
CWE
2024
Task Force on Climate
Related Financial Disclosures
CHANG WAH ELECTROMATERIALS INC.

Contents

1、Foreword

According to the report released by the United Nations Intergovernmental Panel on Climate Change (IPCC) in August 2021, it is explicitly confirmed what has been known for years: the escalating physical risks of climate change are caused by human activity, and the outlook is concerning. However, the report also points out that while time is short, humans can still take effective action within a limited timeframe. The "Global Risks Report 2024," published by the World Economic Forum (WEF) in January 2024, shows that five of the top ten risks over the next decade are environmental: *Extreme Weather Events*, *Critical Changes to Earth Systems*, *Biodiversity Loss and Ecosystem Collapse*, *Natural Resource Shortages* and *Environmental Pollution*.

Globally, over 137 countries or regional alliances have committed to net-zero emissions, a scale that covers 88% of the world's greenhouse gas (GHG) emissions. Before 2030, the EU aims to reduce emissions to 55% of 1990 levels; the UK has pledged to stop funding oil and gas and aims to reduce emissions to 68% of 1990 levels; Canada's goal is a 40% reduction from 2005 carbon emissions; the United States has set an ambitious target of a 52% reduction; and G20 nations such as Japan and South Korea have committed to achieving net-zero emissions by 2050. Even China, the world's largest carbon dioxide emitter, accounting for 28% of global carbon emissions, has pledged to achieve carbon neutrality by 2060. Looking at the goals of various countries, it is clear that they all have a medium-term target for 2030, hoping to achieve a 40-50% reduction from 1990 or 2005 levels, with net-zero as the goal for 2050 or 2060.

In Taiwan, to echo the global net-zero trend, the government released the "2050 Net-Zero Emissions Pathway and Strategy" in March 2022. It is built on four major transformations—*Energy Transition*, *Industrial Transition*, *Lifestyle Transition*, and *Social Transition*—and two major governance foundations—*Technology R&D* and *Climate Legislation*. It is further supported by the *Twelve Key Strategies* to develop action plans for critical areas expected to grow from energy, industrial, and lifestyle transition policies, thereby realizing the net-zero transformation goal. In December 2022, the National Development Council (NDC) announced the phased targets and key strategies for the 2050 net-zero transformation, proposing a 2030 Nationally Determined Contribution (NDC) emissions reduction target of 24% ± 1%.

By referencing the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) released by the Financial Stability Board (FSB) in 2017, the company has established a foundation for its future climate change governance framework based on four core elements: *Governance*, *Strategy*, *Risk Management*, and *Metrics and Targets*. This framework is used to identify significant risks and opportunities that may affect its operations and to formulate strategies for future climate risk and carbon emission reduction in response.

2、Company Profile

Chang Wah Electromaterials Inc. (CWE or the Company) was founded on May 13, 1989. It is a distributor of IC packaging materials and equipment, and a manufacturer and seller of display backlight module materials. With professional foresight and a keen market sense, CWE has consistently and accurately introduced packaging materials and equipment from international renowned manufacturers, such as Sumitomo Bakelite and Sumitomo Metal Mining Group, to meet the diverse needs of domestic packaging factories. Through years of dedicated effort, the company has gradually expanded its product lines and is now deeply involved in semiconductor packaging materials like encapsulants, lead frames, and packaging substrates.

CWE is actively transforming from a distributor into a manufacturer. By investing in subsidiaries, the Company has entered fields such as LED lead frames, COF substrates, and electrical contact components to enhance its market competitiveness. Its major investments currently include Chang Wah Technology Co., Ltd., a metal lead frame manufacturer, whose operational momentum is focused on developing business across Taiwan's major ICT industries, including semiconductors and displays. Overall, CWE has successfully transformed from a professional materials distributor into a professional materials manufacturer by combining its distribution business with the manufacturing capabilities of its invested companies.

The scope of this report covers the key operating locations and activities of CWE in Taiwan, including the Kaohsiung headquarters, the Taipei branch, and the Taichung office.

Main Business Locations in Taiwan

Chang Wah Electromaterials Inc. (CWE) Headquarters	Location: 6F, No.16, East 7th Street, Nanzi Dist., Kaohsiung City, Taiwan (R.O.C.) Main Business：Sales of semiconductor packaging materials and equipment
Taipei Branch of CWE (CWET)	Location: 7F., No. 35, Ln. 221, Gangqian Rd., Neihu Dist., Taipei City, Taiwan (R.O.C.) Main Business：Sales of semiconductor packaging materials and equipment
Taichung Office of CWE	Location: No. 109, Yafeng Street, Tanzi Dist., Taichung City, Taiwan (R.O.C.) Main Business：Sales of semiconductor packaging materials and equipment

CWE's Carbon Management Achievements

Year	Achievement Description
2023	✓ Published the company’s first sustainability report. ✓ Voluntarily conducted a GHG inventory in accordance with ISO 14064-1 and established a GHG emissions inventory.
2024	✓ Obtained the ISO 14064-1:2018 third-party verification statement for the GHG inventory.

CWE's Climate Change Management Framework

Governance

- The Board of Directors is responsible for climate change issue governance.
- Board's capabilities in governing climate change issues.
- Climate change issue representative at the board level.

Risk Management

- Risk and opportunity management process.
- Climate-related risk and opportunity identification and assessment process.

Strategy

- Application of climate-related scenarios.
- Results of climate-related risk and opportunity identification.
- Assessment of significant climate-related risks and strategies.
- Assessment of significant climate-related opportunities and strategies.
- Overall assessment of significant climate-related risks, opportunities, and strategies.

Metrics and Targets

- GHG emission targets.
- Emission reduction actions.

3、Climate Change Governance

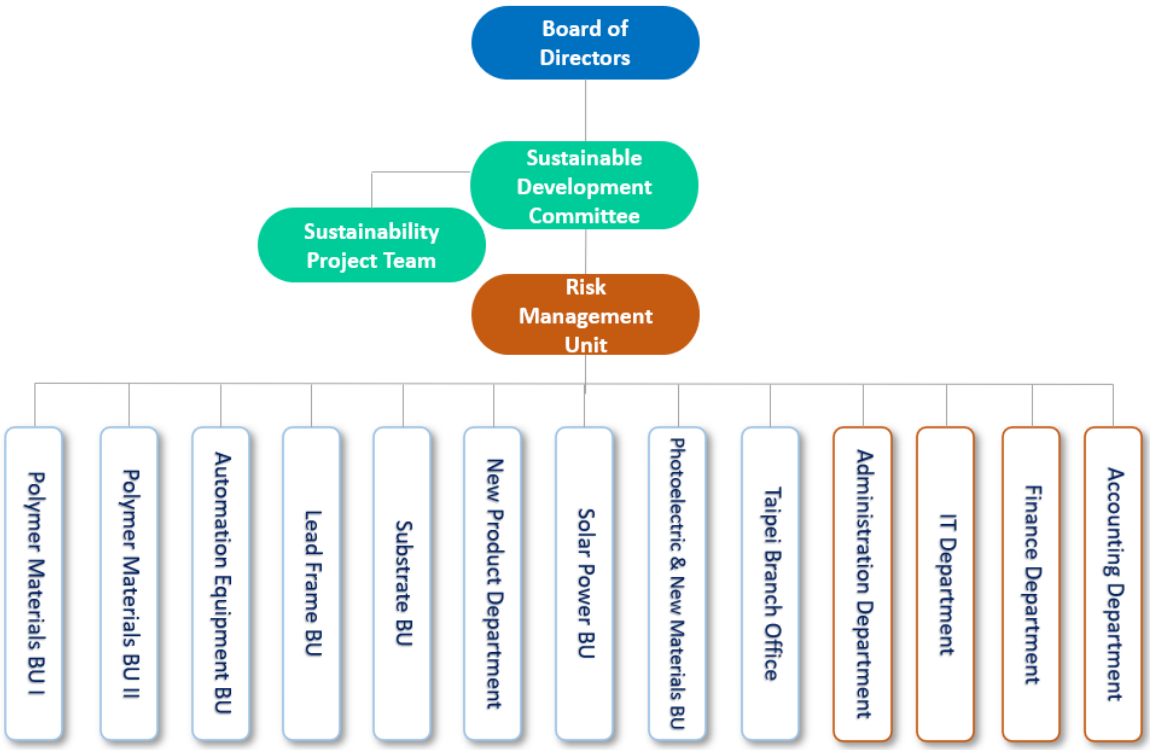
3.1 Governance Structure

TWSE * Climate Disclosure Requirements	Describe the supervision and governance of climate-related risks and opportunities by the board of directors and management.
TCFD Governance	a) Describe the board's oversight of climate-related risks and opportunities. b) Describe management's role in assessing and managing climate-related risks and opportunities.

* : TWSE: Taiwan Stock Exchange Corporation.

To address the high uncertainty of climate conditions and the rapid changes in policies and markets, we seek to promptly identify and assess the potential impacts of climate change. We further evaluate the risks that floods, droughts, typhoons, and high temperatures may pose to each of our operational sites. This enables us to monitor external climate developments and market dynamics, and to take these factors more comprehensively into account in our overall operational strategy planning.

The Board of Directors serves as the highest decision-making and oversight body for CWE's climate-related matters. The Sustainability Development Committee is responsible for formulating climate policies and coordinating sustainability and climate-related affairs. Chaired and convened by the Chairman of the Board, the Committee oversees the Sustainability Project Team established under it. This Team is tasked with cross-departmental coordination, communication, as well as the integration, planning, and implementation of response measures related to sustainability and climate change. It is also responsible for setting long-term renewable energy targets and development strategies. The Team convenes meetings on a regular basis to review implementation progress and target performance and reports its annual execution results and work plans to the Board of Directors at least once a year.



CWE's Climate Governance Organizational Chart

3.2 Climate Change Issue Governance

To enhance the capabilities of its Board of Directors, CWE Board members actively participate in relevant training courses held by institutions designated by the securities regulator, in accordance with the "Directions for the Implementation of Continuing Education for Directors and Supervisors of TWSE/TPEx Listed Companies" and regulatory requirements. The company stays updated on domestic and international developments in economic, environmental, and social regulations, including training courses on finance, risk management, business, commerce, accounting, law, corporate governance, ethics, and corporate social responsibility. These efforts aim to strengthen the board's leadership and decision-making abilities and to ensure that board members faithfully execute their business and management responsibilities. In 2024, the training hours for CWE's board members met the legal standard of 6 hours, with each director averaging 11 hours of training for a total of 74 hours.

To actively respond to global carbon-reduction trends, CWE has integrated climate change mitigation and adaptation as key issues within its operational management. Starting in 2023, the company initiated voluntary GHG inventory efforts, establishing a GHG emissions inventory and identifing and managing key emission sources within its production processes for strengthened management.

3.3 Representative for Climate Change Issues at the Board Level

CWE has established a Sustainable Development Committee, under which a Sustainability Project Team is responsible for coordinating and integrating sustainability and climate-change management activities across departments, as well as overseeing their implementation. The team also reviews climate-related risks and opportunities, examines climate risk management reports, and submits a report to the Board of Directors annually (at least once a year).

4、Climate Change Related Risk and Opportunity Management

4.1 Climate-Related Risk and Opportunity Management Procedures

TWSE Climate Disclosure Requirements	Describe how the climate risk identification, assessment and management processes are integrated into the overall risk management system.
TCFD Risk Management	a) Describing the Organization's Climate-Related Risk Identification and Assessment Process b) Describing the Organization's Climate-Related Risk Management Process c) Describe how the processes for identifying, assessing and managing climate-related risks are integrated into the organization's overall risk management system.

In order to advance our sustainability management strategy, the Board of Directors has approved the establishment of the Sustainability Project Team and appointed the General Manager as its convener, responsible for overall coordination and reporting to the Board annually on performance and future plans. Within the Sustainability Project Team, a Risk Management Unit, which is comprised of heads from various departments, is responsible for evaluating and analyzing climate-related risks and opportunities, as well as implementing climate-related strategies and actions.

In 2023, CWE established a "Risk Management Policy," which integrates the processes for identifying, assessing, and managing climate-related risks into the company's risk management system. This ensures the establishment of a robust and sound risk management mechanism and operational procedure. Through cross-departmental communication and data collection, we assess the overall impact that various risks could have on Chang Wah Electromaterials. We also link the level of risk impact to our short-, medium-, and long-term operational goals, which helps us understand the company's risk tolerance. The risk management process includes risk identification, risk analysis, risk assessment, risk response and monitoring, and risk reporting and disclosure.

