Task Force on Climate-related Financial Disclosures, TCFD Report

TAIWAN MOBILE | 2023

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About this Report

The extreme whetherhas posed a threat to the living space of human beings, greenhouse gas reduction is a matter of great urgency in the face of the challenge of controlling the global average temperature rise within 1.5°C. TWM(Taiwan Mobile Co., Ltd.) takes carbon reduction as a key target for business operations. In accordance with the framework of Task Force on Climate-related Financial Disclosures (hereinafter referred to as TCFD), a detailed analysis is made on the climate change related risks and opportunities faced by TWM and the related management measures. TCFD is a special working group established in 2015 and composed of global leaders in the financial sector. It is dedicated to developing global standards for disclosing climate-related financial information. TWM has identified the climate change mitigation and adaptation, green operation, green application and circular economy issues, which have been highlighted in the stakeholder engagement process of sustainability report in recent years, thus systematically identifying potential risks and effectively grasping business opportunities.

In order to better understand and effectively manage climate-related risks and opportunities, and to achieve TWM's sustainable environment vision of “using the latest Internet of Things (IoT) and artificial intelligence (AI) technologies to reduce the carbon footprints of our company and value chain, reducing environmental impacts, and proactively creating a more comfortable and beautiful natural ecosystem”, we choose to adopt the TCFD framework and invite cross-business units to discuss climate risk and opportunity related impact disclosures and practices to provide investors, shareholders and other stakeholders with more complete and transparent information and realize more effective communication.

1. Climate and Sustainable Governance

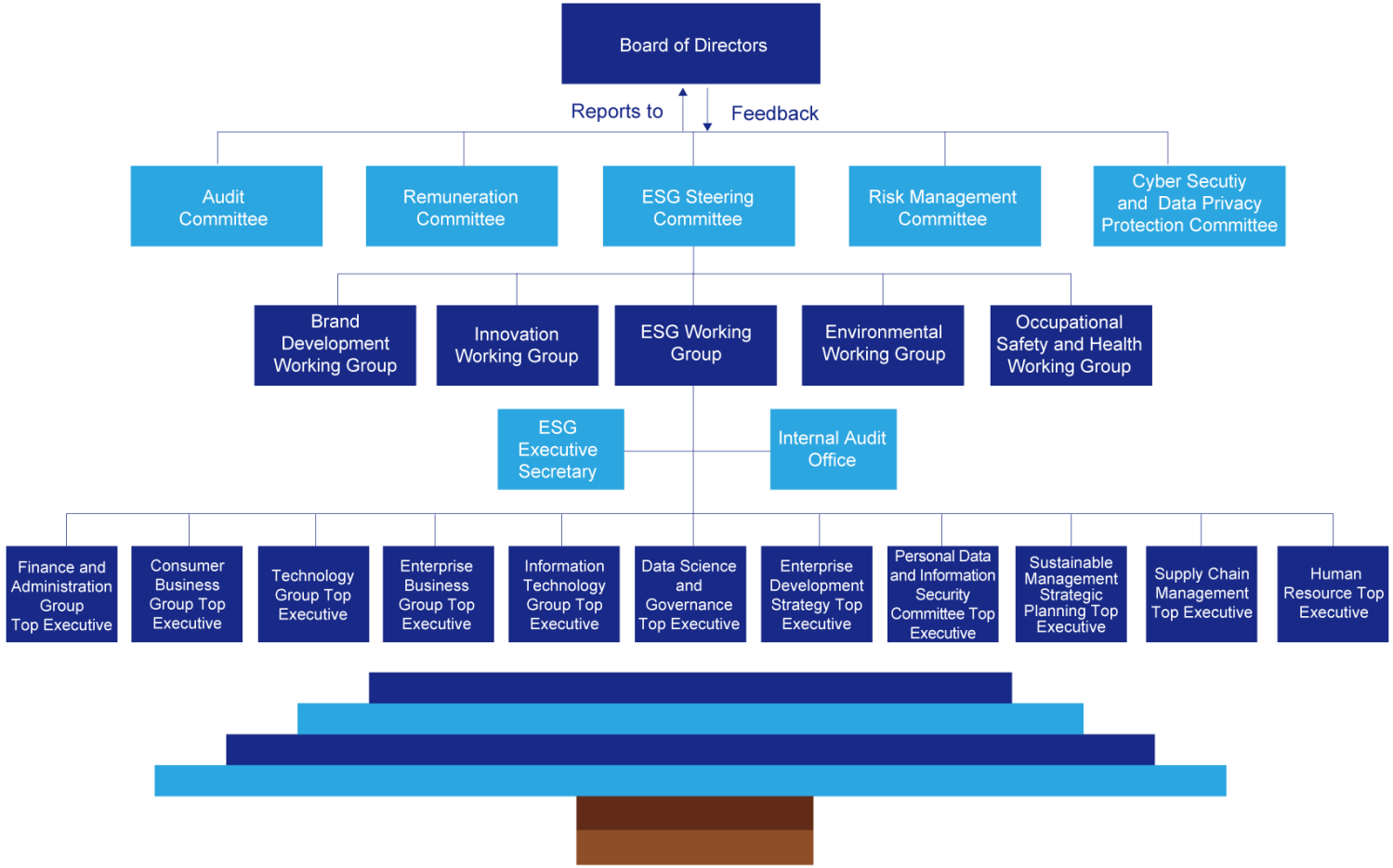
1.1 Leadership in Climate

TWM continues to work on sustainable corporate development. Since the establishment of the Sustainability Promotion Group in 2008, we have been striving to improve sustainability performance and strengthen organizational resilience in response to climate change. We built ISO 14064-1 greenhouse gas inventory mechanism and ISO 50001 energy management system in 2012, introduced ISO 14001 environmental management system in 2015, established the Environmental Management Committee in 2016 (which was renamed as Environmental Working Group in 2022) to set environmental targets and strategies for energy and resoures consumption and waste reduction, and promote various environmental protection policies. The Company set greenhouse gas management targets in 2014, committed the Science-Based Target (SBT) for carbon reduction in 2018, and the target was approved in 2019 to make sure the temperature rise limited in 2°C by SBTi. In May 2021, of the new target with ambition was validated by SBTi again to achieve the 1.5°C temperature rise through reducing 30% emissions of Scopes 1 and 2 and reducing 15% emissions of Scope 3 in 2030 compared to 2019. In 2022, we established a dedicated department for renewable energy source to evaluate, build, maintain and manage power plants and to negotiate on suitable targets for power purchase and transition. In order to achieve the carbon reduction target, TWM is actively investing in the use of green energy, and gradually increasing the proportion of green energy usage through self-built power plants and outsourced green electricity, starting with solar photovoltaic and wind power. By the end of 2022, the percentage of renewable energy by TWM reached 4.5%, and the renewable energy contributed 68.9% of total energy consumption for cloud IDC. The Company has set the medium-term target of 20% of total renewable energy use and 100% of cloud IDC renewable energy use by 2030, and the long-term target of RE100 by 2040.

1.2 Sustainable Organization

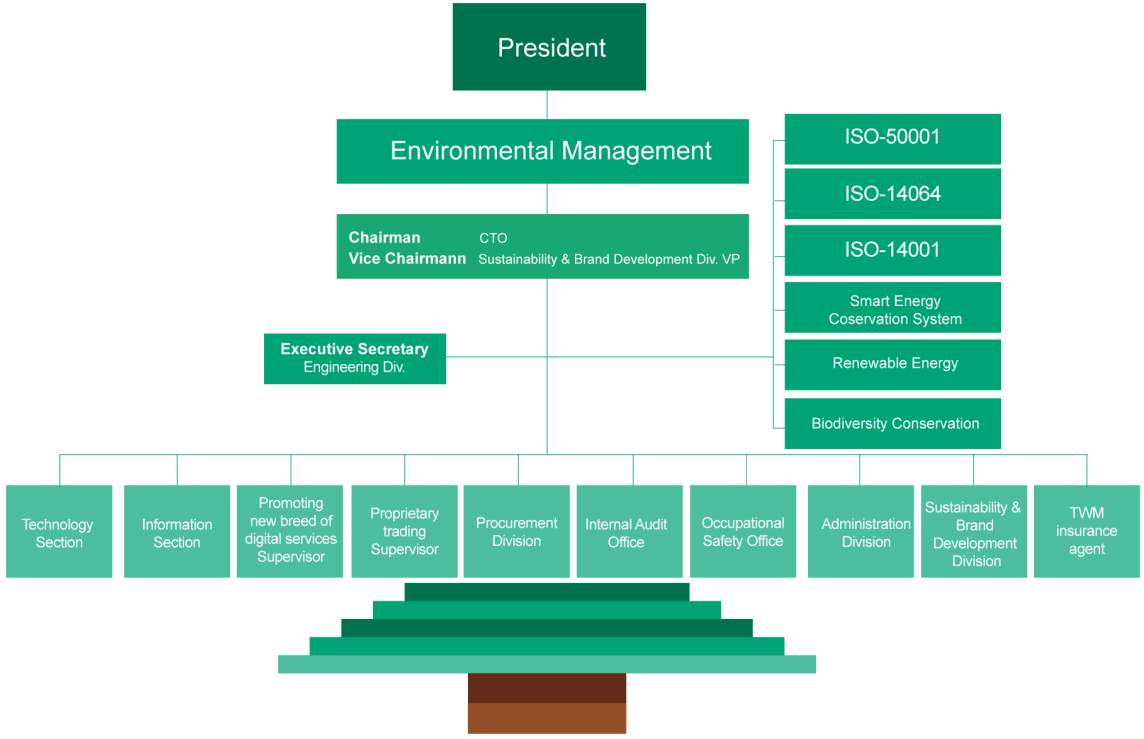
The Board of Directors approved the establishment of a board-level “ESG Steering Committee” in May 2022, which consisted of the Chairman and the Company's five independent directors, to enhance the height and breadth of the Company's sustainable governance. Supervise and guide the functional Working Groups at the management level, including “Sustainable Development”, “Environmental Management”, “Innovation Management”, “Brand Development”, and “Occupational Safety and Health Working Group ”, establish sustainability strategies for the issues related to the three aspects of ESG, review the annual sustainability plans of each functional Working Group, monitor and track the implementation results.

In 2014, TWM formally established the “Corporate Social Responsibility Committee” under the Board of Directors, which was renamed as the “ESG Steering Committee” in May 2021, and was further renamed as “ESG Working Group” on May 6, 2022 due to the establishment of the board-level “ESG Steering Committee”. The ESG Working Group is chaired by the Chairman of the Board, and the President serves as the Deputy Chairman. The senior management from each business group serves as members of the Working Group to identify risks and opportunities relevant to environmental, social, and governance issues. Sustainability strategies are formed by integrating operations with core resources to enhance the levels of accountability, participation, and governance of the senior management.


Board of Directors
Reports to
Feedback
Audit Committee
Remuneration Committee
ESG Steering Committee
Risk Management Committee
Cyber Secutiy and Data Privacy Protection Committee
Brand Development Working Group
Innovation Working Group
ESG Working Group
Environmental Working Group
Occupational Safety and Health Working Group
ESG Executive Secretary
Internal Audit Office
Finance and Administration Group Top Executive
Consumer Business Group Top Executive
Technology Group Top Executive
Enterprise Business Group Top Executive
Information Technology Group Top Executive
Data Science and Governance Top Executive
Enterprise Development Strategy Top Executive
Personal Data and Information Security Committee Top Executive
Sustainable Management Strategic Planning Top Executive
Supply Chain Management Top Executive
Human Resource Top Executive

In February 2016, TWM established the Environmental Management Committee (transferred under the ESG Steering Committee in 2022 and renamed as the Environmental Working Group), with the CTO (top director of the Technology Group) as the chairman and the top director of Sustainability Strategy Planning as the vice chairman, to set environmental goals and strategies and promote various environmental protection policies of the Company. It also integrates the major tasks of ISO14001 Group, ISO14064-1 Group, ISO50001 Group, Smart Energy Conservation Group, Renewable Energy Group, and Biodiversity Conservation Group. The Environmental Working Group meets every six months to assess performance and identify improvements, and the executive secretaries of each group regularly track progresses.

Environmental Working Group



1.3 Governance Framework

Board of Directors: annually supervise the resolution of goals and targets related to climate issues, and review and supervise climate risk and opportunity issues faced by the Company. For example: commitment to 100% renewable energy by 2040, commitment to net zero emissions by 2050, energy resource reduction achieving rate, greenhouse gas reduction, renewable energy promotion process, etc. The Board of Directors will take climate related issues into consideration when reviewing or directing the overall operations of the Company. For example, the Board of Directors has resolved to achieve Net Zero by 2050 and has submitted a commitment to achieve Net Zero by 2050 to the Science-Based Targets initiative (SBTi).

ESG Steering Committee: oversee the decision making of all aspects of ESG, including climate risk and opportunity related strategies and targets, and report to the Board of Directors on the progress of climate change related issues and the achievement of targets.

Risk Management Committee: Evaluate in accordance with the risk management mechanism and approve relevant mitigation and adaptation plans and report the risks of the Company (including climate risks) to the ESG Steering Committee and the Board of Directors on an irregular basis.

Environmental Working Group: regularly identify and manage climate change risks and opportunities in accordance with the Company's risk management system, and report climate risk trends and issues to the Risk Management Committee.

ESG Working Group: conduct research on international climate risk trends and feedback the latest climate risk trends to the Environmental Working Group.


Risk supervision
Board of Directors
Reporting
Guidance
Decision-making
ESG Steering Committee
Reporting
Decision
Risk identification
Risk Management Committee
Reports to
Confirmation
Risk assessment
Environmental Working Group
ESG Working Group
Feedback on international climate trends.
Reporting back
Guidance/coordination
Risk response
Relevant teams or departments

1.4 Management Rights and Responsibilities

In TWM, the Environmental Working Group meets every six months to identify and manage climate change risks and opportunities, and the ESG Working Group annually conducts research on international climate risk trends and feeds back the latest climate risk trends to the Environmental Working Group, and then reports the climate risk trends and issues to the Risk Management Committee.

The Risk Management Committee meet once every six months to evaluate in accordance with the risk management mechanism and approve relevant mitigation and adaptation plans, and report the risks of the Company (including climate risks) to the ESG Steering Committee and the Board of Directors on an irregular basis. The chairman serves as the convener of ESG Steering Committee, and the five independent directors serve as the committee members to comprehensively supervise the decision-making of all aspects of ESG, including climate risk and opportunity-related strategies and objectives, understand the achievement of the project's detailed objectives, and meet once every six months to report to the Board of Directors on the progress of climate change-related issues and the achievement of objectives.

1.5 Incentive Mechanism

The performance and remuneration of President and Vice Presidents were set to be related to ESG. The annual targets were set in consideration of ESG indicators that were related to their duties, such as net zero emissions, use of renewable energy sources, water and energy saving, customer satisfaction, customer complaint, employee turnover rate and corporate volunteer. When evaluating annual performance, in addition to personal work goals and the achievement rate of ESG indicators, indicators related to risk management are also taken into consideration, including audit

and information security management. To further strengthen the link between ESG performance and manager remuneration, if annual ESG targets are not met, managers' annual evaluation rating may be reduced by one grade, or their year-end bonus and employee remuneration may be reduced by up to 10%, depending on the situation. The non-fixed salary of management shall be based on Remuneration and Nomination Committee recommendations and shall be approved by the Board of Directors.

Title	KPI related to climate change in 2022
President	Continued to supervise all units to achieve the energy saving and carbon reduction targets set by ESG Steering Committee?
Senior VP & CTO	1. 5G Cell Tower Stations energy saving: accumulatively 2 million kWh 2. Water resource management: accumulatively 5% of water saving compared with the base year 3. Waste management: accumulatively 14% of waste reduction compared with the base year 4. Increase in renewable energy usage: accumulative usage rate >2% 5. Net Zero Emission: Completed the planned Net Zero targets
VP & CFO	1. ESG-related - The penetration rate of e-bill services increased from 84% to 85% - The bill paper consumption (A4 paper) was reduced by 186 million sheets, a YOY decrease of 2.5 million sheets - 100% of the suppliers sign the "Declaration of Integrity in Business Conduct" - Continued to direct the suppliers to meet ESG standards and strengthen on-site inspections (40-45 suppliers) - ESG and risk assessment of suppliers, with a three-year coverage rate of 90% of first-tier key suppliers

VP & CIO	1. Technology innovation & application: completed 12 patent applications, a YoY growth of 200% 2. Achieved the effectiveness targets of ESG/DJSI IT innovation proposal. - 1.4% of saving in innovation costs - The electricity consumption and water consumption of the machine room decreased by 1% respectively. 3. Disaster response: Assisted in proposing corrective and preventive measures within the time limit in response to NCC requirements and completed the legal compliance requirements. Technology innovation & application: completed 12 patent applications, a YoY growth of 200%
Enterprise Business Group (EBG) Vice President and CEBO(Chief Enterprise Business Officer)	1. Technology innovation & application: Introduced >=3 industry innovation services, and be able to make contribution to environmental protection and social responsibility
Consumer Business Group (CBG) Vice President and CCBO(Chief Consumer Business Officer)	1. Recycling of 12,000 used mobile phone by chain stores 2. Waste reduction of 0.3% by chain stores
VP & CSO	1. Source potential renewable energy opportunities for TWM, in the form of direct (new) development of new sites, equity purchase or existing assents, and/or PPA
Sustainability, Brand Development & PR VP	1. Completed RE100 application 2. started Net Zero schedule setting 3. CDP A List
Procurement & Occupational Safety VP	1. Energy saving and carbon reduction - Continuously checked the abnormal condition of power consumption of base stations and tracked the improvement - Cooperated with TG to promote intelligent power saving at base stations and reduce

	idling power consumption of equipment, with a target of reducing 2 million kWh per year 2. Human Rights/Risk Management - Cooperated with TG to promote intelligent temperature control and power safety at base stations, and completed the intelligent temperature control mechanism for 500 base stations and tracked the improvement
Direct Business VP	1. Recycling of 12,000 used mobile phone by chain stores 2. Waste reduction of 0.3% by chain stores
Human Resources and Administration VP	1. Strengthened energy-saving measures in local offices: saved at least 100,000 kWh of electricity annually
Network and System Architecture VP	1. New energy-saving measures at Cell Tower Stations: 5G new function power saving + 5G power off during low traffic period, totaling 2 million kWh 2. PUE performance improvement of Cloud-based machine room: Y21 PUE 1.69 increased to Y22 PUE 1.65

1.6 Identification Process and Management Mechanism

TWM established the Risk Management Committee in 2015, the Chairman or an appointed agent shall serve as the chairperson, and the top executives of each risk management area serve as the committee members. They shall meet once every six months to evaluate in accordance with the risk management mechanism and approve relevant mitigation and adaptation plans and report the risks of the Company (including climate risks) to the ESG Steering Committee and the Board of Directors on an irregular basis. The business units will discuss risk impacts, opportunities, and countermeasures.

