Sunny Optical Technology (Group) Company Limited
舜宇光學科技（集團）有限公司
(Incorporated in the Cayman Islands with limited liability)
(Stock Code: 2382.HK)

2024 Climate-related Disclosure Report

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About the Report

To provide additional information to the potential investors, the company issued this report, primarily outlined the methodologies, commitments, and strategies of the Company and its subsidiaries in addressing climate change.

Reporting Period

Unless otherwise stated, the timeframe of this Report covers the period from 1 January 2024 to 31 December 2024 (the "Reporting Period").

Reporting Boundary

Unless otherwise specified, This Report covers Sunny Optical Technology (Group) Company Limited and its subsidiaries, which is consistent with the scope of the Group's consolidated financial report for the year ended 31 December 2024.

Definitions

For ease of reference and readability, within This Report, "the Group" and "we" collectively refer to Sunny Optical Technology (Group) Company Limited and its subsidiaries, while "the Company" and "Sunny Optical Technology (Group)" specifically denote Sunny Optical Technology (Group) Company Limited. The "Board" shall refer to the board of directors of the Company and the "Directors" shall refer to the directors of the Company. The "Audit Committee" refers to the audit committee of the Board. Unless otherwise specified, capitalized terms shall have the meaning ascribe to them in Appendix A of the IFRS S2 Climate-related Disclosures.

Basis of Preparation

This Report was prepared based on the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and the requirements set out *in Environmental, Social and Governance Reporting Code* (Part D: Climate-related Disclosure) published by the Hong Kong Exchanges and Clearing Limited (HKEX) under Appendix C2 of the Listing Rules. It also references the *International Financial Reporting Sustainability Disclosure Standard No. 2: Climate-related Disclosures* (IFRS S2) issued by the International Sustainability Standards Board (ISSB), disclosing information across four dimensions: Governance, Strategy, Risk Management, and Metrics and Targets.

Data Explanation

The data used in this Report, unless otherwise specified, primarily includes internal statistical data of the Group and relevant publicly available data. The monetary data in this Report are denominated in Renminbi (RMB). The Group reasonably assures that the content of this Report contains no false records, misleading statements, or material omissions.

Publication Method

This Report is published in electronic format on the Company's website (http://www.sunnyoptical.com). This Report is available in both Chinese and English versions. In case of discrepancies, the Chinese version shall prevail.

Contact Method

If you have any questions or suggestions regarding this Report or the Group's ESG management, please feel free to contact us via email at bgs@sunnyoptical.com.

01

Governance

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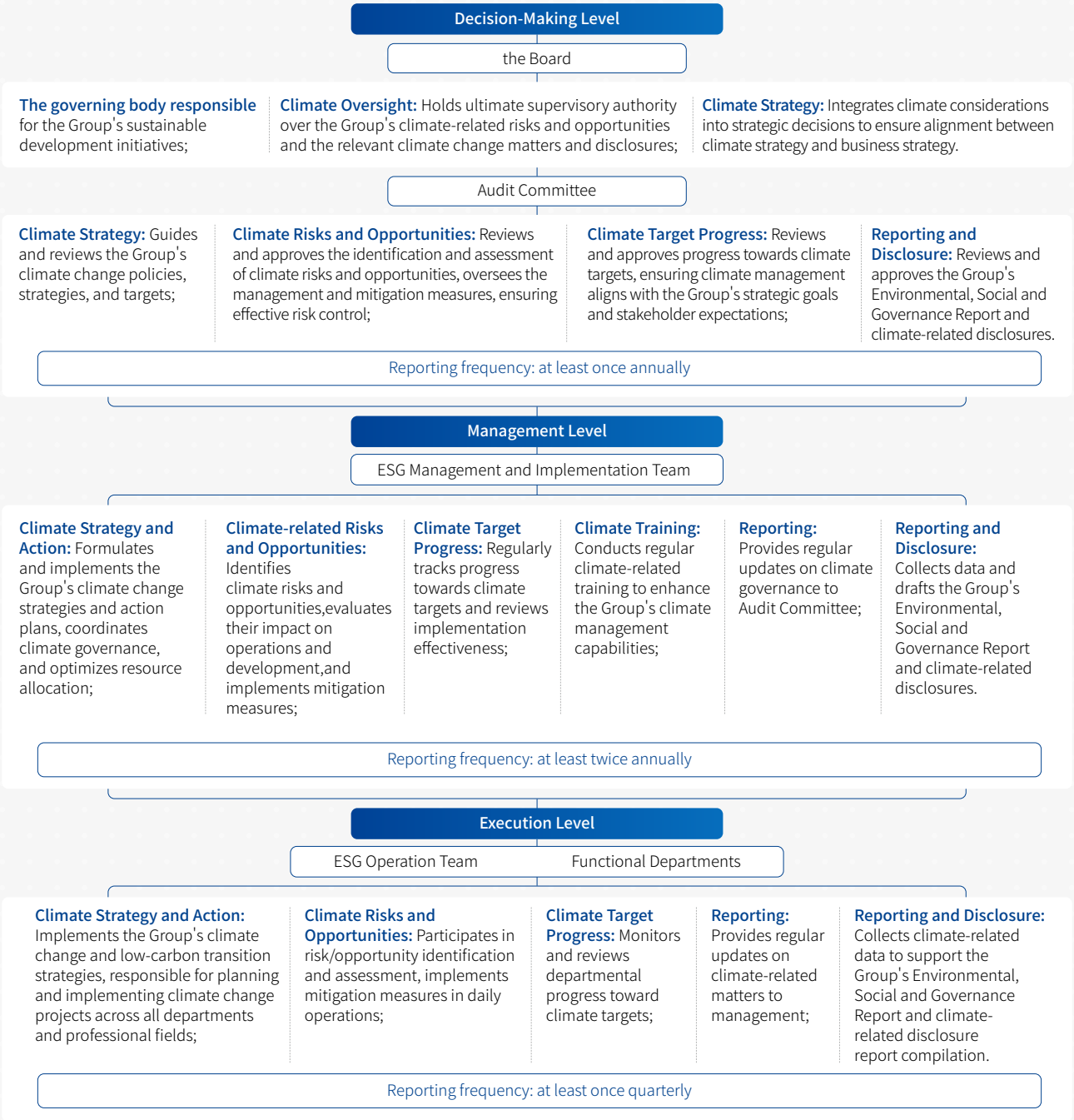
Governance Framework

A robust and effective governance framework is the strategic cornerstone for systematically identifying, assessing, managing, and addressing climate-related risks and opportunities, ultimately enabling the achievement of climate strategy goals. In an era where climate change challenges increasingly serve as a critical driver of corporate resilience and long-term value creation, strong governance not only ensures that climate-related issues are elevated to the highest decision-making level of the enterprise but also deeply embeds climate considerations into the core of the Group's strategy, risk management, and operational practices.

We continuously refine our climate change governance framework to clarify responsibilities, processes, and mechanisms for climate action within the Group. Through institutionalized arrangements, we ensure that climate-related factors are integrated into corporate strategic decision-making and daily operations. We have established a climate governance framework led by the Board, the Audit committee, and coordinated by ESG management and implementation team of the Group ("ESG Management and Implementation Team"), ESG operation team (the "ESG Operation Team") and the Group's functional departments (the "Functional Departments") to advance climate governance efforts. This ensures effective responses to climate change challenges, the capture of transition opportunities, and the enhancement of the Group's sustainable competitiveness.



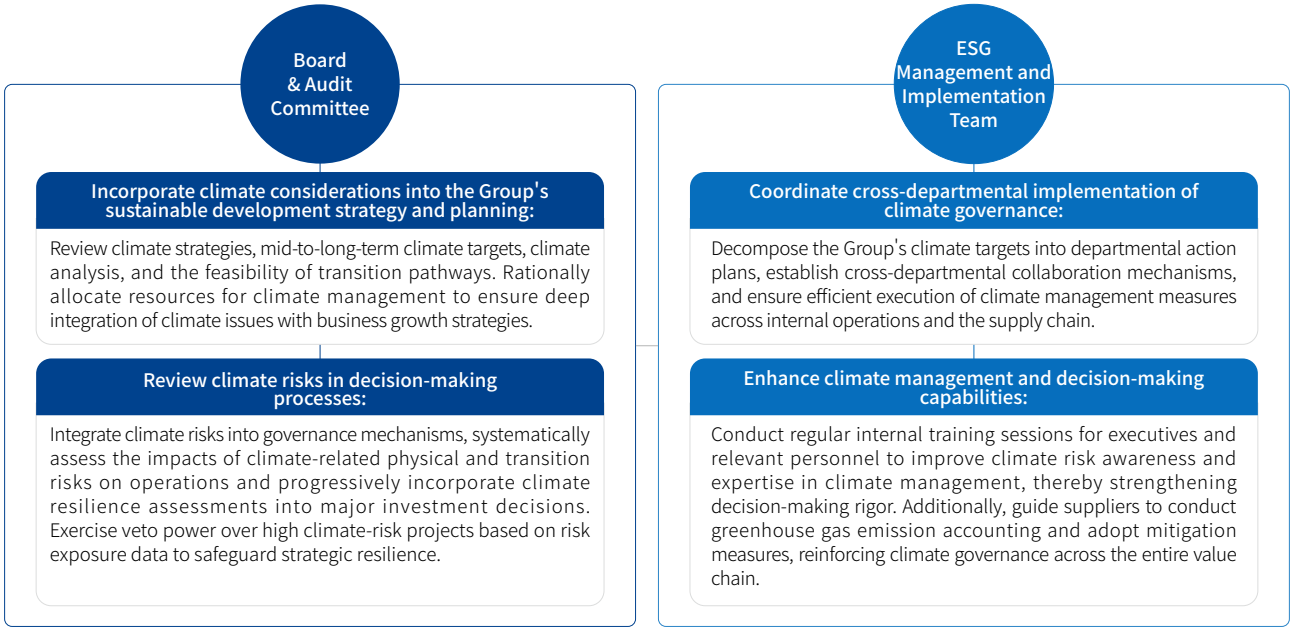
Climate Change Governance Policies and Systems

The Group continuously improves its climate governance policies and systems, clarifying responsibilities across all tiers in climate governance and ensuring standardized management. We adhere to the environmental policy of "Pollution prevention, Pursuit of continuous improvement, Energy conservation and emission reduction, Green development", and have established internal management systems such as the *Environmental Factor Identification and Evaluation Control Procedures* and the *Environmental Operation Control Procedures*, which specify concrete norms and requirements for energy conservation. We are committed to building an energy management system to enhance energy efficiency, reduce energy consumption and greenhouse gas emissions, and achieve a win-win outcome for economic and environmental sustainability. Additionally, we follow sustainable development principles to design and develop eco-friendly products, minimizing adverse environmental impacts and contributing to global climate action.

Under the unified leadership and management of the Group, subsidiaries have developed more detailed climate change governance systems tailored to their operational realities. For instance, Sunny Opotech has established the *Greenhouse Gas Management System*, which defines the responsible departments, specific requirements, procedures, and steps for greenhouse gas emissions tracking. Based on the Company's operational needs and development plans, it also outlines greenhouse gas reduction pathways to advance the Group's sustainable development goals.

Integration of Climate Considerations into Strategic Decision-Making

We fully recognize the systemic impacts of climate change on the Company's sustainable development and incorporate them as key considerations in strategic decision-making. The Group is committed to fully integrating climate-related risks and opportunities into strategic planning, governance frameworks, and daily operational decisions, ensuring that climate resilience becomes an integral part of the Company's core competitiveness while driving the synergistic development of low-carbon transition and business growth.



Climate Strategy Integration Framework

In the internal operations domain, we have established a comprehensive climate risk assessment mechanism to regularly review climate-related risks and opportunities across all production and operational processes. Based on assessment outcomes, we formulate targeted emission reduction goals and action plans, integrating them into the Group's sustainable development management framework to ensure climate considerations are fully embedded in strategic decision-making. We continuously optimize internal operational processes to enhance energy efficiency, increase the proportion of renewable energy usage, and reduce greenhouse gas emissions, striving for green and low-carbon operations.

In the value chain development dimension, we actively integrate climate considerations into the sustainable development strategies of the supply chain and industrial chain. Through close collaboration with suppliers, we share climate-related information and best practices to promote green procurement and sustainable production. We encourage downstream customers to adopt environmentally friendly products and solutions, enabling the entire value chain to achieve low-carbon transformation. Together, we collaboratively build a resilient green value chain ecosystem.

