

# 2022 WIWYNN

## TCFD CLIMATE-RELATED ASSESSMENT REPORT



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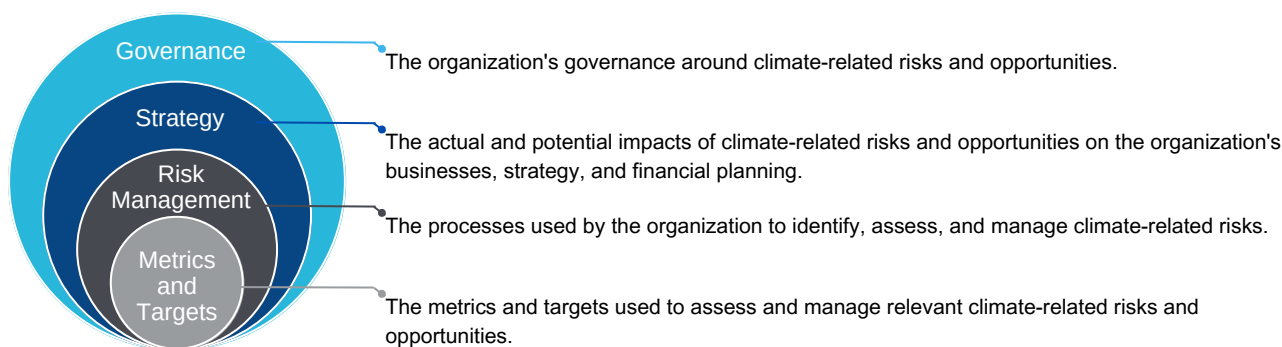
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## 01

## Overview

In recent years, under the influence of climate change, the concept of using earth energy and resources has changed, and it has also brought operational challenges to various economies. In order to make sure the transparency of the information related climate-related risks and opportunities, Wiyynn started to disclose information related to climate change on the Corporate Sustainability Report in 2019 according to the TCFD (Task Force on Climate-Related Financial Disclosures) framework. We will continue to respond to the operational challenges and opportunities brought by the climate change through the implementation of various plans. Meanwhile, we introduce climate change-related information into operation and investment decisions to enhance the realization of the solutions for climate change. We also commit to reducing the greenhouse gas emission to fulfill our corporate social responsibility. The report will follow the TCFD framework to illustrate Wiyynn's governance and strategies related to climate change.