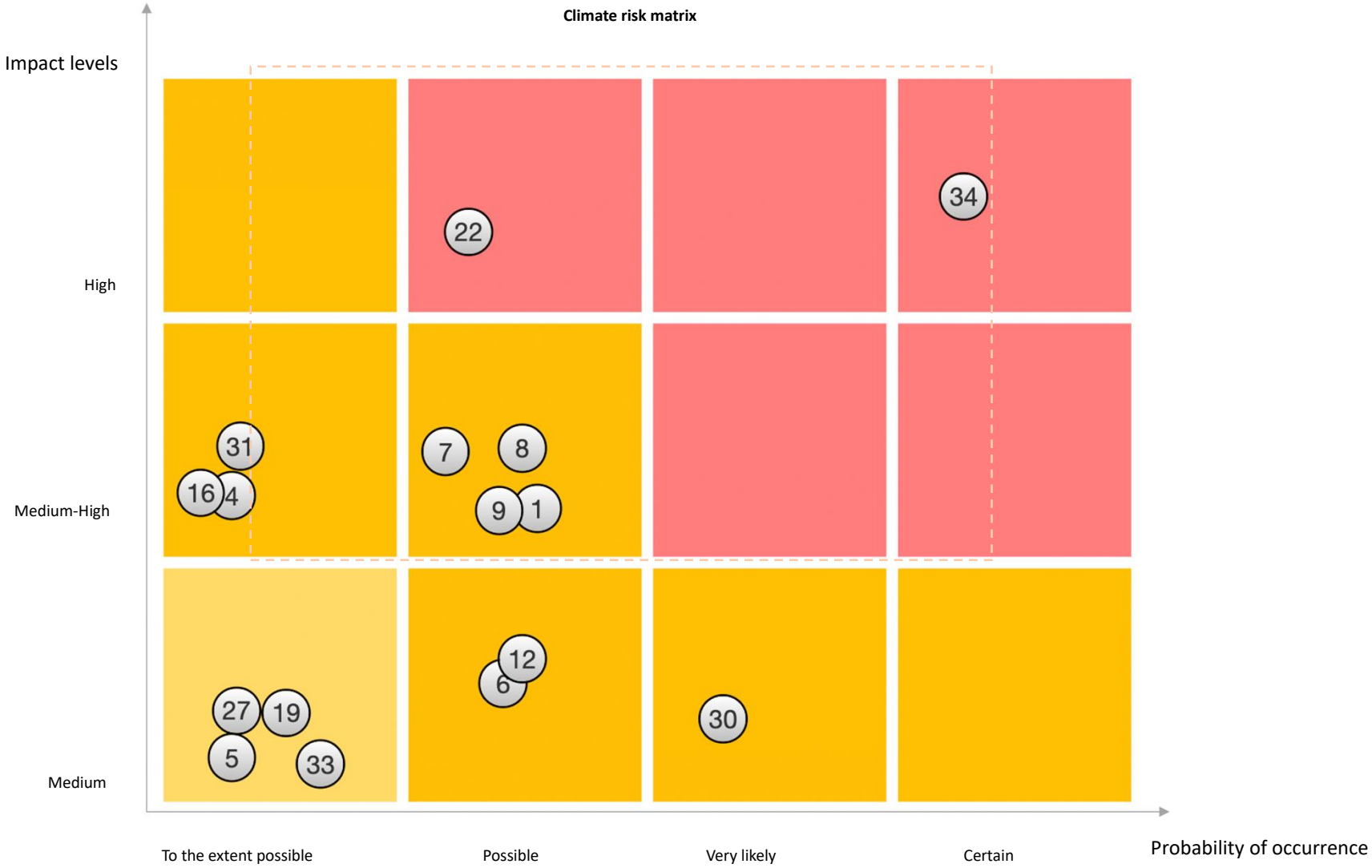
1.7 Risk and Opportunity Identification Process

TWM adopts the following process for the identification of risks and opportunities related to climate change and impact assessment:

Establish forms of basic information	Assess the intensity, scope, and likelihood of impacts	Establish a matrix of risks and opportunities	Ensure the management approach and executed projects	Assess the financial impact in various scenarios
Collect 36 climate risks and 22 opportunities according to TCFD's risk and opportunity sources and benchmark companies in the same industry	Analyze the different impact types, scope, intensity, occurrence time and likelihood of impacts for all climate-related risks and opportunities along the value chain	Establish a matrix of risks and opportunities, and classify those with an impact level of "medium-high" or above and a likelihood of "possible" or above in the matrix as major risks and opportunities	Lead all business units to review the direct/indirect financial impacts of the identified risks and opportunities on the Company and the management projects to be launched	Quantitatively or qualitatively assess the direct/indirect financial impacts and the management costs in different scenarios

1.8 Material analysis

In 2022, TWM invited cross-business units to hold workshops to identify risks and opportunities. Based on the results of each group, the risks and opportunities at the company level were consolidated in a weighted mean manner, and a total of five major climate risks and five major opportunities were identified. Among them, the risks are all in the category of transition, mainly involving the domestic and overseas regulations and policies related to carbon reduction.


Climate risk matrix
Impact levels
High
Medium-High
Medium
To the extent possible
Possible
Very likely
Certain
Probability of occurrence
22
34
31
16
4
7
8
9
1
12
6
27
19
5
33
30

Climate Risk Category

Risk 1：Cap & Trade: International or domestic government regulations to control greenhouse gas emissions and total control, carbon trade and carbon price systems are established.

Risk 4：Tropical cyclone: direct or indirect disasters caused by an increase in the number or intensity of regional tropical cyclones.

Risk 5：Change in average rainfall: direct or indirect disasters caused by changes in average rainfall globally or regionally.

Risk 6：Carbon tax: tax systems established by international or domestic governments related to greenhouse gas emissions or climate change.

Risk 7：Compulsory declaration: regulations formulated by international or domestic governments to grasp greenhouse gas emissions, which compel all companies to implement inventory checking, declaration, and verification.

Risk 8：Product efficiency regulations and standards: regulations formulated by international or domestic governments to enhance product energy efficiency, or energy efficiency standards governing the products.

Risk 9：Product labeling regulations and standards: regulations formulated by international or domestic governments to compel products to label their climate change related mitigation or adaptation, or to stipulate the relevant labels or marks that products should have.

Risk 12：International conventions or agreements: International conventions or agreements on greenhouse gas control, and climate change mitigation and adaptation, including self-defined reduction contributions by a country.

Risk 16：Investment in new technologies: due to the climate change factors, investment in new technologies is necessary; but due to wrong positioning or investment targets or technology bottlenecks, investment loss is incurred.

Risk 19：Uncertainty in market information: Uncertainty in global or regional market information, especially in relation to climate change issues, makes it difficult to understand future market demand for products or services.

Risk 22：Negative feedback: Due to the rise in global or regional awareness of sustainability, stakeholders provide more negative opinion or information on products or services.

Risk 27：Sea level rise: Direct or indirect disasters caused by global or regional sea level rise.

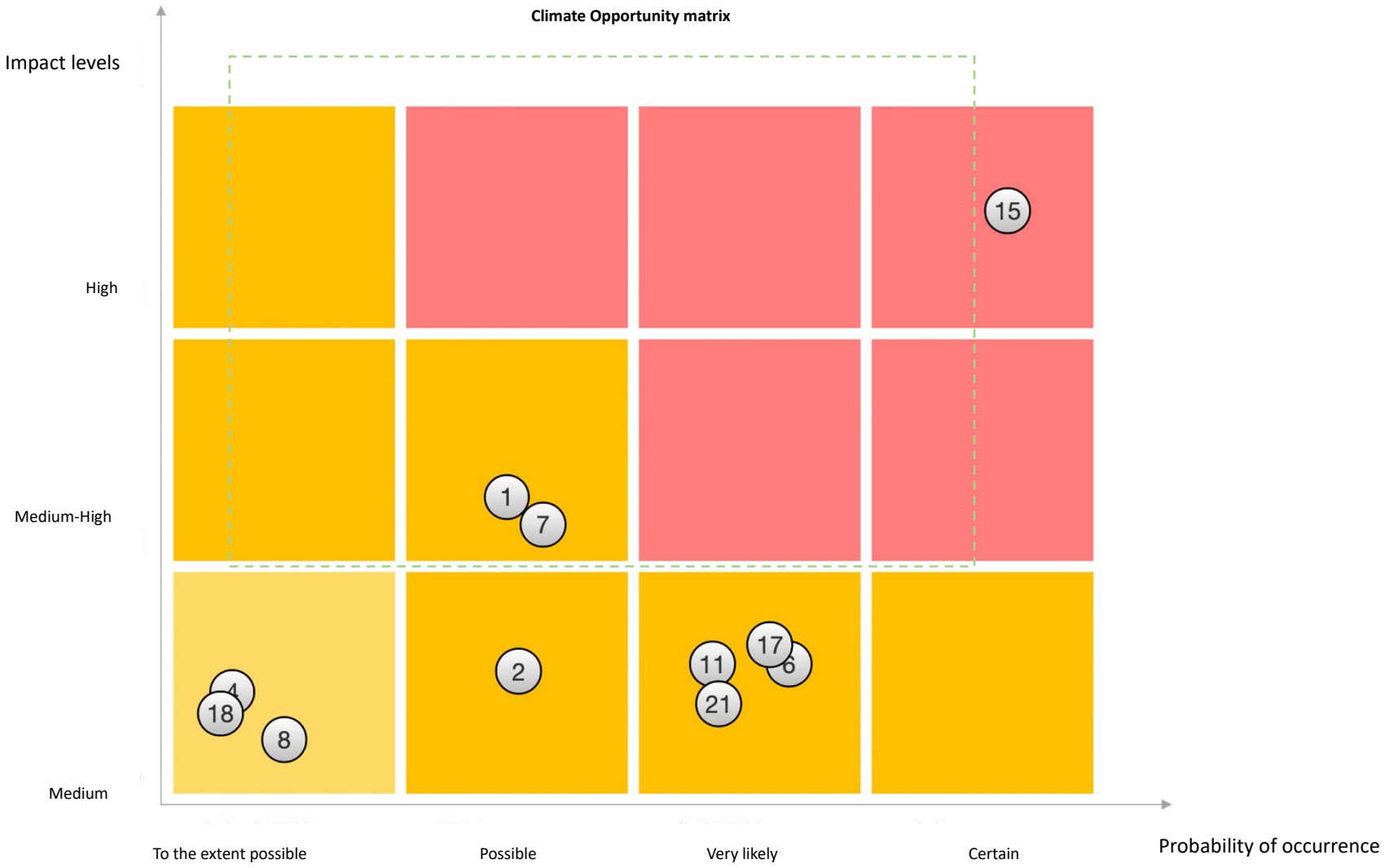
Risk 30：Changes in the human and cultural environment: Changes in the human and cultural environment due to climate change, which affect the production of products or the provision of services.

Risk 31：Fluctuations in socio-economic conditions: Climate change affects the ups and downs of socioeconomic conditions, including education, disease, welfare system, wealth disparity, and public infrastructure, which further affects the production of products or the provision of services.

Risk 33：Social uncertainty: The global or regional social uncertainty, such as politics and public security, affects the production of products or the provision of services.

Risk 34：Renewable energy regulations: International or domestic regulations related to renewable energy that may affect current and future energy

sources, composition, prices, etc


Climate Opportunity matrix
Impact levels
High
Medium-High
Medium
15
1
7
2
17
11
6
21
18
8
To the extent possible
Possible
Very likely
Certain
Probability of occurrence

Climate Opportunity Category

Opportunity 1：Adaptation and solutions: introducing new products or services can help reduce or adapt to the global impacts of climate change risks.

Opportunity 2：R&D innovation: Adopt innovative processes or procedures, or change the service provision method to help mitigate and adapt to global climate change.

Opportunity 4：Changes in customer behaviors: Customer behavior changes, so the customer will have different considerations when choosing products or services.

Opportunity 6：Participation in public construction: Participate in public construction or services by providing low-carbon products or services to expand brand exposure.

Opportunity 7：Development of capital sources: Increase sources of financial capital, such as issuing green bonds, and capital injection from government-related funds.

Opportunity 8：Alternative or diversified resources: Improve the reliability and operating capability of the supply chain under different conditions.

Opportunity 11：Low-carbon energy: Reduce reliance on fossil fuels and gradually replace them with renewable or low-carbon or green energy.

Opportunity 15：Participation in renewable energy programs: Participate in government or corporate renewable energy production to stabilize energy sources and increase market value.

Opportunity 17：Energy-saving buildings: Improve the energy efficiency of existing buildings, establish new operation premises or plants, and incorporate energy saving into the design considerations.

Opportunity 18：Production processes: Adopt processes that are more efficient in resource use, reduce waste generation, improve product yields, or shorten lead time.

Opportunity 21：Acquisition of government cooperation: Participate in government projects related to climate change, receive subsidies or incentives, and strive for visibility of products and services.

1.9 Integration Mechanism

In 2015, TWM consolidated the existing risk management structure and control mechanism and established the Risk Management Committee after the approval of the Board of Directors to reinforce the organization’s risk management mechanism. The Risk Management Committee will address the risks that may be faced by the Company's operation in advance, such as operational, financial, quality, safety, climate, and biological-related risks, in order to achieve preventive benefits.

Risk Management Methods

(1) Continue to promote operating models guided by risk management.

(2) Establish a risk management mechanism with early identification, precise measurements, effective monitoring, and enhanced controls.

(3) Build a risk management system for the overall company, and reduce risks within an acceptable level or a range of control.

(4) Introduce the latest risk management guidelines and improve continuously.

Risk Management Operations

To implement the Company's risk management methods, relevant control mechanisms are integrated by the Risk Management Committee.

Appointment of committee members

Committee Chairman: The Committee is chaired by the Chairman of the Board, or a person designated by the Chairman.

Committee Members: Members of the Committee are selected from among the heads of departments responsible for the relevant risk management areas or their designated proxy and coordinated by the Committee Chairman. Executive Secretary: Selected and appointed by the Committee Chairman.

Frequency of Meetings

Regular: Half a year or more

Non-scheduled: When a risk management issue arises, a meeting is proposed by members of the Risk Management Committee and the Executive Secretary, and then the meeting is convened upon approval by the Committee Chairman.

Risk management structure

ESG Steering committee：

- ESG Working Group
- Occupational Safety and Health Working Group
- Environmental Working Group
- Innovation Working Group
- Brand Development Working Group(*)

* Added as a working group based on a proposal by the ESG Steering Committee to the Board of Directors on Nov. 10, 2022

2. Net-zero Pathway and Strategy

2.1 Emission Reduction Path

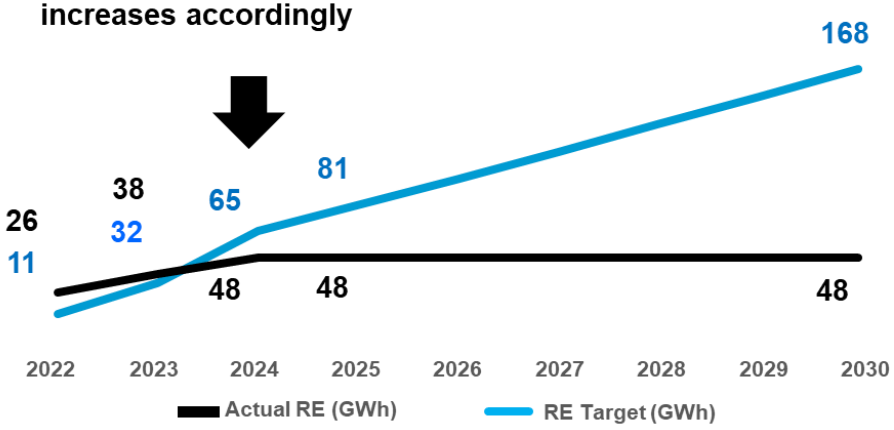
TWM defines the short, medium, and long terms as less than 3 years, 3~8 years, and 8~13 years, respectively. All climate-related risks with significant operational or financial impacts identified in 2022 are transition risks. The likelihood of occurrence and impacts of climate regulations are higher, such as Cap & Trade, carbon tax, and renewable energy regulations. According to the IPCC AR6 assessment report, global warming will increase the temperature by 1.5°C in a short term (2021-2040). Therefore, to control the warming damage, the net zero trend will be advanced from 2050 to 2040. Countries are implementing stricter energy consumption and carbon emission standards for businesses to enhance their emission reduction mechanisms. Internationally or domestically, governments are enacting regulations that require products to indicate their climate change mitigation or adaptation measures, or to include specific labels or marks related to climate change. This is also considered one of the emerging transition risks. The net-zero emission trend in TWM is illustrated in the following figure.

RE100, Net Zero and Carbon Emission Trend

2040 RE100

- The renewable electricity target in 2023 is 32 GWh (5%); the estimated green electricity may reach 38 GWh (6%)

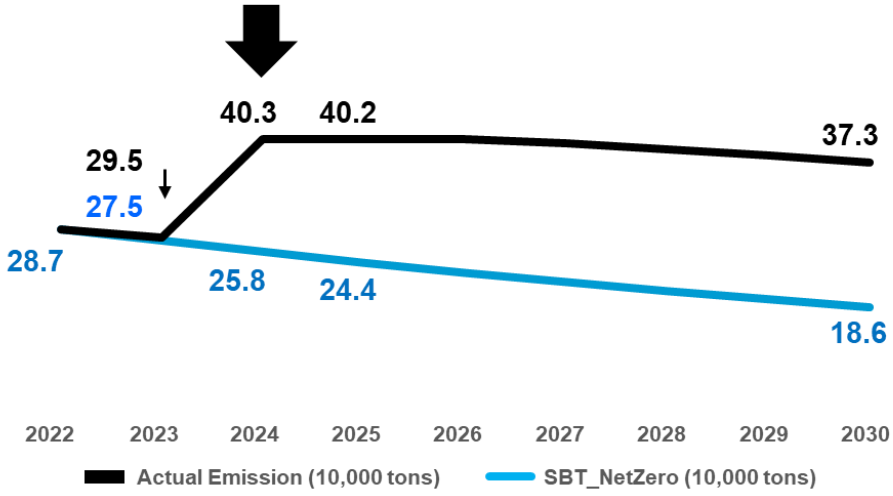
Business growth due to merger
The demand for renewable electricity increases accordingly



2050 Net Zero

- The target emissions are 275,000 tons in 2023, and the estimated emissions are 295,000 tons, after offsetting the existing 20,000 tons of zero-carbon renewable electricity, we have a chance to achieve the target

Business growth due to merger
Carbon emissions increase accordingly



The climate issue is no longer limited to a single region but has a global implication, extending to every company through the interconnectedness of industry chain. TWM identifies risks and opportunities through the Environmental Management Team and each business unit, conducts matrix analysis according to the likelihood of occurrence and impact level, and then confirm the financial impact of climate change risks and opportunities based on the SSP1-1.9, SSP1-2.6, and SSP2-4.5 low temperature transition scenario estimation factors and international industry trend reports.

2.2 Significant Risks

In order to better address the positive and negative impacts of the five major climate risks and five major opportunities, TWM has conducted an in-depth assessment on the impact intensity, scope, time, and financial impact on the Company of each climate change risk and taken corresponding management measures.

Type of risk	No.	Risk level	Explanation of Risk	Location of occurrence	Time horizon	Type of impact	Financial Impact	Management practices	Management costs
Transition	1	Medium-high	Cap & Trade	Organization itself	Short to medium term	Indirect cost increase	SSP1_1.9 ● 2030: The estimated carbon emissions are 283,000 metric tons, and the regulations require an annual total reduction of 4.2%, assuming a 4.2% reduction in 2030, that is, 271,000 metric tons should be achieved; therefore, the payment for excess emissions is NTD 3.56 million ● 2035: The estimated carbon emissions are 252,000 metric tons, and the regulations require an annual total reduction of 4.2%, assuming a reduction of 21% in 2035 compared to 2030, that is, 223,000 metric tons should be achieved;	Outsourcing of renewable energy	In response to the total emission control, TWM must try to reduce carbon emissions. If the management target for 2030 is set as 20% of the total renewable energy use, which can be converted into 61 million KWh of renewable energy use, and the unit price per KWh is NTD 6, the estimated input cost will increase by about NTD 366 million.