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Strategy

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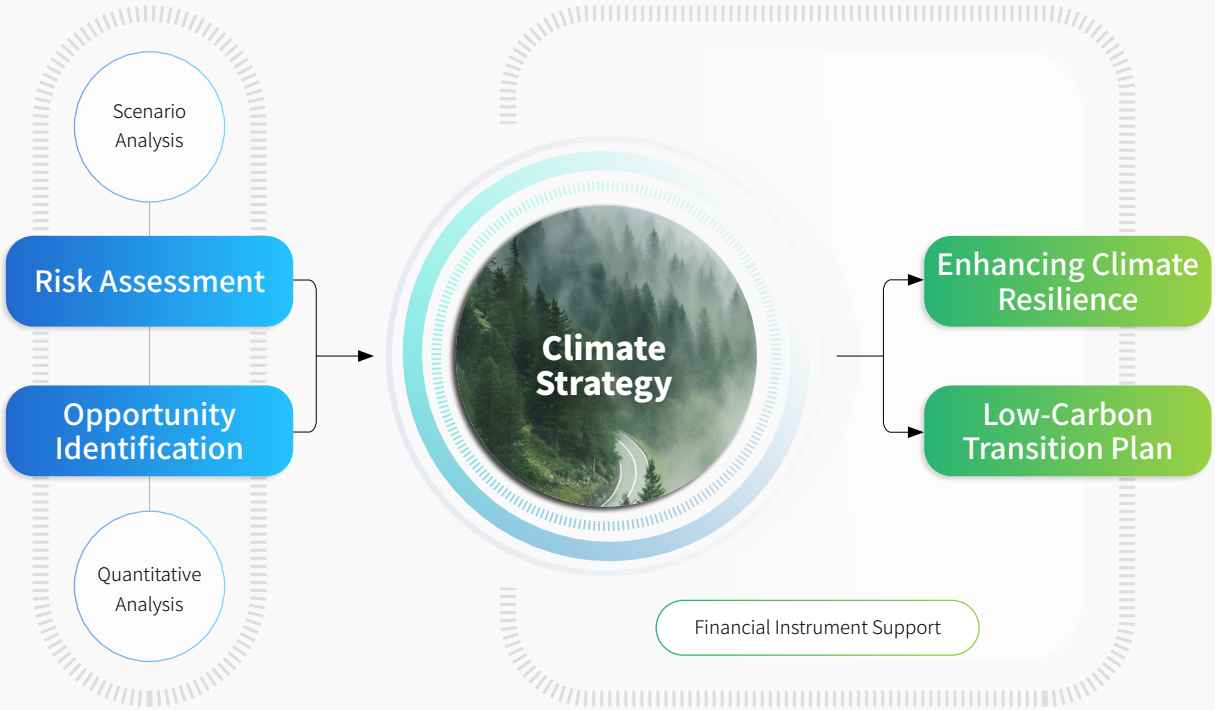
The Group regularly conducts a comprehensive assessment of the financial impacts and dependencies of climate risks and opportunities, based on its business strategic planning and current operational management status. It has formed a triangular climate strategy, with "enhancing climate resilience" "low-carbon transition plans", and "financial instrument support" as its pillars, systematically building climate change response and green transition competitiveness to steadily advance toward a carbon-neutral green future.



Climate Strategy Map

Climate-Related Risks and Opportunities

Climate Scenario Selection and Analysis Methodologies

The Group references IFRS S2 and the *Hong Kong Exchanges and Clearing Limited Listing Rules Appendix C2 Part D: Climate-Related Disclosures*, utilizing scenario analysis models and other analytical techniques to predict and assess the trends of climate change and its relationship with the Company's operations. The assessment scope includes the Group's operational locations, key segments of the upstream and downstream value chain, and the full lifecycle of its products. The evaluation covers environmental dependencies, the Group's impact on climate change, the current and anticipated effects of climate-related risks and opportunities on the Group, and the interconnections among these elements.

We referenced the International Energy Agency (IEA)'s Net Zero by 2050 Scenario, Announced Pledges Scenario, and Stated Policies Scenario to conduct a scenario analysis of transition risks for the Group:

Net Zero by 2050 Scenario

Net Zero by 2050 Scenario (NZE) is a prescriptive pathway proposed by the International Energy Agency (IEA), requiring the energy sector to achieve net-zero by 2050 without relying on external offsets

Announced Pledges Scenario

Announced Pledges Scenario (APS) represents a future energy and emissions development trajectory based on the climate policies and commitments already announced by governments, considering the impact of policy commitments on energy demand, prices, and emissions

Stated Policies Scenario

Stated Policies Scenario (STEPS) reflects the future trends of energy and emissions under the current policy framework without changes, used to assess the potential impact of existing policies on climate change

For the scenario analysis of climate-related physical risks, we referenced the Representative Concentration Pathways (RCPs) developed by the Intergovernmental Panel on Climate Change (IPCC), specifically SSP1-RCP2.6, SSP2-RCP4.5, and SSP5-RCP8.5 scenarios:

SSP1-RCP2.6

SSP1-RCP2.6 (Low Emissions Scenario) achieves net-zero emissions after 2050 through coordinated mitigation efforts, limiting global warming to approximately 1.8° C by 2100

SSP2-RCP4.5

SSP2-RCP4.5 (Medium Emissions Scenario) assumes global CO_2 emissions remain at current levels through mid-century without reaching net-zero, projecting a temperature rise of 2.7° C by 2100

SSP5-RCP8.5

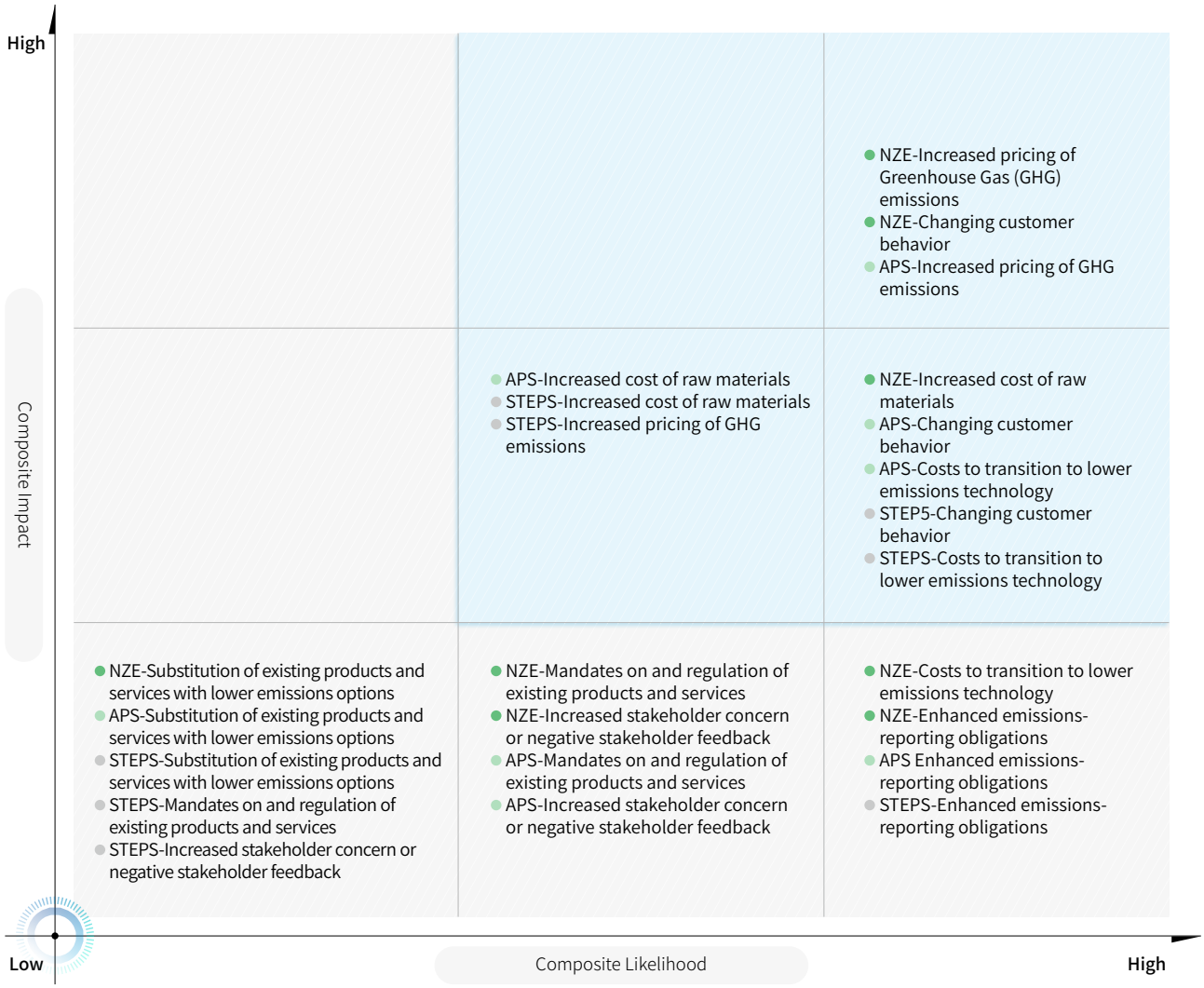
SSP5-RCP8.5 (High Emissions Scenario) assumes a fossil fuel-dominated development pathway, resulting in radiative forcing of 8.5 watts per square meter by 2100 and a temperature increase of approximately 4.4° C

Based on the above scenarios, we have identified the primary climate-related physical risks, transition risks, and opportunities currently facing the Group by referencing the climate-related financial risk and opportunity checklist outlined in the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD). These risks and opportunities are regularly assessed based on both the likelihood of occurrence and their potential impact on the Group. Additionally, we analyze climate-related risks and opportunities across three time horizons—short-term (within 1 year), medium-term (1–5 years), and long-term (5 years or more)—in alignment with the Group's business planning and strategic objectives.

Climate-related Transition Risks

Based on the Group's industry positioning and current management practices, given that the Group does not belong to high-energy consumption or high-emission industries and has established a comprehensive compliance management system and information collection and disclosure mechanisms, the impact of transition risks on the Group remains relatively low overall. The primary risks stem from systemic impacts arising from downstream customers and the broader societal transition to low-carbon practices, which become more pronounced under net-zero scenarios.

Specific assessment results are as follows:



Transition Risk Exposure Level Matrix Under Different Scenarios

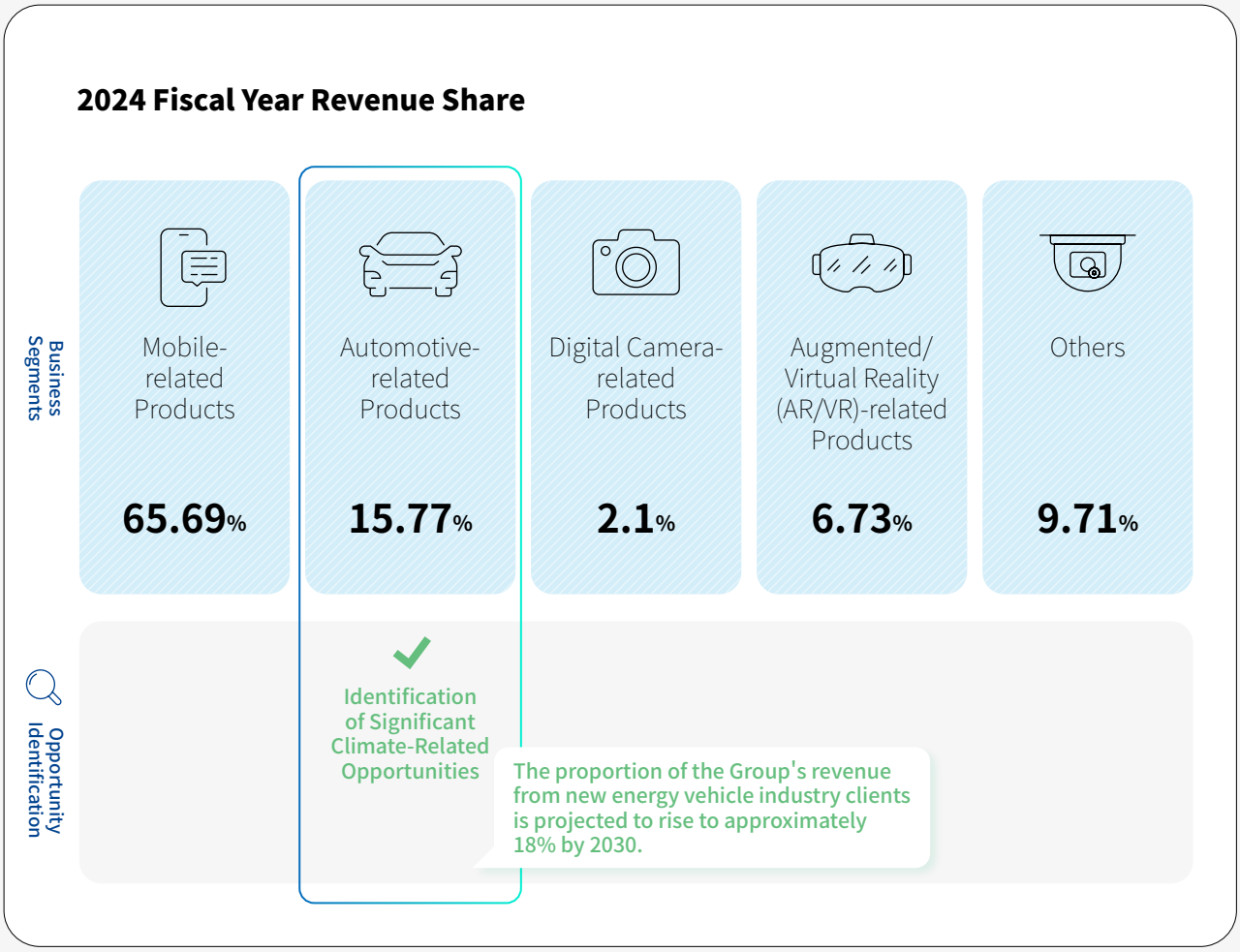
The four high-impact risks identified "Increased pricing of GHG emissions", "Costs of transition to lower emissions technology", "Changing customer behavior", and "Increased cost of raw materials" are prioritized for focused attention and undergo quantitative analysis of their current and projected financial impacts. The remaining risks currently have no direct impact on the Group and are considered negligible.

Regarding impact scope, "Increased pricing of GHG emissions", "Costs of transition to lower emissions technology", and "Increased cost of raw materials" stem from systemic effects of the broader societal low-carbon transition, thus affecting all business segments of the Group. "Changing customer behavior", however, varies by customer industry and their specific transition needs: Current, short-term and medium-term impacts are concentrated in mobile-related product segments, which accounted for 65.69% of the Group's revenue at the Report Period end. However, under societal energy transition trends, this risk's impact is expected to expand to other segments, reaching 100% coverage across all business segments by 2050 under the Net Zero by 2050 Scenario (NZE).

Climate-related Opportunities

Under the current trend of upgrading energy efficiency standards and promoting the popularization of renewable energy, a series of low-carbon transformation opportunities have emerged, including more efficient production technologies and models, more economical and efficient energy options, government policy incentives, and opportunities for public sector cooperation. By analyzing our own energy structure, energy consumption costs, and research on downstream industry development trends, we have identified three high-impact opportunities "Products and Services", "Resource Efficiency", and "Energy Sources". These opportunities are prioritized for focused attention and undergo quantitative analysis of their current and projected financial impacts.

Among these three opportunities, the "Products and Services" opportunity is particularly significant. Under the low-carbon transition, the electrification and intelligent of automobiles have created strong demand growth expectations for the Group's automotive-related products. According to the *International Energy Agency (IEA)'s Global Electric Vehicle Outlook 2025*, electric vehicles are projected to account for over a quarter of global car sales by 2025. With the continued expansion of the new energy vehicle market and the accelerated penetration of intelligent driving technologies, this business segment is expected to become a key driver of future performance growth for the Group, delivering substantial revenue growth and development opportunities.



Distribution of Climate-Related Opportunities Across Business Segments

Climate-related Physical Risks

Based on the geographical locations and meteorological characteristics of the Group's operational sites, and referencing the World Wildlife Fund (WWF)'s Climate Change Risk Assessment Database, the acute physical risk levels (encompassing frequency and severity of extreme weather events) across operational sites were ranked as high, medium, or low. The proportion of assets potentially exposed to climate-related physical risks was then assessed based on the fixed asset proportion in medium- and high-risk locations. Specific assessment results are as follows:

	Flood	Typhoon	Extreme Heat	Drought
SSP1- RCP2.6				
Short-term	2.35%	95.17%	1.26%	8.20%
Medium-term	96.43%	95.17%	1.26%	8.20%
Long-term	91.17%	95.17%	1.26%	8.20%
SSP2-RCP4.5				
Short-term	2.35%	95.17%	1.26%	8.20%
Medium-term	96.43%	95.17%	1.26%	8.20%
Long-term	96.43%	95.17%	1.26%	8.20%
SSP5-RCP8.5				
Short-term	2.35%	95.17%	1.26%	8.20%
Medium-term	96.43%	95.17%	1.26%	8.20%
Long-term	96.43%	95.17%	3.15%	8.20%

Short-term Medium-term Long-term

Given that the Group is not included in the category of natural resource-dependent industry. we assess that the acute physical risk of drought and chronic physical risks have no direct impact on the Group and are considered negligible.

In general, the impact of climate-related physical risks on the Group is limited, primarily stemming from acute risks such as"Typhoon"and"Flood"extreme weather events affecting operational sites in coastal provinces, which may cause power outages, manufacturing and business interruptions, and asset damage. Additionally, the Indian region faces significant impacts from "Extreme Heat", which may cause risks such as employee heatstroke, decreased productivity, and increased cooling burden and are projected to intensify under the SSP5-RCP8.5 scenario. As a result, we prioritize these three high-impact risks "Typhoon" "Flood", and "Extreme heat" for focused attention and conduct quantitative analysis of their current and projected financial impacts.

Climate-Related Risks, Opportunities, Financial Impacts, and Response Measures

The financial impacts (both current and projected) of the identified climate-related risks and opportunities on the Group's financial position, performance, and cash flow are comprehensively assessed by integrating actual expenditures incurred for risk mitigation in the current period, planned expenditures for related measures, and quantified estimates of potential financial impacts from these risks and opportunities.

Quantitative predictions of financial impacts are based on the ratio of projected effects on the Group's operating revenue and costs caused by climate-related risks or opportunities, or the scale of incremental capital expenditures resulting from such risks or opportunities. These metrics are used to measure the current and projected financial impacts on the Group's financial position, performance, and cash flow attributable to each climate-related risk or opportunity.

Pursuant to the Group's internal risk management rating criteria, the impact severity is classified as follows: if the quantified metric is less than 1%, it is deemed "Extremely Low" impact; if it is greater than or equal to 1% but less than 5%, it is classified as "Low" impact; if between 5% and less than 10%, it is "Medium" impact; between 10% and less than 20%, it is "High" impact; and 20% or above is judged as "Very High" impact.

In summary, we have developed the following climate impact assessment parameter analysis methodology and results:

Changing customer behavior

Impact Description and Assessment Methodology

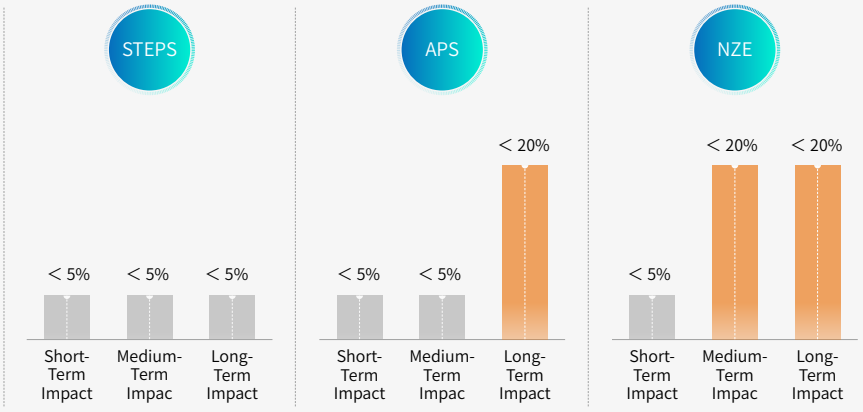
Based on internal customer survey results, approximately 17% of current revenue is derived from clients demonstrating a preference for low-carbon products, with some subsidiaries reaching over 30%. If unable to meet these preferences, the Group may face risks of revenue loss and reduced bargaining power.

According to projections by the International Energy Agency (IEA), low-carbon transition levels across society are expected to reach relatively high levels in the medium to long term under the APS and NZE scenarios. Based on this projection, we assume that the preferences of these customers will gradually evolve into rigid requirements. Using this change as a driver, we calculate the revenue loss rate per unit of operating costs resulting from potential revenue loss.

Current Impact

Currently, the Group's products are fully capable of meeting customers' demand for low-carbon products and have not resulted in revenue loss.

Projected Scenarios



Response Measures

- Continuously monitor customer needs and prioritize providing low-carbon products (e.g., those produced using green electricity) to clients demonstrating a preference for such products.
- Continuously enhance low-carbon product supply capabilities while exploring the feasibility of using renewable materials without compromising product performance and quality.
- Continuously advance energy conservation, emission reduction, and energy transition initiatives to reduce the carbon footprint of products. (See Section: Low-Carbon Transition Plan)

Costs to transition to lower emissions technology

Impact Description and Assessment Methodology

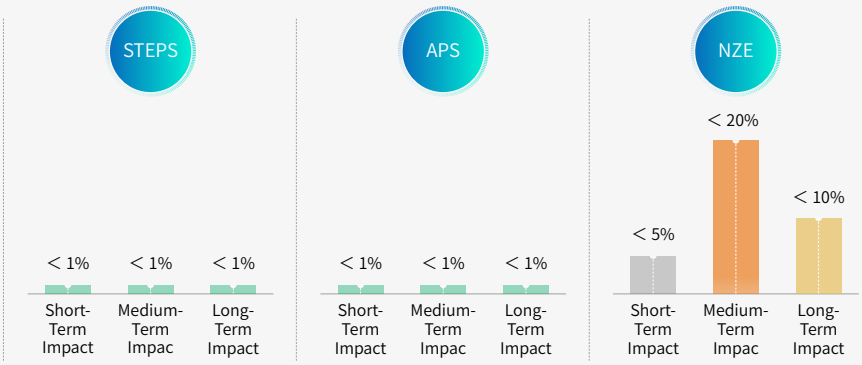
The low-carbon transition of society relies on the development and adoption of low-emission technologies. According to projections by the Network for Greening the Financial System (NGFS), investments in low-emission technologies across all sectors are increasing across various scenarios, posing a risk of rising corporate capital expenditures. However, in the long term under the NZE scenario, costs associated with these investments may decline as societal technological advancements progress.

We utilize NGFS projections of industry-wide greenhouse gas emissions and investments in low-emission technologies across different climate scenarios and time horizons to calculate the potential capital expenditure amounts at our operating locations resulting from technological risks.

Current Impact

Currently, the Group's subsidiaries have implemented various energy-saving and carbon-reduction technology upgrades, with total investments of approximately RMB 11 million. These efforts have achieved electricity savings of nearly 24,000 MWh, and overall, have not resulted in additional expenditure burdens.

Projected Scenarios



Response Measures

- Reduce energy-saving costs through market-based mechanisms of Energy Management Contracting (EMC).
- Continuously monitor and explore the latest advancements in low-emission technologies as well as related incentive policies and subsidies.

Increased pricing of GHG emissions

Impact Description and Assessment Methodology

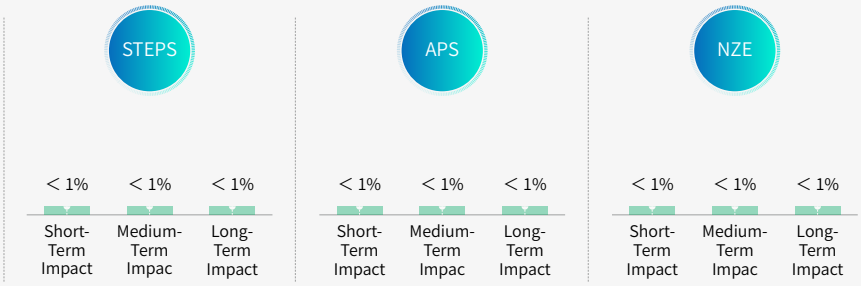
Governments worldwide are progressively implementing mechanisms such as carbon taxes and carbon trading systems to increase the carbon emission costs for businesses. According to projections by authoritative institutions such as the International Energy Agency (IEA) and the Network for Greening the Financial System (NGFS), carbon pricing across countries is showing an annual upward trend, which may lead to increased non-operating expenses.