Risk management organizational structure and related responsibilities

Person in Charge	Responsibilities
Board of Directors	The highest decision-making unit is responsible for approving overall risk management policies and major decisions.
General Manager's Office	The General Manager is responsible for overall coordination and instructs the Sustainability Project Team to hold regular meetings to monitor, identify and review risks and opportunities, and review risk management reports.
Risk Management Representations	It is affiliated to the Sustainability Project Team and is composed of heads of various departments. It is responsible for assessing and analyzing risks and opportunities and implementing relevant strategies and actions.

4.2 Climate-Related Risk and Opportunity Identification and Assessment Process

TCFD Risk Management	Describes the organization's process for identifying and assessing climate-related risks.

Climate change has a significant impact on businesses and the social environment. To understand the specific impacts of climate change and strengthen climate-related issues, we assessed the likelihood and magnitude of each risk factor's occurrence based on our responsibilities. We used the 1.5°C scenario and Taiwan's "2050 Net Zero Emissions Pathway and Strategy" as transition risk scenarios, and the IPCC (AR6) report's worst-case scenario (SSP5-8.5) for global warming as a physical risk scenario. Based on these scenarios, we identified and assessed climate risks and opportunities based on the actual impacts on physical risks, regulations, and other transition risks. Finally, the Group's ESG team convened the heads of various departments within the Risk Management Working Group for a Climate Risk and Opportunity Identification and Assessment Meeting. Through this meeting, we identified significant climate risks and opportunities that the company may face, assessed their financial impact, and discussed response plans.

Identification and assessment of climate-related risks and opportunities

Time Series	• Short-term: 2025-2027 • Medium-term: 2028-2029 • Long-term: 2030-2050
Risk and Opportunity Scale	• Likelihood of occurrence • Financial impact
Risk and opportunity Scope	• Transition risks: policies and regulations, technology, markets, reputation • Physical risks: immediate and long-term • Opportunities: resource efficiency, energy sources, products and services, markets, resilience
Climate scenario setting	• IPCC (AR6) Report • Worst-case scenario for global warming (SSP5-8.5)

4.3 Climate-Related Risks and Opportunities Management Process

TCFD Risk Management	Describe the organization’s processes for managing climate-related risks.

The Board of Directors serves as the decision-making body for climate change, while the Sustainable Development Committee under the Board functions as the management unit. Based on the TCFD's recommended list of transition risks, physical risks, and opportunities, each department will identify key short-, medium-, and long-term risks and opportunities during the meeting and conduct corresponding strategic and financial impact assessments. At the same time, it will consider the impact of products and services, supply chains, adaptation and mitigation activities, R&D investment, and business operations (including business types and facility locations) on the company's business and strategy.

Occurrence Likelihood Scale

Level	Occurrence	Description
1	Not expected to occur within 5 years	Rare
2	Not expected to occur within 3 years	Possible
3	Expected to occur within 1-3 years	Very likely

Financial Impact Scale

Unit：NT$

Level	Financial	Financial Impact
1	<1 million	Low risk
2	1–5 million	Acceptable
3	5–20 million	Mild
4	20–100 million	Severe
5	>100 million	Very severe

The identification and assessment of climate change-related transition and physical risks included evaluating their potential impact on the company’s operations and the likelihood of occurrence. Following this identification, a matrix analysis was conducted. Members of the CWE Sustainability Project Team convened a discussion meeting with department heads from the Risk Management Working Group. In 2024, a total of six climate-related risks and two opportunities were initially identified. Through the risk matrix analysis, three significant climate-related risks (two transition risks and one physical risk) and one climate-related opportunity were ultimately consolidated.

4.4 Climate-Related Scenario Resilience Assement

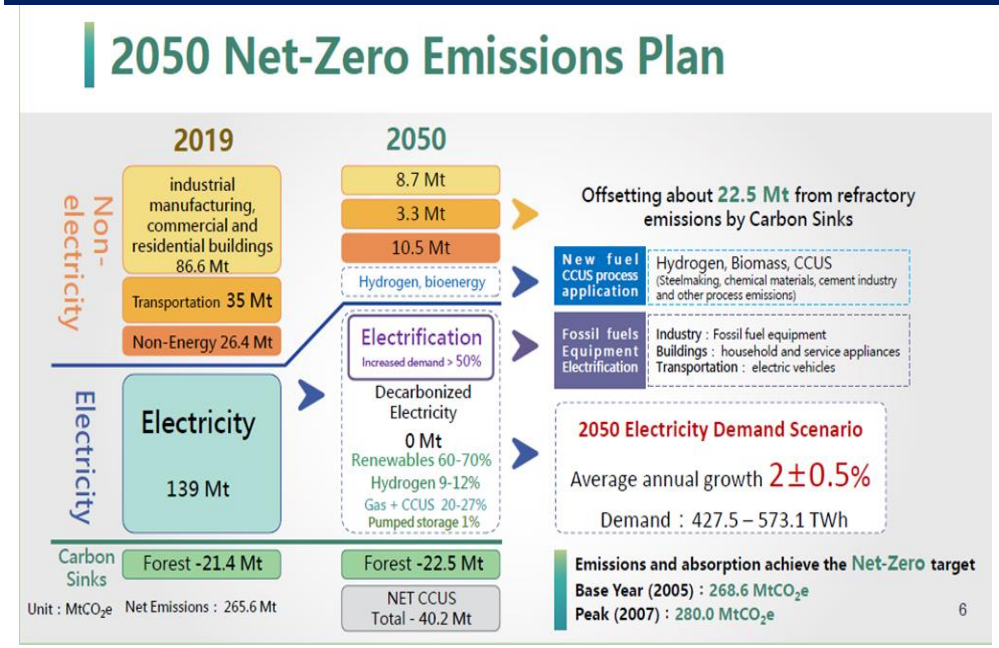
TWSE Climate Disclosure Requirements	If scenario analysis is used to assess resilience to climate change risks, the scenarios, parameters, assumptions, analytical factors and main financial impacts used should be explained.
TCFD Strategy	Describe the organization's strategic resilience, considering different climate-related scenarios (including those of 2°C or more server condition).

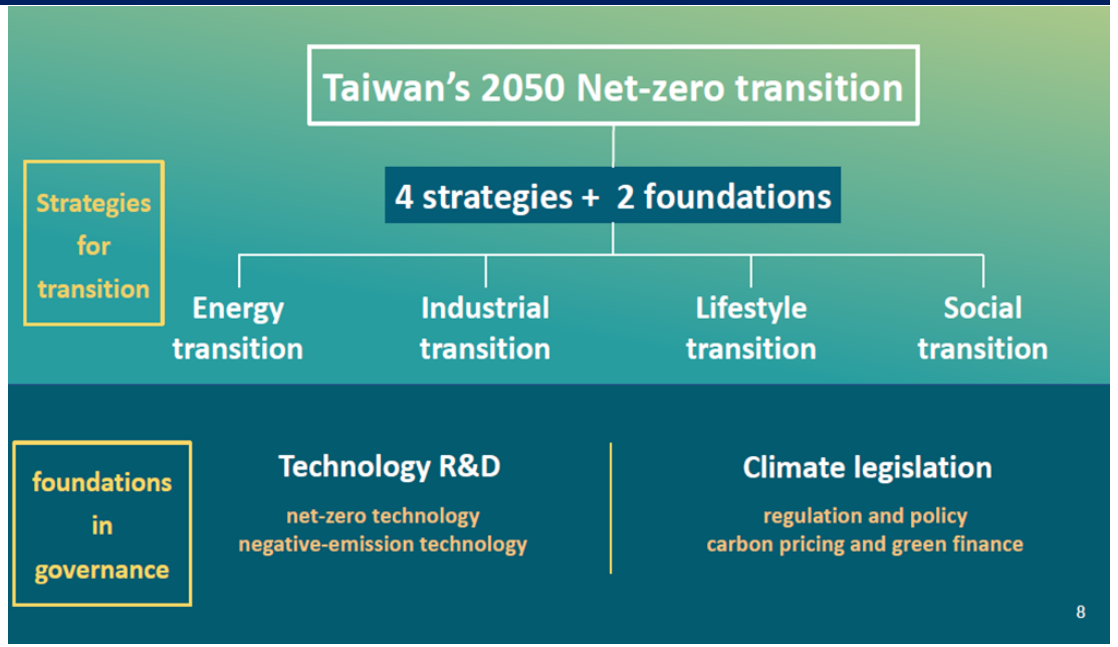
Based on the TCFD framework, Chang Wah Electromaterials analyzed the impacts of various future global GHG emissions control scenarios on the company's operations and supply chain, focusing on transition, physical risks, and climate opportunities. The results were then incorporated into strategic and financial planning. Chang Wah Electromaterials developed climate scenarios based on the latest scientific assessment reports from the International Energy Agency (IEA) and the Intergovernmental Panel on Climate Change (IPCC). The worst-case scenario was used to analyze and assess the potential financial and operational impacts of climate risks and opportunities. Due to the high uncertainty surrounding future climate change, Chang Wah Electromaterials also utilized data from the Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP), the National Science and Technology Council (NSTC), and the National Science and Technology Center for Disaster Reduction (NCDR) to conduct scenario simulations using various possible climate models to gain a more comprehensive understanding of medium- and long-term climate trends.

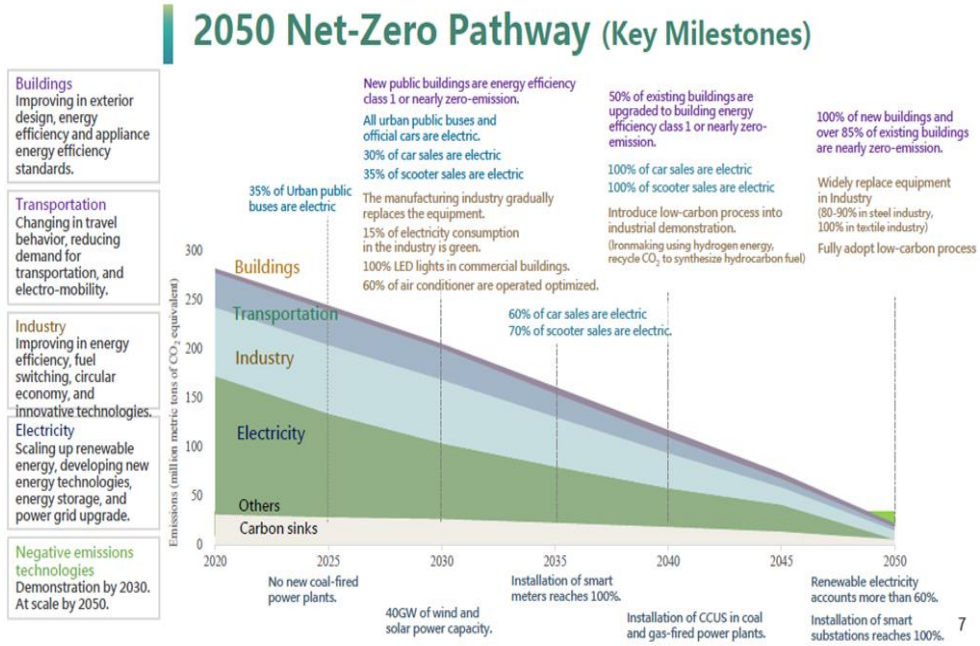
Climate-related scenario settings

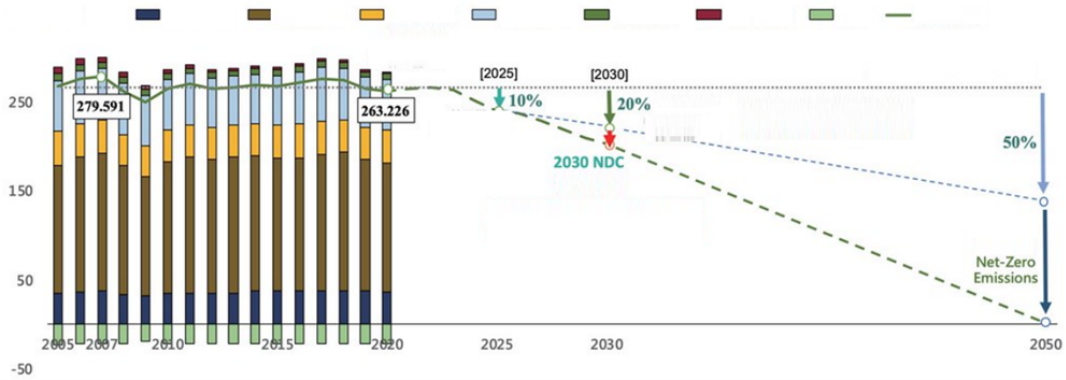
Types of climate-related risks and opportunities	Assessment Strategy Scenarios	Scenario Content
Transition Risks Opportunities	• 1.5°C Scenario • Taiwan's "2050 Net Zero Emissions Pathway and Strategy"	Net-zero carbon emissions by 2050 is a global trend. In March 2022, our country released the "2050 Net-Zero Emissions Pathway and Strategy Overview," which uses four major transformations, namely "energy transformation," "industrial transformation," "lifestyle transformation," and "social transformation," as well as two governance foundations, namely "technological research and development" and "climate law," to highly control GHG emissions and the possible operational impact on enterprises and its value supply chains.
Physical Risks	• IPCC (AR6) Worst-Case Scenario for Global Warming (SSP5-8.5)	Under the extremely high GHG emissions scenario (SSP5-8.5), climate change will lead to intensified changes in future average temperature, extreme high temperatures, total annual rainfall, maximum 1-day rainfall, maximum number of consecutive dry days, and the proportion of strong typhoons, which may have operational impacts on the company and its supply chain.