Type of risk	No.	Risk level	Explanation of Risk	Location of occurrence	Time horizon	Type of impact	Financial Impact	Management practices	Management costs
							therefore, the payment for excess emissions is NTD 8.53 million SSP1-2.6 ● 2030: The estimated carbon emissions of the Company are 283,000 metric tons, and the regulations require an annual total reduction of 2.5%, assuming a 2.5% reduction in 2030, that is, 276,000 metric tons should be achieved; therefore, the payment for excess emissions is NTD 2.12 million ● 2035: The estimated carbon emissions of the Company are 252,000 metric tons, and the regulations require an annual total reduction of 2.5%, assuming a reduction of 12.5% in 2035 compared to 2030, that is, 248,000 metric tons should be achieved; therefore, the payment for excess emissions is NTD 1.31 million SSP2-4.5 ● 2030: The estimated carbon emissions of the Company are 283,000 metric tons, and the regulations require an annual total reduction of 1.23%, assuming a 1.23% reduction in 2030, that is, 279,000 metric tons should be achieved; therefore, the payment for excess emissions is NTD 1.04 million ● 2035: The estimated carbon emissions of the Company are 227,000 metric tons, and the regulations require an annual total reduction of 1.23%, assuming a reduction of 6.15% in 2035 compared to 2030, that is, 265,000 metric tons should be achieved by TWM; therefore, the payment is not required		

Type of risk	No.	Risk level	Explanation of Risk	Location of occurrence	Time horizon	Type of impact	Financial Impact	Management practices	Management costs
Transition	6	Medium	Carbon tax	Organization itself	Short to medium term	Direct cost increase	For the amount of tax levied on carbon emissions, assuming there are no basic emissions, based on the carbon tax of NTD 300/ton in 2021, and using the IPCC SSP1-1.9 scenario where the temperature rise is maintained at 1.5°C, the estimated financial impact is as follows according to the annual growth rate of carbon tax: **Scenario 1: Non-nuclear home** ● 2030: the estimated carbon emissions are 283,000 metric tons, and a carbon tax of NTD 430 million needs to be paid ● 2035: the estimated carbon emissions are 252,000 metric tons, and a carbon tax of NTD 523 million needs to be paid ● 2040: the estimated carbon emissions are 214,000 metric tons, and a carbon tax of NTD 565 million needs to be paid **Scenario 2: Extended service of nuclear energy** ● 2030: the estimated carbon emissions are 260,000 metric tons, and a carbon tax of NTD 394 million needs to be paid ● 2035: the estimated carbon emissions are 227,000 metric tons, and a carbon tax of NTD 472 million needs to be paid ● 2040: the estimated carbon emissions are 189,000 metric tons, and a carbon tax of NTD 499 million needs to be paid **Scenario 3: Plan of the Energy Bureau**	Green power directly transmitted to TWM	According to the Company's 2040 RE100 path, the estimated management costs (assuming the transfer-supply mode is adopted and the mean price of green electricity is NTD 6 per kWh) are as follows: 2030: outsourced green electricity accounts for 20% of the total electricity consumption, with an estimated investment of NTD 780 million 2035: outsourced green electricity accounts for 60% of the total electricity consumption, with an estimated investment of NTD 2.47 billion 2040: outsourced green electricity accounts for 100% of the total electricity consumption, with an estimated investment of NTD 4.37 billion

Type of risk	No.	Risk level	Explanation of Risk	Location of occurrence	Time horizon	Type of impact	Financial Impact	Management practices	Management costs
							● 2030: the estimated carbon emissions are 253,000 metric tons, and a carbon tax of NTD 384 million needs to be paid ● 2035: the estimated carbon emissions are 211,000 metric tons, and a carbon tax of NTD 438 million needs to be paid ● 2040: the estimated carbon emissions are 163,000 metric tons, and a carbon tax of NTD 429 million needs to be paid		
Transition	7	Medium-high	Compulsory declaration	Organization itself	Long-term	Direct cost increase	Penalty for failure to declare on time SSP1-1.9 ● 2030: NTD 32 million ● 2040: NTD 72 million ● 2050: NTD 112 million SSP1-2.6 ● 2030: NTD 24 million ● 2040: NTD 54 million ● 2050: NTD 84 million **SSP2-4.5** ● 2030: NTD 16 million ● 2040: NTD 36 million ● 2050: NTD 56 million	Internal and external labor costs for checking and declaration	2030: NTD 6.3 million 2040: NTD 14.2 million 2050: NTD 22 million
Transition	9	Medium-high	Product efficiency regulations and standards	Upstream & Organization itself	Short-term	Direct cost increase	SSP1-1.9 ● 2030: NTD 3.06 billion ● 2040: NTD 8.86 billion ● 2050: NTD 14.64 billion	Consulting	2030: NTD 15 million 2040: NTD 16.5 million 2050: NTD 18.15 million

Type of risk	No.	Risk level	Explanation of Risk	Location of occurrence	Time horizon	Type of impact	Financial Impact	Management practices	Management costs
							SSP1-2.6 ● 2030: NTD 320 million ● 2040: NTD 1.16 billion ● 2050: NTD 2.24 billion SSP2-4.5 ● 2030: NTD 53.75 million ● 2040: NTD 120 million ● 2050: NTD 290 million		
Transition	34	High	Renewable energy regulations	Organization itself	Short-term	Rise in energy prices Direct cost increase	Amount of expenditure on outsourcing of renewable energy due to compulsory regulations SSP1-1.9 ● In line with the government's 2050 net zero policy, it is expected that the use ratio of renewable energy needs to reach 100% in 2050. ● The total consumption of renewable energy required is about 730 million kWh, and the penalty is calculated based on the payment of electricity fees (NTD 4/kWh), which will increase the electricity cost by about NTD 3 billion. SSP1-2.6 ● It is expected that by 2030, a certain percentage of renewable energy will be added to the business premises with a single contract capacity >100 kW. ● Taking 10% as the basis for calculation, an inspection shows that about 30 premises will be	Installation of renewable energy	SSP1_1.9 If RE100 is set as the management target for 2050, which can be converted into about 73 million KWh of renewable energy use, and the unit price per KWh is NTD 6, the electricity cost will increase by about NTD 4.3 billion. SSP1_2.6 If RE10 is set as the management target for 2025, which can be converted into about 122 million KWh of renewable energy use, and the unit price per KWh is NTD 6, the electricity cost will increase by about NTD 700 million. SSP2_4.5 If RE20 is set as the management target for 2030, which can be converted into about 60 million KWh of renewable energy use, and the unit price per KWh is NTD 6, the electricity cost will increase by about NTD 36 million.

Type of risk	No.	Risk level	Explanation of Risk	Location of occurrence	Time horizon	Type of impact	Financial Impact	Management practices	Management costs
							affected, with a total contract capacity of 5,373 kW. ● A total of 537.3 kWp of renewable energy will be installed, and the penalty will be calculated based on the payment of electricity fees, that is, 537.3 kWp*2,500 kWh/kWp*NTD 4, which is approximately NTD 5 million. SSP2-4.5 ● It is expected that by 2025, a certain percentage of renewable energy will be added to the business premises with a single contract capacity >800 kW. ● Taking 10% as the basis for calculation, an inspection shows that a total of 2 premises will be affected: 4,990 kW for cloud IDC and 3,150 kW for optoelectronic machine room. ● 499 kWp and 315 kWp of renewable energy will be used respectively, and the penalty will be calculated based on the payment of electricity fees, that is, (499+315) kWp*2,500 kWh/kWp*NTD 4, which is approximately NTD 8 million.		

2.3 Low-carbon Opportunities

Type of opportunity	No.	Opportunity level	Opportunity description	Location of occurrence	Time horizon	Type of impact	Financial Impact	Management practices	Management costs
Market	7	Medium-high	Development of capital sources	Organization itself	Medium to long term	Increase in capital acquisition	Acquisition of capital ● Increase by about NTD 612 million by 2030	Issuance of bonds	2030: NTD 13 million 2040: NTD 37 million 2050: NTD 60 million

Type of opportunity	No.	Opportunity level	Opportunity description	Location of occurrence	Time horizon	Type of impact	Financial Impact	Management practices	Management costs
							● Increase by about NTD 1.772 billion by 2040 ● Increase by about NTD 2.928 billion by 2050		
Resource efficiency	17	Medium-high	Energy-saving buildings	Organization itself	Short-term	Operational efficiency improvement	Taking Cloud IDC as an example, in 2030, the energy-saving machine room (PUE1.5) will save about 35 million kWh of electricity compared with the traditional machine room (PUE2), and the cost saved is about NTD 137 million	Design energy-saving Cloud IDC	Taking Cloud IDC as an example, the energy-saving machine room (PUE1.5) will enter the operation and maintenance stage after the expansion is completed, and the operation and maintenance costs are about NTD 55 million per year, and it is estimated that the (cumulative) cost will be NTD 440 million from 2023 to 2030
Products and Services	1	Medium-high	Adjustments and solutions	Downstream or user side	Short-term	New products or services	Evaluate cloud IDC machine rooms to help optimize IDC PUE through big data, provide customers with better machine room power saving benefits and reduce electricity fees: 2023-2030: NTD 180 million (cumulative cost saved) 2023-2040: NTD 460 million (cumulative cost saved) 2023-2050: NTD 760 million (cumulative cost saved)	PUE optimization	2023-2030: NTD 21 million (cumulative cost) 2023-2040: NTD 46 million (cumulative cost) 2023-2050: NTD 72 million (cumulative cost)
Resilience	15	High	Participation in renewable energy programs	Organization itself	Short-term	Fuel cost reduction	● The unit price of thermal electricity is estimated to reach NTD 6.6/kWh in 2025, which is higher than the cost of green power directly transmitted to TWM (NTD 6/kWh) ● The unit price of thermal electricity is estimated to reach NTD 13.2/kWh in 2030, which is higher than the cost of green power directly transmitted to TWM (NTD 6/kWh) ● The unit price of thermal electricity is estimated to reach NTD 19.8/kWh in 2040, which is higher than the cost of	Renewable energy visualization system construction	Complete the construction of the renewable energy visualization system by 2025 to intelligently track and calculate the usage amount of renewable energy, with a budget of NTD 10 million From 2026 to 2030, 20% of the system construction cost will be allocated for professional staff training, system upgrade and maintenance costs, with a budget of NTD 10 million From 2031 to 2040, 20% of the system construction cost will be allocated for professional staff training, system upgrade and

Type of opportunity	No.	Opportunity level	Opportunity description	Location of occurrence	Time horizon	Type of impact	Financial Impact	Management practices	Management costs
							green power directly transmitted to TWM (NTD 6/kWh)		maintenance costs, with a budget of NTD 20 million
Resource efficiency	18	Medium-high	Production process	Upstream or supply chain	Short-term	Operating cost reduction	The SMR (AC/DC power conversion) equipment have been used for 10 years and will be replaced due to decreasing efficiency and increasing failure rate; and the equipment with high conversion efficiency of 96% or above and high yield rate will be purchased to extend the life of the equipment that should be replaced after 10 years to 15 years. For example, in 2022: 2,622 sets of life extension equipment not only reduced 26.6 tons of waste, but also reduced the procurement cost by 33%; based on the average number of 1,810 sets from 2020 to 2022, the cost per unit is NTD 26,500. 2025: NTD 48 million 2030: NTD 48 million 2035: NTD 48 million	Construction of power network management system	2025: professional staff training, system upgrade and maintenance costs will be allocated annually, with an annual budget of NTD 3 million 2030: professional staff training, system upgrade and maintenance costs will be allocated annually, with an annual budget of NTD 3 million 2035: professional staff training, system upgrade and maintenance costs will be allocated annually, with an annual budget of NTD 3 million

2.4 Transition Scenario Analysis

As different risk items may cause different financial impacts, the transition risks are divided into regulation, market, and reputation. The different scenarios and scopes of applications of TWM's analysis are described as follows:

Item	Type of impact
Regulatory risk affects the operating costs and capital expenditures of a company	Financial Impact
Market risk mainly affects the loss of expected revenue of a company	Financial Impact

Technology cost estimates for transition strategy a. Additional strategies: strategies expected to be implemented but not yet implemented b. RE strategy: renewable energy costs for future RE targets to be achieved	Management costs

The scenario simulation is to estimate the possible future emissions based on the base data of TWM, and discuss the potential risks based on the estimated emissions. It means that TWM's BAU (maintaining the status quo, and not implementing any improvement management measures) strategy faces different external transition scenarios, and then the management costs required for the carbon reduction strategy are analyzed. At the present stage, TWM′ s carbon reduction strategy is to achieve 20% renewable energy use by 2030 and RE100 by 2040; finally, we should analyze the difference in management costs to be achieved in the three transition scenarios, in order to understand the possible expenditure in different scenarios with different strategies. Therefore, the following scenario analysis results will be generated in order:

1. The financial impacts of three external transition scenarios under BAU(business as usual)
2. The financial impact and management cost of a company's RE strategy transition scenario in three external transition scenarios (at present, TWM has established the targets of achieving RE20 by 2030 and RE100 by 2040)
3. The company compulsively achieves the management costs withthe targets of three external transition scenarios

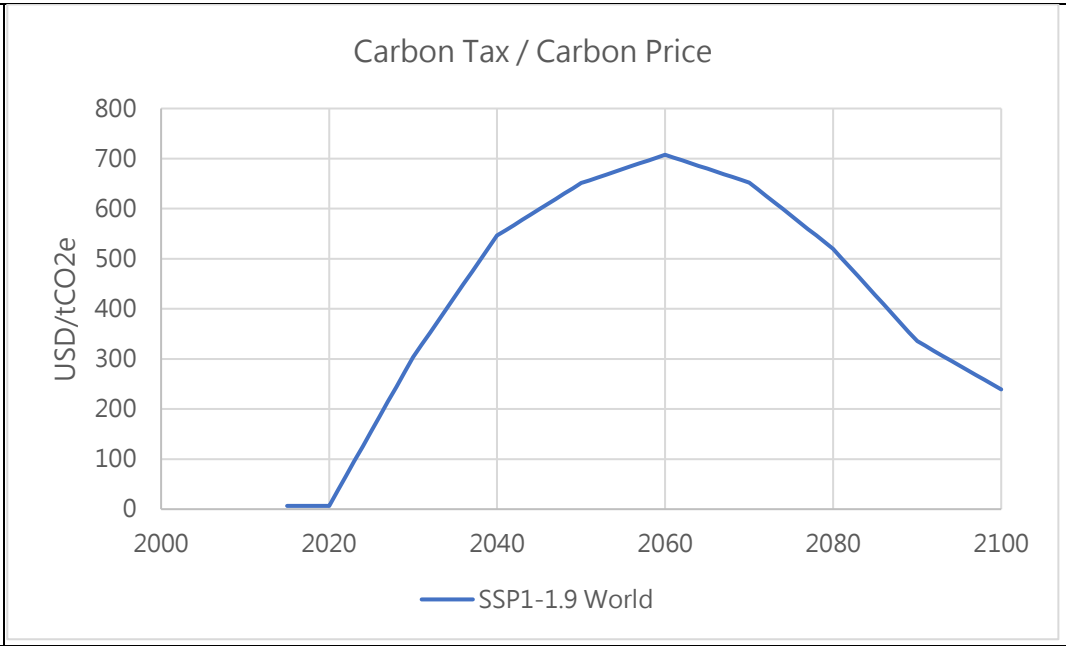
TWM mainly discusses transition risks in three external scenarios. The first is the government net zero path, the second is the SSP1-1.9 path in IPCC AR6, and the third is the most challenging transition scenario: which requires a reduction of 42% in emissions by 2030, as mandated by science-based carbon reduction targets, and achieving net-zero emissions by 2050 (SBT-NZ target)

External TransitionScenarios	Type of impact	Scope of application	Risk evaluation	Emission source
Government net zero pathway	Based on the current net zero targets proposed by Taiwan	TWM	Regulatory Risk Market Risk	Scope 1 + Scope 2

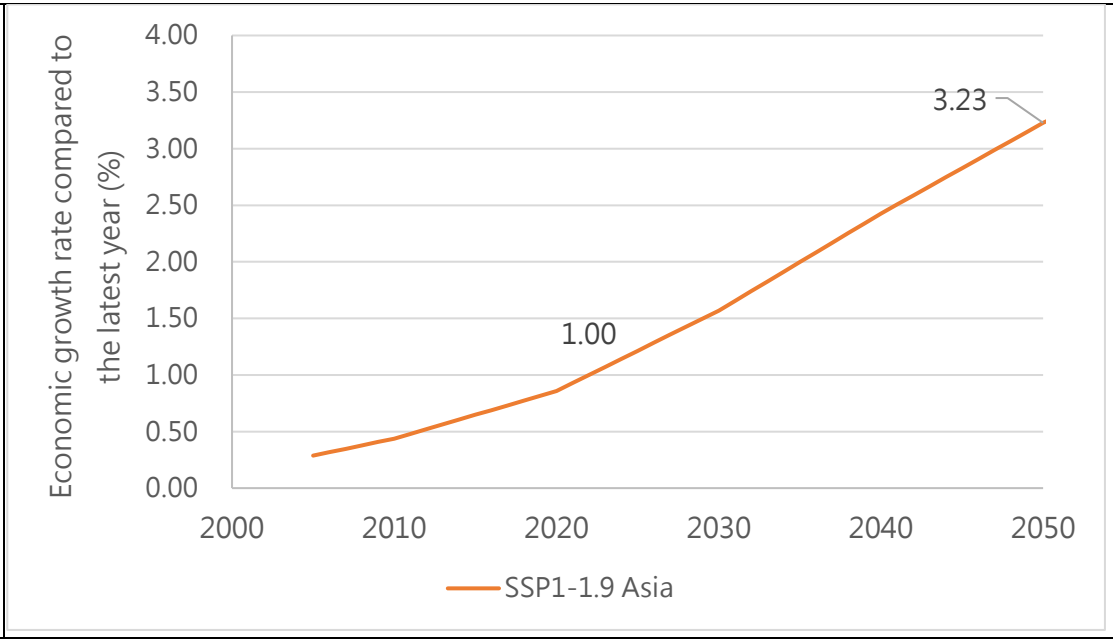
SSP1-1.9	Based on the SSP1-1.9 path in IPCC AR6		Technology Risk	Scope 1 + Scope 2
SBT-NZ	Estimated based on the scenario of SBT net zero achievement criteria			Scope 1 + Scope 2

The scenario simulation parameters of TWM are as follows:

	Risks	**Explanation**	**Cost Category**
Regulatory	Carbon tax	Based on different scenarios, TWM is subject to unit carbon taxation on our carbon emissions. However, due to significant variations in tax systems, there is a high level of uncertainty in this regard. This assessment primarily considers three levels of carbon taxes: 1. Government Net Zero Path: the carbon tax is 300 NTD/tCO2e (approximately 10 USD/tCO2e) 2. SSP1-1.9 and SBT-NZ: Carbon price of SSP1-1.9 (reaching 650 USD/tCO2e in 2050)	Operating cost

			
	Cap and Carbon Penalty	According to current international regulations and trends, levying carbon taxes is common practice, rather than imposing carbon penalties or caps, so only government net zero path will consider carbon penalties additionally (regulations not exceeding 1500 NTD/tCO2e).	Operating cost
Technology	Renewable energy installation cost	The installation cost of the renewable energy power generating sets by the Company is fully recognized as capital expenditure for the current year, which can be obtained from the IRENA Renewable Energy Report 2022.	Capital expenditure
	Renewable Energy Operating Cost	The renewable energy operating cost can be obtained from the IRENA Renewable Energy Report 2022.	Operating cost
	Renewable Energy Procurement Cost	Taiwan's renewable energy procurement cost is calculated from the current mean wholesale price of renewable energy sold to TPC plus the public power expense (from TPC).	Operating cost
	Procurement cost from TPC	The cost and benefit of procurement from TPC is calculated based on the mean price of 3.785 NTD/kWh (commercial electricity)	Operating cost

