipal pipelines, for 2023 and 2024 only. We cannot form an opinion on the trend based on the available data.</li> <li>Total waste discharged increased nearly five-fold to 183,315 tonnes in 2024 from 38,766 tonnes in 2021.</li> </ul>	
Targets and Supply Chain	<ul style="list-style-type: none"> <li>GCL Tech reported eight quantitative environmental targets.</li> <li>The company aims to decrease water consumption intensity of its silicon material business line by 32% and its wafer business line by 9.3%, both in 2026 compared to 2023. The 2024 reduction was 22% for the silicon material business line. Water consumption intensity increased by 47% for the wafer business line.</li> <li>The company aims to decrease the electricity consumption intensity of its silicon material business line by 8% in 2024 compared to 2023. The actual reduction achieved was 14%, so the target was met. Less than half of the energy consumed by GCL Tech is electricity, so the electricity intensity target is only partially relevant in our view.</li> <li>Furthermore, the silicon material business line only consumes 70% of the group's energy. GCL Tech has updated the target in 2024 to reduce electricity consumption per MW wafer by 12% for all production activities by 2030 compared to 2023.</li> <li>The company aims to maintain hazardous waste intensity at less than 10kg/MW wafer per year. The actual hazardous waste intensity for 2024 was 6kg/MW wafer, so the target was met.</li> <li>The company aims to reduce the carbon intensity of its silicon material business line by 11.7% and its wafer business line by 16.1%, both in 2026 compared to 2023. It also aims to reduce the carbon intensity of its silicon material and wafer business lines by 20% in 2030 compared to 2023; the 2024 reductions were 13.0% and 4.04%, respectively. The 2026 target was exceeded for the silicon material business line.</li> <li>GCL Tech is aiming to achieve Scopes 1 and 2 carbon neutrality by 2040; and achieve neutrality for Scopes 1, 2 and 3 emissions no later than 2050. We view the targets of carbon neutrality at the operational level by 2040 and carbon neutrality across the value chain by 2050 to be positive.</li> <li>Through engagement, we understand that GCL Tech's roadmap to carbon neutrality involves levers that include extensive use of renewable energy,</li> </ul>	1

### Environmental View

Rating: 2

Profile	Sustainable Fitch's View	Rating
	<p>minimising the use of coal and procurement of low-carbon products, which would reduce absolute emissions by at least 90% from 2023 levels. We deem long-term quantitative targets to be important in helping an entity aligns itself with the global decarbonisation agenda.</p> <ul style="list-style-type: none"> <li>GCL Group is requiring GCL Tech to achieve two environmental objectives within 2025: to conduct carbon audit for operations that contributed to over 50% of its revenue, and to initiate climate risk analysis. These targets are part of the performance evaluation of the senior executives of GCL Tech, but are not directly linked to the executive remuneration.</li> <li>GCL Tech's 2024 ESG report mentioned that environmental metrics are linked to the executive remuneration, but the company explained through engagement that this link is indirect, as part of the variable executive remuneration is linked to cost reduction and energy makes up a significant portion of the cost.</li> <li>GCL Tech issued a supplier code of conduct on corporate social responsibility, which covers environmental protection clauses such as pollution control, controlling impact to ecosystems and energy saving. The company reports that all core suppliers signed the document.</li> <li>GCL Tech has begun adopting a more proactive approach in mitigating supply chain ESG risk in 2024. It conducted annual due diligence on 18 raw and auxiliary material suppliers, covering environmental topics such as carbon emissions and biodiversity protection.</li> <li>In 2025, GCL Tech is covering more raw and auxiliary material suppliers under the ESG due diligence scope. It is also sending ESG self-assessment questionnaire to other selected major suppliers. It requires suppliers to take corrective actions if non-compliance to the code of conduct is identified. GCL Tech confirms that both approaches cover more than 80% suppliers by procurement spend.</li> <li>GCL Tech confirmed through engagement that environmental factors, such as environmental management practices and sustainability attributes of products, positively contribute to supplier selection decision.</li> <li>GCL Tech has not set quantitative environmental targets for its suppliers, but it encourages the suppliers to submit carbon emissions data so that their products' cradle-to-gate carbon footprint can be calculated.</li> </ul>	
Risks and Incident Treatment	<ul style="list-style-type: none"> <li>No large-scale environmental incidents were reported in the past three years.</li> </ul>	1