TCFD Framework



## 1.1 Important events of sustainability



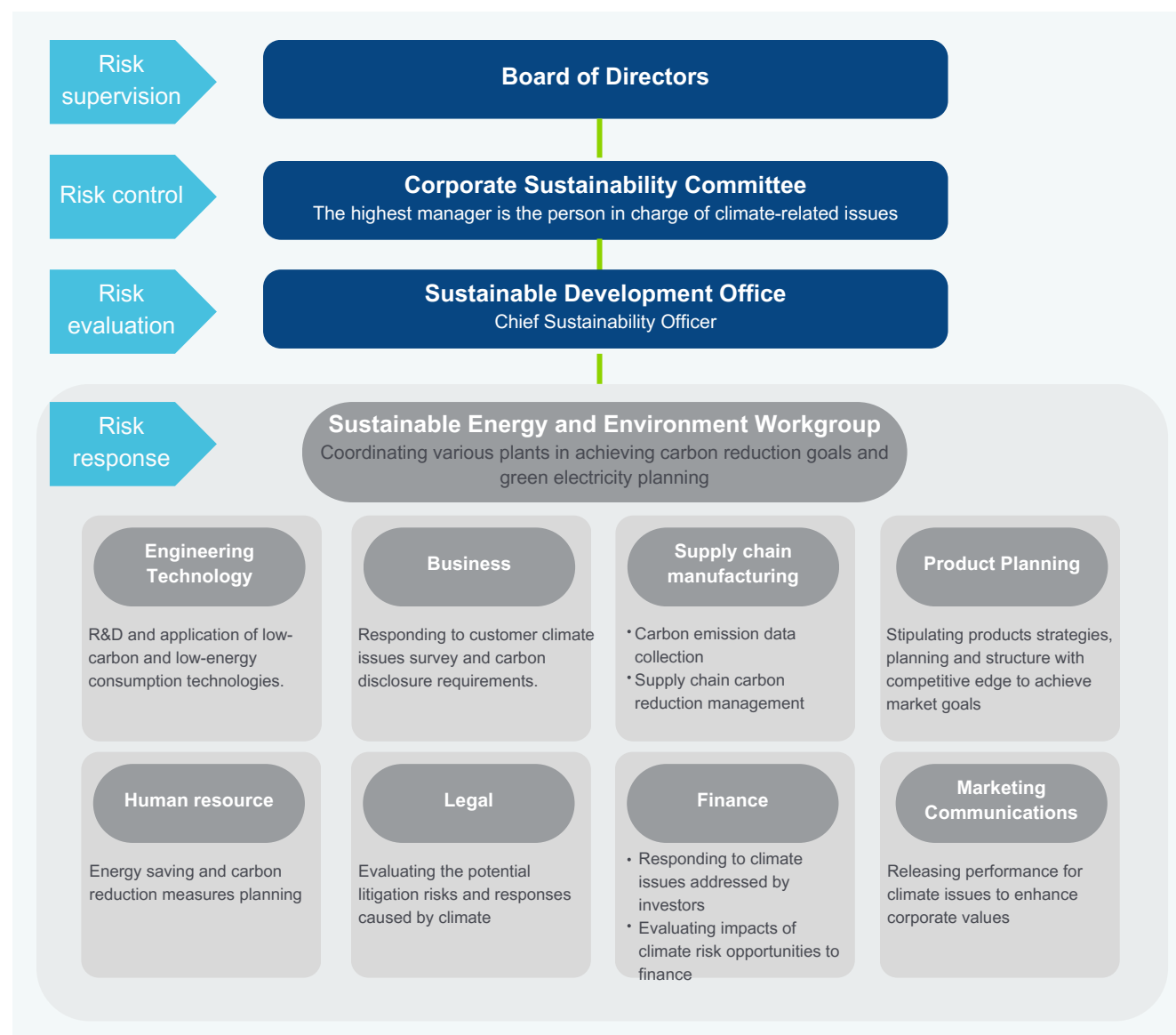
## 02

# Climate Governance Framework and Functions

## 2.1 Board Participation and Management Responsibility

The “Corporate Sustainability Committee” is the highest governance unit for issues related to climate. This committee is a functional committee under the board of directors and consists of four directors. The CEO, the highest executive in the management hierarchy, serves as the person in charge of climate issues, responsible for assessing and managing climate-related issues. President, senior vice presidents and independent director are committee members. At least two meetings should be held every year, and chief Sustainability Officer is required to report to the Board of Directors at least once a year. In 2022, “Corporate Sustainability Committee” held two meetings. The latest report submitted to the Board of Directors was on February 22, 2023.

### Climate Issue Management Organizational Structure



## 03

# Climate Risk Strategies and Assessment

## 3.1 Risk Strategies and Planning

Wiwynn defines short-term, medium-term, and long-term timeline as 1-3 years, 3-5 years, and more than 5 years. The risks identified contain transitional risks and physical risks, including existing regulations, emerging regulations, techniques, markets, goodwill, lawsuit, acute disasters, and long-term disasters. In 2022, the climate-related risks identified that have significant impacts on business operation or finance were mainly transitional risks. Among them, the possibility and impact caused by technical transformation were higher. It followed by the changes of supply chain requirements, such as the trend and commitment of using renewable energy, as well as legal risks, like total volume control/ emission trading, carbon tax, energy tax, and renewable energy regulations. The last was the impact of physical risks, such as the changes of temperature and rainfall as well as the changes of average temperature. According to IPCC AR6 evaluation report, global warming will rise temperature 1.5°C in the short term (2021-2040). Therefore, to control the rise of temperature, net zero trend was advanced from 2050 to 2040. In order to enhance emission reduction mechanisms, each country will establish stricter standards for energy consumption and carbon emission on products. Net zero trend and product energy efficiency legal standards (CBAM) are the main two emerging risks that we concern. The uncertainty towards product and service requirements in the market will also affect the Company's medium-term and long-term strategy planning.

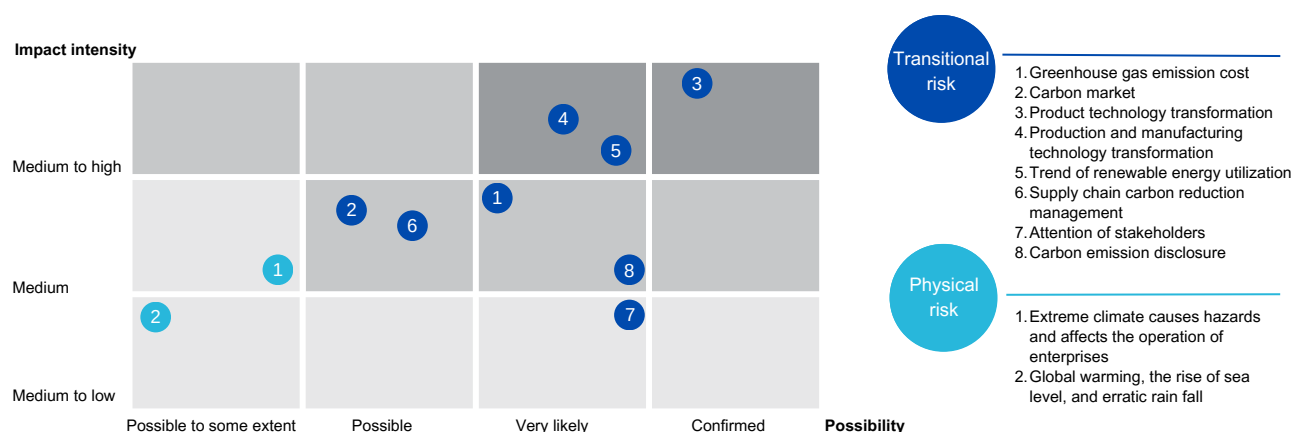
In terms of opportunities related to climate, except Taiwan upgrading Greenhouse Gas Emission Reduction and Management Act to Climate Change Response Act, each country established many restrictions on carbon emission to respond to climate changes, such as EU CBAM. Issues of climate change are not limited to one area; instead, it is a global impact and has expanded to each enterprise as supply chain effects. The emission reduction of products and services is closely linked to the value chain. To this, Wiwynn is currently introducing a carbon management platform and collecting emission data in the organization and in the supply chain via a digital and automatic method as the accordance for carbon management. We continue arranging the purchase of renewable energy. In the future, when we expand the construction of plants, we will consider the design of green buildings in priority. We will also take initiative to invest the development of new heat dissipation technology and integrate solutions to grasp business opportunities in the market.