1.5°C Scenario, Taiwan’ s 2050 Net-Zero Emissions Pathway and Strategy





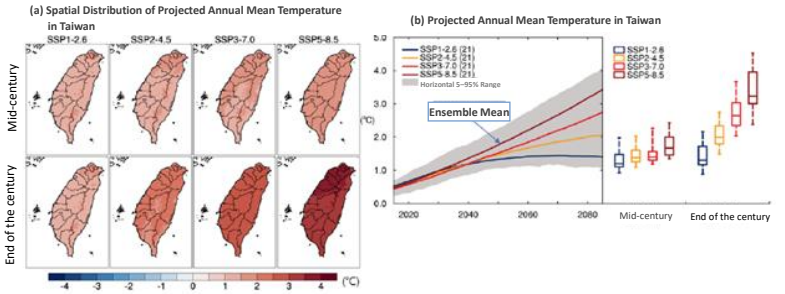




The worst-case scenario for global warming in the IPCC's Sixth Scientific Assessment Report (SSP5-8.5)

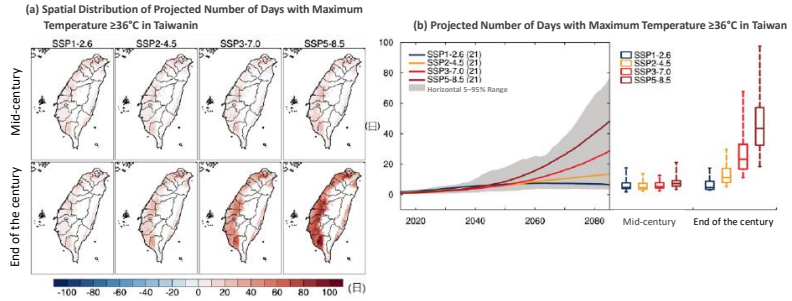
Temperature

Temperatures across Taiwan are projected to continue rising. Under the worst-case global warming scenario (SSP5-8.5), average annual temperatures could rise by more than 1. 8°C and 3.4°C in the mid- and late 21st centuries.



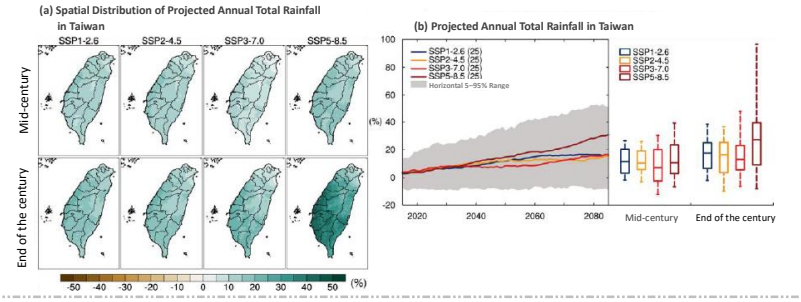
Extreme Heat

Future extreme heat events will see an increase in the number of days with temperatures exceeding 36°C across all regions. Under the worst-case scenario (SSP5-8.5), the increase will be approximately 8.5 days by the middle and 48.1 days by the end of the 21st century.



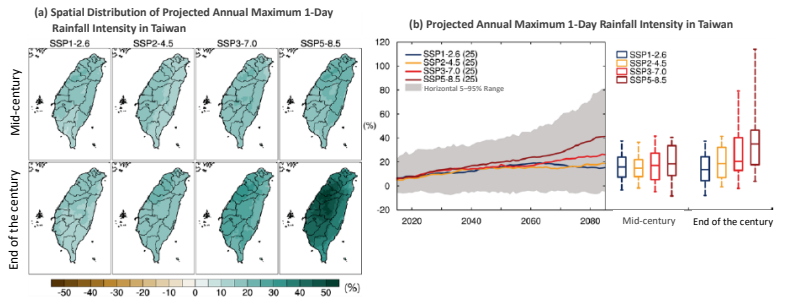
Annual Rainfall

Taiwan's total annual rainfall is projected to increase in the future. Under the worst-case scenario (SSP5-8.5), Taiwan's average annual rainfall is projected to increase by approximately 15% and 31% by the mid- and late 21st century.



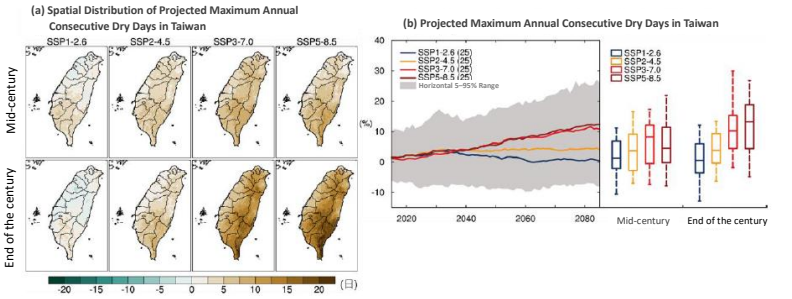
Rainstorm intensity

Taiwan's maximum daily rainfall intensity is expected to increase. Under the worst-case scenario (SSP5-8.5), the average annual maximum daily rainfall intensity is projected to increase by approximately 20% and 41.3% by the mid- to late 21st century.



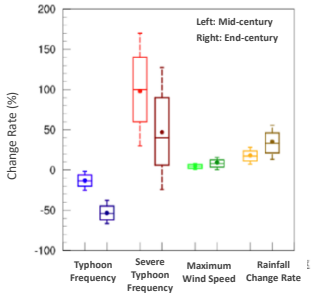
Number of consecutive days without rainfall

The maximum number of consecutive days without rainfall in a year has an increasing trend in all regions. Under the worst scenario (SSP5-8.5), the average increase will be about 5.5% and 12.4% in the middle and end of the 21st century.



Typhoon

Under the worst scenario (RCP8.5), the number of typhoons affecting Taiwan in the middle and late 21st century will decrease by approximately 15% and 55%, respectively, the proportion of strong typhoons will increase by approximately 100% and 50%, respectively, and the variability of typhoon rainfall will increase by approximately 20% and 35%.



Transition Risks: Policy and Regulatory Impact Analysis

Climate Scenario Analysis

In response to the climate change crisis, most countries and businesses have adopted the Paris Agreement's goals, aiming to limit global temperature rise to no more than 2°C, with a goal of limiting it to 1.5°C. Net-zero carbon emissions by 2050 is a global trend. Taiwan also released the "Taiwan 2050 Net-Zero Emissions Pathway and Strategy Overview" in March 2022, outlining plans and transition targets. In December 2022, it announced phased goals and actions for the 2050 net-zero transition, proposing a 24% ± 1% reduction target for the 2030 Nationally Determined Contribution (NDC). In January 2023, the Legislative Yuan passed the Climate Change Response Act in its third reading, establishing the statutory goal of achieving net-zero GHG emissions by 2050 and establishing a carbon pricing mechanism, which will become the primary legal basis for future climate governance. To achieve net-zero emissions by 2050, the government has formulated a series of policies focused on renewable energy and emissions reduction, including renewable energy regulations, a national renewable energy policy, and a national net-zero emissions target.

Climate scenario analysis is a crucial step in assessing the policies and measures needed to achieve net-zero emissions targets. CWE is considering the potential financial impact of its future implementation of the Corporate Governance 3.0 blueprint, which will standardize GHG emissions reporting obligations for listed companies.

Transition risk scenario analysis results

Type	Climate Risk Statement
Strengthening emissions reporting obligations	In response to the Corporate Governance 3.0 blueprint, standardize the GHG emissions reporting obligations of listed companies

Physical Risk - Impact Analysis of Extreme Climate Events

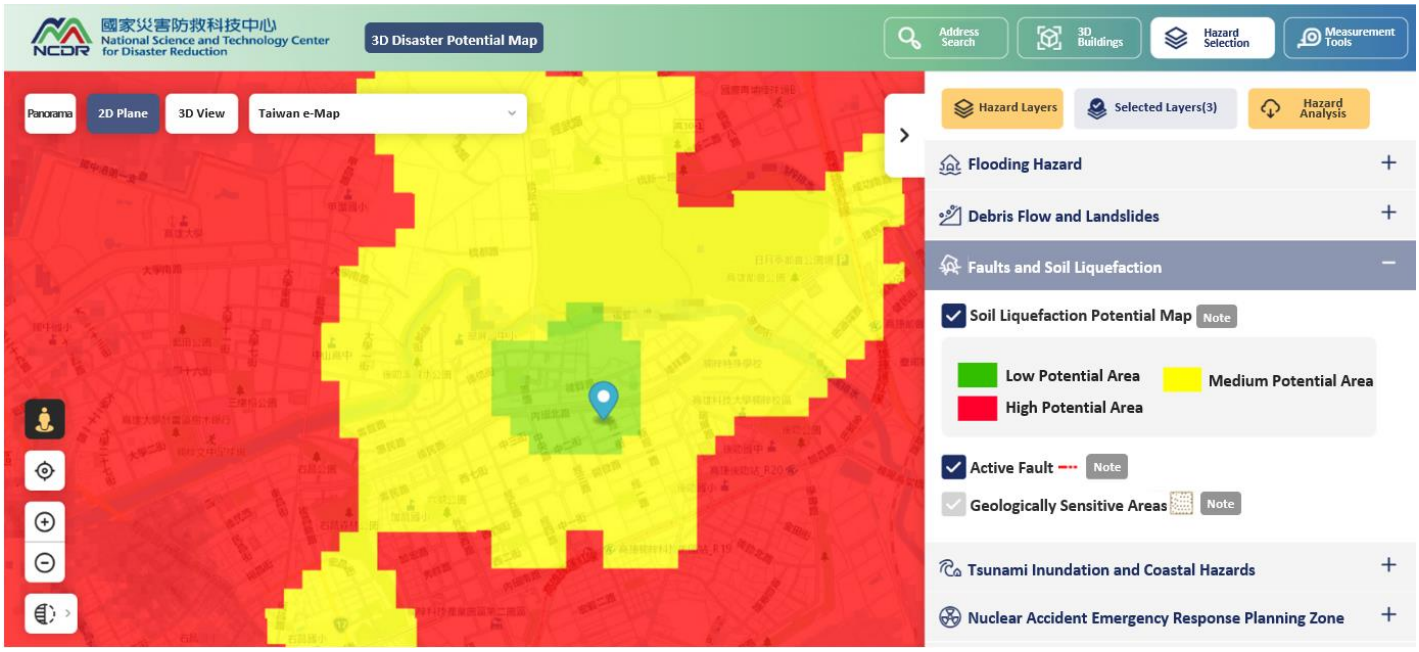
Climate Scenario Analysis

To measure the impact of physical risks from climate change on operations, we used the "Shared Socioeconomic Pathway" (SSP) proposed in the IPCC AR6, employing the SSP5-8.5 very high emissions scenario, to conduct a physical risk analysis. We examined the potential risks at each site. In addition to the existing risks of flooding, drought, and high temperatures, we also assessed risks such as strong winds from typhoons, debris flows and landslides from heavy rains, and sea level rise. Data sources include the Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP) and the National Disaster Prevention and Relief Science and Technology Center.