	Carbon Removal Cost	According to the data of IEA, the cost of CCUS varies from case to case. Since TWM uses carbon removal as the ultimate means to achieve net zero, the most expensive direct air capture technology is used, and its cost is about 85-345 USD/tCO2e. Therefore, the assumption is based on three scenarios: Immature technology: 340 USD/tCO2e Mean price: 235 USD/tCO2e Mature technology: 130 USD/tCO2e	-
Market	Risk of decreasing market share of low carbon products	● Assuming TWM's revenue growth is consistent with the SSP1-1.9 (Asia) scenario (as shown in the figure below. Assuming it is 1 in 2022, the figure shows the growth multiplier for each year compared to 2022, and it will increase by 2.22 times in 2050 compared to 2022). ● Assuming that 4% of revenue is generated from low carbon products, this 4% of revenue will suffer different losses in different external transformation scenarios. ➢ When the scenario is government net zero, the revenue loss for low-carbon products is 50% (equivalent to 2% of overall revenue); ➢ The revenue loss for low-carbon products is 100% for SSP1 and SBT-NZ (equivalent to the total loss of 4% of low carbon product revenue, accounting for 4% of total revenue)	Expected revenue

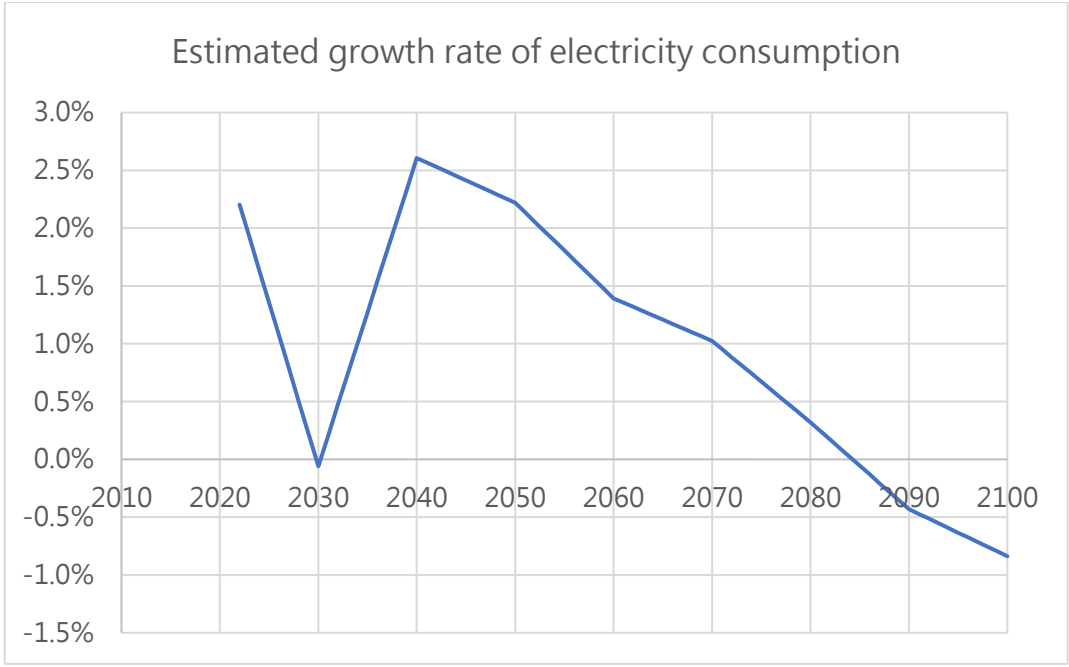
		 Economic growth rate compared to the latest year (%) 4.00 3.50 3.00 2.50 2.00 1.50 1.00 0.50 0.00 2000 2010 2020 2030 2040 2050 3.23 1.00 SSP1-1.9 Asia		

Description of the financial impact assessment		
Type	Subtype	Explanation
Financial Impact	Regulatory Risk	Obligatory capacity/Existing strategic operating costs
		Carbon tax
		Carbon penalty (for government net zero only)
	Market Risk	Loss of revenue due to shortage of low-carbon products
Management costs	Additional Strategies	Future transformation strategy expected to be implemented (with definite purchase quantity and installation capacity)
	RE Strategy	RE100 path planned by the Company
	Bridge the gap	The RE purchase quantity that needs to be made up in the mandatory transformation scenario
	Carbon removal expenses	Cost for removing Scope 1 emissions

Emission estimation for base scenario

a. Emission estimation parameters for base scenario:

- Growth rate of Scope 1 emissions: estimated growth at -1%
- Growth rate of electricity consumption: The growth rate is estimated as a linear reduction of 1% per year.



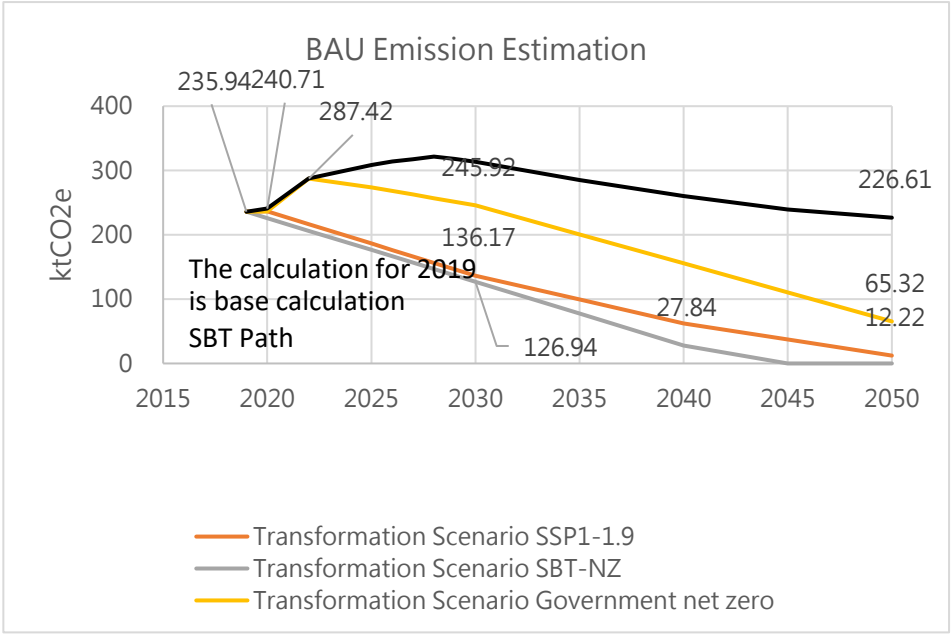
Parameters for the future growth of electricity for future carbon emissions in TWM (growth rate of SSP1-1.9 Asia)

Taiwan's electricity and steam carbon emission factors are calculated based on the government's energy policy, and Taiwan's electricity factors vary in different scenarios from 2019 to 2050. We will achieve the current government forecast targets (30% coal-fired, 50% gas-fired, 20% renewable energy) by 2030, and continue to increase the ratio of renewable energy to 50% and replace coal-fired power generation (50% gas-fired, 50% renewable energy) by2050.

b. Estimated results of base scenario

- TWM’s government net zero and low carbon transition scenario

We expect to achieve the emission allowances and estimated original emissions (following the existing strategy without considering the RE strategy) at three different ambition levels of government net zero, SSP1-1.9, and SBT-NZ. In the SBT scenario and regard 2019 as the base year, TWM emissions will reach 226,600 tons of CO2e in 2050 if the growth in electricity consumption follows the SSP1-1.9 Asia scenario parameters and the emissions in the Scope 1 are reduced by 1% per year (YoY, estimated from existing data). The emission allowances in government net zero, SSP1-1.9, and SBT-NZ transition scenarios are 65,300 tons, 12,200 tons, and net zero, respectively.

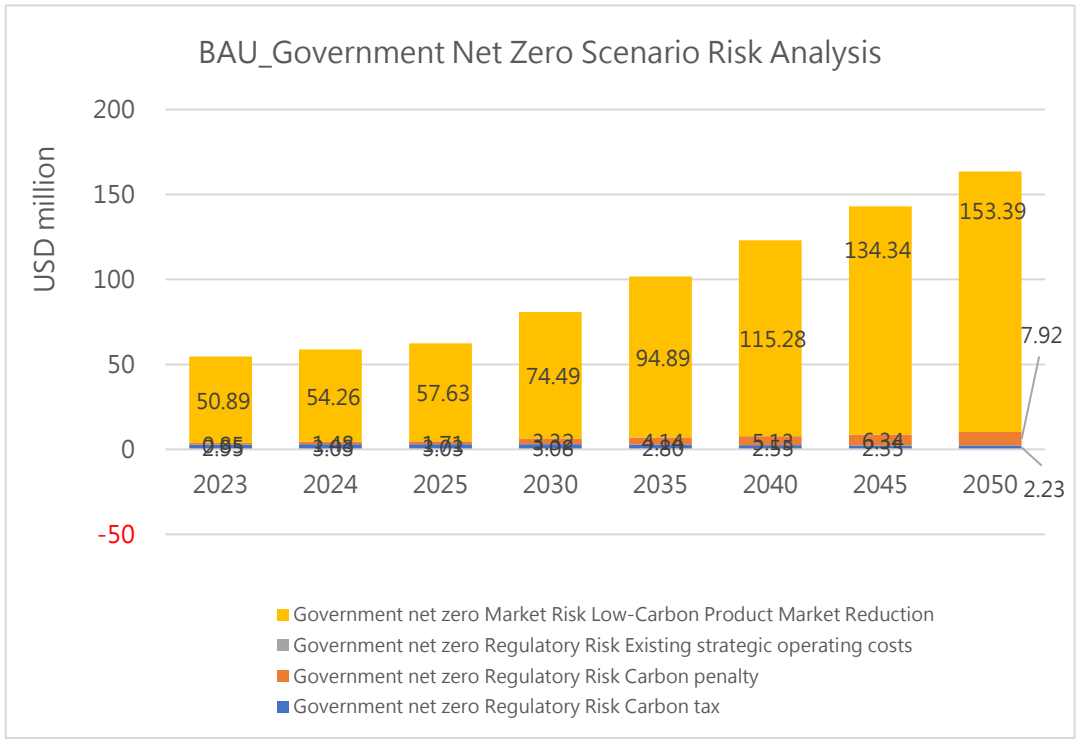


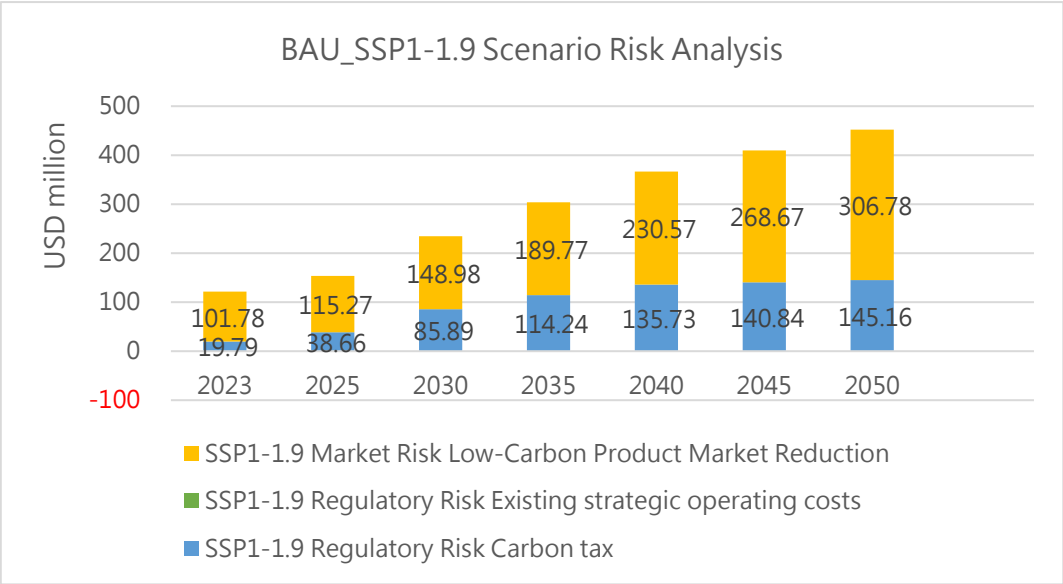
Achieve carbon emission allowances and estimated original GHG emissions for each scenario

- Financial impact in BAU scenario (without considering RE100 strategy)

The evaluation on financial impacts of TWM's existing BAU and estimated future emissions in different external transformation scenarios is as follows. When the external scenario is assumed to be the government net zero, the carbon tax will gradually decrease around 2050 due to the gradual reduction of carbon emissions, while the financial impact of the carbon penalty will be higher after 2045 due to the expansion of the difference in allowance of the transformation scenario under the current situation; overall, under TWM's BAU strategy, the financial impact in

government net zero scenario will be approximately USD 160 million by 2050, with market risk as the dominant factor; if the market risk is excluded, the carbon tax and carbon penalty will only be about USD 10 million. When BAU strategy is implemented in the SSP1-1.9 scenario, the market risk will be USD 300 million, and the carbon tax will be USD 145 million in 2050.


BAU_Government Net Zero Scenario Risk Analysis
USD million
200
150
100
50
0
-50
50.89
54.26
57.63
74.49
94.89
115.28
134.34
153.39
7.92
2.23
2023
2024
2025
2030
2035
2040
2045
2050
Government net zero Market Risk Low-Carbon Product Market Reduction
Government net zero Regulatory Risk Existing strategic operating costs
Government net zero Regulatory Risk Carbon penalty
Government net zero Regulatory Risk Carbon tax



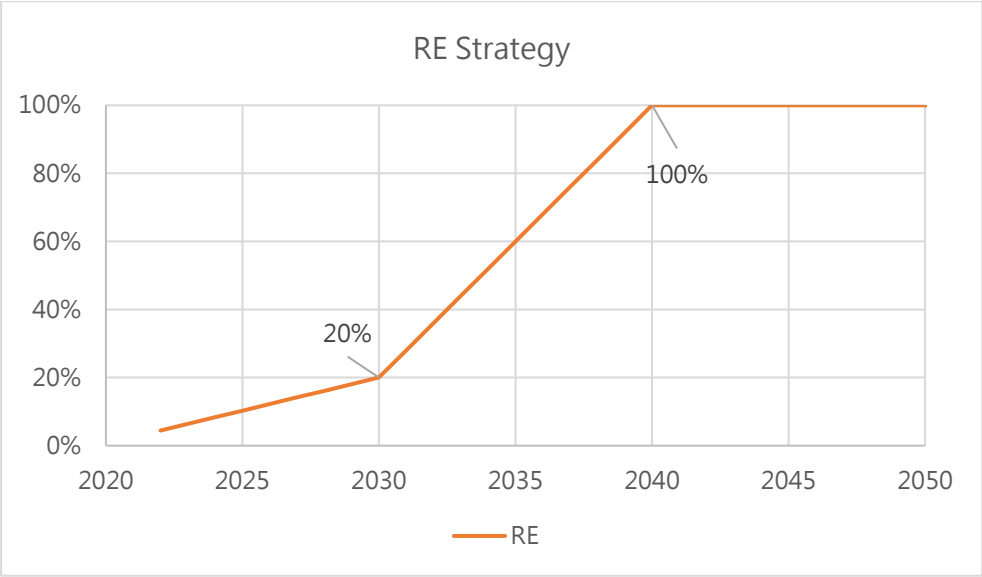
The financial impacts of TWM's BAU in two external scenarios

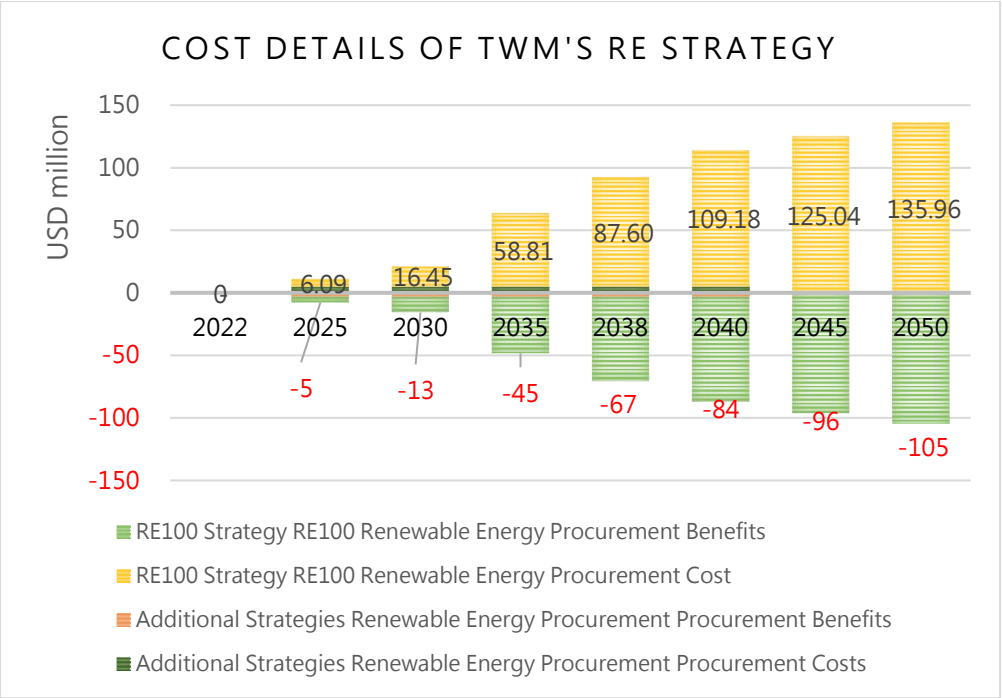
Cost of obligatory capacity

At present, TWM doesn't have any premises with contracted capacity exceeding the mandatory requirement for a certain percentage of renewable energy usage as stipulated by regulations. Therefore, there is no need to estimate the obligated capacity cost.

RE (Renewable Energy) Strategy

TWM's RE strategy is to achieve 20% renewable energy usage by 2030 and achieve the RE100 target by 2040. This includes a 20-year contract for procurement of renewable energy expected to begin in 2023 (classified under Additional Strategy Renewable Energy Procurement). According to this trend, without considering the increase/decrease of TPC's electricity price, the total cost will be about USD 30 million by 2050 (USD 136 million of expenses and USD 105 million of benefits from avoiding the cost of procurement from TPC).