## 3.2 Risk evaluation and management

At least once every year, "Sustainable Development Office" follows the global risk evaluation report to identify risks and opportunities in the upstream, organization, and downstream of the value chain. In recent years, climate risk has become one of the closely watched important risks in the global risk evaluation report. In 2022, we identified the speed-up of net zero trend in the future, the widespread of carbon pricing implementation to adjust financial impacts, business continuity management of climate risks, energy resource management, and price increasing, and material shortage caused by the changes of natural resources. We incorporated them into the overall risk evaluation and established management plans. Corporate Sustainability Committee reviewed the management plans and objectives before reporting to the Board of Directors. When the Board evaluates and instructs the Company's production, R&D, supply chain management, and customer relationship, all the issues related to climate must be considered in order to control the implementation and promotion of relevant plans. In 2022, Wiwynn established goals of carbon reduction and commitment of using renewable energy as well as report it to the Board of Directors. In 2023, to deepen ESG performance management, we established goals of saving energy on products and reducing carbon during the manufacturing process. It is linked to the remuneration of high-level managers (like CEO, highest manager of each function and the head of plant) to approve their variable compensation based on the implementation status of the goals.

The “Sustainable Energy and Environment Workgroup” was established under the “Sustainable Development Office” to collect climate-related issues from each unit. Besides, considering the existing and emerging legal requirements related to climate change, such as “Climate Change Response Act”, “Renewable Energy Development Act”, and “Autonomous Regulations of Low-carbon City Development”, we conducted matrix analysis based on the possibility and level of impact to assess the impact (Note) on the Company’s financial position caused by climate change risks and opportunities. This assessment was carried out using coefficients from the SSP Public Database, TCCIP future scenario forecasts, and reports on international industry trends. We regularly follow up the subsequent situation of our climate strategies and course of action. The CEO monitors issues related to climate through the monthly meetings of the “Sustainable Energy and Environment Workgroup”, and Chief of Sustainability officer reports to the “Corporate Sustainability Committee” every half a year.

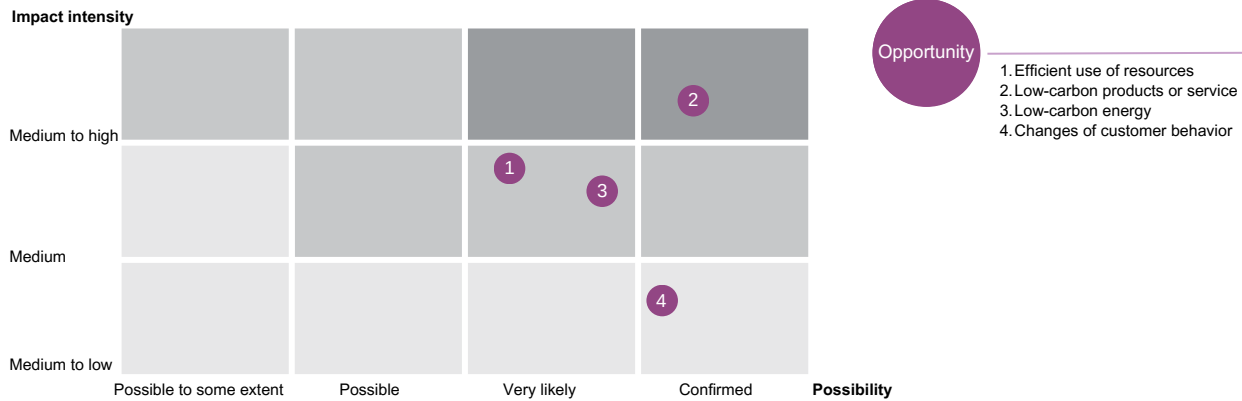
## Climate Risk Matrix



		Item	Level of risk	Location	Time	Impact/ financial implication	Management method
Transitional risk	Domestic and overseas regulations and policies	Greenhouse gas emission cost	Medium	In the organization	Short term	Increased operating costs and expenses	Introducing carbon platform management to establish carbon emission data and monitor potential carbon costs timely.
		Carbon market	Medium	In the organization	Long term	Reduced revenue	
	Technical transformation	Product technology transformation	Medium to high	In the organization	Medium term	Enhanced R&D expenditure and increased development costs	The Company continues introducing innovative technologies and lowering potential costs required for significant transformation on products and manufacturing process in order to assist customers reduce PUE (power usage effectiveness) by providing higher-efficiency heat dissipation solutions and develop sustainable data centers.
		Production and manufacturing technology transformation	Medium to high	In the organization	Medium term	Increased capital expenditure and direct costs	
	Change of supply chain requirements	Trend of renewable energy utilization	Medium to high	Upstream or supply chain, in the organization, downstream or customers	Short term	Enhanced energy costs and increased expenses	Timely monitoring the trend of renewable energy to relatively reduce procurement costs. Through the implementation of the carbon platform, it aims to integrate supply chain carbon emission data and effectively promote carbon reduction plans.
		Supply chain carbon reduction management	Medium	Upstream or supply chain and in the organization	Medium term Long term	Increased costs and expenses	
	Carbon reduction performance	Attention of stakeholders	Low	In the organization and downstream or customers	Short term Medium term	Increased personnel costs and management fees	Introducing carbon platform management to integrate supply chain carbon data management and for transparent disclosure. It is expected to present the performance in carbon reduction via diverse carbon reduction effects every year and enhance positive company brand image.
		Carbon emission disclosure	Medium	In the organization	Short term		
Physical risk	Acute Risk	Extreme climate causes hazards and affects the operation of enterprises	Medium	In the organization	Short term	Endangered employee safety so that the enterprise's labor costs, and management costs were increased; reduced productivity caused the reduction of revenue; impairment loss of assets caused the increase of capital increase.	The Company has established business continuity management (BCM) and various business continuity plans (BCPs). It is anticipated that the introduction of relevant systems and drill plans will cost approximately NTD 1 million to NTD 2 million. This investment aims to effectively control the risk of operational disruptions and mitigate financial losses or personnel injuries caused by business interruptions.
	Chronic Risk	Global warming, the rise of sea level, and erratic rain fall	Low	In the organization	Long term	Increased indirect costs	