Physical Risk Scenario Analysis Results

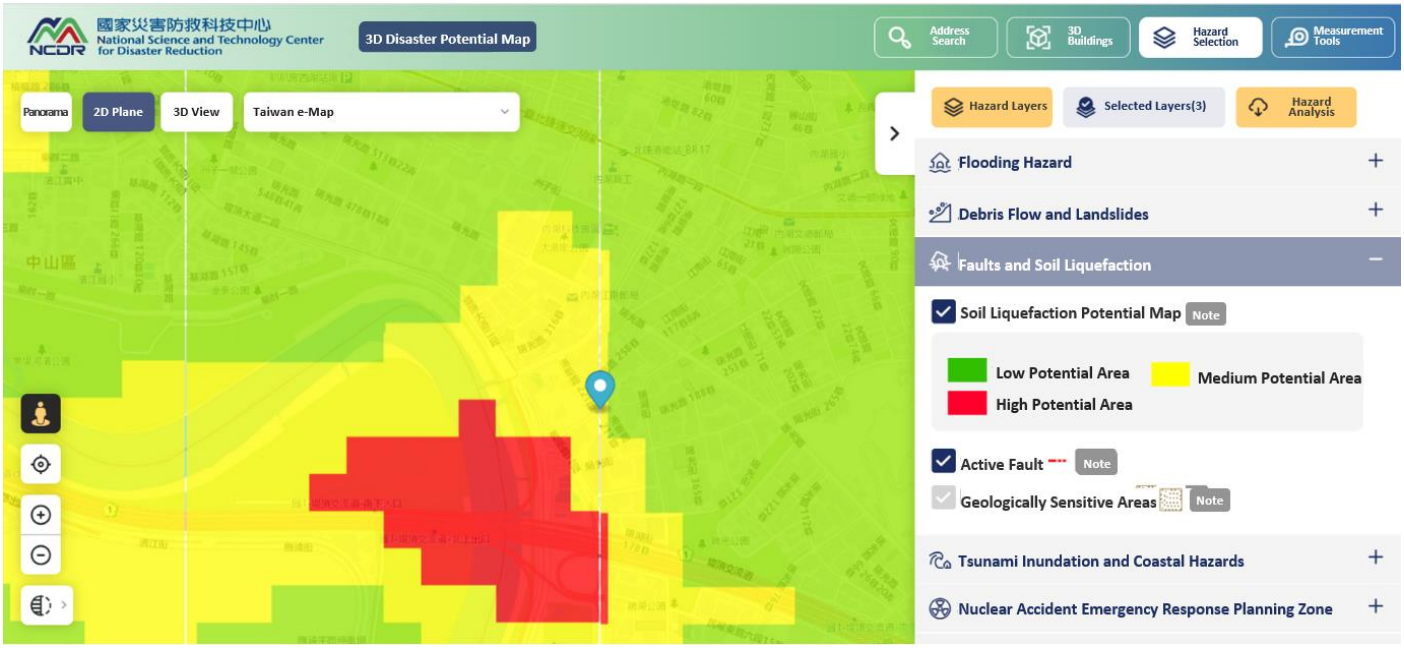
Disaster Potential

CWE Head Office		
Disaster Potential	**Yes/No**	**Description**
Flooding potential	Yes	No potential zone directly located, but within 500 meters of a potential zone
Debris flow potential streams	No	-
Large-scale landslide potential areas	No	No potential zone within 500 meters
Downward slopes	No	No potential zone within 500 meters
Rock slides	No	No potential zone within 500 meters
Debris slides	No	No potential zone within 500 meters
Rockfalls	No	No potential zone within 500 meters
Soil liquefaction potential areas	Yes	Low
Active faults	No	Fault sensitive area; potential area within 500 meters
Tsunami flooding potential areas	No	-
Volcanic potential areas	No	-
Nuclear emergency response areas	No	-



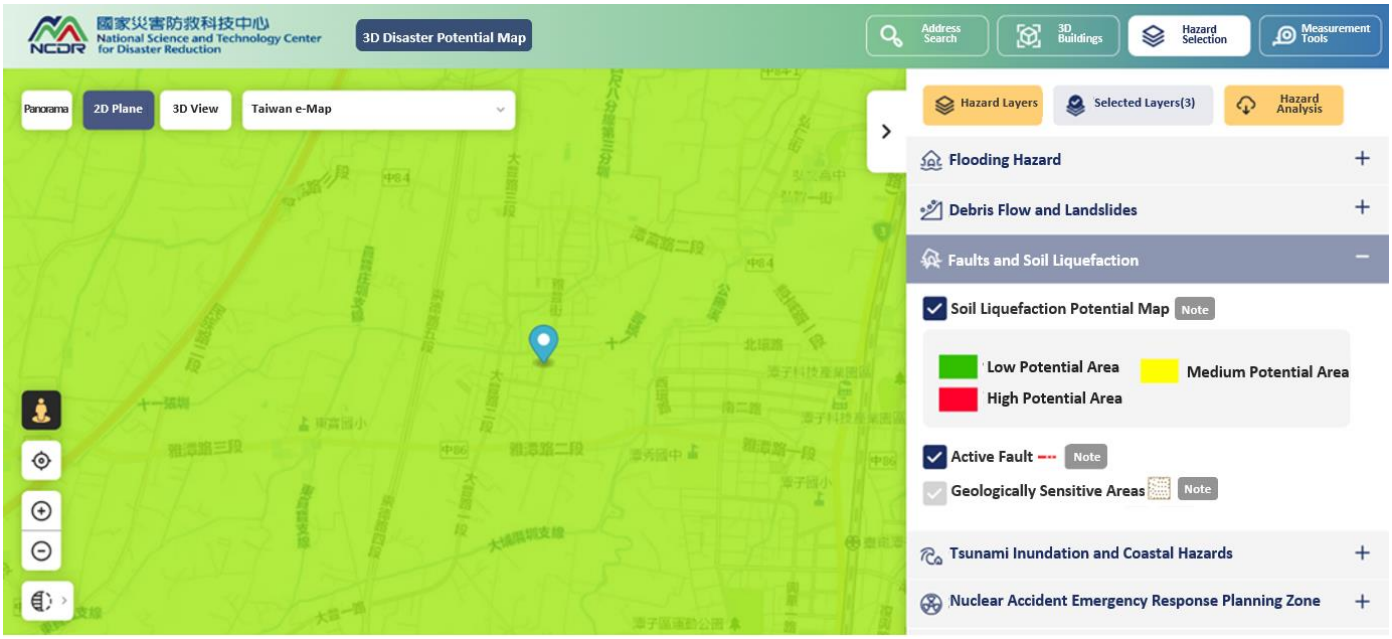
▲ Source: National Disaster Prevention and Relief Science and Technology Center_3D Disaster Potential Map

CWE Taipei Branch		
Disaster Potential	**Yes/No**	**Description**
Flooding potential	Yes	There is no direct location in the potential area for 650mm rainfall in 24 hours, but there is a potential area within 500 meters.
Debris flow potential streams	No	-
Large-scale landslide potential areas	No	No potential zone within 500 meters
Downward slopes	No	No potential zone within 500 meters
Rock slides	No	No potential zone within 500 meters
Debris slides	No	No potential zone within 500 meters
Rockfalls	No	No potential zone within 500 meters
Soil liquefaction potential areas	Yes	Middle
Active faults	No	Fault sensitive area; potential area within 500 meters
Tsunami flooding potential areas	No	-
Volcanic potential areas	No	-
Nuclear emergency response areas	No	-



▲ **Source: National Disaster Prevention and Relief Science and Technology Center_3D Disaster Potential Map**

CWE Taichung Office		
Disaster Potential	**Yes/No**	**Description**
Flooding potential • 400 mm rainfall potential area in 12 hours • 500 mm rainfall potential area in 24 hours • 650 mm rainfall potential area in 24 hours	Yes	There is no direct 12-hour and 24-hour rainfall potential area, but there is one within 500 meters.
Debris flow potential streams	No	-
Large-scale landslide potential areas	No	No potential zone within 500 meters
Downstream slopes	No	No potential zone within 500 meters
Rock slides	No	No potential zone within 500 meters
Debris slides	No	No potential zone within 500 meters
Rockfalls	No	No potential zone within 500 meters
Soil liquefaction potential areas	Yes	Low
Active faults	No	Fault sensitive area; no potential area within 500 meters
Tsunami flooding potential areas	No	-
Volcanic potential	No	Located within volcanic potential
Nuclear emergency response area	No	-



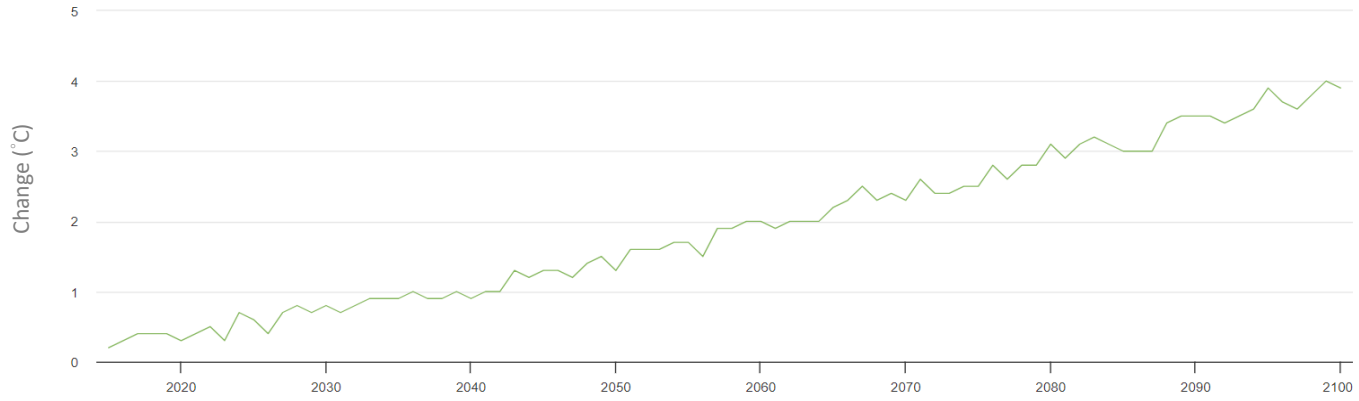
▲ Source: National Disaster Prevention and Relief Science and Technology Center_3D Disaster Potential Map

High temperature risks

High temperature risks vary over time and gradually increase in extreme scenarios. Under the SSP5-8.5 scenario, all of Chang Wah Electromaterials factories are located in high-risk areas.

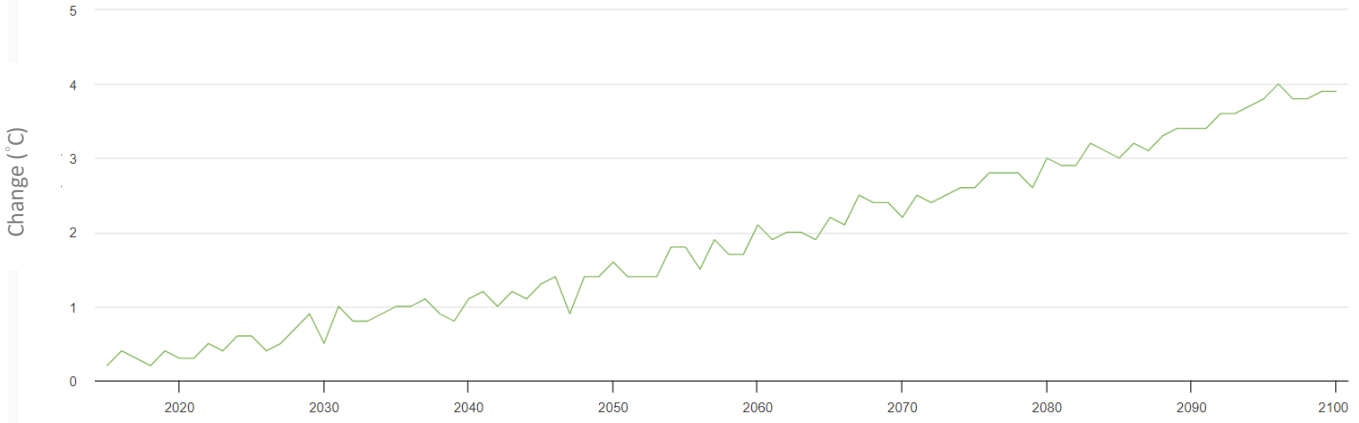
TXx (Annual maximum value of daily maximum temperature) :
The maximum value of the daily maximum temperature in a year, in °C