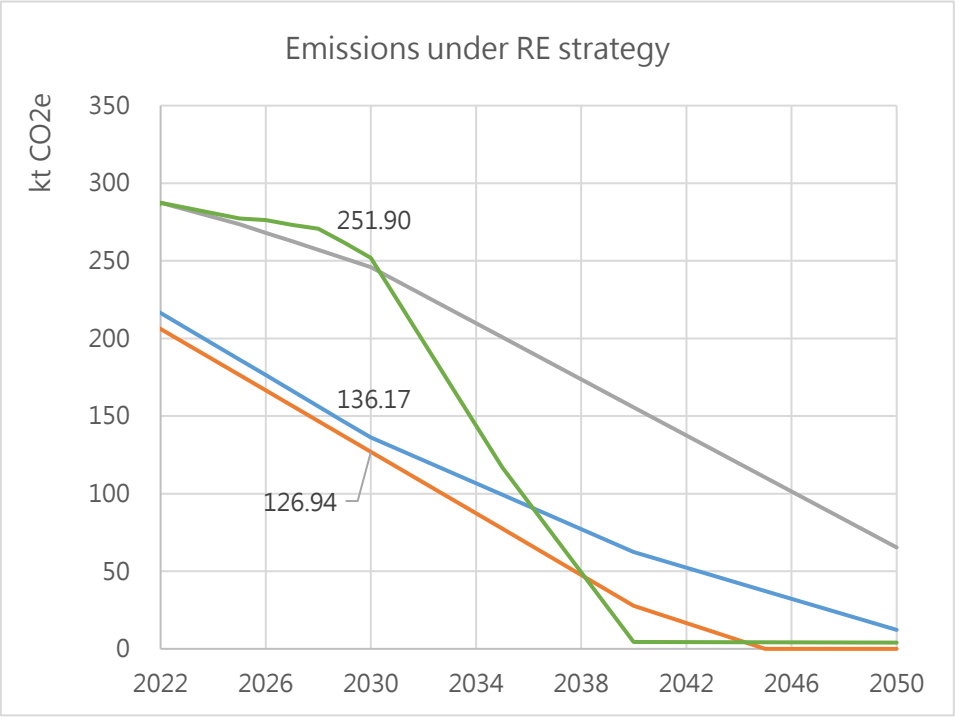




Planned quantity of renewable energy in the scenario of TWM's RE100

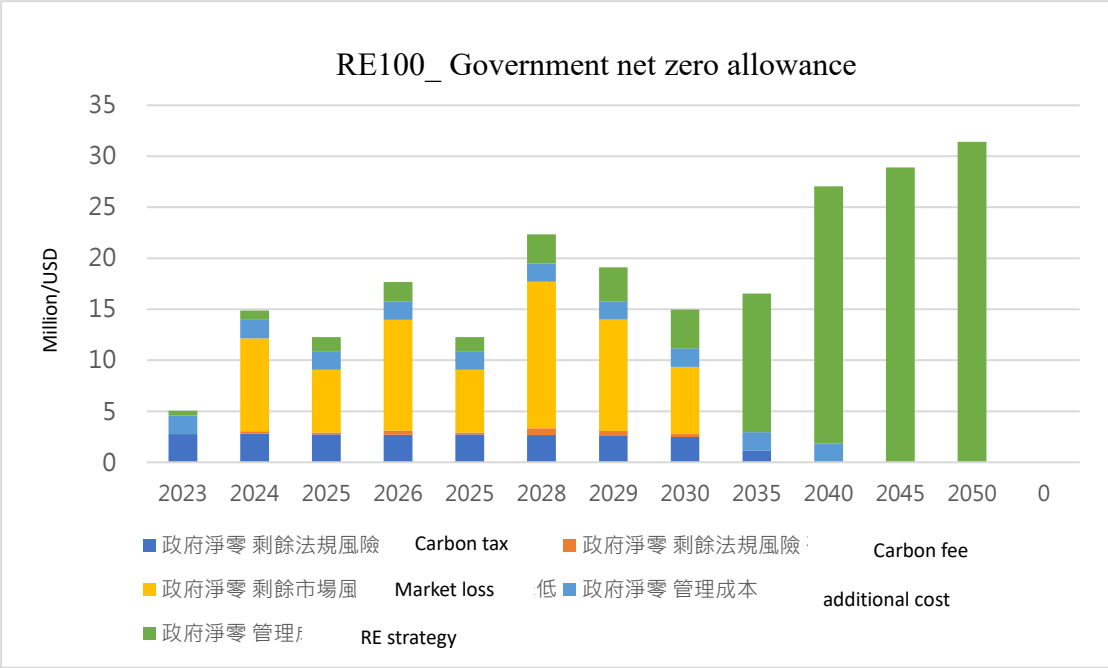
Analysis of financial impact with the RE strategy

The reducing rate of TWM's emissions with the RE strategy will be slow before 2030, if we want to achieve RE100 within 10 years after 2030, we should accelerate the reduction of carbon emissions and expect to exceed the SSP1-1.9 and SBT-NZ targets in 2036 and 2038.

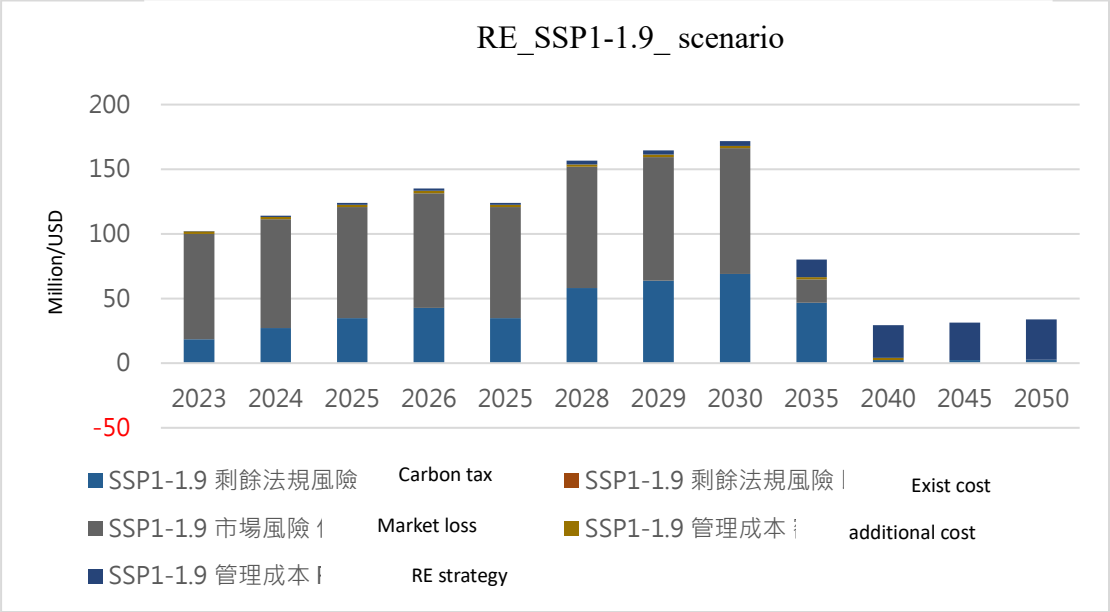


Emission trend in the government net zero scenario with TWM's RE strategy

The evaluation focuses on the changes in transition risks encountered withthe RE100 strategy and three different external transition scenarios. The financial impact of the RE100 strategy and the external scenario of net zero pathway. As renewable energy procurement gradually increases and moves closer to the government net zero pathway, the market risk presents a changing trend. However, after 2030, the RE100 strategy leads to a reduction in carbon emissions below the government net zero allowance, which eliminates the market risk and the carbon fee; eventually, only the management cost for procuring renewable energy will remain.



The difference in emissions between the SSP1-1.9 and SBT-NZ transition scenarios with the RE strategy, after the implementation of RE, there is still a certain gap with SSP1-1.9 and SBT-NZ, which is mainly due to RE20 is insufficient to meet the target of the scenario. Therefore, if RE100 is to be achieved in SSP1-1.9 and SBT-NZ, emission reductions in Scopes 1 & 2 will be particularly critical after 2040.

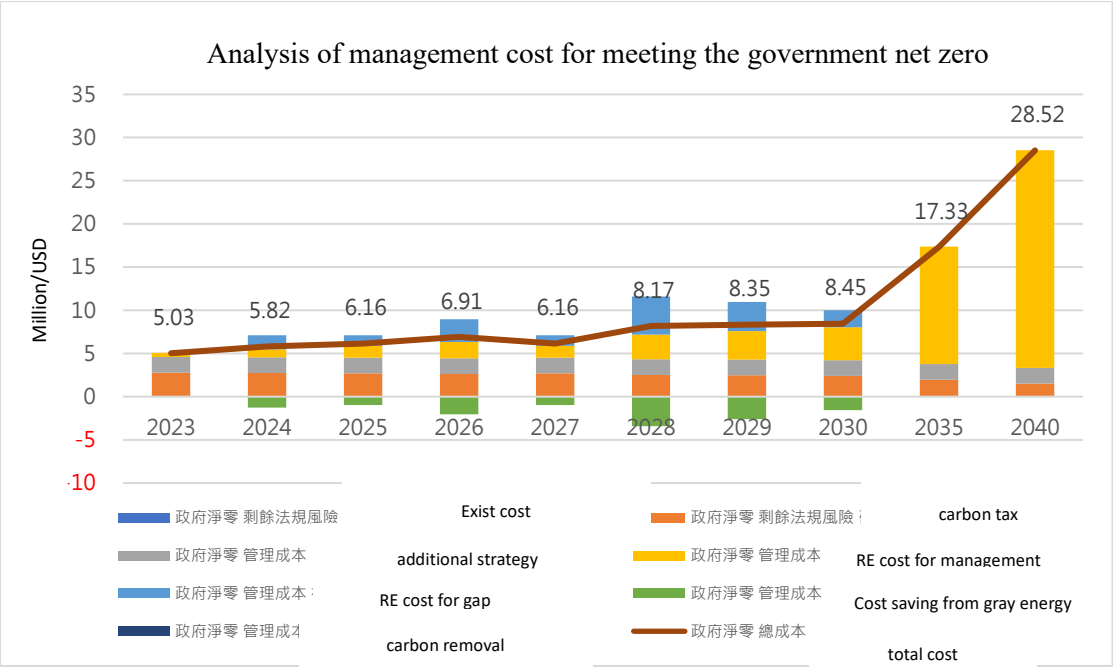


The financial impact of TWM's RE100 strategy in SSP1-1.9 (SBT-NZ scenario is the same as SSP1-1.9)

Analysis of management cost for climate changes to achieve RE100 strategy

a. Analysis of management cost for meeting the government net zero targets

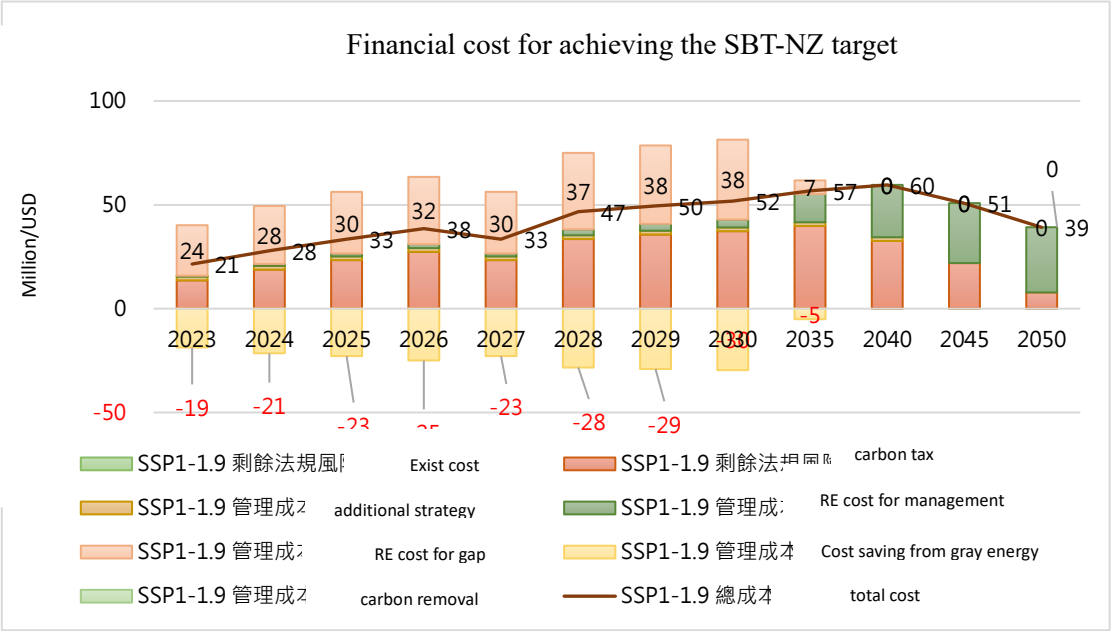
In order to meet the carbon allowances with the government net zero target, additional renewable energy needs to be purchased to meet the net zero target due to the lack of renewable energy before 2030. We will spend USD 1.21-4.4 million per year to purchase additional renewable energy to make up for the gap, which will also generate corresponding benefits of avoiding the procurement from TPC. In this scenario, due to meeting the government's net-zero targets, there are no carbon penalties, only the requirement to pay carbon fees. Additionally, there will be no market risks.



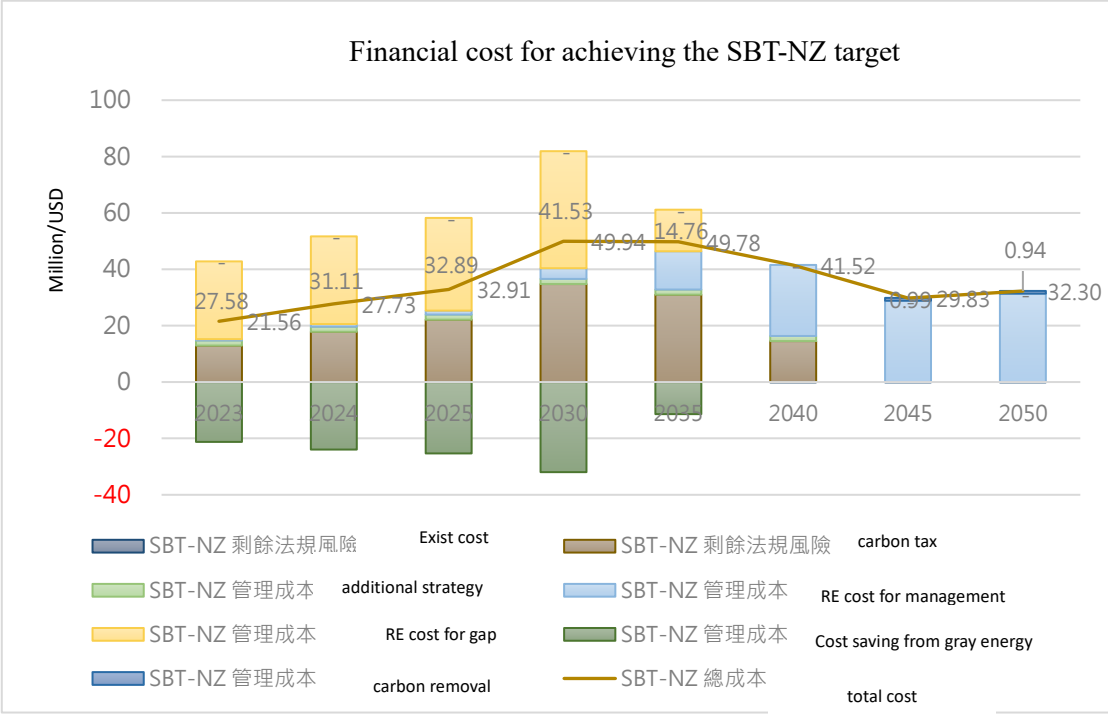
Analysis of management cost for achieving the government net zero target

In order to achieve the SSP1-1.9 target, in addition to purchasing renewable energy to achieve the SSP1-1.9 allowance, the Company needs to purchase more renewable energy to achieve the target, so the additional cost for purchasing renewable energy is still the highest. Because carbon emissions occur, the main cost structure includes carbon taxes and procurement of renewable energy. After 2040, since the RE100 and SSP1-1.9

targets have already been achieved, there will be no need to purchase additional renewable energy to compulsively achieve the targets; and SSP1-1.9 does not require carbon removal.



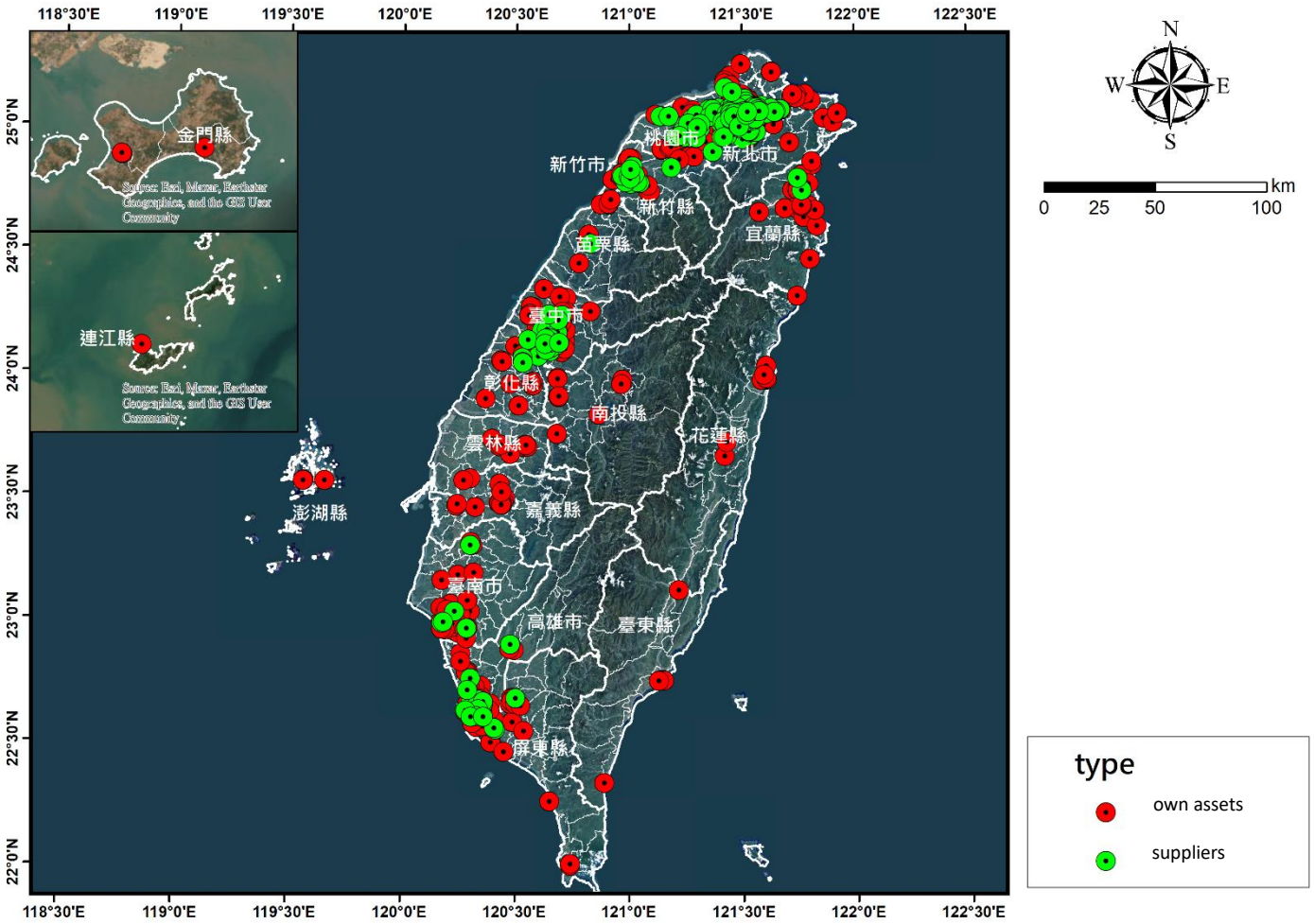
The most significant difference in the financial cost for achieving the SBT-NZ target is that the SBT-NZ will need to achieve the net zero target around 2040, so carbon removal will be required after 2045. At that time, there will be no regulatory costs such as carbon taxes around 2045, only the additional procurement cost of renewable energy and carbon removal costs will remain, and the final total cost is USD 32.3 million.