## Climate Opportunity Matrix



	Item	Level of risk	Location	Time	Impact/ financial implication	Management method
Opportunity	Efficient use of resources	Medium	In the organization	Short term Medium term	Enhanced resource efficiency, lowered electricity fee, and reduced expenses	<ul style="list-style-type: none"> <li>We introduced energy-saving buildings to the plant in Malaysia that is currently under the construction. It is estimated to achieve 30.37% energy efficiency and save around 6,361,646 kWh (1kWh=NT\$3). It saves NT\$19.1 million every year.</li> <li>In 2022, it was estimated the energy-saving and carbon reduction measures saved 528,067 kWh every year as well as reduced around NT\$1.85 million of electricity fee.</li> </ul>
	Low-carbon products or service	High	In the organization and downstream or customers	Medium term	Satisfied customers' demands on energy-saving products and increased revenue	The Company has continued introducing low-carbon projects to our products, such as 48V and 54V, high power conversion efficiency, recycled plastics, and liquid cooling. In 2022, it was estimated saving 355,253.88 kWh and 670.3 tons CO <sub>2</sub> e carbon reduction efficiency.
	Low-carbon energy	Medium	Upstream or supply chain	Medium term	Enhanced the use of renewable energy and lowered the expense on the rising fossil fuel prices in the future	Currently, the utilization rate of renewable energy is 27.73%. It is expected to increase every year to grasp potential opportunities.
	Changes of customer behavior	Low	Downstream or customers	Medium term	Enhanced the willingness of long-term investment from investors and reduced the significant fluctuations on the value of stock	Performance of carbon reduction is presented via diverse carbon reduction efficiency every year to enhance positive company brand image.

## 04

# Scenario Analysis

Wiwynn conducted qualitative and quantitative scenario analysis for transformational risk and physical risk. Through different scenario assessments, potential impacts are evaluated to formulate response strategies.

## 4.1 Transitional Risk Scenario Analysis and Assessment

### 4.1.1 Structure of transition scenarios

The structure of transition scenarios in Wiwynn is shown in Figure 1 below. It sets IPCC AR6 SSP and international energy parameters as climate scenarios to analyze the financial impacts that Wiwynn might encounter in BAU model under these scenarios based on the current data in Wiwynn. Besides, it estimates potential costs on the implemented or pending strategies to compare the gap between the two.

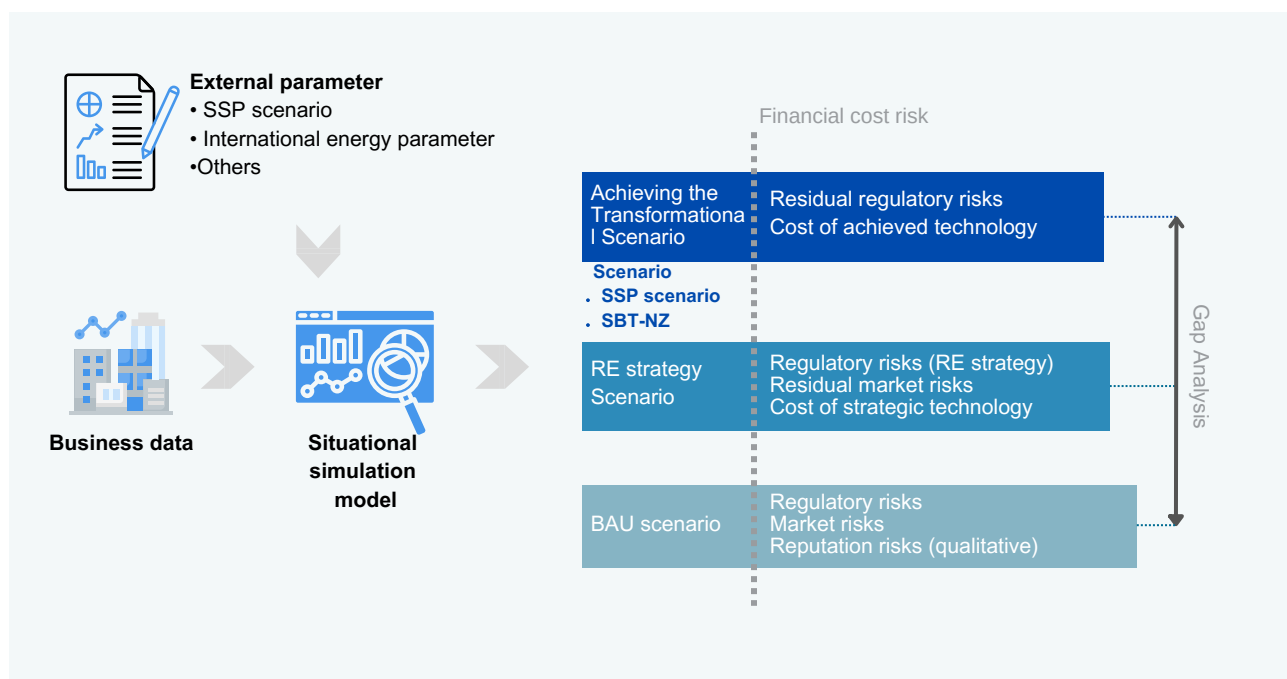


Figure1. 2023 Wiwynn Corporation Transitional Risk Evaluation Structure



### 4.1.2 Definition of goals and scope

There are three types of external scenarios used to explore transitional risks. The first is NDC, the second is the achievement of SSP1-1.9 pathways specified in IPCC AR6, and the third is the harshest transition scenario, which is to implement the requirement of carbon reduction goals published by SBTs to achieve net zero by 2050. A net-zero target of reducing 4.2% every year.