Source: Sustainable Fitch, based on GCL Tech ESG reports (2023, 2024), engagement with GCL Tech, other company material

## Entity Analysis

### Social View

Rating: 3

Profile	Sustainable Fitch's View	Rating
Human Rights	<ul style="list-style-type: none"> <li>GCL Tech has a human rights policy formulated in accordance with the UN Guiding Principles on Business and Human Rights. The policy includes anti-discrimination, anti-harassment, respect to human rights, civil rights and political rights, and anti-forced labour and child labour.</li> <li>GCL Tech is a signatory of the UN Global Compact.</li> </ul>	1
Labour Rights	<ul style="list-style-type: none"> <li>GCL Tech has a labour rights protection policy formulated in accordance with the International Labour Organization Declaration on Fundamental Principles and Rights at Work. Apart from labour-related human rights topics, the policy also covers health and safety, collective bargaining, workforce diversity, and employee communication. GCL Tech reported that 100% of its employees are covered by the collective bargaining covenant.</li> <li>Workers at GCL Tech and its subsidiaries are represented by 13 labour unions, which are funded by the members. The unions focus on offering benefits to employees but also represent the workforce to provide feedback to the management.</li> <li>GCL Tech has a safety committee that coordinates the implementation of an occupational safety management system. The environmental, health and safety office investigates occupational safety incidents. In 2024, 12 out of 13 GCL Tech production sites obtained ISO 45001:2018 occupational health and safety management system certification.</li> <li>GCL Tech reported through engagement that there were no employee, dispatched worker and contractor fatalities and severe injuries in the past three years. There were 36 work injury incidents for employees and dispatched workers in total based on public reporting, which led to a loss of 9,098 working hours, a 23% reduction compared to 2023.</li> <li>GCL Tech also reported four recordable incidents for contractors in 2024. It plans to disclose a breakdown of the criticality of incidents in the coming ESG reports, according to our communication with the company.</li> <li>In 2024, the employee turnover rate was 16.9%.</li> </ul>	1
Diversity	<ul style="list-style-type: none"> <li>GCL Tech has a male-dominated workforce. Over 78% of its workforce are men. We consider gender diversity to be limited, but this is a common phenomenon for the labour-intensive manufacturing industry.</li> <li>GCL Tech defines the senior management as the five executive directors on the board. One out of the five executive directors is a woman.</li> <li>The company disclosed the age distribution of its workforce as of end-2024; 66% of its workforce was aged between 30 and 50.</li> <li>GCL Tech reported that it hired 15 disabled permanent workers.</li> <li>GCL Tech has not provided any information on the unadjusted gender pay gap, which we consider a key measurement of gender equity within an organisation.</li> </ul>	5

### Social View

Rating: 3

Profile	Sustainable Fitch's View	Rating
Community and Customers	<ul style="list-style-type: none"> <li>GCL Tech donated CNY1.3 million in cash and in-kind in 2024 for causes that include rural vitalisation. It organised employee volunteering work.</li> <li>The company conducted a customer satisfaction survey for its key customers in 2024, which indicated a satisfaction rate of 97%. The key customers surveyed contributed to over 78% of the company's revenue in 2024, according to our engagement with the company.</li> </ul>	1
Targets and Supply Chain	<ul style="list-style-type: none"> <li>GCL Tech has annual quantitative targets on material social topics. For example, the company aims to achieve a customer satisfaction rate of over 91%, and a lost time injury frequency rate (per 200,000 hours) of lower than 1.5 for employees and contractors.</li> <li>The company issued a supplier code of conduct on corporate social responsibility, which covers social clauses that include health and safety, human rights, and bribery. The company reports that all core suppliers signed the document, together with a declaration of no use of conflict minerals.</li> <li>GCL Tech began adopting a more proactive approach in mitigating supply chain ESG risk in 2024. It conducted an annual due diligence on 18 raw and auxiliary material suppliers, covering topics on social, governance and supply chain management.</li> <li>In 2025, GCL Tech is covering more raw and auxiliary material suppliers under the ESG due diligence scope. It is also sending ESG self-assessment questionnaire to other selected major suppliers. It requires suppliers to take corrective actions if non-compliance to the code of conduct is identified. GCL Tech confirms that both approaches cover more than 80% suppliers by procurement spend.</li> <li>GCL Tech confirmed through engagement that social factors, such as human and labour rights protection practices, positively contribute to supplier selection decision.</li> <li>GCL Tech supports its suppliers in fulfilling its requirements towards health and safety and business ethics.</li> </ul>	2
Risks and Incident Treatment	<ul style="list-style-type: none"> <li>No large-scale social incidents were reported in the past three years.</li> </ul>	1