We utilize NGFS projections of greenhouse gas pricing across our operating locations, in conjunction with industry-wide predictions of carbon emissions per unit of energy consumption and integrate these with the Group's internal forecasts for production output. This enables us to calculate the potential operational cost impacts at each operating location arising from policy and legal risks.

Current Impact

Currently, the Group's industry has not yet been included in the carbon trading market of its operating regions and has not incurred related costs and expenses.

Projected Scenarios



Response Measures

- Continuously promote energy conservation, emission reduction, and energy transition initiatives.
- Actively explore and research internal carbon pricing mechanisms.

Increased cost of raw materials

Impact Description and Assessment Methodology

The low-carbon transition of society may lead to increased prices for certain traditional energy and manufacturing products, which could be transmitted downstream along the value chain, resulting in higher energy costs and raw material costs for businesses.

Based on projections by the International Energy Agency (IEA) and the Network for Greening the Financial System (NGFS) regarding energy prices and energy consumption intensity per unit across different climate scenarios and time horizons, we utilize these parameters as drivers. Combined with database predictions of energy price fluctuations under varying climate scenarios and time dimensions, this enables us to calculate the potential operational cost impacts at each operating location arising from market-raw material cost escalation risks.

Current Impact

Based on the monitoring and assessment of energy prices and auxiliary raw material costs, no increases in raw material costs or related expenses attributable to climate change have occurred during the current period.

Projected Scenarios

	STEPS	APS	NZE
Short-Term Impact	< 1%	< 1%	< 1%
Medium-Term Impac	< 1%	< 1%	< 1%
Long-Term Impact	< 1%	< 1%	< 1%

Response Measures

- Continuously expand the proportion of renewable energy usage and reduce energy costs through mechanisms such as Energy Management Contracting (EMC).
- Continuously strengthen supply chain management to ensure stable supply sources and price stability.

Flood

Impact Description and Assessment Methodology

The Group's primary operating locations are in Ningbo City, Zhejiang Province. According to data from the World Wildlife Fund (WWF) database, these locations face a certain level of flood risk, particularly due to older facilities in some base plants situated in lower-lying areas. Additionally, the Group's operating sites in Guangdong Province and Vietnam also face varying degrees of flood risk. Such risks could result in asset damage, operational disruptions, and supply chain interruptions, potentially increasing capital expenditure and replacement costs for the enterprise.

We utilize the Aqueduct tool, developed by the World Resources Institute (WRI), to obtain flood depth simulation results. Based on impact functions, we convert flood depth into fixed asset damage ratios, thereby calculating the potential annualized fixed asset damage ratios at each operating location attributable to flood risks.

Current Impact

During the current period, no operational disruptions or revenue losses attributable to climate change have occurred. Throughout the year, emergency and maintenance expenses incurred to address extreme weather amounted to approximately RMB 85,000.

Projected Scenarios

	SSP1-RCP2.6	SSP2-RCP4.5	SSP5-RCP8.5
Short-Term Impact	< 1%	< 1%	< 1%
Medium-Term Impac	< 1%	< 1%	< 1%
Long-Term Impact	< 1%	< 1%	< 1%

Response Measures

- Continuously strengthen climate resilience, including resilience building in production and supply chain processes, as well as continuous monitoring and emergency measures for flood disasters (see Section Enhancing Climate Resilience for details).

Typhoon

Impact Description and Assessment Methodology

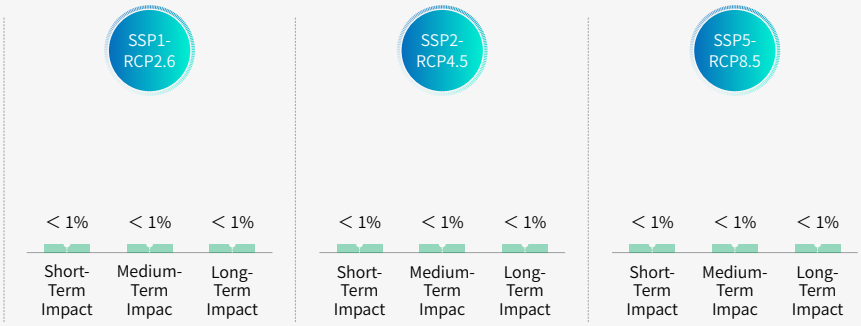
The Group's multiple operating locations are situated in coastal regions, facing threats from typhoon disasters, which could lead to production halts, operational and supply chain disruptions, asset damage, and personnel injuries, thereby increasing the enterprise's capital expenditures and replacement costs.

We utilize the CLIMADA typhoon model development tool, developed and maintained by the Swiss Federal Institute of Technology Zurich (ETH Zürich) 's Weather and Climate Risk Group and provided by the Climate-ADAPT European Climate Adaptation Platform, to obtain historical tropical cyclone trajectory data. This data is used to generate simulated historical typhoon path datasets. Combined with a single-typhoon disaster asset damage ratio model, we quantify the potential annualized fixed asset damage ratios at each operating location attributable to typhoon risks.

Current Impact

During the current period, no operational disruptions or revenue losses attributable to climate change have occurred. Throughout the year, emergency and maintenance expenses incurred to address extreme weather amounted to approximately RMB 85,000.

Projected Scenarios



Response Measures

- Continuously strengthen climate resilience, including resilience building in production and supply chain processes, as well as continuous monitoring and emergency measures for flood disasters (see Section Enhancing Climate Resilience for details).

Extreme Heat

Impact Description and Assessment Methodology

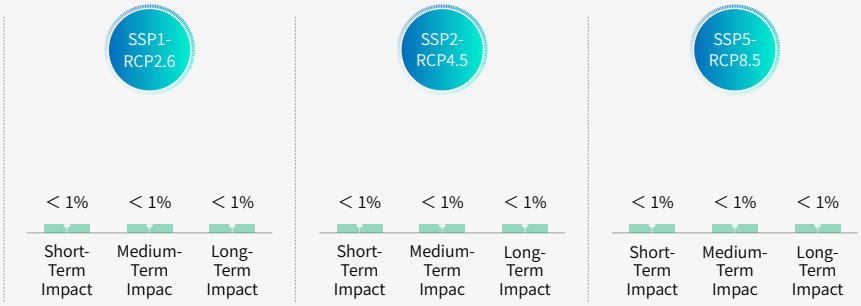
Extreme heat weather may pose risks such as employee heatstroke and decreased production efficiency, with the impact of extreme heat risk being more pronounced in the Indian region.

We use the productivity loss rate predictions from the Climate Impact Explorer database platform established by Climate Analytics as a basis, combined with the extreme heat risk levels at operational sites to calculate the potential annualized productivity loss ratios.

Current Impact

During the current period, no operational disruptions or revenue losses attributable to climate change have occurred. Throughout the year, emergency and maintenance expenses incurred to address extreme weather amounted to approximately RMB 85,000.

Projected Scenarios



Response Measures

- Continuously strengthen climate resilience, including resilience building in production and supply chain processes, as well as continuous monitoring and emergency measures for extreme heat weather (see Section Enhancing Climate Resilience for details).

Products and Services Opportunity

Impact Description and Assessment Methodology

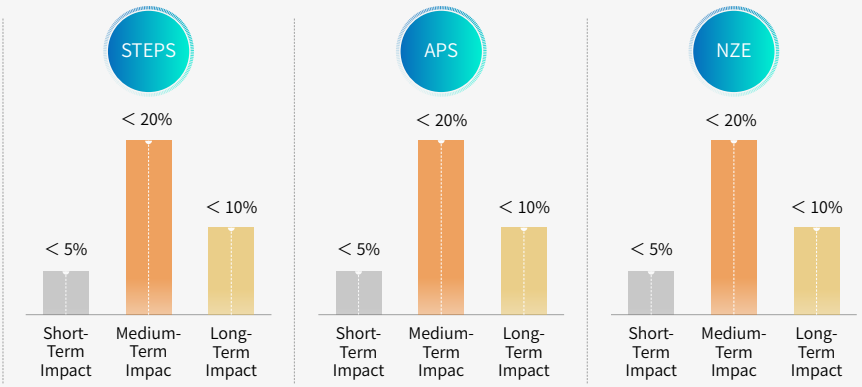
The low-carbon transition of society is driving development in downstream industries, such as the growth of new energy vehicles, which has created new demand for precision in-vehicle lenses/modules and driven revenue growth for the Group.

Based on internal customer surveys, external market research, and revenue composition analysis, the proportion of the Group's revenue from new energy vehicle industry clients is projected to rise to approximately 18% by 2030. By estimating the revenue growth from this new growth driver, we quantify the scale of its impact on revenue.

Current Impact

Currently, approximately 7% of the Group's revenue comes from new energy vehicle industry clients.

Projected Scenarios



Response Measures

- Continuously monitor the low-carbon product demands of current clients and proactively explore potential new demands from new energy vehicle manufacturers in the in-vehicle lens/module sector to foster new growth drivers (see Section Low-Carbon Transition Plan for details).

Resource Efficiency Opportunity

Impact Description and Assessment Methodology

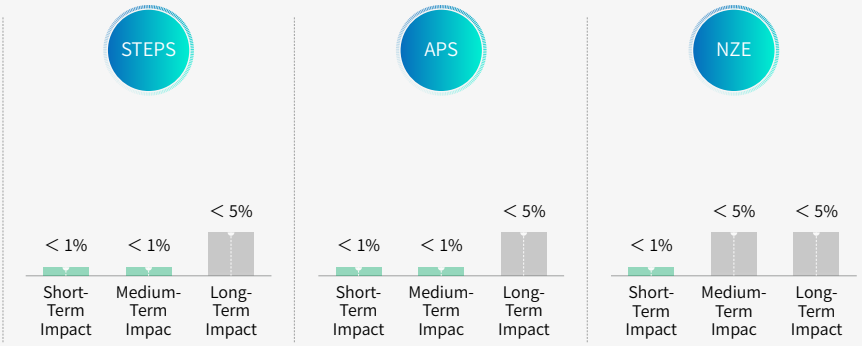
Based on projections from the Network for Greening the Financial System (NGFS), under different future scenarios, the energy consumption per unit of GDP across society is expected to decrease to varying degrees, with the Group's related costs also projected to decline accordingly.

Using NGFS's predicted data on energy consumption per unit of GDP, combined with the Group's internal forecasts for production output, and assuming the Group's energy efficiency improvements align with societal trends, we calculate the magnitude of cost reductions achieved.

Current Impact

During the current period, subsidiaries within the Group implemented various energy-saving and carbon-reduction technological upgrades, with total investments of approximately RMB 11 million. These efforts achieved electricity savings of nearly 24,000 MWh. During the current period, no significant impact has shown on the financial statements.

Projected Scenarios



Response Measures

- Integrate energy conservation and emission reductions with lean production and cost reduction and efficiency enhancement initiatives to continuously improve energy efficiency (see Section Low-Carbon Transition Plan for details).

Energy Sources Opportunity

Impact Description and Assessment Methodology

The increase in societal green power supply has led to the diversification of energy sources and a decline in energy prices. Based on projections from the Network for Greening the Financial System (NGFS), under different future scenarios, electricity costs are expected to decrease to varying degrees, with the Group's related costs also projected to decline accordingly.

Using NGFS's predicted data on electricity prices, combined with the Group's internal forecasts for production output and energy consumption, we calculate the magnitude of cost reductions resulting from the decline in electricity costs.

Current Impact

During the current period, no significant cost savings from declining electricity prices have been realized across the Group's operational sites to date.

Projected Scenarios

	SSP1-RCP2.6	SSP2-RCP4.5	SSP5-RCP8.5
Short-Term Impact	< 1%	< 1%	< 1%
Medium-Term Impac	< 1%	< 1%	< 1%
Long-Term Impact	< 1%	< 1%	< 1%

Response Measures

- Continuously monitor and expand the application scenarios of new energy, such as green power procurement (see Section Low-Carbon Transition Plan and Section Carbon Reduction Targets and Pathways for details).