External transition scenario	Description	Applicable scope	Evaluated risk	Source of emission
NDC	Using the current goals of net zero proposed in Taiwan as the accordance for evaluation	Wiwynn Corporation	Regulatory risks Market risks Technology risks	Scope 1 + Scope 2
SSP1-1.9	Using the SSP1-1.9 pathways specified in IPCC AR6			Scope 1 + Scope 2
SBT-NZ	Using the scenarios for achieving net zero			Scope 1 + Scope 2

Table1. Evaluation scope and boundary used for scenario analysis

## 1 | Assessment goals

It is mainly to evaluate financial impacts by transitional risks when facing climate change. Financial impacts caused by different risks may not be exactly the same. Transitional risks include regulatory, market, and reputation risks. The description for different scenarios and applicable scope are as follows:

- (1) Regulatory risks mainly affect an enterprise's operating cost and capital expenditure items (financial impact).
- (2) Market risks mainly affect the loss of an enterprise's expected income (financial impact).
- (3) Estimation of management cost for transition strategy
  - A. RE strategy (renewable energy purchase expected by an enterprise and RE100 strategy)
  - B. Gap analysis on the cost for the achieved transition scenario

## 2 | Evaluating boundary and scope

Future emissions are estimated according to Wiwynn's basic data, and potential risks (BAU strategy adopted by Wiwynn) are explored based on the estimated emissions and existing strategies. Besides, we also consider the renewable energy specific development plans (defined as additional strategies (Note)) the enterprise established and the declared RE100 strategy (hereinafter referred to as RE strategy) to analyze the cost gap with the goals for the three transition scenarios after the enterprise implements RE strategy. In the end, the following scenario analysis results will be generated in order. Comparing the final results to understand potential financial impacts in different scenario caused by different strategies.

- (1) Financial impacts in the three external transition scenarios under BAU (a scenario only considers current solutions).
- (2) Financial impacts in the three external transition scenarios under business RE strategy (additional strategy and RE100 strategy).
- (3) Financial impacts when the enterprise achieves the goals for the three external transition scenarios.

### 3 | Simulated parameter factors scenarios

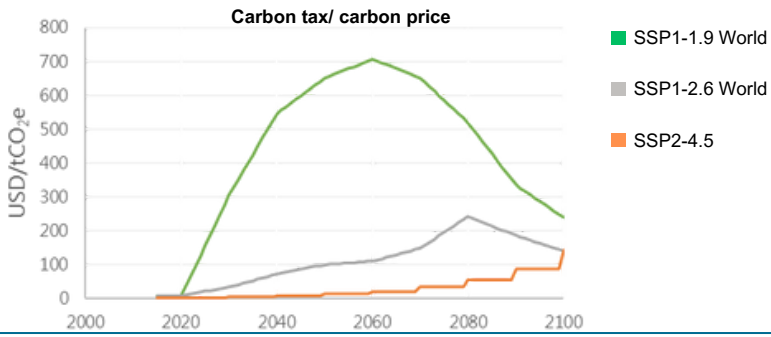
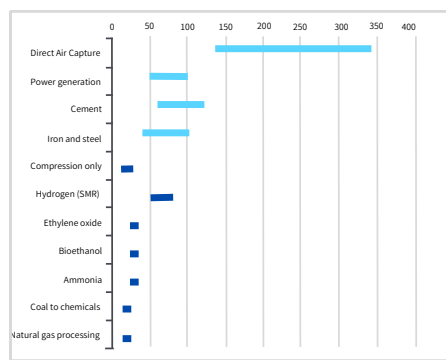
Risk		Description	Cost category
Regulatory	Carbon tax	<p>In different scenarios, taxes are imposed according to the unit carbon emission by the enterprise. Because of the huge gap in tax systems, it contains very high uncertainty. The evaluation mainly considers two grades of carbon tax:</p> <ol style="list-style-type: none"> <li>1. Government net-zero pathway: Carbon tax 300 NTD/tCO<sub>2</sub>e (around 10 USD/tCO<sub>2</sub>e)</li> <li>2. SSP1-1.9 and SBT-NZ: Carbon price of SSP1-1.9 (achieving roughly 650 USD/tCO<sub>2</sub>e by 2050)</li> </ol> 	Operating cost
	Total amount control and carbon	The international regulations and trends at the moment prone to impose carbon tax instead of adopting carbon penalty or total amount control. Therefore, only the government net-zero pathway considers additional carbon penalty (a rule of not exceeding 1500 NTD/tCO <sub>2</sub> e).	Operating cost
Technology	Renewable energy placement cost	Placement cost of installing renewable energy power-generating device independently and list it all as the cost of capital expenditure of the related year. The placement cost of renewable energy can be found in IRENA Renewable Energy Report for 2022.	Capital expenditure
	Renewable energy operating cost	Renewable energy operating cost can be found in IRENA Renewable Energy Report for 2022.	Operating cost
	Renewable energy purchase cost	The purchase cost of renewable energy in Taiwan is calculated by the current average wholesale price of Taiwan Power renewable energy plus public electricity fee (from Taiwan Power) in NT\$.	Operating cost
	Purchase cost from Taiwan Power	<ol style="list-style-type: none"> <li>1. The cost and effect of purchasing from Taiwan Power is calculated in commercial electricity price per kWh. It is around 3.758 NTD/kWh.</li> <li>2. Overseas electricity price is calculated by IEA data in 0.103 USD/kWh.</li> </ol>	Operating cost
	Carbon removal cost	<p>According to IEA data, cost will vary according to CCUS adopted in different situations. Because the analysis uses carbon removal as the final mean to achieve net zero, we adopt the most expensive technology of direct air capture. Its cost is around 85-345 USD/tCO<sub>2</sub>e. Therefore, hypotheses are made based on three situations:</p> <ol style="list-style-type: none"> <li>1. Immature technology: 340 USD/tCO<sub>2</sub>e</li> <li>2. Average price: 235 USD/tCO<sub>2</sub>e</li> <li>3. Mature technology: 130 USD/tCO<sub>2</sub>e</li> </ol> 	Operating cost
Market	Risk of declined market share of low-carbon products	<ol style="list-style-type: none"> <li>1. Hypothetical parameter 1 The estimation of market risks is based on the loss of potential customers who value carbon emission goals and causes the decline of expected market share when the enterprise fails to achieve transition goals. (1) Government net zero: 1% of income will be lost. (2) SSP1-1.9 and SBTNZ: 25% of income will be lost.</li> <li>2. Hypothetical parameter 2 The difference of ratio between the emission goal and the transitional goal in an enter found in the hypothesis of the analysis is the residual market risks.  Residual market risks = <math>\frac{\text{RE strategy and transition scenario emission gap}}{\text{BAU and transition scenario emission gap}} \times \text{expected market loss in BAU scenario}</math></li> </ol>	Expected income