2.5 Physical Scenario Analysis

Climate risk is composed of Hazard, Exposure, and Vulnerability. According to the definitions of the United Nations Intergovernmental Panel on Climate Change (IPCC), Hazard is the driver of climate-related events that may cause damage and loss to assets; Exposure is the location where the object may be adversely affected and the degree of damage suffered; Vulnerability includes adaptability and sensitivity and is defined as the propensity or degree of vulnerability to disaster of an asset. According to the above definitions, the risk can be estimated by quantifying the hazard, exposure, and vulnerability levels. In other words, the risk level can be calculated by classifying the hazard, exposure, and vulnerability, which is an important basis for determining the adaptation sequence and measures.

TWM analyzes the physical risk value of each premise according to the hazard of extreme rainfall under climate change, the vulnerability of flooding, landslide, and debris flow caused by the extreme rainfall, and the exposure of premise location. The hazard is evaluated by simulating the climate risks in RCP2.6, RCP4.5, RCP6.0, and RCP8.5 scenarios using multiple climate models (GCM/ESM) to avoid extreme simulation results; the vulnerability is analyzed based on government published maps, including scope and degree of disaster; the exposure is analyzed based on the location of 1,104 premises of TWM's own assets and suppliers. Finally, the risk scores of each premise are classified into three risk levels: no risk, low risk, medium risk, and high risk according to the risk ranking matrix. The total risk is represented by the level with the highest risk value of the three vulnerabilities.



(Figure: Distribution of TWM's premises)

2.5.1 Analysis results of the physical risks of owned assets

RCP2.6

In the RCP2.6 scenario, of the owned assets of TWM, there are 466 premises without flooding, debris flow or landslide potential; among the remaining 200 premises, 197 with flooding potential, 1 with debris flow, and 2 with landslide potential, where disasters may be triggered in the event of extreme rainfall. In the RCP2.6 scenario, 466 premises are classified as no risk because they do not have disaster vulnerability; the number of low-risk premises ranges from 91 to 134 in the short term to long term, all of which are at risk of flooding. The number of medium-risk premises ranges from 58 to 101 in the short term to long term, including one premise with landslide risk, which is a machine room located in Keelung City and may be affected by landslides during extreme rainfall events; the rest are with flooding risk and are located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County/City, Taichung City, Nantou County, Yunlin County, Tainan City, Kaohsiung City, Pingtung County, and Yilan County, etc. The number of high-risk premises ranges from 4 to 8 in the short term to long term, including 1 premise with debris flow risk and 1 premise with landslide risk, and the rest are with flooding risk. The premise with debris flow risk is a machine room located in the mountainous area of Yilan County, the premise with landslide risk is a machine room located in the mountainous area of New Taipei City, and the premises with high flooding risk are mainly located in Taipei City, New Taipei City, Hsinchu City, Nantou County, and Yilan County, etc.

RCP4.5

In the RCP4.5 scenario, there are 466 premises without flooding, debris flow or landslide potential; among the remaining 200 premises, 197 with flooding potential, 1 with debris flow, and 2 with landslide potential, where disasters may be triggered in the event of extreme rainfall. In the RCP4.5 scenario, 466 premises are classified as no risk because they do not have disaster vulnerability; the number of low-risk premises ranges from 83 to 129 in the short term to long term, all of which are at risk of flooding. The number of medium-risk premises ranges from 62 to 104 in

the short term to long term, including one premise with landslide risk, which is a machine room located in Keelung City and may be affected by landslides during extreme rainfall events; the rest are with flooding risk and are located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County/City, Taichung City, Nantou County, Yunlin County, Tainan City, Kaohsiung City, Pingtung County, Yilan County, and Hualien County, etc. The number of high-risk premises ranges from 9 to 13 in the short term to long term, including 1 premise with debris flow risk and 1 premise with landslide risk, and the rest are with flooding risk. The premise with debris flow risk is a machine room located in the mountainous area of Yilan County, the premise with landslide risk is a machine room located in the mountainous area of New Taipei City, and the premises with high flooding risk are mainly located in Taipei City, New Taipei City, Nantou County, and Yilan County, etc.

RCP6.0

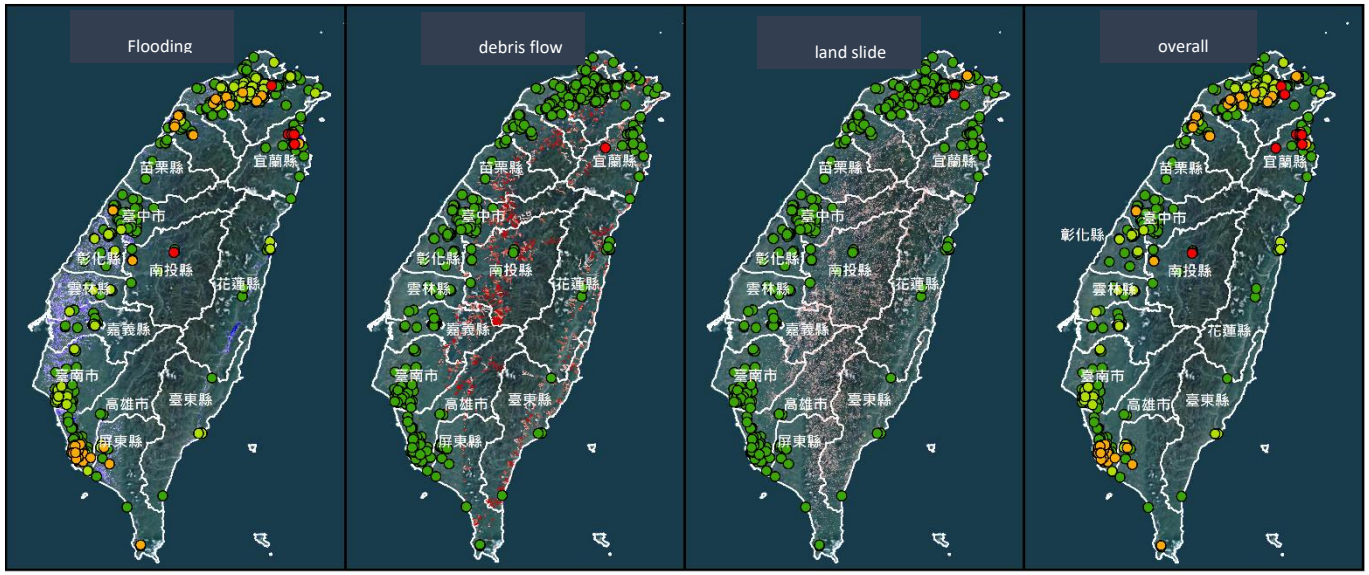
In the RCP6.0 scenario, there are 466 premises without flooding, debris flow or landslide potential; among the remaining 200 premises, 197 with flooding potential, 1 with debris flow, and 2 with landslide potential, where disasters may be triggered in the event of extreme rainfall. In the RCP6.0 scenario, 466 premises are classified as no risk because they do not have disaster vulnerability; the number of low-risk premises ranges from 106 to 164 in the short term to long term, all of which are at risk of flooding. The number of medium-risk premises ranges from 29 to 81 in the short term to long term, including one premise with landslide risk, which is a machine room located in Keelung City and may be affected by landslides during extreme rainfall events; the rest are with flooding risk and are located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County/City, Taichung City, Nantou County, Yunlin County, Tainan City, Kaohsiung City, Pingtung County, Yilan County, and Hualien County, etc. The number of high-risk premises ranges from 7 to 13 in the short term to long term, including 1 premise with debris flow risk and 1 premise with landslide risk, and the rest are with flooding risk. The premise with debris flow risk is a machine room located in the mountainous area of Yilan County, the premise with landslide risk is a machine room located in the mountainous area of New Taipei City, and the premises with high flooding risk are mainly located in Taipei City, New Taipei City, Nantou County, and Yilan County, etc.

RCP8.5

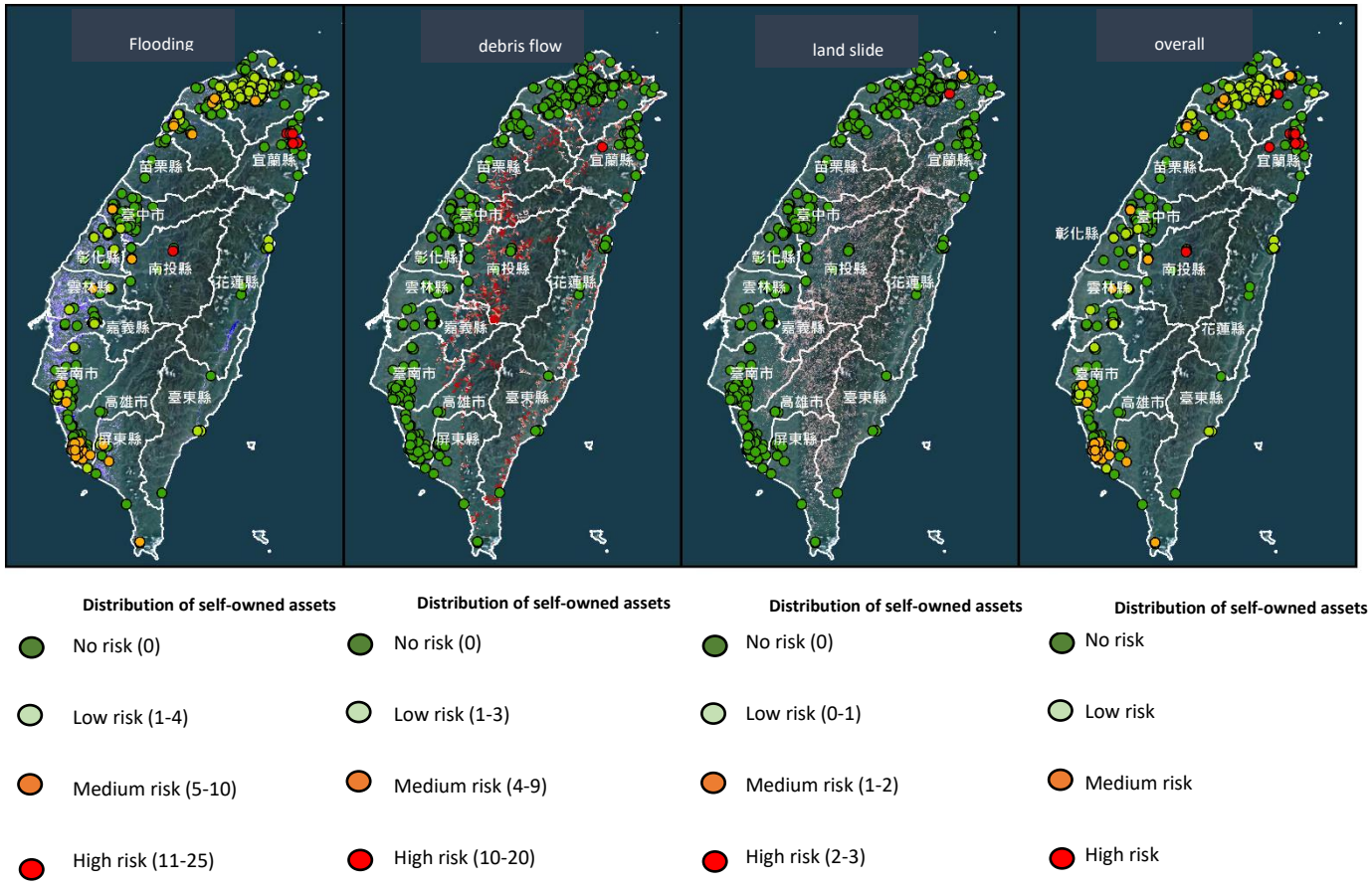
In the RCP8.5 scenario, there are 466 premises without flooding, debris flow or landslide potential; among the remaining 200 premises, 197 with flooding potential, 1 with debris flow, and 2 with landslide potential, where disasters may be triggered in the event of extreme rainfall. In the RCP8.5 scenario, 466 premises are classified as no risk because they do not have disaster vulnerability; the number of low-risk premises ranges from 93 to 129 in the short term to long term, all of which are at risk of flooding. The number of medium-risk premises ranges from 62 to 92 in the short term to long term, including one premise with landslide risk, which is a machine room located in Keelung City and may be affected by landslides during extreme rainfall events; the rest are with flooding risk and are located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County/City, Taichung City, Nantou County, Yunlin County, Tainan City, Kaohsiung City, Pingtung County, Yilan County, and Hualien County, etc. The number of high-risk premises ranges from 9 to 15 in the short term to long term, including 1 premise with debris flow risk and 1 premise with landslide risk, and the rest are with flooding risk. The premise with debris flow risk is a machine room located in the mountainous area of Yilan County, the premise with landslide risk is a machine room located in the mountainous area of New Taipei City, and the premises with high flooding risk are mainly located in Taipei City, New Taipei City, Nantou County, Kaohsiung City, and Yilan County, etc.

Risk matrix	Countermeasures	Owned assets															
		RCP2.6				RCP4.5				RCP6.0				RCP8.5			
		Short-term	Medium-term	Medium to long term	Long-term	Short-term	Medium-term	Medium to long term	Long-term	Short-term	Medium-term	Medium to long term	Long-term	Short-term	Medium-term	Medium to long term	Long-term
No risk	Maintain the premise	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466
Low risk	Maintain the premise	123	91	115	134	129	120	83	106	121	164	106	107	124	129	93	100
Medium risk	Maintain the premise and pay more attention to changes in disaster potential	73	101	78	58	62	71	104	82	69	29	81	80	67	62	92	85
High risk	Avoid setting up any premise and relocate the operating premise to a place with medium risk or below	4	8	7	8	9	9	13	12	10	7	13	13	9	9	15	15
Total		666				666				666				666			

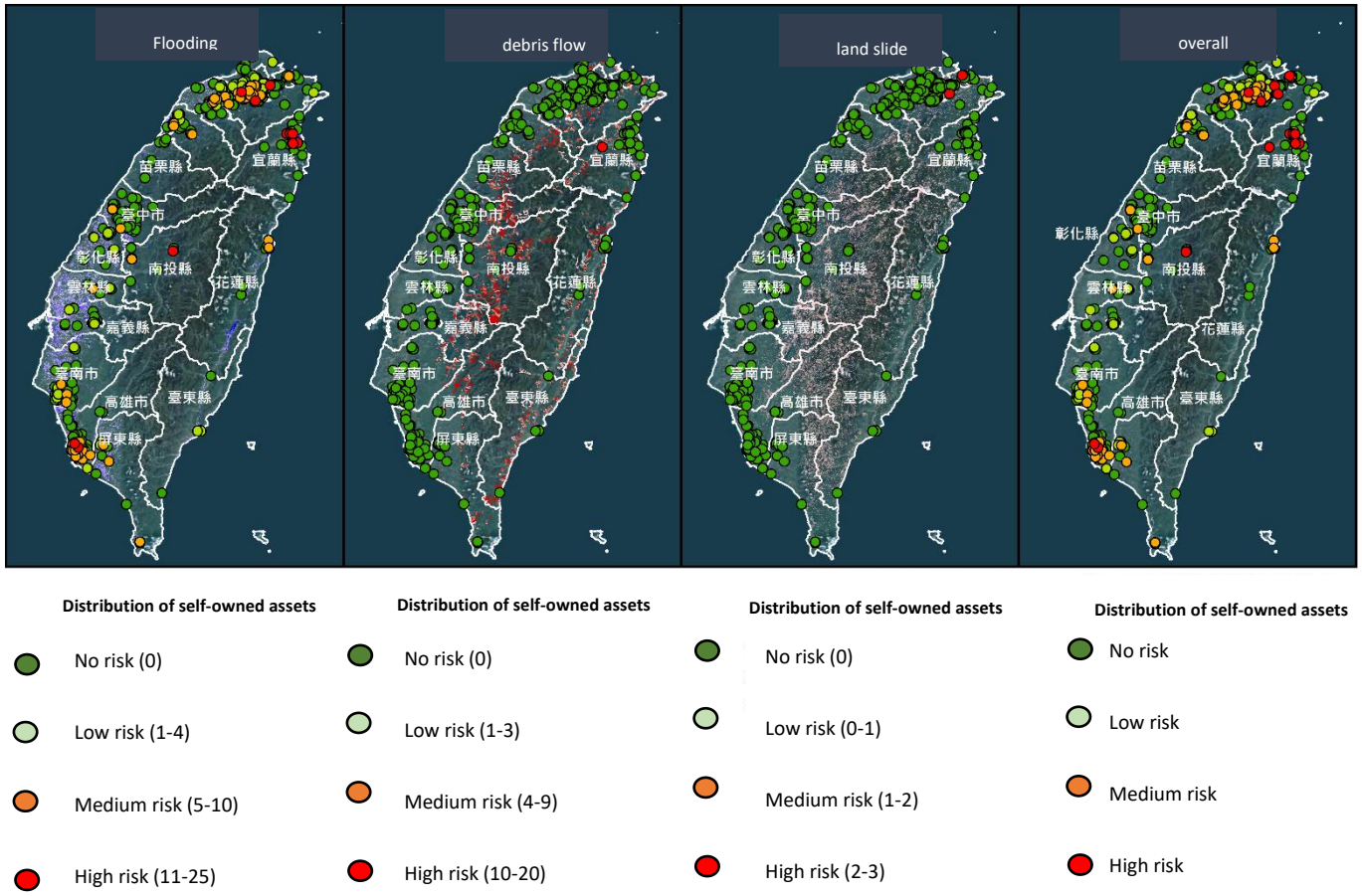
Note: Short term, medium term, medium to long term, and long term represent 2021-2040, 2041-2060, 2061-2080, and 2081-2100, respectively.