Kaohsiung Maximum daily high temperature TXx Observation base period：30.9℃



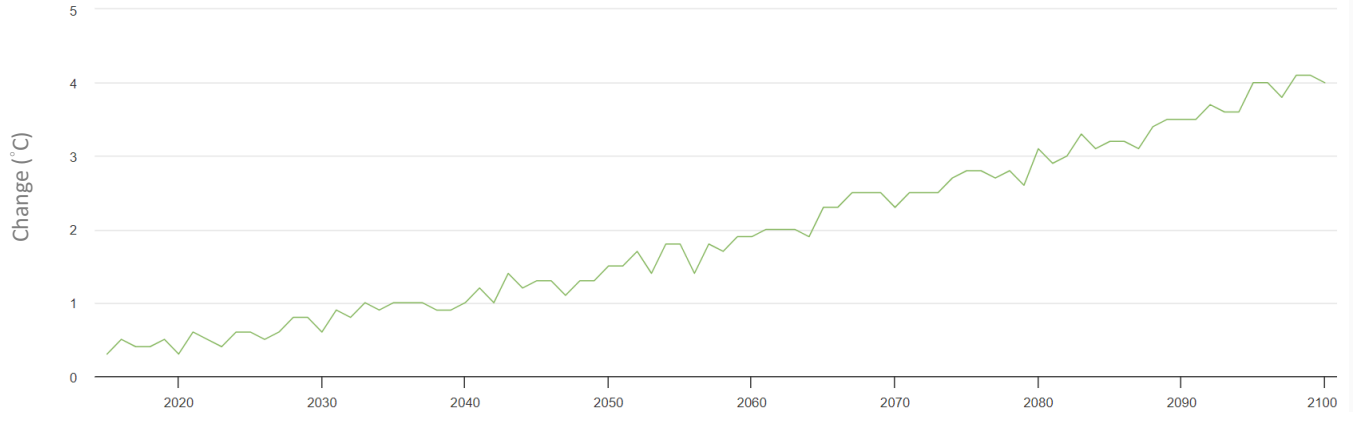
2030: +0.8°C; 2040: +0.9°C; 2050: +1.5°C

Taipei Maximum daily high temperature TXx Observation base period：35.2℃



2030: +0.5°C; 2040: +1.1°C; 2050: +1.6°C

Taichung Maximum daily high temperature TXx Observation base period：30.6℃

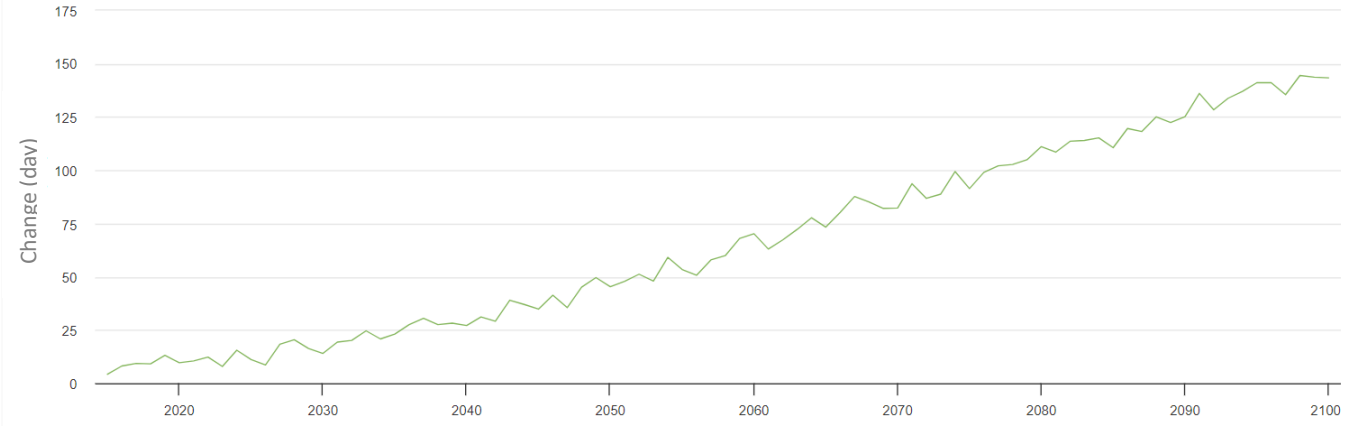


2030: +0.6°C; 2040: +1.0°C; 2050: +1.5°C

▲ Source: Taiwan Climate Change Estimation Information and Adaptation Knowledge Platform

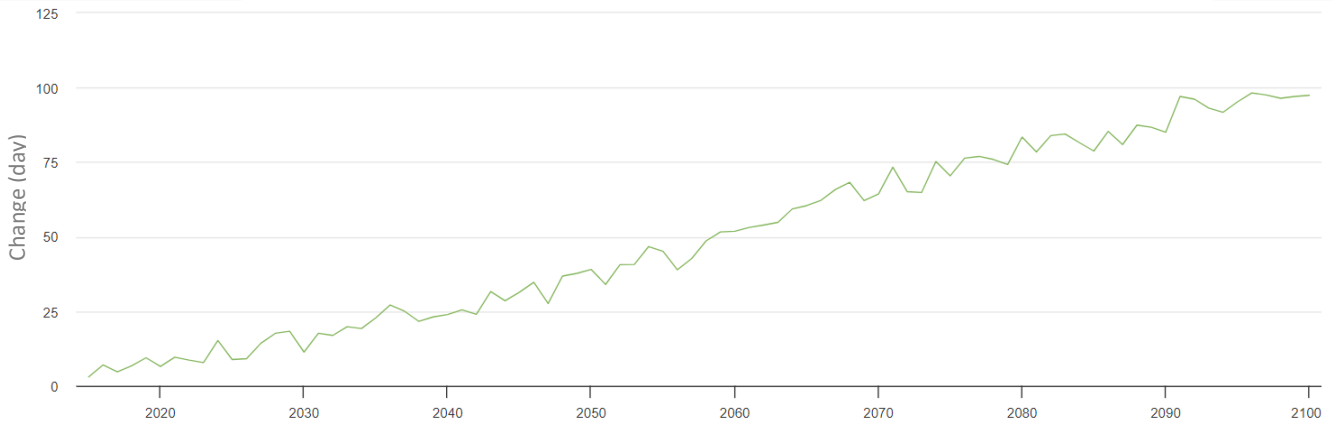
HWDI (Heat wave duration index) :
The total number of days in a year when the maximum temperature is higher than the 95th percentile of the base period for more than three consecutive days, in days.

Kaohsiung Extreme Heat Duration Index (HWDI) Observation base period: 10.5 days



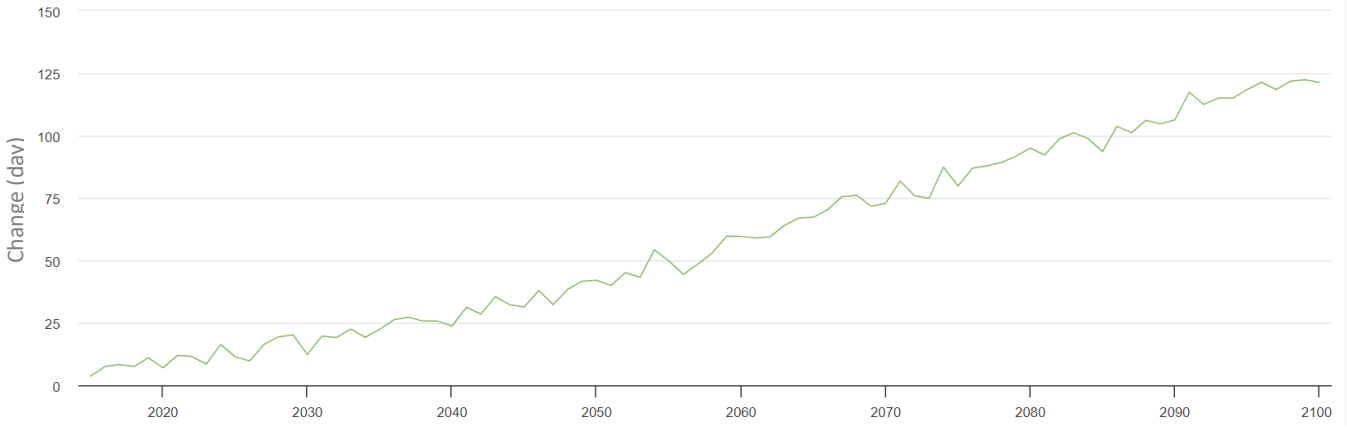
2030: +14 days; 2040: +27.1 days; 2050: +45.3 days

Taipei Extreme Heat Duration Index (HWDI) Observation base period: 9.3 days



2030: +11.3 days; 2040: +23.9 days; 2050: +39 days

Taichung Extreme Heat Duration Index (HWDI) Observation base period: 10.2 days



2030: +12.3 days; 2040: +23.7 days; 2050: +42.1 dyas

▲ Source: Taiwan Climate Change Estimation Information and Adaptation Knowledge Platform

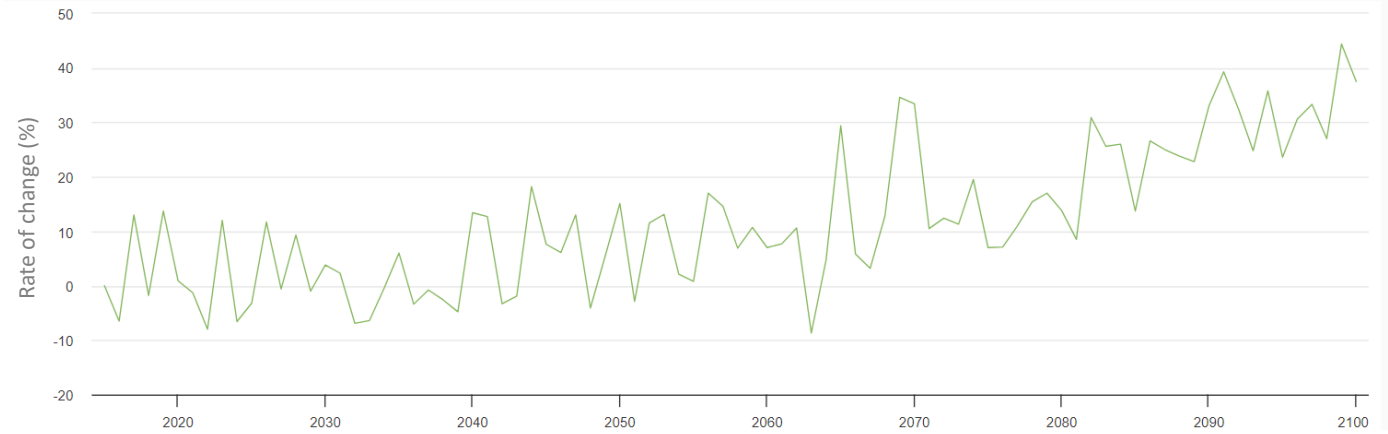
Note: Using the base period 1995–2014 daily maximum temperature data, the 95th percentile temperature was calculated for each data point within 20 years as the temperature threshold for determining whether it is an extreme high temperature event. The number of events in a year with the maximum temperature above the threshold for more than three consecutive days was calculated, and the total number of days for all events was obtained.

Rainfall risks

Under the SSP5-8.5 scenarios, the rainfall changes rate ranges from +2.9% to +20.1%, indicating an increasing trend in the projected total rainfall.

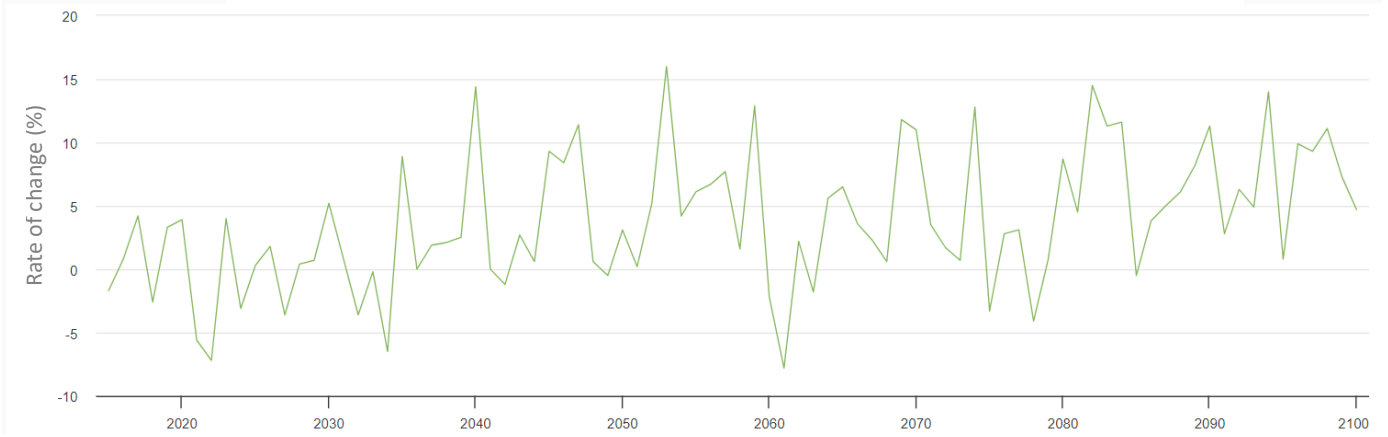
PRCPTOT (Annual total precipitation in wet days) :
The total precipitation on all rainy days in a year, in millimeters.