Table2. Factors and hypotheses considered for transition scenario analysis

### 4.1.3 Emission forecast in basic scenarios

#### Estimated emission parameters in the basic scenario

1

**Scope 1 emission growth rate:** Estimation of 0% growth

2

**Power consumption growth rate:**

The growth rate is estimated by the value of SSP1-2.6 Asia in Taiwan and SSP1-2.6 Global Growth Rate for overseas plants. The variation is shown in Figure 2 below:

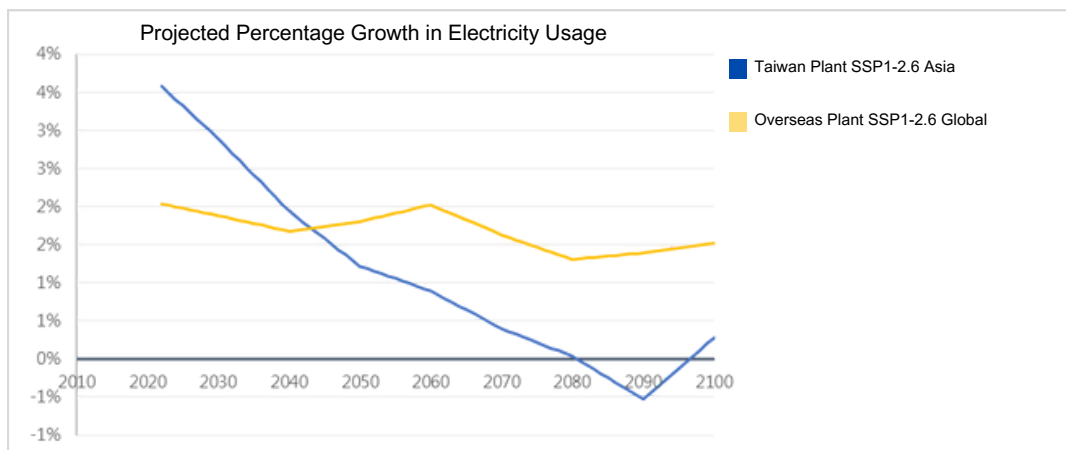


Figure2. Electricity growth parameters for future emissions

3

**The carbon emission coefficient for electricity and steam in Taiwan follows the government energy policy to calculate the changes of electricity coefficients in Taiwan under different scenarios between 2019 and 2050.**

In 2030, the current government predicted goals (30% coal fire, 50% gas fire, and 20% renewable energy) shall be achieved. By 2050, it continues growing to 50% renewable energy and replace coal-fired power generation (50% gas fire and 50% renewable energy).

4

**The changes of overseas electricity coefficients are referred to the changes of SSP1-1.9 electricity carbon strength pathway.**

It reduces in the same pathway from the base year, and the electricity coefficients are shown in Figure 3.

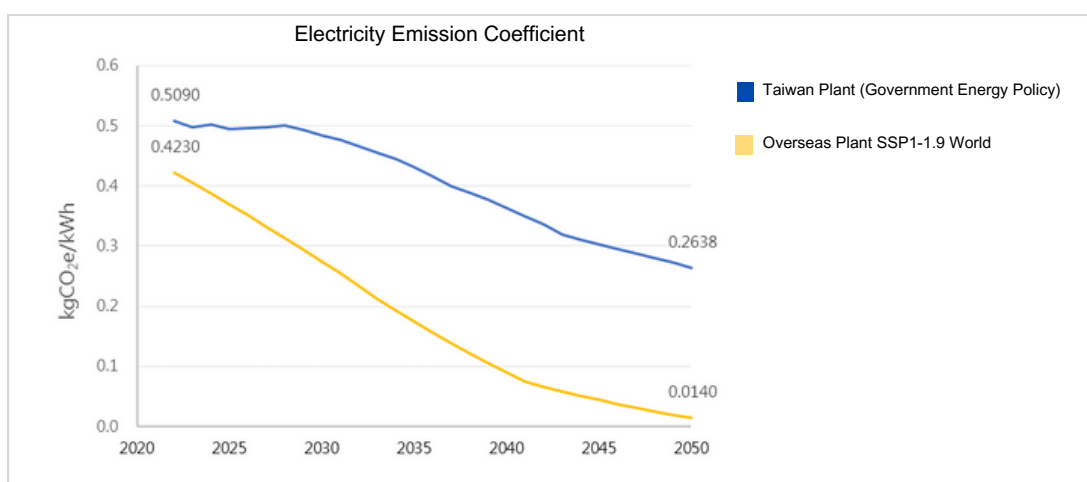


Figure3. Electricity coefficient simulation (excluding the consideration of the government's net zero policy)