Climate Change Strategy and Transformation

Enhancing Climate Resilience

Against the backdrop of intensifying global climate change, enhancing climate resilience constitutes a critical measure for businesses to withstand extreme weather events and ensure operational stability. By enhancing environmental, supply chain, and operational resilience, enterprises can effectively mitigate climate risk impacts, safeguard business continuity, and establish robust foundations for long-term sustainable development.

Building Environmental Resilience

- For our longstanding manufacturing site situated in low-lying terrain, we have executed comprehensive specialist refurbishment and protective works. Through implementing enhanced flood defences, structural reinforcement of critical assets, and optimisation of drainage systems, we have mitigated typhoon and flood impacts, thereby preventing asset damage and personnel harm.
- For new manufacturing facilities, we prioritised siting in areas of higher elevation with lower flood risk during initial design and construction phases. Concurrently, we incorporated sponge city principles across the site, thereby achieving enhanced typhoon resistance and flood resilience to effectively mitigate typhoon and flood risks.

Establishing Supply Chain Resilience

- Through a multi-pronged approach encompassing diesel generator provisioning, development of backup suppliers, strategic inventory stockpiling, and optimised production scheduling with delivery buffer allocation, we prevent acute operational disruptions and revenue attrition, thereby securing end-to-end value chain stability.

Developing Operational Resilience

- Establishing meteorological hazard monitoring and dedicated inspection protocols enables close tracking of flood season dynamics and weather advisories. Timed inspections are conducted at critical junctures, with flexible working hour arrangements implemented where necessary to deliver targeted and timely interventions against extreme weather impacts.
- Conducting regular emergency drills, maintaining stocks of contingency supplies, heat-stress management provisions, and disaster response equipment constitutes our pre-emptive risk prophylaxis regime within routine operations.

Low-Carbon Transition Plan

Low-carbon transition constitutes our Group's core strategy for responding to global climate action and achieving high-quality development. We have developed and are progressively implementing a Low-Carbon Transition Plan aligned with the 1.5° C warming limit of *Paris Agreement*. Through three transformational pathways – lean production transformation, energy structure transition, and low-carbon product innovation – the Group systematically reduces value-chain carbon footprint. This drives green supply chain development, cost-efficiency optimisation, and long-term value-led market expansion, delivering dual environmental and economic benefits while establishing best practice for industry-wide low-carbon development.

Lean Production Transformation

Our Group is acutely aware that harmonising environmental and economic returns – integrating cost efficiencies with emissions abatement – constitutes the sustainable path forward. We therefore accord paramount priority to lean production as the implementation pathway for low-carbon transition.

On one front, we have implemented an energy management platform to enable digitalised and granular control over renewable energy utilisation. Currently, the Group's energy management platform delivers real-time monitoring of electricity consumption data across all buildings of subsidiary companies. This has materially enhanced our governance of energy efficiency for electricity-intensive equipment, ensuring secure and optimised operation of power distribution infrastructure.

On another front, we are implementing Energy Management Contracting (EMC) Group-wide to promote High-Efficiency Machine Rooms Projects, and encouraging subsidiary companies to invest in energy-saving retrofits and production line optimisation according to their specific circumstances. During the reporting period, our High-Efficiency Machine Rooms Projects achieved electricity savings of 6,750 MWh, with a series of energy conservation initiatives across subsidiary companies cumulatively saving 24,138 MWh.

To further advance our Lean Production Transformation, we have established a long-term promotion plan for energy-saving retrofits with projected energy conservation outcomes. By 2030, High-Efficiency Machine Rooms Projects are projected to achieve electricity savings of 16,672 MWh while Air Compressor System is forecasted to deliver savings of 11,220 MWh.

CASE | Energy Management System Enhancement

To achieve standardised and efficient energy governance, reduce operational costs, and fulfil environmental responsibilities, our Group is advancing the development of an internationally standardised energy management system. By the end of the reporting period, Sunny Zhejiang Optics, Sunny Opotech, Sunny Automotive Optech, Sunny Xinyang Optics and Sunny Optical Intelligence (Yuyao) have successfully obtained ISO 50001 Energy Management System certification.

Concurrently, other subsidiaries have established an ISO 50001 Energy Management System tailored to its specific operational context, which has yielded tangible results in practical implementation.

CASE | Sunny Zhejiang Optics is constructing High-Efficiency Machine Rooms

During the reporting period, we selected Sunny Zhejiang Optics – a high energy-consumption site – as a pilot to develop an "Mechanistic Framework +Artificial intelligence (AI)" for equipment-level performance prediction based on installed machinery conditions. Through system simulation and global optimisation, we identified minimal-energy control parameter configurations, achieving energy savings of 6,750 MWh and reducing emissions by 3,952.8 tCO_2e.

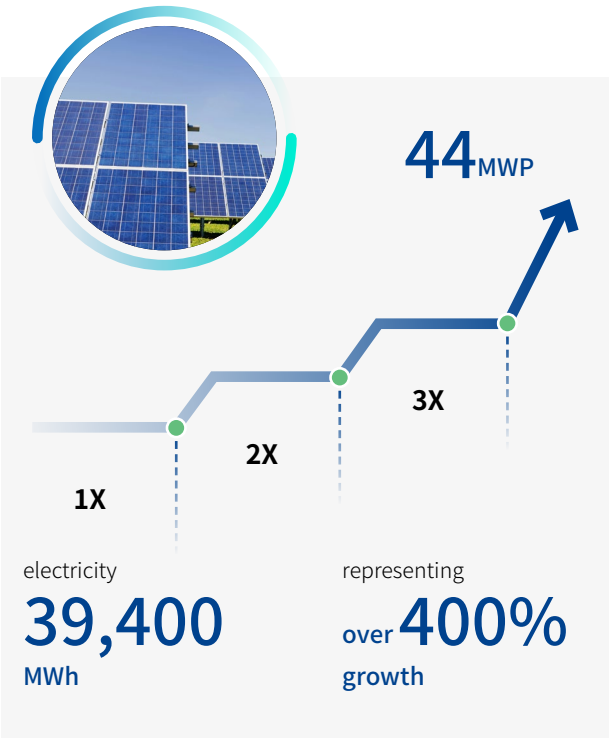
Moving forward, we will continuously enhance the Energy Management System through ongoing optimisation of energy governance processes and strengthened monitoring and control mechanisms. This will drive standardised and efficient energy management across subsidiary companies, further elevating energy utilisation efficiency while reducing consumption.

Energy structure transition

The transition of the energy structure constitutes the fundamental pathway towards low-carbon production and operations, as well as an essential route for society-wide carbon neutrality. Our Group continues to advance its own energy transition, having consistently enhanced the energy structure through solar PV installations and renewable electricity procurement to increase clean energy share.

By the end of the reporting period, the Group's total installed solar PV capacity reached approximately 8.47 MWp, generating electricity of approximately 9,750 MWh annually. Concurrently, multiple subsidiaries – including Sunny Zhejiang Optics, Sunny Opotech, Sunny Optical Intelligence (Yuyao), Sunny Xinyang Optics and Sunny SmartLead – achieved emissions reductions of 122,131.22 tCO_2e through renewable electricity procurement. During the reporting period, we initiated the Chengxi Industrial Base Solar Project, which upon completion will add 5.5 MWp of capacity with electricity exceeding 5,000 MWh.

Based on our projections, the Group-wide total installed solar PV capacity is projected to increase more than fivefold from current levels to 44 MWp by 2030, with electricity expected to reach 39,400 MWh – representing over 400% growth.



Low-Carbon Product Transition

Our products and plans serve multiple sectors—including mobile devices, automotive, microscopy, VR/AR, industrial inspection, robotics, and security systems. To empower downstream customers in decarbonizing their value chains and address rising expectations for green consumption, we dedicate resources to clean technology and low-carbon product innovation. Through eco-design implementation across all life-cycle stages—including product design, material sourcing, manufacturing, and logistics—we reduce the use of raw materials and the impact on environment.

Design Stage

We implement full life-cycle design principles, employing process optimization, technological innovation, and responsible material selection to embed low-carbon attributes and reduce energy consumption at the product design stage.

Raw Material Sourcing Stage

We are building sustainable supply chains through prioritized procurement of renewable, recyclable, and biodegradable materials with less impact on environment. Besides, we also prioritize local sourcing to reduce carbon footprint caused by transportation.

Manufacturing Stage

We implement manufacturing technologies with less pollution, energy demand, and resource consumption while actively reducing waste generation. Concurrently, we scale clean energy adoption and introduce low-carbon products certified for 100% renewable electricity usage.

Transportation Stage

We deploy eco-friendly transportation modes, implement packaging volume reduction and lightweighting processing strategies, optimize routing through advanced planning systems, and enhance operational efficiency, thus collectively achieving quantifiable carbon footprint reduction.

Use Stage

We improve product quality, provide maintenance guidelines, extend products' lifespan, and educate users on environmentally friendly usage and disposal of products.

End-of-life Management

Our products are made from renewable, biodegradable, and non-toxic materials, with a longer lifespan, and are fully recyclable for multiple uses.

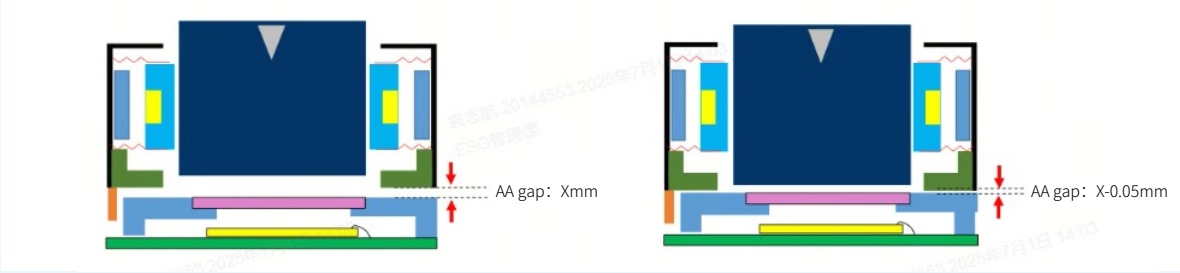
Low-Carbon Design and Technological Applications of Optoelectronic Photographic Modules

The optoelectronic photographic module is one of our core products. It is a miniaturized system that integrates optical, electronic, and sensor technologies, comprising complex components such as optical lenses, sensors, signal processors, and interface circuits. These modules are widely used in smart mobile devices, on-board equipment, surveillance and security systems, as well as emerging fields such as AR/VR. Through the low-carbon design and technological applications of our optoelectronic photographic modules, we have effectively reduced energy consumption and ensured the high precision and performance of the products.

Small Gap Active Alignment (AA) Design

Design Principle

By adopting a small gap Active Alignment (AA) design, the optical alignment of the optoelectronic photographic module has shifted from fixture-based height alignment to back-focus height alignment. This is achieved through back-focus compensation of the lens, which reduces the AA clearance tolerance. The design also minimizes the amount of AA adhesive with a thickness reduction of approximately 0.05mm. This adjustment significantly lowers energy consumption during the production process.



Low-Carbon Benefits

By applying and promoting the above-mentioned technology, the product thickness can be reduced by approximately 50μm compared to conventional designs, significantly lowering the consumption of raw materials and energy usage.

Replacing 1.0mil Gold Wire Design with 0.8mil Gold Wire

Design Principle

Based on rigorous performance testing and process optimization, and ensuring that material properties, electrical performance, and mechanical reliability meet the high standards required for the optoelectronic photographic module, we have replaced the 1.0mil gold wire with 0.8mil gold wire in the production process. This change reduces raw material usage and lowers energy consumption during processing.

Low-Carbon Benefits

Under the premise of meeting electrical performance and reliability standards, this design reduces gold wire usage by 340,668.6 grams, resulting in a 31% savings in material usage.

Large Panel Design in printed circuit board (PCB) layout

Design Principle

By thoroughly referencing industrial standards and conducting comprehensive reliability verification, we adopted a large panel design in the PCB layout. This approach improves cost-efficiency and productivity without affecting the electrical performance.

Low-Carbon Benefits

This design increases panel utilization by 12.5% to 17.9%, significantly reducing raw material consumption and energy usage during processing.