Source: Sustainable Fitch, based on GCL Tech ESG reports (2023, 2024), other company material

## Entity Analysis

### Governance View

Rating: 2

Profile	Sustainable Fitch's View	Rating
Financials and Reporting	<ul style="list-style-type: none"> <li>GCL Tech's financial statements are publicly available and the audit has given an unqualified audit opinion for the past three financial years.</li> </ul>	1
Top Management and Control	<ul style="list-style-type: none"> <li>The board of directors consists of six executive directors and four independent non-executive directors. One of the 10 directors is a woman. The chairman and joint-CEO, Gongshan Zhu, is the founder of the company. Another vice chairman, Tianshi Lan, is a joint CEO of the company.</li> <li>GCL Tech introduced an ESG expert to the board as an independent non-executive director in 4Q24, which diversifies the professional background of the board; however, we deem the board to have a limited level of diversity and independence overall. Increasing the diversity of the background of board members can lead to better decision-making. The low independence level may hinder the board's autonomy and good governance.</li> <li>GCL Tech has an internal audit department that is supervised by the audit committee. The audit committee comprises three independent non-executive directors, which is in line with market practice. The committee monitors the effectiveness of internal control systems. The internal audit department plans the appraisal of the adequacy and effectiveness of internal control systems performed by the management centre and the subsidiaries.</li> <li>GCL Tech reported it identified compliance risks through its internal control system, and it took remediation actions.</li> </ul>	3
Remuneration	<ul style="list-style-type: none"> <li>The board's remuneration committee determines the remuneration packages of individual executive directors. The committee is chaired by an independent non-executive director. Yufeng Zhu, an executive director and the son of the board chairman, is also a member of the remuneration committee. However, the remuneration committee is majority independent.</li> <li>We confirmed through company engagement that the executive directors' remuneration is not yet linked to any non-financial performance indicators, but the company is discussing an update of the executive remuneration policy as of the analysis date.</li> <li>The pay gap between the executive directors' remuneration and the median employee remuneration is not available in public reports. Based on our own analysis, the remuneration of the top-paid executive director is around 47x the average remuneration of non-director employees. This is a significant decrease compared to the gap of over 300x in 2023. The decrease is due to the directors' voluntary forfeit of performance bonuses.</li> </ul>	3
Risk Management	<ul style="list-style-type: none"> <li>GCL Tech's risk management system aims at identifying and managing risks factors that could affect the delivery of the company's strategic and financial objectives. The internal audit department conducts risk assessments semiannually. Major risk items are reported to the board and management on a regular basis.</li> </ul>	1

### Governance View

Rating: 2

Profile	Sustainable Fitch's View	Rating
	<ul style="list-style-type: none"> <li>GCL Tech is aware of a need to protect its own intellectual properties, while complying with intellectual properties related regulations. It has internal guidelines on marketing materials. It has a management system on the handling of personal and proprietary data.</li> <li>GCL Tech has an internal guideline on anti-corruption and has established a whistleblowing channel for handling complaints of violations of business ethics principles.</li> <li>No compliance incidents related to GCL Tech were identified in the past three years.</li> </ul>	
Tax Management	<ul style="list-style-type: none"> <li>GCL Tech is incorporated in the Cayman Islands, which is a tax haven. The company also has seven investment holding subsidiaries that are based in tax havens, including the Cayman Islands, British Virgin Islands, Hong Kong and Luxembourg.</li> <li>The majority of the company's operations are in China, and GCL Tech's subsidiaries pay tax in China and the US. In 2024, GCL Tech recorded a tax credit of CNY545 million, which was due to a combination of deferred tax credits amounting to CNY845 million, fully offsetting the current tax expense of CNY300 million incurred. There were no fines related to the violation of tax regulations in the past three years.</li> <li>A number of subsidiaries are registered as hi-tech companies in China. They enjoy government subsidies and a discounted corporate tax rate.</li> </ul>	3