## Estimated results of basic scenarios

1

### Transition scenario

The scenario estimates the emission amount in three levels of ambitious, government net zero, SSP1.1.9, and SBT-NZ, achieved by Wiyynn as well as the predicted original emissions (in the situation of no electricity saving and no purchase of renewable energy), as shown in Figure 4. With the estimation based on scenarios and relevant parameters using year 2021 as the base year, the emissions generated by Wiyynn in 2050 will achieve equivalent 12,000 tons of CO<sub>2</sub>. Among them, it will be mainly the emissions by the plants in Taiwan.

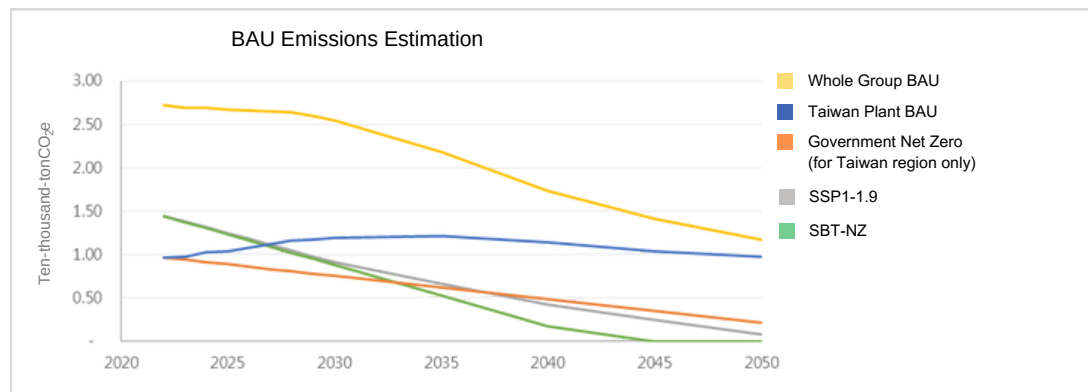


Figure4. Carbon emission amount when achieving each scenario and the estimated original emissions of greenhouse gas

2

### Financial impacts to Wiyynn under existing strategies (BAU) (excluding RE100 strategy)

The financial impact evaluation for different external transition scenarios under Wiyynn's current BAU and the estimated future emissions is as below. No matter what the external scenario is, market risks are the main factors; that is, the possible loss of expected income when failing to achieve. Moreover, other regulatory risks are very low. Even it is in the scenario of highest carbon tax in SSP1-1.9 or SBT-NZ, where the financial impact remains in the tens of millions of US dollars, while market-expected revenue losses could amount to hundreds of millions of US dollars.

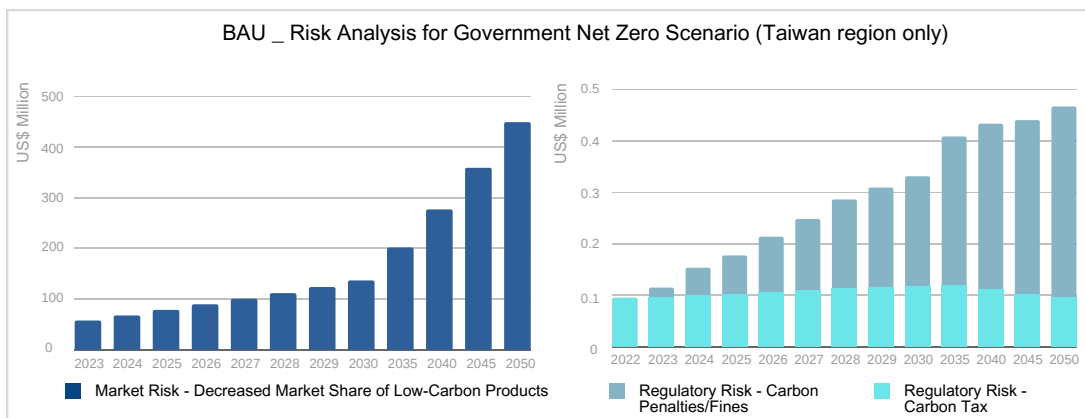


Figure5. Financial impacts on Wiyynn in the two external scenarios under BAU

#### 4.1.4 Cost of obligatory capacity

Wiwynn's contract capacity has not reach the regulatory threshold. Therefore, there is no relevant regulatory risk.

#### 4.1.5 RE strategy

Wiwynn's strategy in purchasing green electricity follows the purchase amount and the number of years specified in the current contracts. A purchase cost of US\$0.65 million will be spent, and it avoids more than US\$0.49 million of cost in purchasing from Taiwan Power. The total cost is around US\$0.16 million.