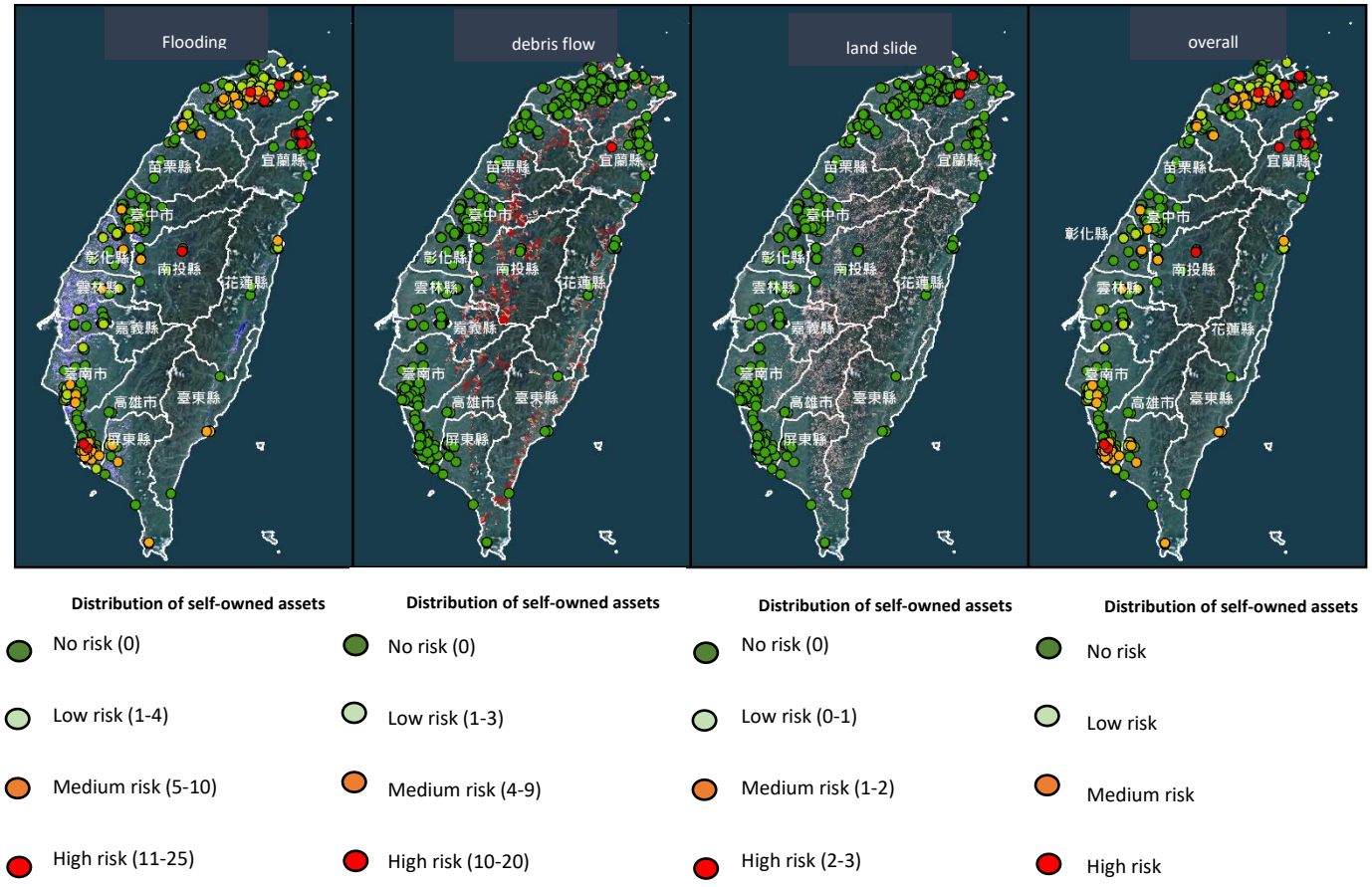
(Figure: Short-term risk value of TWM's owned premises in RCP8.5 scenario)



(Figure: Medium-term risk value of TWM's owned premises in RCP8.5 scenario)



(Figure: Medium to long term risk value of TWM's owned premises in RCP8.5 scenario)



(Figure: Long-term risk value of TWM's owned premises in RCP8.5 scenario

2.5.2 Analysis results of the physical risks of suppliers

RCP2.6

In the RCP2.6 scenario, there are 131 premises with flooding potential for the suppliers of TWM; among them, the number of low-risk premises ranges from 73 to 121, which are mainly located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County, Taichung City, Changhua County, and Tainan City, etc. The number of medium-risk premises is smaller and ranges from 9 to 55, which are mainly located in Taipei City, New Taipei City, Taichung City, Kaohsiung City, and Yilan County, etc.

RCP4.5

In the RCP4.5 scenario, there are 131 supplier premises with flooding potential; among them, the number of low-risk premises ranges from 60 to 114, which are mainly located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County, Changhua County, and Tainan City, etc. The number of medium-risk premises is smaller and ranges from 21 to 62, which are mainly located in Taipei City, New Taipei City, Taoyuan City, Taichung City, and Kaohsiung City, etc. The number of high-risk premises is smaller and ranges from 1 to 9, which are suppliers located in Taipei City, New Taipei City, Taoyuan City, Taichung City, and Yilan County.

RCP6.0

In the RCP6.0 scenario, there are 131 supplier premises with flooding potential; among them, the number of low-risk premises ranges from 102 to 125, which are mainly located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County, Taichung City, Changhua County, and Tainan City, etc. The number of medium-risk premises is smaller and ranges from 21 to 62, which are mainly located in Taipei City, New Taipei City,

Taoyuan City, Hsinchu County, Taichung City, Changhua County, Kaohsiung City, and Yilan County. The number of high-risk premises is smaller and ranges from 1 to 4, which are located in New Taipei City, Taoyuan City, Taichung City, and Yilan County.

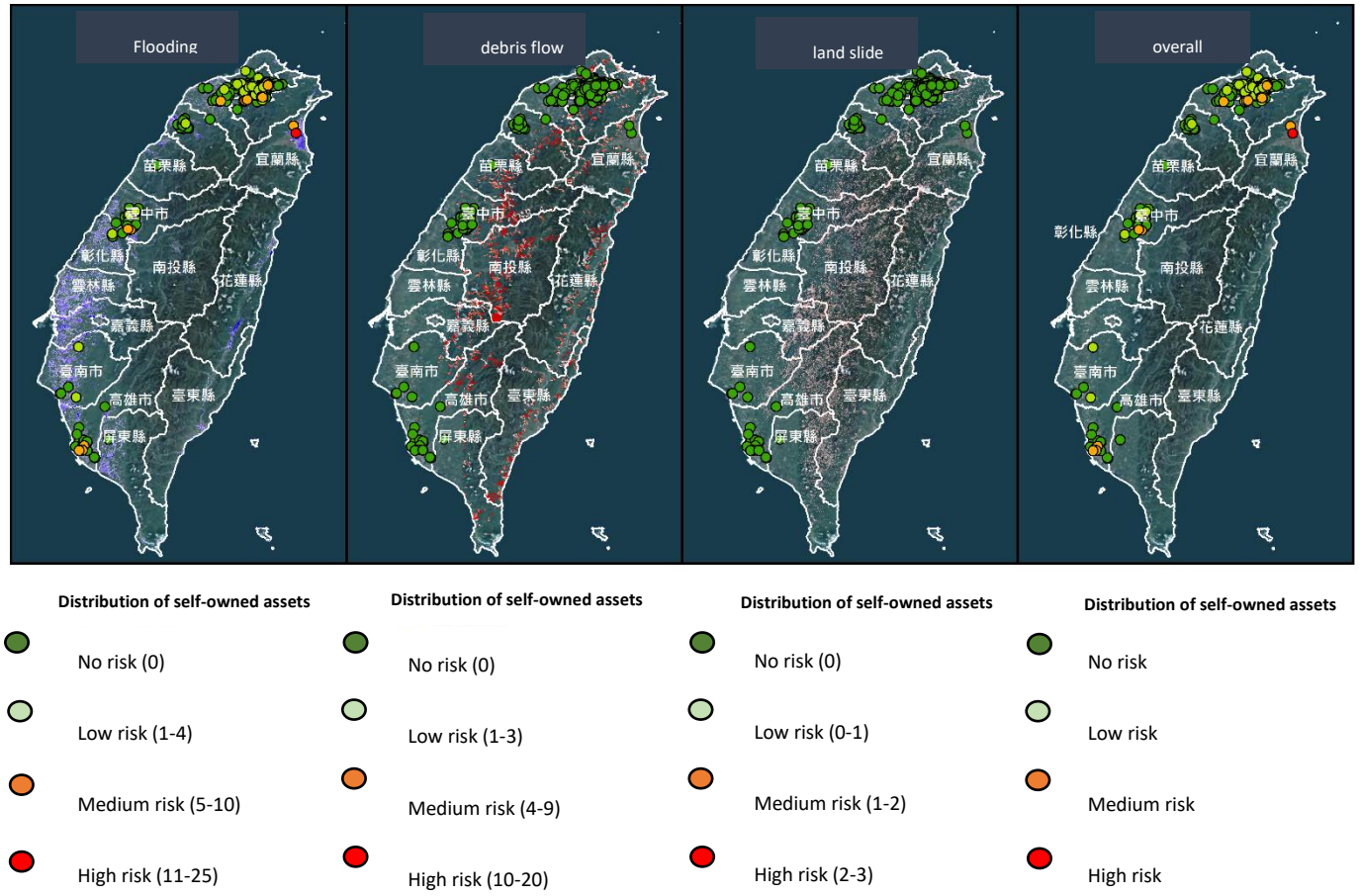
RC8.5

In the RCP8.5 scenario, there are 131 supplier premises with flooding potential; among them, the number of low-risk premises ranges from 91 to 122, which are mainly located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County, Taichung City, Changhua County, and Tainan City, etc. The number of medium-risk premises is smaller and ranges from 8 to 35, which are mainly located in Taipei City, New Taipei City, Taichung City, Kaohsiung City, and Yilan County. The number of high-risk premises is smaller and ranges from 1 to 5, which are suppliers located in New Taipei City, Taoyuan City, Taichung City, and Yilan County.

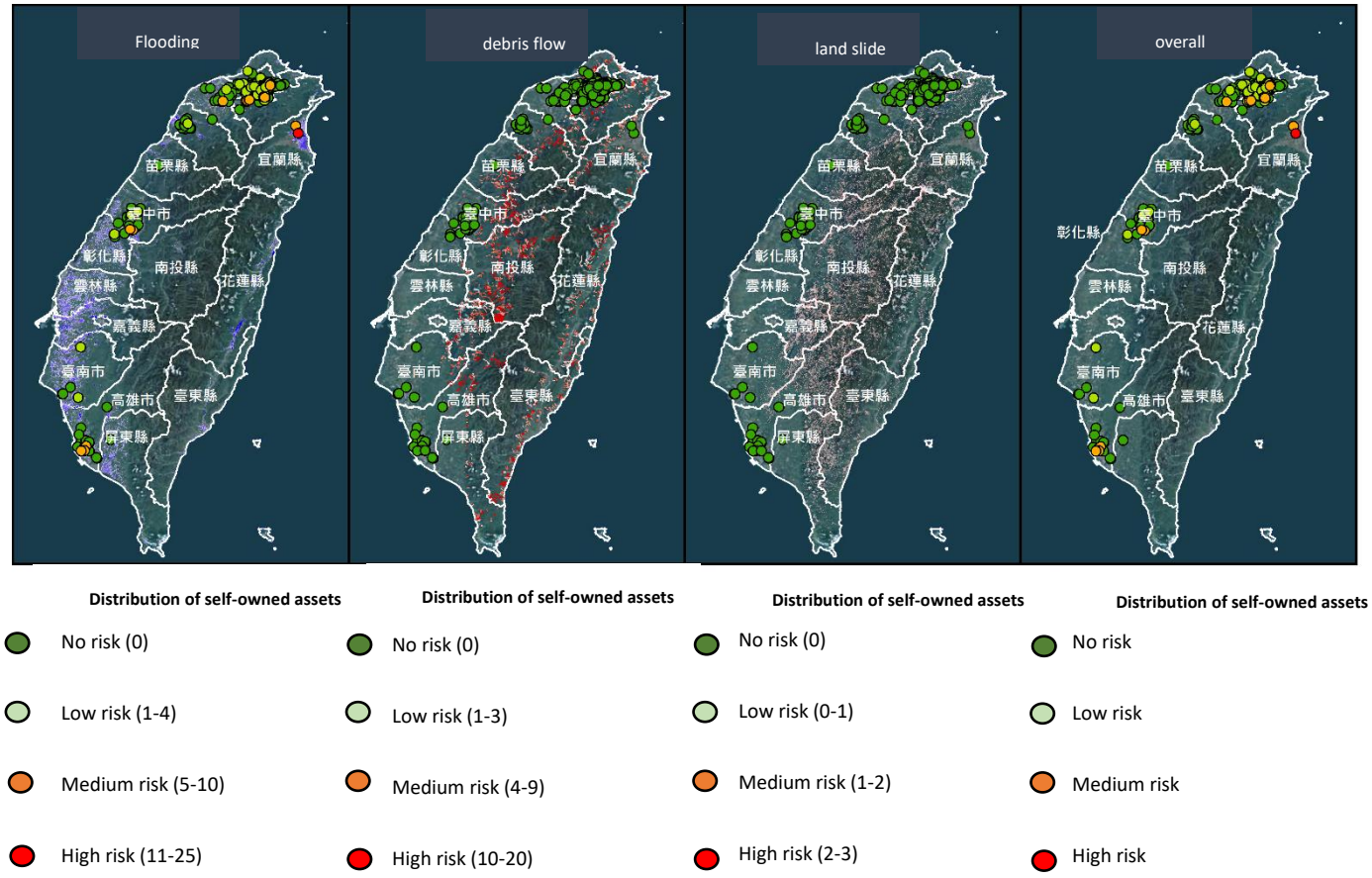
Risk matrix	Countermeasures	Suppliers															
		RCP2.6				RCP4.5				RCP6.0				RCP8.5			
		Short-term	Medium-term	Medium to long term	Long-term	Short-term	Medium-term	Medium to long term	Long-term	Short-term	Medium-term	Medium to long term	Long-term	Short-term	Medium-term	Medium to long term	Long-term
No risk	Normal cooperation	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307
Low risk	Normal cooperation	116	73	104	121	114	107	60	103	108	125	105	102	115	122	91	100
Medium risk	Normal cooperation, pay more attention to the potential and hazard of the disaster	15	55	27	9	16	21	62	25	21	5	22	26	15	8	35	26

High risk	Depending on the industry nature, disaster risk-related supporting measures and liquidated damages are included in the contract, and long-term cooperation is carefully evaluated	0	3	0	1	1	3	9	3	2	1	4	3	1	1	5	5
Total		438				438				438				438			

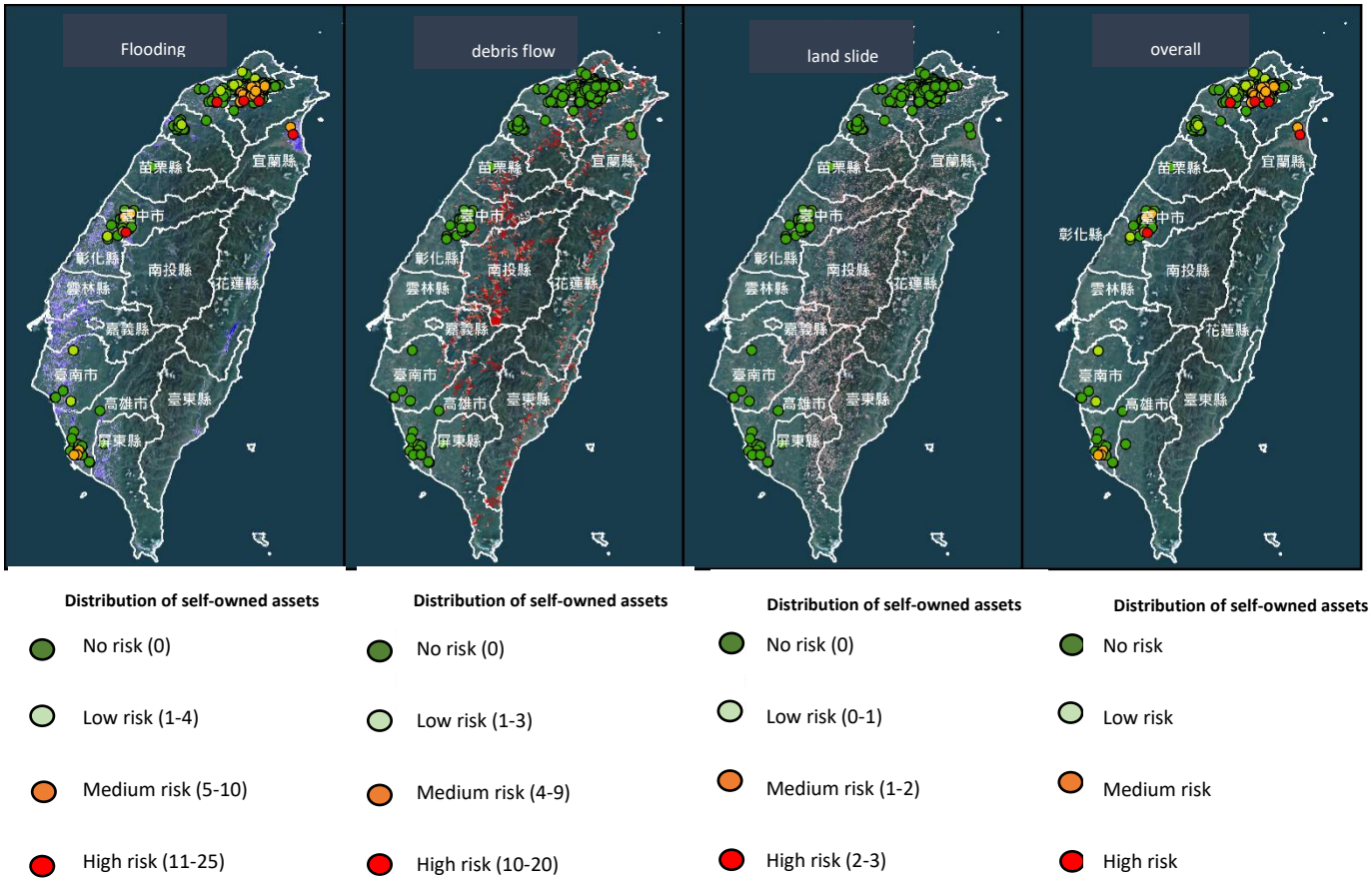
Note: Short term, medium term, medium to long term, and long term represent 2021-2040, 2041-2060, 2061-2080, and 2081-2100, respectively.



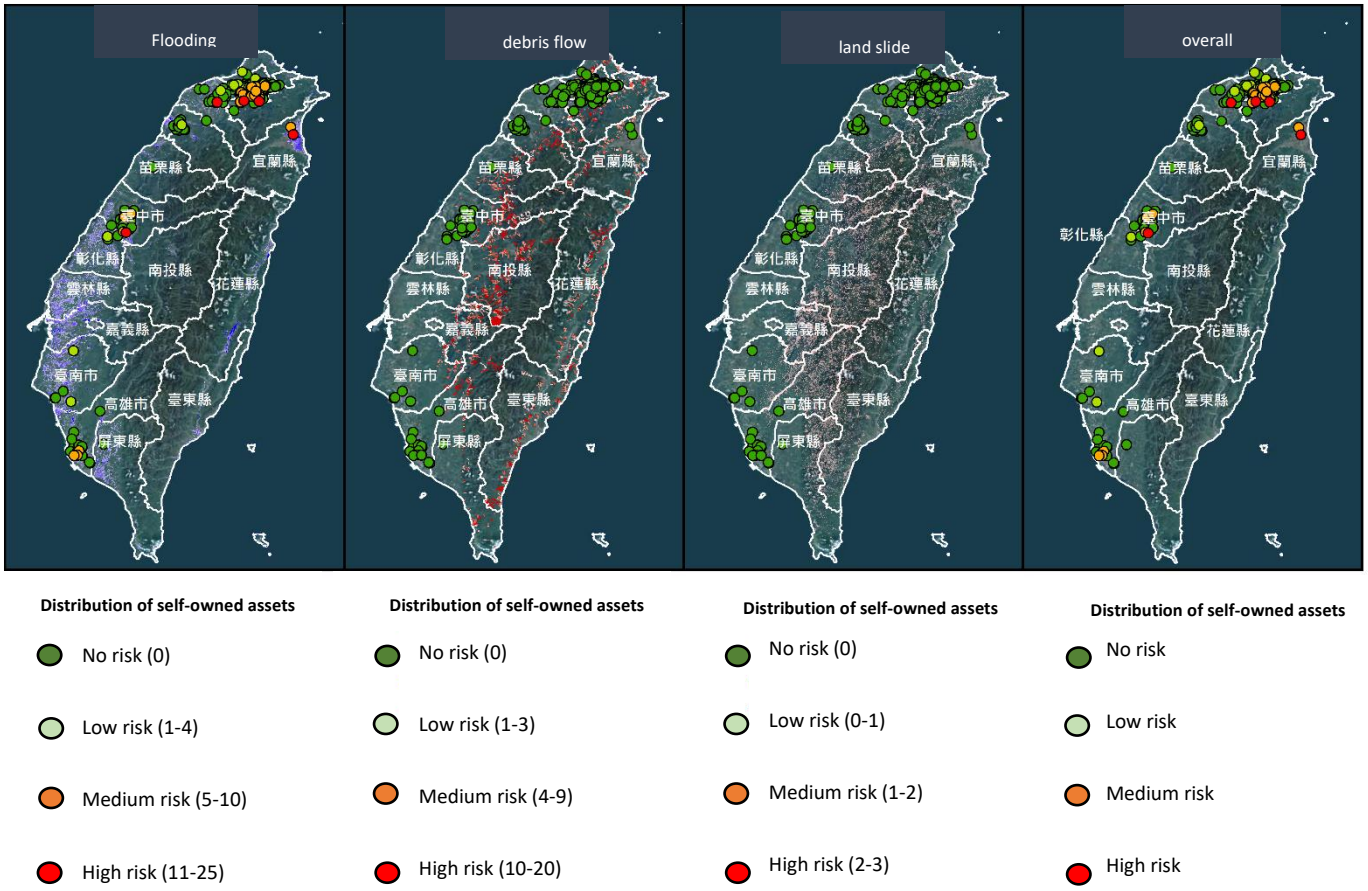
(Figure: Short-term risk value of TWM's supplier premises in RCP8.5 scenario)



(Figure: Medium-term risk value of TWM's supplier premises in RCP8.5 scenario)



(Figure: Medium to long term risk value of TWM's supplier premises in RCP8.5 scenario)



(Figure: Long-term risk value of TWM's supplier premises in RCP8.5 scenario)

2.5.3 Financial impact of physical risks.

The analysis of the self-owned assets showed that 200 operation sites suffer one of the disasters or more. There are 116 stores, 78 machine rooms and 6 offices are detected broke down by business type. For the upstream, a total of 131 suppliers are located in the area with flooding potential. Regarding financial impact, the operating losses and costs are estimated to be increased when the disaster occurs. To minimize the impact of flooding, landslides and debris flow, we consequently invest capital, allocate human resources and enhance prevention measures.