Microscope Product Wins 2024 Green Product Award

Sunny Instruments launched the EX33 biological microscope, which is specifically designed for the educational area. It has found wide application in fields such as biology, agriculture, food, and research platforms, and is also extensively used in medical labs for testing body fluids, tissues, and secretions. On July 24, 2024, the third International Green Zero-Carbon Festival and 2024 ESG Leadership Summit, jointly organized by Syobserve.com and other media outlets, took place in Beijing. At the summit, Sunny Instruments was awarded the 2024 Outstanding Green Product Innovation Award.

Low Carbon Features of the Product

As a new biological microscope, the product responds to China's green manufacturing initiative. During the design stage, the project team introduced refined plastic molding techniques and a non-coating texture technology. All the plastic components are made using colored injection molding, which not only ensures the desired appearance and texture but also significantly reduces the VOC (volatile organic compounds) emissions, ensuring the safety of both the manufacturing environment and consumers' living conditions. Additionally, the EX33 biological microscope is equipped with an ECO function. If there is no operation for 30 minutes, the system will automatically shut down and enter standby mode, effectively reducing energy consumption.

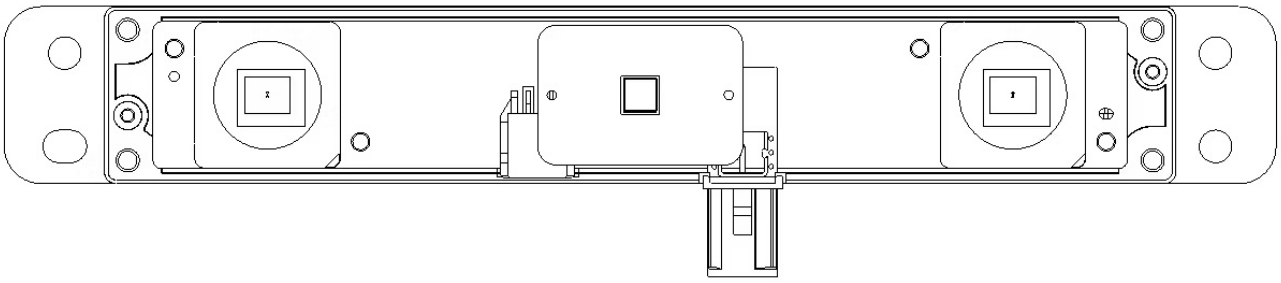
Based on the development of the EX33 biological microscope, we have accelerated the transition to green industries and the upgrade of green supply offerings. In the supply of metal die-castings, we have improved the delivery system for finished products, reduced material usage and storage space, and shortened the processing cycle. Through continuous technological innovation and strengthening the commitment to green manufacturing, we are fully advancing green industrial innovation and working to build a green industrial chain with a full life cycle, aiming to establish a new type of green industrial system.

With the transformation and upgrading of the manufacturing industry, production efficiency and quality have become crucial competitive factors. Our microscope products are committed to becoming intelligent, network-supported, digital, and integrated, in order to provide more sustainable and innovative solutions. Following the EX33, the DMS1000 3D Super Depth-of-Field Digital Microscope, launched by Sunny Instruments, is widely used in fields such as semiconductor packaging and testing, scientific research, electronic components, cultural heritage, and forensic science. By actively exploring auto-focus algorithms, image analysis software, and machine learning techniques, the DMS1000 aims to achieve faster and more accurate focusing and image analysis, improving work efficiency and reducing energy consumption.

In-Vehicle Camera Light Source Driver Technology

As the automotive industry progresses towards low carbon, electrification, and intelligent development, the in-vehicle camera market is witnessing an increasing demand for new technologies and solutions. For example, functions such as fatigue monitoring and gesture recognition rely on the integration of multiple light-emitting diodes (LEDs) or vertical-cavity surface-emitting lasers (VCSELs) within the camera module. As the number of light sources increases, multiple sets of light sources are exposed and controlled through separate strobe signals. This raises two challenges. Firstly, there exists the need for improved synchronization of the strobe signals and the risk of overexposure in the captured image. Additionally, driving multiple light sources requires the use of several driver chips, which increases hardware costs and overall power consumption.

To address these challenges, we have introduced a light source driver circuit based on OR gates for our in-vehicle camera products and solutions. This innovation not only meets the need for supplementary lighting but also effectively prevents interference between light sources, reduces overall power consumption, and helps save costs.



The in-vehicle camera consists of two core components: the OR gate output module and the light source driver module

OR gate output module, OR gate output module, where multiple input terminals are used to electrically connect multiple receiver modules, integrates multiple sub-selection strobe signals corresponding one-to-one to receiving modules into a single master selection strobe signal according to the logical principle of "a high input results in a high output".

The input terminal light source driver module is electrically connected to the output terminal of the OR gate output module. Besides, the output terminal of the light source driver module is used to electrically connect the light source array, receiving the master selection strobe signal output by the OR gate output module to drive the light source array to either light up or turn off according to the master selection strobe signal.

Low-Carbon Benefits: While meeting the supplementary lighting requirements, this technology not only prevents interference between light sources but also reduces overall power consumption and saves costs. Furthermore, the OR gate-based light source driver circuit can integrate multiple sub-selection strobe signals into a single master selection strobe signal by using an OR gate circuit chip. This allows the use of just one light source driver chip and one set of light sources to meet the required lighting needs, significantly reducing hardware costs.

On this basis, the technology does not require the use of expensive materials or complex structures, achieving a balance between product practicality, reliability, economic benefits and low-carbon advantages.

Green Optimization Plan for the Sweeping Robot Binocular Module

As a solution provider for robot vision systems, we focus on a large-scale robot vision platform, with technologies and products centered around recognition and positioning applications. Our solutions span across various sectors including XR (AR/VR), robotics (home and commercial use), AIoT (smart homes, smart commercial applications, intelligent logistics, etc.). In VR and sweeping robot vision systems, we hold a significant market share.

During the reporting period, we carried out green optimization for our sweeping robot series product. This included reducing the product's carbon footprint from both the production and packaging stages.

Packaging Stage: To tackle the inefficiencies and high resource consumption of the previous blister packaging, we collaborated with the supplier to design a customized packaging solution. This allows the supplier's finished product packaging to be directly used for product shipping packaging, and effectively enhancing packaging efficiency. It can reduce plastic usage by approximately 8.4 tons throughout the year.

Production Stage: To address the issues of electroplating pollution and high material costs in the production process of the metal components in the sweeping robot binocular module, On the premise of ensuring product performance, we have replaced metal materials with environmentally friendly stearic plastic materials, effectively reducing environmental pollution and resource consumption in the production process.

Low-carbon Benefits: These two improvements resulted in cost savings of RMB 350,000 and RMB 500,000, respectively, and significantly enhanced the product's low-carbon attributes.

Financial Instrument Support

To more effectively address climate risks and capture low-carbon transition opportunities, the Group proactively leverages capital markets and financial instruments to enhance climate governance and sustainable development capabilities. In January 2023, the Group became the first enterprise in Asia's technology manufacturing sector to issue Sustainability-Linked Bonds (SLB). For details, see the Sunny Optical Technology (Group) Company Limited Sustainable Financing Framework.

SLB directly tie financing costs to sustainability performance targets, creating tangible incentives for accelerated green transition, energy structure optimisation, and enhanced climate resilience. This mechanism not only provides the Group with lower-cost capital but also drives market-disciplined management enhancements, strengthening long-term resilience against climate-related exposures.

For the industry, the Group's pioneering issuance of SLB carries significant demonstrative weight: it manifests the technology manufacturing sector's proactive commitment to climate action, providing an actionable precedent for peers exploring sustainable finance; concurrently, it channels capital towards green initiatives through capital markets, catalyzing supply-chain-wide emissions reduction while accelerating the industry's transition to climate-resilient development models. This innovation consolidates the Group's leadership in low-carbon transition and delivers dual environmental-financial returns for investors.

03

Impact, Risk and Opportunity Management

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Climate Governance Process: Risk and Opportunity Management

The Group has integrated climate risk management into its enterprise risk governance framework. Adhering to the ISO 31000:2018 Risk Management Guidelines and COSO ERM Framework 2017, we have established and continuously enhanced a comprehensive risk governance system encompassing identification, assessment, response, and monitoring – forming a closed-loop governance mechanism. Within this process, risks are categorised into eight primary classifications – including strategic, operational, health & safety, and environmental risks – based on their inherent characteristics and impact profiles. Each category employs dedicated risk rating matrices. Through this structured approach, we implement systematic and periodic governance of climate-related exposures.

We conduct enterprise risk assessments by identifying and prioritising eight primary risk categories – including strategic, financial, and operational exposures – developing corresponding mitigation measures based on evaluation outcomes, with monthly progress tracking. Furthermore, we have established risk registers and key risk indicator (KRI) repositories tailored to our operational context, enabling real-time monitoring and threshold-based alerts through our integrated risk governance platform.

Concurrently, we identify, assess and capture climate-related opportunities through client engagement surveys, market trend analytics, macro-policy tracking, and energy price monitoring. Building on this intelligence, we proactively explore strategic opportunities – such as alternative energy adoption and investment, efficiency enhancement initiatives, and eco-innovative product development – operationalising these prospects into tangible growth drivers and competitive differentiation.

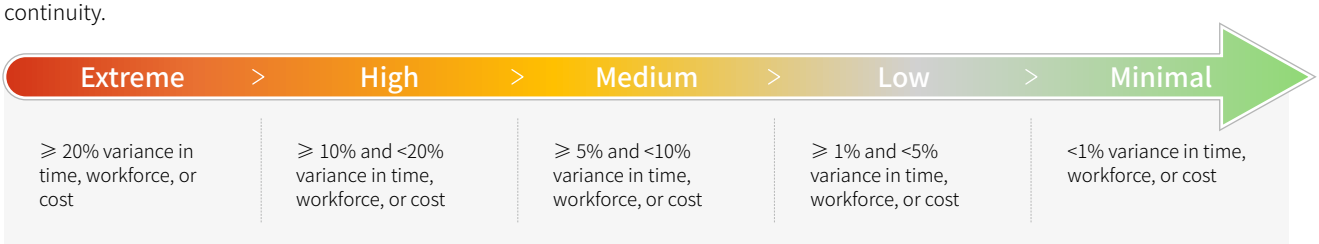
Risk Identification

In accordance with the latest trends in global climate policies, standards, or guidelines, the Group, led by ESG Management and Implementation Team, coordinates various business departments to identify climate change risks in daily operations. Incorporating insights from stakeholders and external experts, we consolidate material climate risks and opportunities into a structured register. To ensure comprehensive and context-appropriate coverage, this register undergoes periodic review and systematic updating.

Risk Assessment

For identified risks and opportunities, we conduct qualitative and quantitative analyses of likelihood and impact magnitude based on scenario analysis, tailored to our governance context and exposure levels. On the one hand, we make full use of internationally authoritative databases and analytical models such as WWF[1], CLIMADA[2], and Climate Impact Explorer[3] to ensure the scientificity of quantitative analysis. On the other hand, we conduct thorough research on the perspectives and opinions of various stakeholders, including external experts, company management, business departments, and front-line staff, so as to determine the basic parameters and relevant information of various climate change risks and ensure that the analysis results are in line with the actual situation of the Group. Subsequently, using internal risk rating matrices, we formulate Risk Assessment outcomes while maintaining methodological consistency with enterprise-wide risk governance protocols.

Given the protracted duration, heightened uncertainty, and extensive reach of climate-related exposures, coupled with the Group's robust governance frameworks and relatively low emissions profile, we assess that climate risks do not pose material environmental protection, operational safety, or direct financial loss impacts. Their primary manifestations involve elevated operational expenditures or capital outlays, alongside market preference shifts. Consequently, we employ risk rating matrices for operational impact exposures to determine materiality thresholds, enabling precise assessment and mitigation of climate-related implications for business continuity.



[1] World Wildlife Fund, WWF
[2] CLimate ADAptation Model, CLIMADA
[3] Climate Analytics Tool

Risk Response

Based on the assessment results of climate-related risks and opportunities, we prioritise risk items according to their significance level, conduct targeted analysis, and develop response plans. (For details, see Climate-Related Risks, Opportunities, Financial Impacts, and Response Measures).

Risk Monitoring

We have integrated climate risk monitoring into the company's comprehensive risk management framework. Through establishing a Key Risk Indicator (KRI) framework and implementing real-time monitoring with automated alerts via our risk management system, we ensure risks are maintained within acceptable tolerance levels. On this basis, designated climate risk owners conduct ongoing monitoring and control, embedding climate risk and opportunity management across all operational processes. For identified material climate risks and opportunities, the Audit Committee will periodically assess risk exposure levels and report to the Board of Directors. The Board will review risk control effectiveness to determine whether management strategies require adjustment or optimisation.