Kaohsiung Total rainfall on rainy days during the PRCPTOT observation period: 2314.4 mm



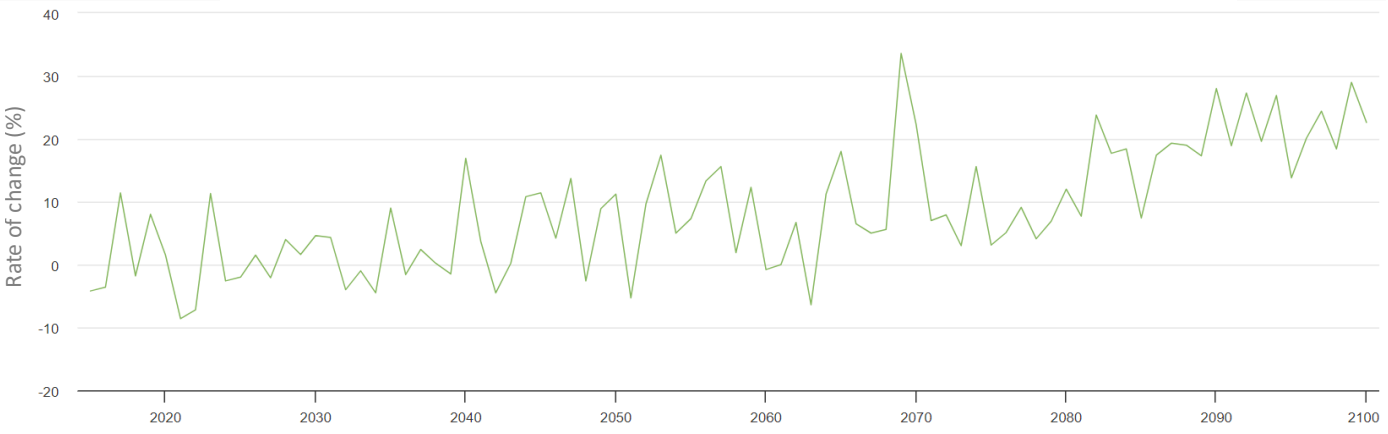
2030: +3.8 %; 2040: +13.4 %; 2050: +15.1 %

Taipei Total rainfall on rainy days during the PRCPTOT observation period: 2591.4 mm



2030: +5.2 %; 2040: +14.4 %; 2050: +3.1 %

Taichung Total rainfall on rainy days during the PRCPTOT observation period: 1894.6 mm



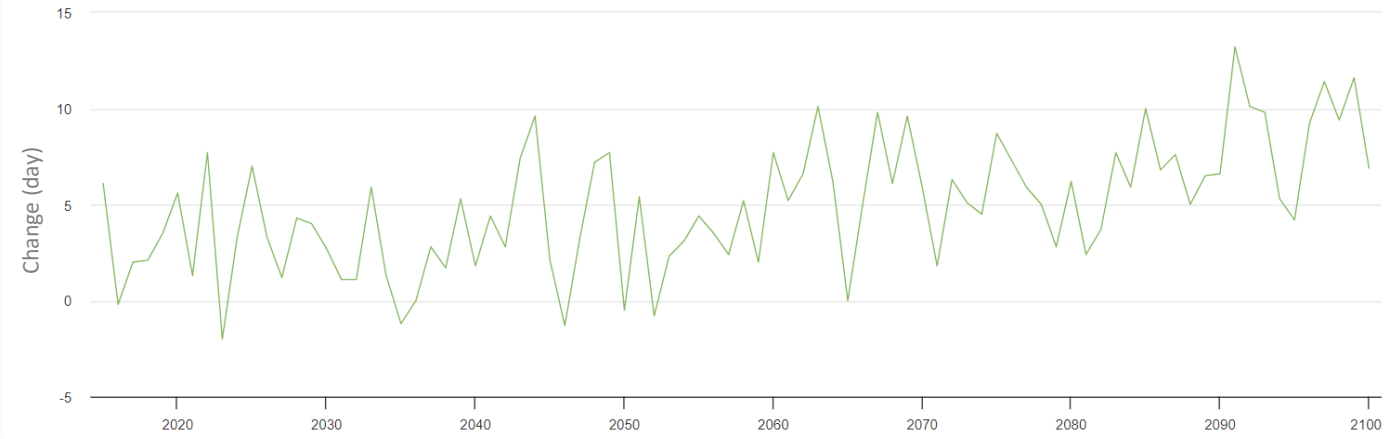
2030: +4.6 %; 2040: +16.9 %; 2050: +11.2 %

▲ Source: Taiwan Climate Change Estimation Information and Adaptation Knowledge Platform

Under the SSP5-8.5 scenario, the rainfall change rate ranges from -4.3 days to +2.8 days, indicating an increasing trend in the estimated longest consecutive days without rainfall.

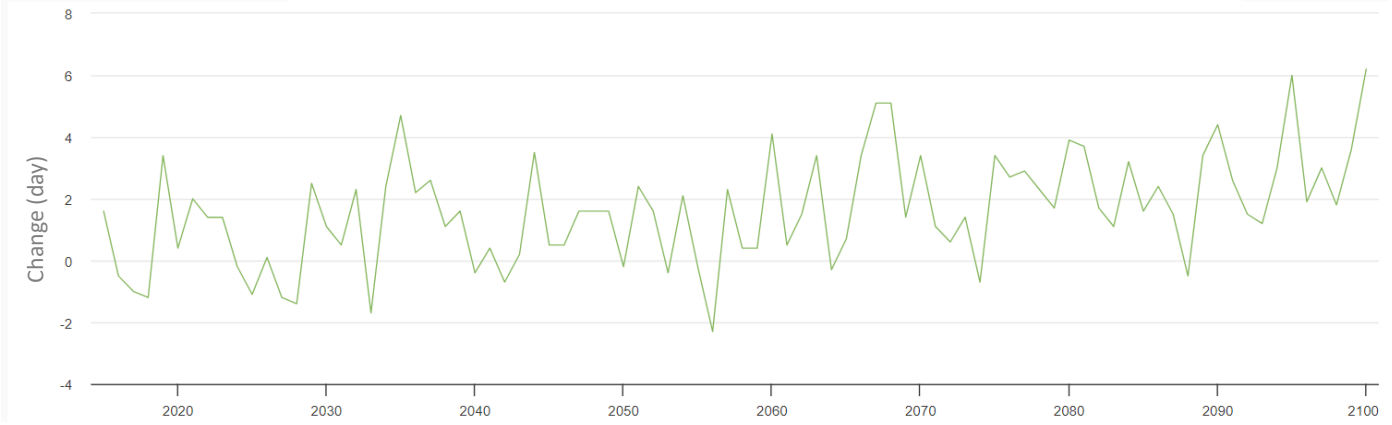
CDD (Maximum number of consecutive dry days) :
The longest consecutive number of days with daily rainfall less than 1 mm in a year, expressed in days.

Kaohsiung: The longest continuous period without rainfall in a year: 49 days



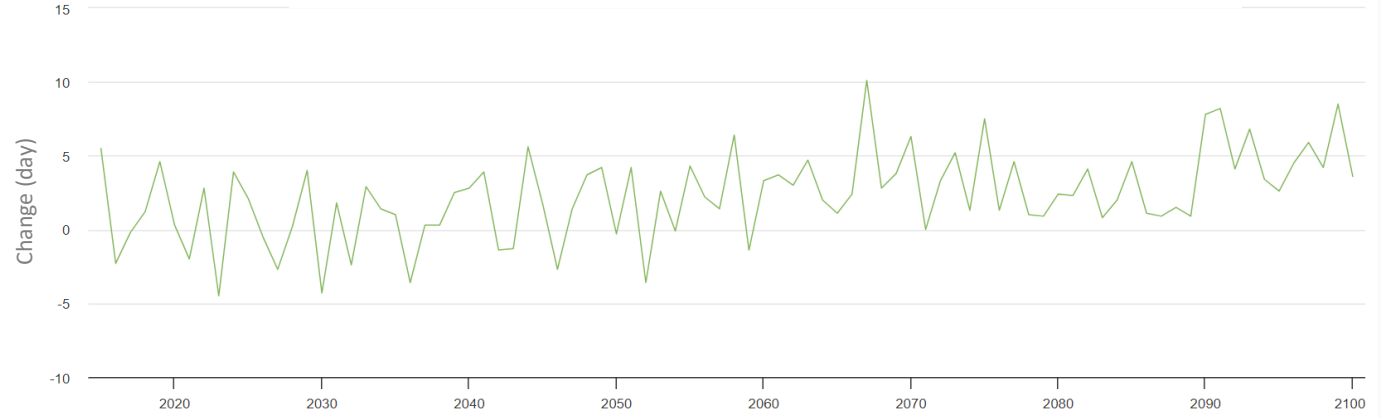
2030: +2.7 days; 2040: +1.8 days; 2050: -0.5 days

Taipei: The longest continuous period without rainfall in a year: 20.8 days



2030: 1.1 days; 2040: -0.4 days; 2050: -0.2 days

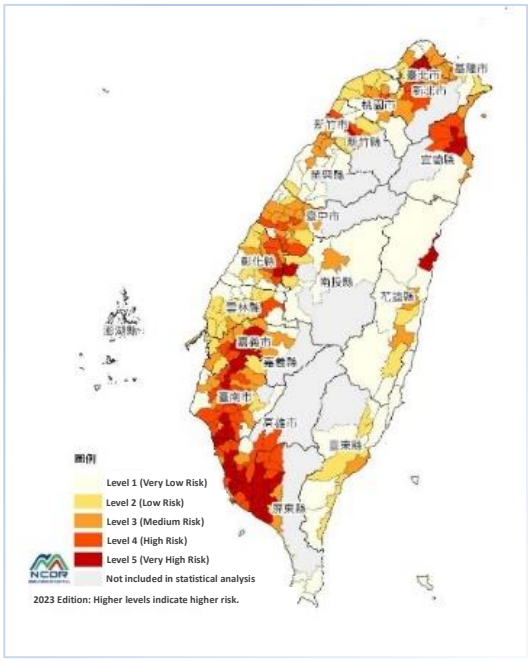
Taichung: The longest continuous period without rainfall in a year: 46.3 days



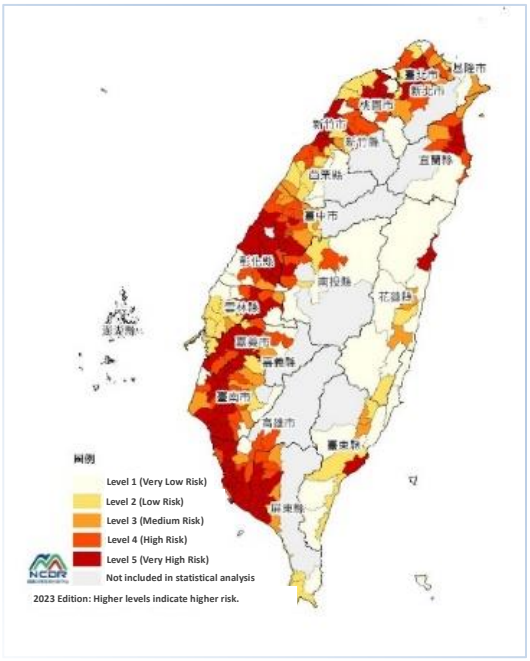
2030: -4.3 days; 2040: +2.8 days; 2050: -0.3 days

▲ Source: Taiwan Climate Change Projection Information and Adaptation Knowledge Platform

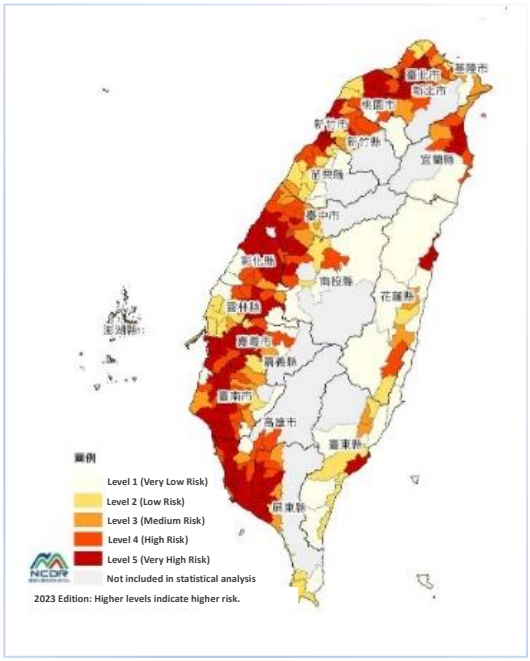
The National Disaster Prevention and Mitigation Science and Technology Center developed a flood risk map based on rainfall data under different global warming scenarios (≤1°C, 1.5°C, 2°C, and 4°C) under the AR6 scenario, provided by the National Science Council's Taiwan Climate Change Projection Information and Adaptation Knowledge Platform."