Assumptions：

Flooding：1~3 Day/Year

Mudflow & Landslide：One-Off

		Self-owned Assets			Suppliers					
		Retail Shop	Machine Room	Office	Marketing/ Consulting Services and General Affairs	Engineering	Consumer Electronics	renovation	Information Services and Equipment	Telecommunication Equipment
Disaster	Flooding	116	75	6	22	21	25	4	43	16

	debris flow	0	1	0	0	0	0	0	0	0
	Landslide	0	2	0	0	0	0	0	0	0
Financial Impact	Operating Losses	The estimated impact of flooding is a closure of 1-3 days, resulting in an annual revenue loss of approximately 3,000,000 to 9,000,000 NTD across the 116	1. 75 HUB machine rooms suffer the risk of flooding, with the severest threat being the failure of power supply. Taiwan Mobile has backup batteries that can support for more than 30 minutes, as well as electricity blackout alerts. These measures would ensure no service	No significant impact due to higher floors and Work form Home mechanism	It is estimated that the flooding cannot be resolved immediately. The delay of 2 days would result in a decrease in service quality, causing an approximate loss of 260,000 NTD.					

		retail stores.	interruptions or compromised quality, thereby preventing operational losses. 2. One and two Hub machine rooms are located near debris flow area and landslide areas, respectively, which could potentially impact the annual revenue of the affected base stations by approximately		

			360 million NTD.		
	Increased Costs	The total one-Off cost of human resources (the contingency response team) and retail store	When the 78 machine rooms experienced an impact (including response to 75 flooding emergency event, one debris flow and two landslides, the	No significant impact due to higher floors and Work form Home mechanism	

		repairs is approximately 5.5 million NTD.	estimated annual labour cost is approximately 8,189.		
Management Costs	Capital Invested	-	Investment or establishment in relocation of new site: The cost of machine rooms after debris flow and landslide event swould be approximately 1 million NTD per occurrence.	No significant impact due to higher floors and Work form Home mechanism	-
	Human Resource	-	(Flooding Prevention) For the 75 machine	No significant impact due to higher floors	--

			rooms, the installation of detection systems and power generators would cost approximately 1.82 million NTD. (Mudslide/Landslide Prevention) the execution of slope monitoring operations, technical inspection and analysis services, along with the installation of power generators in the 3 machine	and Work form Home mechanism	

			rooms, would cost approximately 1.1 million NTD.		
	Adding equipment or preventative measures	The cost for setting up disposable waterproof sandbags in 116 retail stores is approximately 170,000 NTD.	(Flooding Prevention) For the 75 machine rooms, the installation of leak detection systems and temporary generators would cost approximately 22.14 million NTD. (Mudslide/Landslide Prevention) the execution of	No significant impact due to higher floors and Work form Home mechanism	-

			slope monitoring operations, technical inspection and analysis services, along with the installation of temporary generators in the 3 machine rooms, would cost approximately 1.1 million NTD.		

3. Metrics and Targets

In 2022, the revenue from green or environmentally friendly products and services designed for low carbon economy was NTD 2.879 billion, accounting for 4% of the total revenue. In 2018, the Company made a commitment for the science-based carbon reduction target. Based on the SBTi carbon reduction requirement, the Company has calculated and estimated the relevant indicators of climate mitigation and adaptation: with

2019 as the base year, the absolute reduction of emissions will be 30% for Scopes 1 & 2 and 15% for in Scopes 3 in 2030. This target has been reviewed and approved by SBTi in 2019. In addition, TWM has also committed to achieve 30% of total renewable energy use and 100% of cloud IDC renewable energy use by 2030, and 100% of total renewable energy use by 2040.

Other environmental management objectives and achievements of TWM in 2022 are as follows:

Environmental management objectives				
KPI	**2030 Targets**	**2022 Targets**	**2022 Achievements**	**2023 Strategy and Plan**
Reduction of electricity consumption	A 1% reduction of electricity consumption compared to 2016	The reduction goal of electricity consumption is 1% of the electricity consumption in 2016	1.69% reduction of electricity consumption compared to 2016	The annual power saving responsibility of each unit is allocated as 1% of the electricity consumption in 2016 with a plan drawn up and performance tracked every 6 months
Carbon reduction	30% reduction of carbon emission compared to 2019	0.5% reduction of Scope 1 & 2 carbon emissions compared to 2022 goals	5.6% increase of Scope 1 & 2 carbon emissions compared to 2022 goals	Increase the renewable energy use ratio
Water Conservation	Total tap water consumption decreased by 15% compared with 2017	Decreased by 5% compared with 2017	Decreased by 10.0% compared with 2017	1. Promote water conservation among employees 2. Reduce the water used to flush the toilet 3. Reduce the amount of water spilling from the

Environmental management objectives				
KPI	**2030 Targets**	**2022 Targets**	**2022 Achievements**	**2023 Strategy and Plan**
				cooling tower 4. Regularly review water consumption abnormality and leaks 5. Optimize the water chiller operating mode
Waste reduction	Reduction of total non-recyclable waste by 40% compared to 2017	Decreased by 16% compared with 2017	Decreased by 44.8% compared with 2017	1. Business waste recycling 2. Using environmentally friendly lithium batteries 3. Optimizing routing of cables 4. Reducing the amount of rubber cable placement
Use of renewable energy source	20% utilization rate of renewable energy	2% of utilization rate	4.5% of utilization rate	3. Reduce the amount of water spilling from the cooling tower

3.1 Mitigation

Since the introduction of ISO 14064 greenhouse gas inventory system and ISO 5001 energy management system in 2012, TWM has been engaging in continuous energy saving improvement and making unremitting efforts to achieve carbon reduction targets. The energy saving and carbon reduction performance of TWM in 2022 is shown below:

Emission reduction projects	Project description	Energy saving amount or renewable energy use amount (kWh)	Carbon reduction (metric tons of CO2e)
Office energy efficiency	Replacement with energy-saving lamps in Taichung Yuanjian Office F5 to F12	161,022	81.96
Energy efficiency in system and server rooms	Air conditioner replacement in machine room	130,008	66.17
Energy efficiency in retail stores	Establish equipment database energy survey and implement energy saving programs: 1. Replace constant air-conditioning with inverter air conditioning 2. Replacement of lamps and adjustment to the time of turning on signboard light 3. Indoor temperature maintained at 26 degrees Celsius	751,921	382.7
Energy efficiency in Cloud IDC.	with the energy-saving design and operation, the PUE of Cloud IDC decreased to 1.65 (1.67 in 2021) 1. Cooling and heating channels isolated in the machine room 2. Natural air cooling system 3. High-performance air conditioning and electrical	383,279	195.09

	equipment 4. LED lights in all machine rooms and energy control based on ISO 50001 system		
Energy efficiency in data centers	Replacement of inverter fans in air conditioning units	217,772	110.85
Energy efficiency in telecom server rooms and Cell Tower Stations	1. Intelligent energy saving of telecom equipment: Big data analysis of customer use behavior to dynamically adjust telecommunications equipment load 2. Multiple energy saving of Cell Tower Stations: Big data analysis of main energy-consuming equipment and introduction of various smart energy-saving methods 3. Optimization of air-conditioning resources in telecom server rooms: Turning on water chiller with a smart mechanism based on the amount of chilling needed	5640,000	2,872
Use of renewable energy	1. Self-generation for self-use: Constructed 316.8Kw renewable energy for Cell Tower Stations, Taichung and Pingtung machine rooms 2. Green power directly transmitted to TWM: 20.7MW of green power is transferred and supplied for the use of the Company's machine room and Cell Tower Stations	26,050,000	13,259
Total		33,334,002	16,968

3.2 Adaptation

3.2.1 Self-Owned assets

For premises with no risk and low risk, TWM’s main countermeasure is to maintain the premise. However, even in a no-risk and low-risk situations, TWM still has emergency plans and risk management measures, including establishing emergency response process, such as preparing evacuation plans and rescue supplies, to ensure the safety of employees and protection of properties, and considers further enhancing the water resistance of its building structures and risk management systems to reduce the risks and losses that may occur in the future. For premises with medium risk, TWM's countermeasures are based on the principles of maintaining the premise and paying more attention to changes in disaster potential. For premises with landslide potential, measures such as strengthening slope stabilization measures, building structural safety assessment, and strengthening risk management are taken to respond to potential disaster; for premises with potential flooding, measures such as raising the foundation, enhancing drainage, and strengthening risk management are taken to respond to the potential disaster. For premises with high risk, TWM's countermeasures are prohibiting the establishment of premises unless necessary and relocating the operating premise to a place with medium risk or below. For premises with debris flow and landslide risks, measures such as actively strengthening slope stabilization measures, building structural safety assessment, and strengthening risk management are taken to respond to disaster potential; for premises with flooding potential, measures such as actively raising the foundation, enhancing drainage, and strengthening risk management are taken to respond to the potential disaster.

Short-term (1-3 years)

- Dynamic review: TWM should conduct a disaster risk assessment annually for all owned asset to achieve the goal of risk management.
- Emergency Plan: Develop emergency response procedures, including evacuation plan and material rescue plan, to ensure the safety of employees and the protection of properties.
- Set up risk warning system: Establish risk warning system so that we can be notified of risks and corresponding countermeasures in a timely manner during periods of high rainfall frequency.

Medium-term (3-8 years)

- Establishing a flood control system: research the geographical and hydrological conditions of the area and establish an appropriate flood control system to reduce the impact of flooding potential.
- Strengthen the water resistance of buildings: Strengthen the water resistance of the office building structure to reduce the damage of the building by flooding.
- Strengthen slope stabilization measures: Strengthen the safety inspection of the slopes around the premises and check whether the drainage is unblocked to reduce the hazards of landslides and debris flows caused by heavy rainfall.

Long-term (>8 years)

- Reconstruction or relocation: Consider reconstruction or relocation of any premise in high-risk areas to avoid the risks of dangerous area.
- Develop a sustainable development plan: Consider developing a sustainable development plan to reduce environmental impacts, such as energy conservation, emission reduction, and recycling, to ensure long-term economic and environmental stability.

3.2.2 Suppliers

For low-risk premises, TWM adopts the principle of maintaining normal cooperation and require them to strengthen disaster prevention

measures, such as strengthening the drainage systems and repairing the flood banks, to cope with extreme weather events. For medium-risk premises, TWM also adopts the principle of normal cooperation and requires suppliers to raises awareness of climate damage, such as assisting suppliers in understanding the trends of disaster potential and hazard and strengthening disaster prevention measures (e.g. strengthening regional monitoring and early warning systems), in order to cope with the extreme events. For high-risk premises, TWM intends to implement more proactive disaster prevention measures. In addition to continuously strengthening drainage systems and improving building structures and raising relevant awareness, TWM considers incorporating disaster risk-related supporting measures and liquidated damages system to reduce possible damages and impacts. The remaining 307 premises are with no risk, but for such premises, TWM also ensures the safety of the premises by strengthening basic protection and regular maintenance of premises and makes dynamic adjustments through annual review of supplier risk.

Short-term (1-3 years)

- Dynamic review: TWM should conduct a disaster risk assessment annually for all suppliers to achieve the goal of risk management. Identify the high, medium and low risks of suppliers
- Emergency Plan: Develop emergency response procedures, including evacuation plan and material rescue plan, to ensure the safety of employees and the protection of properties.
- Set up risk warning system: Establish risk warning system so that we can be notified of risks and corresponding countermeasures in a timely manner when risks arise.

Medium-term (3-8 years)

- Evaluate building structures: Evaluate the building structures and topography of leased sites to understand their abilities to withstand extreme climate events, and make necessary reinforcement and adjustments. Take actions according to the high, medium and low risks of suppliers
- Enhance preparation for supplies and against disasters: Enhance preparation for supplies and against disasters to ensure that the basic needs of employees are met during extreme weather events.

Long-term (>8 years)

- Relocation: If the risk level of the leased site is too high and effective adaptation is impossible, relocating to a safer place should be considered.
- Expand risk management program: Plan for avoiding the climate impacts on the supply chain through supplier selection. Consider expanding the risk management program, including incorporating risk management considerations into lease contracts and communicating and coordinating with lessors to ensure the feasibility and effectiveness of risk management.

3.3 Value Chain

3.3.1 Green Service

TWM has set the above specific carbon reduction targets and plans according to our own operation. However, we are deeply aware that only through the efforts of the entire value chain can we achieve the goal of carbon neutrality and sustainable development in order to cope with the increasingly serious climate change. Therefore, in recent years, TWM has been actively promoting the development of innovative green products and services through digital technologies:

Products and Services	Practice description	Carbon reduction performance (tCO2e)
MySports	Provide sports records and online challenge function. Employees can view and manage their own data through MySports APP to maintain good exercise effect.	39.17
Customer Service App	The Customer Service App provides a variety of online services for TWM users, including bill inquiry and payment, roaming plan application, etc. Customers can easily apply for various services directly through the APP without going to a physical store. In addition, the APP displays a lot of promotional information, which replaces traditional printed promotion in an environmentally friendly manner.	54.56
Innovative Billing Services	Since 2008, the Company has been promoting e-billing services to replace physical bills with emails or text messages; in 2022, the paper consumption was reduced by 195.35 million sheets.	1,723

myfone	• Online insurances: When customers place an order with myfone, TWM will provide anti-theft insurance, damage insurance, and screen insurance for 3C products. Customers can easily apply for insurance online; more than 25,095 insurance policies were completed in 2022. • Online or FamiPort identity verification: When customers apply for a cell phone plan at the eStore, we will provide online identity verification directly or through the FamiPort machine, so that we don't have to hand over the agreement to the customer to sign in person; 2,046 plans were completed in 2022. .	2.2
M+	In response to Covid-19, working from home has become everyone's daily life. M+ uses the cloud to record video images, and then encrypts and uploads the recorded files directly. After the policyholder's identity is approved by the Company, an invitation notice is sent. This service is used for video calls for insurance, survivorship surveys, insurance claims or customer service handling, and can effectively improve processes and reduce carbon emissions	371.25
Solar and Wind Power	The Company generated 316.8 kW of green power for self-use in 2022, which provided renewable energy for TWM's base stations and machine rooms.	247
Energy-efficient designed Cloud IDC	The Cloud IDC uses separated heating and cooling channels, professional HVAC equipment (such as water chillers, cooling towers, etc.) for natural cooling, infrared controlled LED lighting, and ISO 50001 management system for energy consumption control. The IDC cloud-based machine room PUE decreased to 1.65 in 2022 (1.67 in 2021).	192
MyVideo	1. MyVideo is an online video and audio streaming service that can	236,540

	reduce the production demand for plastic disks, the number of covers printed, and the related carbon emissions. 2. MyVideo can also avoid the need for transportation, repackaging of traditional disks in stores or warehouses and the related carbon emissions.	
MyMusic	1. MyMusic is an online music streaming media service that can replace traditional CDs and albums. 2. MyMusic offers nearly 9 million digital music tracks in 320 kbps AAC format, providing users with a better listening experience.	24,331
MyBook	1. MyBook is an e-book platform replacing traditional books that need to be printed, transported and recycled/disposed of. 2. This platform has over 10,600 books and over 3.4 million users registered for the service.	625
Fleet Management	It realizes more efficient fleet management and fuel efficiency.	17
Cloud-based AI Energy Management System	1. By building IoT sensors into electronic products, users can monitor energy consumption in real time through a computer or mobile APP. 2. Transforming energy statistics into a UI design improves management efficiency and realizes environmental benefits by reducing energy consumption.	34.08
Total		264,176.26

3.3.2 Green Energy Initiative

TWM has initiated the Green Energy Initiative integration project since 2015. In 2016, under the slogan of “'Taiwan Grand Green Energy for a Sustainable Future ”, TWM promoted electricity saving and carbon reduction and the building of green base stations, and launched green energy initiatives to our customers and suppliers. From 2017 to 2022, the Company has been launching the “Solar for Good”, a public welfare green energy project that integrates society and the environment for six consecutive years. In 2022, the Company rented the roofs of long-term care institutions and purchased solar panels from Sunnyfounder’s public power plants to generate electricity for the Solar for Good Program by the “non-self-owned roof model ”, and the green electricity generated will be sold the TPC for 20 years. In addition, TWM purchases an equivalent amount of green electricity, invites suppliers and consumers to raise NTD 4.427 million to build 81.84kWp of photovoltaic equipment for public welfare organizations, with a total of 2,281 consumers and 20 suppliers responding to the project. We have generated about 1.74 million kWh of green electricity, with a revenue of about NTD 9.66 million, magnifying our love 2.18 times over 20 years. Over the past 6 years, more than 10,000 donors have participated in the Solar for Good Program and 524.7 kW of solar photovoltaic systems have been built, creating a total of NTD 72.85 million stable income for 6 public welfare organizations, generating 11.1 million kWh of green electricity and reducing 5,778 tons of carbon emissions, the benefit is equivalent to 15 Daan Forest Parks.

4. Appendix

TCFD Disclosure Comparison Table

Level	General Industry Indicators (2021 Edition)	Corresponding page/chapter
Governance	a) Supervision of the Board of Directors on climate related risks and opportunities	7-8
	b) Management's role in assessing and managing climate related risks and opportunities	9-12
Strategy	a) Short-, medium- and long-term climate related risks and opportunities identified by the organization	12-20
	b) Climate related risks and opportunities that could have a significant impact on the organization's business, strategy and financial planning	20-22
	c) The organization's strategic resilience, taking into account different scenarios of climate change, including scenarios of 2°C or lower	23-25
Risk management	a) Organization's process for identifying and assessing climate related risks	25-30
	b) Organization's process for managing climate related risks	25-30
	c) How the organization's processes for identifying, assessing and managing climate related risks are integrated into the overall risk management	20-22
Metrics & Targets	a) Indicators used by the organization to assess climate related risks and opportunities in accordance with the strategy and risk management process	13-22
	b) Emissions and related risks under Scopes 1, 2, and 3 (if applicable)	23-25
	c) Organization's objectives for managing climate related risks and opportunities, and performance of these objectives	9-12