Opportunity Identification and Management

To systematically identify, assess, and manage climate transition opportunities, the ESG Management and Implementation Team coordinates internal and external research coupled with data analysis to identify potential opportunities and compile a Climate Opportunities Register. For material opportunities within the register, we conduct in-depth feasibility assessments – evaluating market scale, growth trajectories, and technological viability – with outcomes subject to regular review and approval by the Audit Committee, which oversees the Group's management of and response measures to climate risks and opportunities. Concurrently, climate opportunities fall under the Board's oversight and deliberation remit to ensure strategic alignment between climate initiatives and corporate objectives.

04

Indicators and Objectives

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Carbon Reduction Targets and Pathways

Scope 1 and Scope 2 Carbon Reduction Targets and Pathways

To actively fulfill corporate social responsibility and deeply implement the sustainable development strategy, the Group has formulated carbon reduction targets for Scope 1 and Scope 2. It promotes the realization of carbon neutrality goals through multiple pathways, including installing additional photovoltaic power generation, promoting energy-saving technological transformations, purchasing green electricity and green power certificates, and exploring carbon capture technologies. The Group also conducts real-time tracking and monitoring of the achievement status of these targets.

The Group's Carbon Reduction Targets

Taking 2021 as the base year

- By the disclosure of the Group's ESG report[4] in 2025, the emission intensity (tCO_2e/RMB million) of Scope 1 and Scope 2 greenhouse gases will be reduced by

20%

- By 2028, the Group will achieve

carbon peak

Taking 2024 as the base year

- By 2030, the Group aims to reduce the emission of Scope 1 and Scope 2 greenhouse gases by

20%

- By 2030, the Group aims to increase the proportion of renewable energy usage to over

50%

- By 2050, the Group will achieve **carbon neutrality** within its own operational scope

[4] Including the Company, Sunny Zhejiang Optics, Sunny Opotech, Sunny Automotive Optech, Sunny Optical Intelligence (Yuyao).

In 2024, we actively assessed the impact of clean energy and carbon emissions on traditional production and operations, and promoted carbon reduction through measures such as energy conservation, green logistics promotion, increasing the proportion of green recyclable materials, and introducing photovoltaic (PV) systems. To further reduce greenhouse gas emissions in Scope 1 and Scope 2, the Group has established carbon reduction pathways for Scope 1 and Scope 2 greenhouse gas emissions, as detailed below:

The Group's Carbon Reduction Goals

Short-term

By the disclosure of the Group's ESG report in 2025, the emission intensity of Scope 1 & 2 greenhouse gases will be reduced by 20% compared to 2021.

Medium-term

By 2030, the emission of Scope 1 & 2 greenhouse gases across the Group will be reduced by 20% compared to 2024.

Long-term

By 2050, achieve carbon neutrality within the Group's own operational scope.

Scope 1 Carbon Reduction Pathways:

- Fugitive emission
- Fossil fuel Replacement

Continuously monitor alternative solutions with lower Global Warming Potential (GWP), such as natural refrigerants or new synthetic refrigerants.

Continuously replace owned fuel vehicles to increase the proportion of new energy vehicles (electric vehicles, hybrid vehicles, etc.) until reaching 100%.

Investigate and explore the feasibility and practical scenarios for applying Carbon Capture Utilization and Storage (CCUS) technology.

Select refrigeration equipment and related pipeline components with better performance and quality to minimize emission leakage.

Introduce hybrid vehicles to replace traditional fuel-powered official vehicles and optimize the company's fleet structure.

Install EV charging piles in office area parking lots to support the use of electric vehicles.

Scope 2 Carbon Reduction Pathways:

- Energy Structure Transformation
- Energy Efficiency Enhancement

Each base continues to launch photovoltaic (PV) installation projects, with an installed capacity of 8.47 MWp.

Subsidiaries continue to purchase green electricity and Green Electricity Certificates (GEC).

Continuously increase PV installed capacity and power generation efficiency, explore technical measures such as flexible roof renovation and introduction of high-efficiency PV modules to expand and upgrade the existing PV system. By 2030, the PV installed capacity is expected to reach approximately 44 MWp, with an estimated annual power generation of 39,400 MWh.

Continuously increase the purchase of green electricity and Green Electricity Certificates (GEC) until 100% green electricity is used across the Group.

Continuously promote equipment upgrading and elimination, use thermal insulation materials to reduce energy loss, phase out high-energy-consuming or obsolete equipment, optimize production lines, reasonably adjust equipment layout, and improve production efficiency and energy utilization.

Scope 3 Carbon Reduction Targets and Pathways

The Group fully recognizes the importance of Scope 3 emissions in overall environmental impact, and is committed to addressing environmental challenges together with value chain partners. Effectively managing and reducing Scope 3 emissions is a key pathway and goal for us to achieve the long-term sustainable development strategy.

As one of the largest sources of Scope 3 emissions, the low-carbon transformation of the supply chain is the key focus of our Scope 3 carbon reduction pathways. We have established a collaborative management system spanning the supplier lifecycle, and promote green transformation of the value chain through a linkage mechanism of policy guidance, access control, dynamic assessment, capacity co-construction, digital enablement, and hazardous substances control.

Policy Implementation and Target Communication

- Sign documents such as the *Social Responsibility Agreement, Environmental/Safety Requirements Notification*, and *Commitment Letter on Prohibited Environmental Substances* with suppliers, requiring them to comply with environmental/occupational health and safety laws and regulations, conduct compliant management of emissions, waste, and noise in production, activities, and transportation processes, strictly fulfill environmental responsibilities, and meet the Company's procurement and cooperation standards.
- Encourage suppliers to provide environmentally friendly products and services, such as the use of renewable energy, recyclable materials, and eco-friendly materials.

Standardized Access and Green Sourcing

- Established a sound supplier management system, such as the *Supplier Management Control Procedures* and *Supplier Development and Evaluation Control Procedures*, to implement full-life cycle management of suppliers covering development, evaluation, introduction, performance evaluation, and other links.
- Evaluate the creditworthiness, quality, environmental risks, and management systems of preliminary selected suppliers in compliance with relevant laws and regulations.
- Incorporate approximately 30% of ESG topics into the supplier access and screening system, including environmental-related indicators such as environmental pollution levels, energy consumption levels, and resource use efficiency, to comprehensively assess suppliers' environmental risks.
- Prioritize local suppliers to reduce environmental impacts during transportation.

Evaluation, Audit, and Elimination Mechanisms

- Evaluation: Evaluate suppliers with reference to material procurement policies, supplier environmental impact assessment systems, and compliance standards, and prioritize cooperation with suppliers, customers, investors, shareholders, and other value chain stakeholders who engage in addressing environmental issues.
- Audit: Established a multi-level supplier environmental compliance audit mechanism, including third-party on-site audits, second-party verification assessments, supplier scorecard rating systems, and supplier self-assessment reports, covering 100% of first-tier suppliers to ensure the effective implementation of supplier environmental management requirements.
- Elimination: Formulated a supplier delisting mechanism. If a supplier is frozen due to environmental protection, quality issues, or the use of materials that do not meet the latest environmental protection requirements and other issues, and no effective improvement measures are taken within the specified time, the supplier will be delisted.

Empowering Suppliers for Low-Carbon Transition

- Conduct carbon emission research on the top 10 suppliers by purchase amount, and assist them in formulating carbon reduction targets and planning carbon reduction pathways in the future.
- Jointly develop green technologies and processes with core suppliers, and encourage suppliers to reduce energy consumption and carbon emissions in their operations.
- Design more training programs for suppliers to enhance their environmental awareness and management capabilities.

Digital Management of Supply Chain

- Integrate conflict minerals management with digital platforms to expand the management scope.

Hazardous Substances Control

- Require suppliers to sign relevant warranties against the use of hazardous substances and provide proof materials such as precise analysis reports of hazardous substances and Material Safety Data Sheets (MSDS).
- Each subsidiary has established a sound hazardous substances control system. Through formulating standard documents such as the *Green Substance Technology Management Regulations, HSF Risk Assessment Guidelines*, and *List of Prohibited and Restricted Substances*, and signing the *Commitment Letter on Non-Use of Prohibited and Restricted Substances* and project Statement of Requirement (SOR) documents with suppliers, suppliers are required to commit to strictly abiding by hazardous substances control standards to reduce the use of hazardous substances from the source of the supply chain.

Internal Carbon Pricing

The Group is actively developing the internal carbon pricing (ICP) mechanism. We reference the average price of China's national carbon market to set a dynamic shadow carbon price, with an annual evaluation and adjustment system to align with policy trends and carbon market developments. The ICP mechanism covers major business operations, including equipment investments and new project assessments. By quantifying carbon emission costs as virtual expenses and incorporating them into return on investment (ROI) and payback period calculations, it effectively guides low-carbon decision-making and enhances emission reduction benefits.

Strategically, this mechanism coordinates closely with the three key pillars of the TCFD framework: strategy, risk management, metrics and targets. It provides strong economic incentives to support the group's goals of reducing carbon emission intensity by 2030 and achieving carbon neutrality by 2050. We have already initiated pilot applications of the ICP mechanism at its Yuyao production base, where carbon costs have been factored into equipment upgrade investment calculations to improve emission reduction returns.

Looking ahead, we will implement the ICP mechanism in phases.

From 2025 to 2027

The Group will expand pilot programs and establish a group-wide ICP system

Between 2028 and 2030

We will achieve full implementation by progressively integrating supply chain carbon cost pass-through into the mechanism.

After 2030

We will deepen the integration of this mechanism and actively connect with international carbon credit markets to provide sustained momentum for green transformation.

Climate-related Performance Table

Indicator Name			Unit	2024
Greenhouse gas emissions	Scope 1 greenhouse gas emissions		tCO_2e	17,960.31
	By greenhouse gas type[5]	Carbon dioxide (CO_2)	tCO_2e	630.99
		Methane (CH_4)	tCO_2e	1,485.29
		Nitrous oxide (N_2O)	tCO_2e	6.92
		Sulfur hexafluoride (SF_6)	tCO_2e	81.06
		Hydrofluorocarbons (HFCs)	tCO_2e	15,756.04
	By region	China	tCO_2e	16,537.06
		Overseas regions	tCO_2e	1,423.25
	By emission source	Gasoline[6]	tCO_2e	191.60
		Diesel	tCO_2e	74.96
		Refrigerants[7]	tCO_2e	15,138.86
		Others	tCO_2e	2,554.89
	Scope 2 greenhouse gas emissions (Market-based)		tCO_2e	431,898.96
	Scope 2 greenhouse gas emissions (Position-based)[8]		tCO_2e	509,861.06
	Scope 3 greenhouse gas emissions[9]	Category 1. Purchased goods and services	tCO_2e	735,724.08
		Category 2. Capital goods	tCO_2e	24,540.78
		Category 3. Fuel and energy-related activities (not included in Scope 1 or 2)	tCO_2e	22,735.05
		Category 4. Upstream transportation and distribution	tCO_2e	33,179.75
		Category 5. Waste generated in operations	tCO_2e	23,568.54
		Category 6. Business travel	tCO_2e	1,787.21
		Category 7. Employee commuting	tCO_2e	8,298.44
		Category 9. Downstream transportation and distribution	tCO_2e	3.02
		Category 11. Use of goods sold	tCO_2e	751.80
		Category 13. Downstream leased assets	tCO_2e	1,238.04
		Category 15. Investment	tCO_2e	3.24

[5] The Global Warming Potential (GWP) values of various greenhouse gases refer to the 2022 IPCC Sixth Assessment Report (AR6).

[6] The Group's CO_2 emission factors of diesel and gasoline are referenced from the Guidelines on Greenhouse Gas Emission Accounting and Reporting for Industrial and Other Enterprises (Trial) (《工業其他行業企業溫室氣體排放核算方法與報告指南 (試行)》) issued by the National Development and Reform Commission (NDRC).

[7] The air conditioning refrigerant emission factors used by the Group are referenced from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories（《2006 年聯合國政府間氣候變化專門委員會國家溫室氣體清單指南》）, while the global warming potential values are based on the IPCC 6th Assessment Report in 2022 (AR6)（《IPCC 2022 年第六次評估報告》）.To enhance the accuracy and completeness of refrigerant-related GHG emission data, the Group has adopted the fugitive emission method for refrigerant emission accounting since 2022.