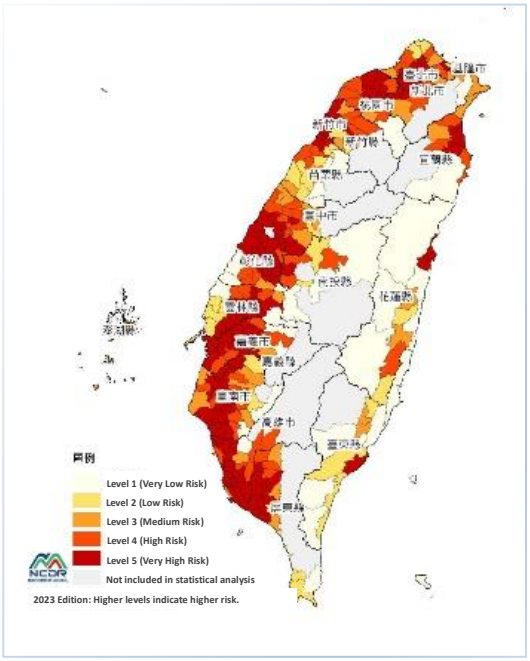
1 ℃



1.5 ℃



2℃



4℃

▲ Source: National Disaster Prevention and Relief Science and Technology Center - Disaster Prevention and Relief Data Service Platform

Explanation：

1. Flood disaster risk is analyzed using three indicators: hazard level, vulnerability, and exposure.
2. A flood disaster risk level of 5 indicates the highest relative risk in an area. A flood risk level of 1 indicates a relatively low risk, but does not indicate no risk or the likelihood of a disaster.

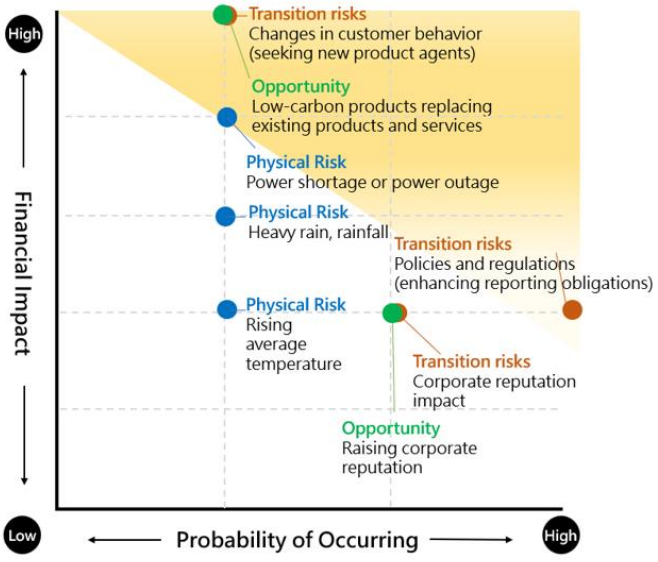
5、Climate Change Related Strategies

5.1 Climate Change Risk and Opportunity Identification Results

TWSE Climate Disclosure Requirements	Describe how the identified climate risks and opportunities will affect the company's business, strategy and finances (short-term, medium-term and long-term).
TCFD Strategy	Describe the short-, medium-, and long-term climate-related risks and opportunities identified by the organization.

The identification and assessment of climate change-related transition risks and physical risks included an assessment of the impact on the company's operations and the likelihood of occurrence. Following this identification, a matrix analysis was conducted, and the Group's ESG team convened a meeting with department heads from the risk management working group to discuss the final three climate change risks and one climate change opportunity. Through these meetings, financial impact assessments and response plans were conducted for the significant climate risks and opportunities that the company may face, ultimately determining the company's future climate change-related countermeasures.

Climate-related risks and opportunities matrix



Significant climate-related risks and opportunities identified

Risks/ Opportunities	Type	Risk Contents	Schedule	Likelihood of occurrence	Impact
Transition Risk	Policies and regulations	Strengthening emissions reporting obligations	Short-term	Very likely	Minor
	Market	Changes in customer behavior (Find new product agents)	Long-term	Rare	Severe
Physical Risk	Long-term	Power shortages and outages	Long-term	Rare	Material
Opportunity	Energy sources	Using low-carbon/alternative energy sources	Long-term	Rare	Severe

5.2 Climate-Related risk and strategy assessment

TWSE Climate Disclosure Requirements	a) Describe how the identified climate risks and opportunities will impact the company's business, strategy, and finances (short-term, medium-term, and long-term). b) Describe the financial impact of extreme climate events and transformational actions.
TCFD Strategy	Describe the short-, medium-, and long-term climate-related risks and opportunities identified by the organization.

As regulations on GHG emissions disclosure by listed companies become increasingly stringent, CWE conducts GHG inventories and external verification in accordance with the ISO 14064-1:2018 standard as a basis for risk management. The company is actively implementing relevant measures to gradually reduce carbon emissions, aiming not only to comply with regulatory requirements but also to promote sustainable development and enhance corporate social responsibility and competitiveness.

Strengthen emission reporting obligations

Risk Description

In line with the country's 2050 net-zero carbon emissions path, the Financial Supervisory Commission (FSC) will release the *Sustainable Development Roadmap for Listed Companies* in 2022. The roadmap will promote the disclosure of GHG inventory and confirmation information by listed companies in phases, thereby building corporate GHG inventory capabilities.

Strategic Response

In response to increasingly stringent regulations on GHG emissions (including strengthened emissions reporting obligations), we will evaluate strategies such as internal and external training on carbon-related issues and the implementation of ISO 14064 guidance to mitigate the impact of climate regulations.

Financial Impact Type	Potential Financial Impact	Financial Impact Description
Financial impact of risk	Increase operating costs	ISO 14064 Assessment and Implementation Guidance and Verification Fees: • Estimated total cost for 2024: NT$200,000 • Estimated annual cost for 2024-2026: NT$200,000
Strategy to address financial impact	Increase operating costs	In response to government regulations requiring disclosure of sustainability information, related issues, and corresponding solutions in sustainability reports and financial statements, the company has allocated internal human resources to prepare sustainability reports, establish a carbon inventory platform, and assess the costs of various coaching services: • Total for 2024: NT$1.25 millions • Estimated total for 2025: NT$1.57 millions • Estimated total for 2026: NT$1.66 millions
	Reduced operating costs	• Assistance from government counseling resources.

Changes in customer behavior

Risk Description

With increasing climate awareness, customers are increasingly favoring low-carbon products, leading to a decrease in demand for traditional, high-carbon products, which in turn could impact the company's sales performance.

Strategic Response

To address growing customer demand for low-carbon products and services, we will adjust our approach based on customer needs to mitigate the financial impact of climate risk.

Financial Impact Type	Potential Financial Impact	Financial Impact Description
Financial impact of risk	Increase in operating costs Decrease in operating income	• Increased climate awareness makes customers more inclined to choose low-carbon products and services or those with greater environmental transparency, resulting in decreased demand for traditional products and services. • Customer shift resulting in reduced revenue from non–low-carbon products.
Strategy to address financial impact	Increase in operating costs	• Update product specifications and standards in line with customer needs.
	Increase in operating income	• Enhance market responsiveness and operational diversification.

Power shortage or power outage

Risk Description

As electricity demand increases, the power supply structure becomes unstable and the backup capacity ratio is insufficient. These conditions will further affect the product shipment capacity and the company's financial condition, thereby having a serious impact on business operations.

Strategic Response

In the face of the financial impact of power shortages and outages caused by future increases in electricity demand, we will continue to monitor the impact of electricity supply on our factories and evaluate the installation of emergency power distribution equipment and the establishment of off-site capabilities and equipment to mitigate this risk, thereby reducing the company's operational risks.

Financial Impact Type	Potential Financial Impact	Financial Impact Description
Financial impact of risk	Decrease in operating income	• Power supply interruptions will cause disruptions to the company's operations. • Increased electricity demand may lead to power supply instability and insufficient reserve capacity, potentially prompting local governments to implement power rationing measures or large-scale outages, which could in turn affect product shipments and the company's financial performance.
Strategy to address financial impact	Reduce financial losses	• Emergency power distribution equipment should be installed, and remote working capabilities and related equipment should be established.

5.3 Climate-Related Opportunity and Strategy Assessment

TWSE Climate Disclosure Requirements	a) Describe how the identified climate risks and opportunities impact the company's business, strategy, and finances (short-term, medium-term, and long-term). b) Describe the financial impact of extreme climate events and transformational actions. c) If scenario analysis is used to assess resilience to climate change risks, the scenarios, parameters, assumptions, analytical factors and main financial impacts used should be explained.
TCFD Strategy	a) Describe the short-, medium-, and long-term climate-related risks and opportunities identified by the organization. b) Describe the impact of climate-related risks and opportunities on the organization ' s business, strategy and financial planning.

In response to the 2050 net-zero emissions goal, the company is promoting low-carbon alternatives to existing products and services to drive green transformation and meet the increasingly stringent global requirements regarding climate change and sustainable development. This strategy will also help enhance the company's corporate social responsibility (CSR) image, meet consumer demand for environmentally friendly products, and gain a competitive advantage in the market.

Low-carbon products replace existing products and services

Opportunity Description	As customers become more climate-aware, demand for low-carbon products is rising. The company will leverage this opportunity to promote products with a lower carbon footprint, expand its market share, and help customers achieve their carbon reduction goals。
Strategic Response	The company will regularly evaluate the market performance of low-carbon products and customer feedback, and continue to provide low-carbon/green products and services based on market trends, thereby creating financial opportunities with stable returns.

Financial Impact Type	Potential Financial Impact	Financial Impact Description
Strategy to address financial impact	Increase in operating income	• Low-carbon products are increasingly favored by customers, leading to higher order volumes. • Selling products with a lower carbon footprint that help customers reduce carbon emissions supports market expansion, meets customer needs, and maintains corporate competitiveness. • The company understands customer needs and evaluates customization possibilities to provide low-carbon/green products.

5.4 Overall Assessment of Major Climate-Related Risks, Opportunities and Strategies

Faced with the impact of climate change, CWE is well aware that failing to proactively manage climate risks could expose the company to a range of climate-related risks. Promoting climate risk management not only effectively mitigates these risks but also significantly enhances the company's competitiveness in sustainability matters, helping to strengthen its brand image and attract more environmentally conscious customers.

Taking into account the aforementioned impacts of climate change on CWE, the opportunities clearly outweigh the risks. CWE considers environmental responsibility a key corporate mission and closely integrates it with its core business and operations. The company is actively addressing climate change, reducing GHG emissions, and pursuing sustainable development goals.

The Intergovernmental Panel on Climate Change (IPCC) Special Report on "Global Warming of 1.5°C," released in October 2018, states that maintaining global warming within the 1.5°C limit requires substantial efforts from both governments and businesses. Therefore, it is imperative to mitigate the impacts of climate change through carbon reduction measures and achieve corporate sustainability goals. This is not only a responsibility toward the environment but also a key long-term corporate strategy to ensure future competitiveness and market position.

CWE has established a Sustainability Project Team and, referring to the TCFD governance, strategy, management, and target framework, has integrated climate change risks into its operational continuity and sustainable development management procedures to align with international trends.

6、Climate Change-Related Indicators and Targets

TWSE Climate Disclosure Requirements	a) If a transition plan exists to manage climate-related risks, describe the content of the plan, as well as the metrics and targets used to identify and manage physical and transition risks. b) If climate-related targets are set, describe the activities covered, the scope of GHG emissions, the planning timeframe, and annual progress toward achieving them. If carbon offsets or renewable energy certificates (RECs) are used to achieve these targets, describe the source and quantity of carbon offset credits or the number of RECs used.
TCFD Strategy	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities, in accordance with its strategy and risk management processes. b) Disclose Scope 1, Scope 2, and Scope 3 (if applicable) GHG emissions and the associated risks. c) Describe the organization's targets for managing climate-related risks and opportunities, and its performance against those targets.

6.1 Greenhouse Gas Emission Targets

Regarding GHG emissions management, CWE implemented the ISO 14064-1:2018 standard for its first GHG inventory in 2023. The inventory was independently verified by a third-party verification body to ensure accurate identification of GHG emission sources and emission volumes across its facilities. In addition, the company has incorporated climate change mitigation and adaptation into key operational management priorities. CWE's total GHG emissions in 2024 were approximately 421.684 metric tons of CO_2e, with indirect transportation emissions (Category 3) identified as the primary source, representing 62.74% of the total.