Source: Sustainable Fitch, based on GCL Tech annual reports (2022, 2023, 2024), GCL Tech ESG report 2024, company website

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**Relevant UN Sustainable Development Goals - Entity**

7.2 By 2030, increase substantially the share of renewable energy in the global energy mix



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Source: Sustainable Fitch, UN

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Note: Sustainable Fitch evaluates the relevant UN Sustainable Development Goals at the entity level by considering direct contributions, not generic support.

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## Appendix A: Key Terms

Term	Definition
<b>Debt Types</b>	
Green	Proceeds will be used for green projects and/or environmental-related activities as identified in the instrument documents. The instrument may be aligned with ICMA Green Bond Principles or other principles, guidelines or taxonomies.
Social	Proceeds will be used for social projects and/or social-related activities as identified in the instrument documents. The instrument may be aligned with ICMA Social Bond Principles or other principles, guidelines or taxonomies.
Sustainability	Proceeds will be used for a mix of green and social projects and/or environmental and social-related activities as identified in the instrument documents. The instrument may be aligned with ICMA Sustainability Bond Guidelines or other principles, guidelines, taxonomies.
Sustainability-linked	Financial and/or structural features are linked to the achievement of pre-defined sustainability objectives. Such features may be aligned with ICMA Sustainability Bond Guidelines or other principles, guidelines or taxonomies. The instrument is often referred to as an SLB (sustainability-linked bond) or SLL (sustainability-linked loan).
Conventional	Proceeds are not destined for any green, social or sustainability project or activity, and the financial or structural features are not linked to any sustainability objective.
Other	Any other type of financing instrument or a combination of the above instruments.
<b>Term</b>	<b>Definition</b>
<b>Standards</b>	
Transition	A term applied to green, social, sustainable or sustainability-linked instruments, only when the purpose of the debt instrument is to enable the issuer to achieve a climate change-related strategy according to Fitch criteria or methodology.

Term	Definition
ICMA	International Capital Market Association. The "ICMA" credential on page 1 refers to alignment with ICMA's Principles and Guidelines: a series of principles and guidelines for green, social, sustainability and sustainability-linked (or KPI-linked) instruments.
EU Taxonomy Alignment	Sustainable Fitch follows a series of steps to determine a green instrument's alignment with the EU taxonomy. First, we determine if eligible projects within each UoP category are eligible under an EU taxonomy category. Then we determine if all eligible projects under the UoP align with the relevant substantial contribution criteria (SCC), do no significant harm criteria (DNSH) and minimum safeguard (MS) criteria as established by the taxonomy. The taxonomy alignment metric indicates the percentage of UoP categories that are fully aligned with all three pillars of the taxonomy. In line with EU guidance, we do not assess any remaining steps if we could not confirm the previous step, eg we do not assess DNSH and MS alignment if we could not confirm alignment with the SCC.
<b>Other Terms</b>	
Labelled instrument	Green, social, sustainability and sustainability-linked types of debt.
Short term	Within five years.
Long term	At least six years away.
Entity's business activity overlap with use of proceeds	The share of the entity's total business activities that can use proceeds from the debt instrument in question.
NACE	An industry standard classification system for economic activities in the EU, based on the United Nations' International Standard Industrial Classification of All Economic Activities (ISIC).
Source: Sustainable Fitch, ICMA, UN, EU Technical Expert Group	

## Applicable Methodology, Policies and Procedures

### Methodology and SUF Rating and Score Definitions

## Solicitation

### Status

### Solicited

The Ratings were solicited and assigned or maintained by Sustainable Fitch at the request of the rated entity.

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