[8] Scope 2 greenhouse gas emissions (Position-based) is calculated using the 2022 national average carbon dioxide emission factor for electricity as specified in the "Announcement on the Release of the 2022 Electricity Carbon Dioxide Emission Factors" issued by the Ministry of Ecology and Environment of the People's Republic of China.

[9] The calculation of greenhouse gas emissions (Scope 3) is carried out in accordance with the provisions of the Greenhouse Gas Protocol - Corporate Accounting and Reporting Standard (Revised Edition) and the Technical Guidance for Calculating Scope 3 Emissions (referred to as the "GHG Protocol"). There are no upstream leasing assets or franchising, and the products sold produce minimal and untraceable GHG emissions, which are considered negligible during processing, use, and scrap recycling. Category 15 only includes a part of invested assets, and there are still a few invested objects whose GHG emission data is temporarily unavailable.

Indicator Name		Unit	2024
Greenhouse gas emissions	Scope 3 gross greenhouse gas emissions	tCO_2e	851,829.96
	Scope 1 and Scope 2 gross greenhouse gas emissions (Market-based)	tCO_2e	449,859.27
	Scope 1 and Scope 2 gross greenhouse gas emissions (Position-based)	tCO_2e	527,821.37
	Scope 1, 2, 3 gross greenhouse gas emissions (Market-based)	tCO_2e	1,301,689.23
	Scope 1, 2, 3 gross greenhouse gas emissions (Position-based)	tCO_2e	1,379,651.33
	Scope 1 and Scope 2 greenhouse gas emissions intensity (Market-based)	tCO_2e /RMB million	11.75
	Scope 1 and Scope 2 greenhouse gas emissions intensity (Position-based)	tCO_2e /RMB million	13.78
Transition risks	Disclose the amount and percentage of assets or business activities vulnerable to transition risks	/	17[10]
Physical risks	Disclose the amount and percentage of assets or business activities vulnerable to physical risks	/	0[11]
Climate-related opportunities	Disclose the amount and percentage of assets or business activities aligned with climate-related opportunities	/	7[12]
Capital deployment	Disclose the amount of capital expenditure, financing or investment deployed towards climate-related risks and opportunities	RMB	11,376,200
Internal carbon pricing	For issuers that have established an internal carbon price, disclose: (a) the price of each metric tonne of greenhouse gas emissions the issuer uses to assess the costs of its greenhouse gas emissions; and (b) an explanation of how the issuer is applying a carbon price in decision-making (for example, investment decisions, transfer pricing, and scenario analysis).	/	Research and formulation are underway (Refer to Internal Carbon Pricing)
Remuneration	Consideration of climate-related factors and methods for integrating them into the remuneration policy	/	None at present. Research and formulation are underway
Energy Consumption	Proportion of energy-related expenses in total operating funds	%	1.9
	Proportion of renewable energy consumption	%	22.2
	Purchased green electricity	MWh	208,557.35

[10] Customers with a preference for low-carbon products account for approximately 17% of our revenue.

[11] Although most of our operational sites are located in coastal areas prone to typhoons, we have established a comprehensive disaster prevention mechanism, and no asset damage or operational disruptions due to physical risks have occurred.

[12] About 7% of revenue during the reporting period came from new energy vehicle customers.

Appendix: Index to Section D of the Stock Exchange of Hong Kong's *Environmental, Social and Governance Reporting Code*: Climate-related Disclosures

Dimension	Disclosure Content		IFRS S2 Index	Corresponding Chapter
Governance	19. An issuer shall disclose information about: (a)the governance body(s) (which can include a board, committee or equivalent body charged with governance) or individual(s) responsible for oversight of climate-related risks and opportunities. (b)management's role in the governance processes, controls and procedures used to monitor, manage and oversee climate-related risks and opportunities, including information.		Paragraph 5-7	Governance Framework Climate Change Governance Policies and Systems Integration of Climate Considerations into Strategic Decision-Making
Strategy	Climate-related risks and opportunities	20. An issuer shall disclose information to enable an understanding of climate-related risks and opportunities that could reasonably be expected to affect the issuer's cash flows, its access to finance or cost of capital over the short, medium or long term.	Paragraph 10-12	Climate-Related Risks and Opportunities
	Business model and value chain	21. An issuer shall disclose information that enables an understanding of the current and anticipated effects of climate-related risks and opportunities on the issuer's business model and value chain.	Paragraph 13	Climate-Related Risks and Opportunities
	Strategy and decision-making	22. An issuer shall disclose information that enables an understanding of the effects of climate-related risks and opportunities on its strategy and decision-making.	Paragraph 14	Climate-Related Risks and Opportunities
		23. An issuer shall disclose information about the progress of plans disclosed in previous reporting periods in accordance with paragraph	Paragraph 14	Climate-Related Risks and Opportunities
	Financial position, financial performance and cash flows-Current financial effect	24. An issuer shall disclose qualitative and quantitative information about: (a) how climate-related risks and opportunities have affected its financial position, financial performance and cash flows for the reporting period; and (b) the climate-related risks and opportunities identified for which there is a significant risk of a material adjustment within the next annual reporting period to the carrying amounts of assets and liabilities reported in the related financial statements	Paragraph 15-21	Climate-Related Risks and Opportunities
	Financial position, financial performance and cash flows-Anticipated financial effect	25. The issuer shall provide qualitative and quantitative disclosures about: (a) how the issuer expects its financial position to change over the short, medium and long term, given its strategy to manage climate-related risks and opportunities, taking into consideration: its investment and disposal plans; and its planned sources of funding to implement its strategy; and (b) how the issuer expects its financial performance and cash flows to change over the short, medium and long term, given its strategy to manage climate-related risks and opportunities.	Paragraph 15-21	Climate-Related Risks and Opportunities
	Climate resilience	26. An issuer shall disclose information that enables an understanding of the resilience of the issuer's strategy and business model to climate-related changes, developments and uncertainties, taking into consideration the issuer's identified climate-related risks and opportunities. An issuer shall use climate-related scenario analysis to assess its climate resilience using an approach that is commensurate with an issuer's circumstances. In providing quantitative information, the issuer may disclose a single amount or a range.	Paragraph 22-23	Climate Change Strategy and Transformation

Dimension	Disclosure Content		IFRS S2 Index	Corresponding Chapter
Risk Management	27. An issuer shall disclose information about: (a) the processes and related policies it uses to identify, assess, prioritise and monitor climate-related risks; (b) the processes the issuer uses to identify, assess, prioritise and monitor climate-related opportunities (including information about whether and how the issuer uses climate-related scenario analysis to inform its identification of climate-related opportunities); and (c) the extent to which, and how, the processes for identifying, assessing, prioritising and monitoring climate-related risks and opportunities are integrated into and inform the issuer's overall risk management process.		Paragraph 24-26	Impact, Risk and Opportunity Management
Metrics and Targets	Greenhouse gas emissions	28.An issuer shall disclose its absolute gross greenhouse gas emissions generated during the reporting period, expressed as metric tons of CO_2 equivalent, classified as: (a) Scope 1 greenhouse gas emissions; (b) Scope 2 greenhouse gas emissions; and (c) Scope 3 greenhouse gas emissions.	Paragraph 29	Climate-related Performance Table
		29. An issuer shall: (a) measure its greenhouse gas emissions in accordance with the *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004)* unless required by a jurisdictional authority or another exchange on which the issuer is listed to use a different method for measuring greenhouse gas emissions; (b) disclose the approach it uses to measure its greenhouse gas emissions. (c) for Scope 2 greenhouse gas emissions disclosed, disclose its location-based Scope 2 greenhouse gas emissions, and provide information about any contractual instruments that is necessary to enable an understanding of the issuer's Scope 2 greenhouse gas emissions; and (d) for Scope 3 greenhouse gas emissions disclosed, disclose the categories included within the issuer's measure of Scope 3 greenhouse gas emissions, in accordance with the Scope 3 categories described in the *Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011).*	Paragraph 29	Climate-related Performance Table
	Climate-related transition risks	30. An issuer shall disclose the amount and percentage of assets or business activities vulnerable to climate-related transition risks.	Paragraph 29	Climate-related Performance Table
	Climate-related physical risks	31. An issuer shall disclose the amount and percentage of assets or business activities vulnerable to climate-related physical risks.	Paragraph 29	Climate-related Performance Table
	Climate-related opportunities	32. An issuer shall disclose the amount and percentage of assets or business activities aligned with climate-related opportunities.	Paragraph 29	Climate-related Performance Table
	Capital deployment	33. An issuer shall disclose the amount of capital expenditure, financing or investment deployed towards climate-related risks and opportunities.	Paragraph 29	Climate-related Performance Table
	Internal carbon pricing	34. An issuer shall disclose: (a) an explanation of whether and how the issuer is applying a carbon price in decision-making (for example, investment decisions, transfer pricing, and scenario analysis); and (b) the price of each metric tonne of greenhouse gas emissions the issuer uses to assess the costs of its greenhouse gas emissions; or an appropriate negative statement that the issuer does not apply a carbon price in decision-making.	Paragraph 29	Climate-related Performance Table
	Remuneration	35. An issuer shall disclose whether and how climate-related considerations are factored into remuneration policy, or an appropriate negative statement.	Paragraph 29	Climate-related Performance Table

Dimension	Disclosure Content		IFRS S2 Index	Corresponding Chapter
Metrics and Targets	Industry-based metrics	36. An issuer is encouraged to disclose industry-based metrics that are associated with one or more particular business models, activities or other common features that characterise participation in an industry. In determining the industry-based metrics that the issuer discloses, an issuer is encouraged to refer to and consider the applicability of the industry-based metrics associated with disclosure topics described in the *IFRS S2 Industry-based Guidance on implementing Climate-related Disclosures* and other industry-based disclosure requirements prescribed under other international ESG reporting frameworks.	Paragraph 32	Not Relevant
	Climate-related targets	37. An issuer shall disclose (a) the qualitative and quantitative climate-related targets the issuer has set to monitor progress towards achieving its strategic goals; and (b) any targets the issuer is required to meet by law or regulation, including any greenhouse gas emissions targets. For each target, the issuer shall disclose: (a) the metric used to set the target; (b) the objective of the target (for example, mitigation, adaptation or conformance with science-based initiatives); (c) the part of the issuer to which the target applies (for example, whether the target applies to the issuer in its entirety or only a part of the issuer, such as a specific business unit or geographic region); (d) the period over which the target applies; (e) the base period from which progress is measured; (f) milestones or interim targets (if any); (g) if the target is quantitative, whether the target is an absolute target or an intensity target; and (h) how the latest international agreement on climate change, including jurisdictional commitments that arise from that agreement, has informed the target.	Paragraph 33	Carbon Reduction Targets and Pathways
		38. An issuer shall disclose information about its approach to setting and reviewing each target, and how it monitors progress against each target, including: (a) whether the target and the methodology for setting the target has been validated by a third party; (b) the issuer's processes for reviewing the target; (c) the metrics used to monitor progress towards reaching the target; and (d) any revisions to the target and an explanation for those revisions.	Paragraph 34	Carbon Reduction Targets and Pathways
		39. An issuer shall disclose information about its performance against each climate-related target and an analysis of trends or changes in the issuer's performance.	Paragraph 35	Carbon Reduction Targets and Pathways
		40. For each greenhouse gas emissions target disclosed, an issuer shall disclose: (a) which greenhouse gases are covered by the target; (b) whether Scope 1, Scope 2 or Scope 3 greenhouse gas emissions are covered by the target; (c) whether the target is a gross greenhouse gas emissions target or a net greenhouse gas emissions target. If the issuer discloses a net greenhouse gas emissions target, the issuer is also required to separately disclose its associated gross greenhouse gas emissions target; (d) whether the target was derived using a sectoral decarbonisation approach; and (e) the issuer's planned use of carbon credits to offset greenhouse gas emissions to achieve any net greenhouse gas emissions target.	Paragraph 36	Carbon Reduction Targets and Pathways
	Applicability of cross-industry metrics and industry-based metrics	41. In preparing disclosures to meet the requirements in paragraphs 21 to 26 and 37 to 38, an issuer shall refer to and consider the applicability of cross-industry metrics (see paragraphs 28 to 35) and (ii) industry-based metrics (see paragraph 36).	Paragraph 37	Not Relevant

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