Unit：metric tons CO_2e

Category	CWE Headquarters	CWE Taipei Branch	CWE Taichung Office	Total
Category 1	10.151	2.962	0.578	13.691
Category 2	-	20.085	5.957	26.042
Category 3	110.423	133.162	20.983	264.568
Category 4	110.934	4.896	1.553	117.383
Category 5	-	-	-	-
Category 6	-	-	-	-
Total	**231.508**	**161.105**	**29.071**	**421.684**

In terms of GHG emissions management, CWE has set a long-term absolute emission reduction target in line with the Science-Based Targets initiative (SBTi), aiming to achieve carbon neutrality by 2050. This goal not only demonstrates CWE's strong commitment to environmental responsibility but also reflects its long-term vision for advancing sustainable development.

6.2 Emission Reduction Actions

The IPCC's Sixth Assessment Report (AR6), released in 2021, scientifically confirmed the urgent impact of climate change. Consequently, countries have successively announced "net-zero emissions by 2050" targets. In response to international trends and to share the responsibility for global carbon reduction, Taiwan has formally incorporated the 2050 net-zero emissions target into the revised *Climate Change Response Act*, which was officially passed by the Legislative Yuan on January 10, 2023. The goal is to guide future medium- and long-term climate action to address these impacts.

To align with international climate change initiatives, CWE continues to promote policies to reduce GHG emissions, focusing on the replacement of energy-efficient lighting as a key measure and implementing various energy-saving programs to achieve environmental and energy conservation goals. Furthermore, the company strengthens energy-saving awareness and encourages employees to develop good habits, such as turning off lights when not in use, shutting down computers after work, and widely using energy-efficient lighting. In areas with irregular lighting needs, sensor-activated switches are used to control lighting, thereby changing daily routines and reducing energy waste. These measures will effectively reduce energy consumption and GHG emissions, and gradually move towards the goal of carbon neutrality.

Phased	Project
Short-term	• Convert existing air conditioners to central air conditioning systems • Completely replace lighting with LEDs • Install sensor-activated LED floodlights around the perimeter • Install sensor-activated landscape lighting on sidewalks • Prioritize energy-efficient equipment with a Class 1 energy-saving rating when purchasing equipment • Shut down power-consuming equipment on holidays
Medium- to long-term	• Added a central monitoring system to control the energy consumption of utility equipment • Continued implementation of the latest energy-saving technologies to improve process and utility equipment efficiency

7、Future Outlook

Following the government's announcement of the *Taiwan's Pathway to Net-Zero Emissions in 2050*, CWE has closely aligned with national policy by establishing a Sustainability Development Committee and setting a target to achieve carbon neutrality by 2050. The Committee has mandated a dedicated Sustainability Project Team to inventory and consolidate relevant information on carbon management, energy management, and climate change risk management. Through this process, the Company focuses on its long-term development strategy, assesses environmental risks, and promotes the implementation of low-carbon and energy-saving initiatives, thereby proactively addressing global climate challenges.

To achieve its 2050 carbon neutrality goal, the Sustainability Development Committee continues to advance management strategies focused on mitigation, adaptation, and supply chain decarbonization. The TCFD provides a systematic framework for companies to identify, address, and disclose climate-related risks and opportunities. CWE compiles the *Climate-Related Financial Disclosure Report* to gain an in-depth understanding of and assess the impacts of climate change on its operations and supply chain, and to develop and implement corresponding management strategies to reduce risks and enhance climate resilience. Accordingly, this report provides a comprehensive presentation of CWE's governance framework, strategic direction, risk management measures, and specific metrics and targets related to climate change, highlighting our firm commitment and actionable plans toward sustainable development.

Appendix

Appendix I: References

- IPCC (2021), Sixth Assessment Report of Intergovernmental Panel on Climate Change 2021: The Physical Science Basis
- Scientific Highlights from the IPCC Sixth Assessment Report on Climate Change and the Updated Taiwan Climate Change Assessment Report
- Taiwan's 2050 Net Zero Emissions Pathway and Strategy Overview

Appendix II: TCFD Disclosure Cross-Reference Table

Aspect	TCFD Recommended Disclosure	Corresponding Section in this Report	Page
Governance	a) Describe the board's oversight of climate-related risks and opportunities. b) Describe management's role in assessing and managing climate-related risks and opportunities.	3.1 Governance Structure	**4**
Strategy	a) Describe the short-, medium-, and long-term climate-related risks and opportunities identified by the organization.	5.1 Climate Change Risk and Opportunity Identification Results	**21**
	b) Describe the impact of climate-related risks and opportunities on the organization's business, strategy, and financial planning.	5.2 Climate-Related risk and strategy assessment 5.3 Climate-Related Opportunity and Strategy Assessment	**22** **23**
	c) Describe the organization's strategic resilience, considering different climate-related scenarios (including a 2°C or higher scenario).	4.4 Climate-Related Scenario Resilience Assement	**9**
Risk Management	a) Describe the organization's process for identifying and assessing climate-related risks. b) Describe the organization's process for managing climate-related risks. c) Describe how the process for identifying, assessing, and managing climate-related risks is integrated into the organization's overall risk management system.	4.1 Climate-Related Risk and Opportunity Management Procedures	**6**
Metrics and Targets	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in accordance with its strategy and risk management process. b) Disclose Scope 1, Scope 2, and Scope 3 (if applicable) GHG emissions and related risks. c) Describe the objectives used by the organization to manage climate-related risks and opportunities, and its performance against those objectives.	6、Climate Change-Related Indicators and Targets	**25**

Appendix III: Climate-Related Information Mapping Table Required by the Financial Supervisory Commission for Listed and OTC Companies

Climate Change-related Risks and Opportunities and the Company's Corresponding Response Measures	Corresponding Section in this Report	Page
1. Describe the supervision and governance of climate-related risks and opportunities by the board of directors and management.	3.1 Governance Structure	**4**
2. Describe how the identified climate risks and opportunities will affect the company's business, strategy and finances (short-term, medium-term and long-term).	5.1 Climate Change Risk and Opportunity Identification Results 5.2 Climate-Related risk and strategy assessment 5.3 Climate-Related Opportunity and Strategy Assessment	**21** **22** **23**
3. Describe the financial impact of extreme climate events and transformational actions.	5.2 Climate-Related risk and strategy assessment 5.3 Climate-Related Opportunity and Strategy Assessment	**22** **23**
4. Describe how the climate risk identification, assessment and management processes are integrated into the overall risk management system.	4.1 Climate-Related Risk and Opportunity Management Procedures	**6**
5. If scenario analysis is used to assess resilience to climate change risks, the scenarios, parameters, assumptions, analytical factors and main financial impacts used should be explained.	4.4 Climate-Related Scenario Resilience Assement	**9**
6. If a transition plan exists to manage climate-related risks, describe the content of the plan, as well as the metrics and targets used to identify and manage physical and transition risks.	5、Climate Change Related Strategies	**21**
7. If an internal carbon price is used as a planning tool, describe the basis for setting the price.	The Company has introduced an internal carbon pricing mechanism. In the initial phase, with reference to the research recommendations on Taiwan's carbon pricing system commissioned by the Ministry of Environment and conducted by the London School of Economics in 2024, a benchmark carbon price of NT$300 per metric ton was adopted. Based on this benchmark, the Company has set an internal carbon price of NT$500 per metric ton as a reference for operational decision-making and the promotion of carbon reduction initiatives. Through the internal carbon pricing and carbon trading management mechanisms, the Company aims to incentivize departments to achieve carbon reduction targets and enhance its carbon management.	-

Climate Change-related Risks and Opportunities and the Company's Corresponding Response Measures	Corresponding Section in this Report	Page
8. If climate-related targets are set, describe the activities covered, the scope of GHG emissions, the planning timeframe, and annual progress toward achieving them. If carbon offsets or renewable energy certificates (RECs) are used to achieve these targets, describe the source and quantity of carbon offset credits or the number of RECs used.	Planning and disclosure will be conducted in accordance with relevant requirements.	-
9. GHG Inventory and Assurance Status.	6、Climate Change-Related Indicators and Targets	**25**

Appendix IV: Identified Climate-Related Risks and Opportunities

	Climate-Related Risks and Opportunities	Location of Occurrence	Time Horizon	Potential Financial Impact (Summary)	Potential Financial Impacts (Details)	Response Measures
Transition Risk	Policy and Regulation (Strengthened emissions reporting requirements)	The Company	Short term (1–3 years)	•Increase in operating costs	• Increase operating costs (such as verification expenses, human resource investment costs, compliance costs, and increased insurance premiums) • Potential reduction in operating costs through government guidance programs and support resources.	• Allocate internal human resources to establish a carbon inventory and accounting platform. • Respond to government regulations by disclosing sustainability-related issues and countermeasures in sustainability reports and financial statements.
	Changes in Customer Behavior (Seeking new product principals/agents)	The Company	Long term (>5 years)	•Increase in operating costs •Decrease in revenue	• Increased climate awareness is leading customers to prefer low-carbon products or services with more transparent environmental information, resulting in reduced demand for existing goods and services. • Customer shifts are leading to reduced revenue from non–low-carbon products.	• Enhance market sensitivity and diversify business operations. • Update product specifications and standards in response to customer requirements.
	Corporate Reputation Impact	The Company	Medium term (3–5 years)	•Increase in operating costs	• High carbon emissions from represented products and insufficient proactive environmental sustainability actions may lead to poor ESG ratings, which can negatively affect investor willingness and result in higher bank financing costs, difficulty in accessing capital, or increased operating costs.	• Strengthen corporate governance and improve sustainability performance and ratings. • Increase the proportion of low-carbon products and expand group-level development of the green economy.
Physical Risk	Power Shortages and Power Outages	Upstream Supply Chain / The Company	Long term (>5 years)	•Decrease in revenue	• Power supply interruptions may disrupt company operations. • Rising electricity demand may lead to an unstable power supply structure and insufficient reserve capacity, prompting local governments to implement power rationing measures or large-scale blackouts, thereby affecting product deliveries and financial performance.	• Install emergency power distribution equipment and establish remote or alternative work capabilities and facilities.
	Increase in Average Temperature	Upstream Supply Chain / The Company	Long term (>5 years)	•Increase in operating costs •Decrease in revenue	• Increased electricity consumption for office air conditioning leads to higher operating costs. • Employees are more susceptible to heat stress or health impacts, leading to reduced work efficiency.	• Replace outdated air-conditioning equipment with high-efficiency, energy-saving models. • Promote multiple energy-saving initiatives, with senior management leading the reduction efforts.

	Climate-Related Risks and Opportunities	Location of Occurrence	Time Horizon	Potential Financial Impact (Summary)	Potential Financial Impacts (Details)	Response Measures
					• Rising average temperatures increase warehouse management costs and further elevate carbon emissions. • Drought caused by high temperatures increases the risk of operational disruption.	
Physical Risk	Heavy Rainfall and Extreme Precipitation	Upstream Supply Chain / The Company	Long term (>5 years)	•Increase in operating costs •Decrease in revenue	• With increased frequency and intensity of heavy rainfall: 1.Employee commuting and workplace safety risks may increase, or road closures may restrict attendance (in line with government announcements of heavy rain or typhoon leave). 2.The risk of transportation disruptions may increase, as logistics providers may reduce services, requiring the company to seek alternative transportation methods at significantly higher costs. 3.Upstream suppliers may be unable to fulfill orders on time or delay production, potentially leading to delivery delays and reduced revenue.	• Establish and implement relevant risk management and response measures.
Opportunity	Low-Carbon Product Substitution – Existing Products and Services	The Company	Long term (>5 years)	•Increase in revenue	• Low-carbon products are favored by customers, leading to increased orders and revenue. • Selling products with lower carbon footprints or that help customers reduce emissions helps expand the market, meet customer needs, and maintain competitiveness.	• Understand customer needs and assess the feasibility of customization to offer low-carbon/green products.
	Enhanced Corporate Reputation	The Company	Medium term (3–5 years)	•Decrease in operating costs •Increase in revenue	• Improved access to financing and reduced cost of capital. • Positive evaluations of the company's ESG performance by international investment and rating agencies will help it attract financial capital. • Environmentally conscious products can enhance a company's image, attract more customers, increase orders, and boost revenue.	• Strengthen corporate governance to demonstrate the company's commitment to climate-related issues and to implement concrete actions. • Improve sustainability ratings to enhance corporate reputation.