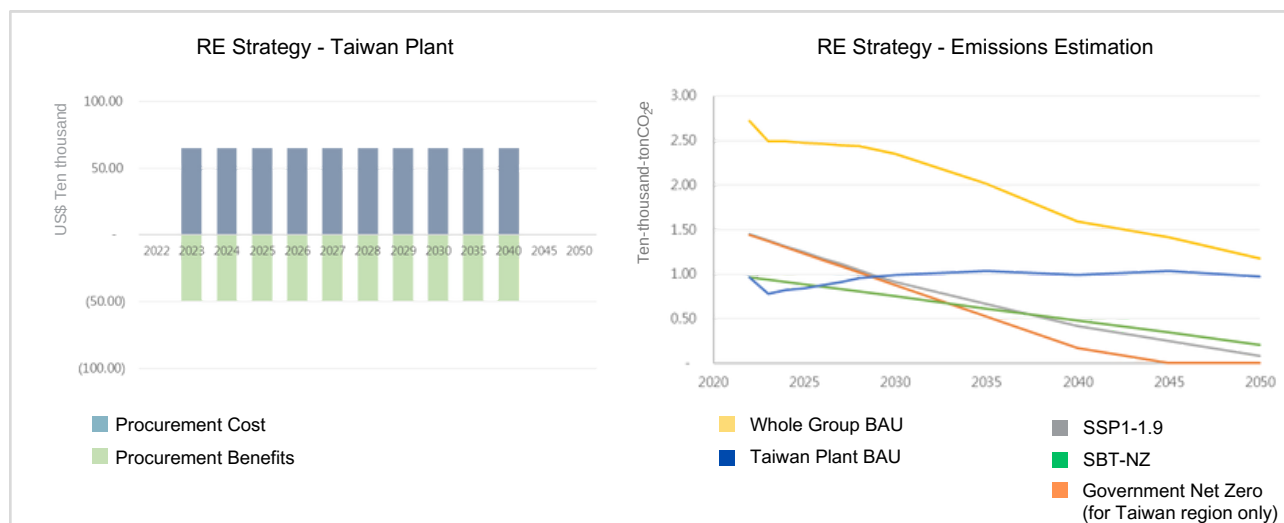


Figure6. Purchas cost of renewable energy spent by Wiwynn and the emissions after RE strategy

#### 4.1.6 Financial impact analysis under the strategy of RE100

The evaluation focuses on the changes of transitional risks encountered in different external scenarios of RE strategy adopted by Wiwynn under the three transition scenarios. Considering market risks and government net zero, the carbon reduction results implemented through RE strategy will satisfy goals before 2025. It makes market risks nearly close to zero. However, along with the amount of net-zero target required by the government gets lower, the original RE strategy will not be able to satisfy the requirements. It results in a rise of market risks. Excluding market risks, there are around NT\$0.4 million of cost risk. Among them, NT\$0.15 million is the management cost (purchasing renewable energy, including purchase cost and avoidance of procurement benefits from Taiwan Power) and NT\$0.25 million are for carbon tax and carbon penalty (please refer to Figure 6 for RE100 procurement cost). It is still very little compared to market risks.

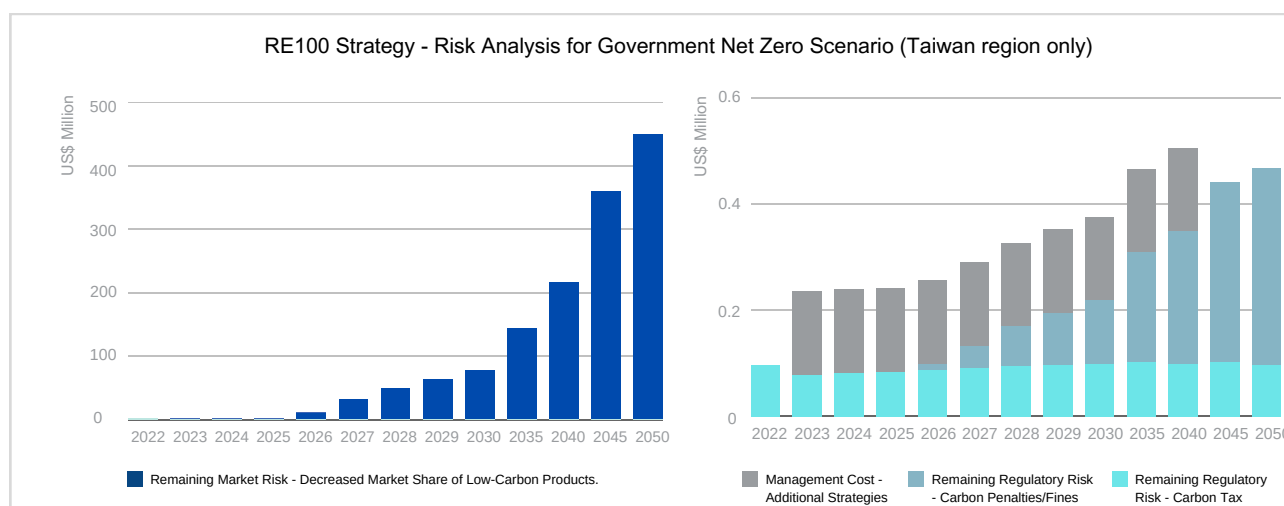


Figure7. Management cost Wiwynn encountered under the pathway of government net zero

SSP1-1.9 and SBT-NZ have very close financial impacts. Therefore, only SBT-NZ scenario is analyzed (Figure 8). It has the highest market risks. After excluding market risks, the main financial impacts come from carbon tax. It might end up carbon tax more than a million in US dollars. In comparison, the management cost for RE is lower. It is only US\$0.15 million (the management cost is the same as that in Figure 6).

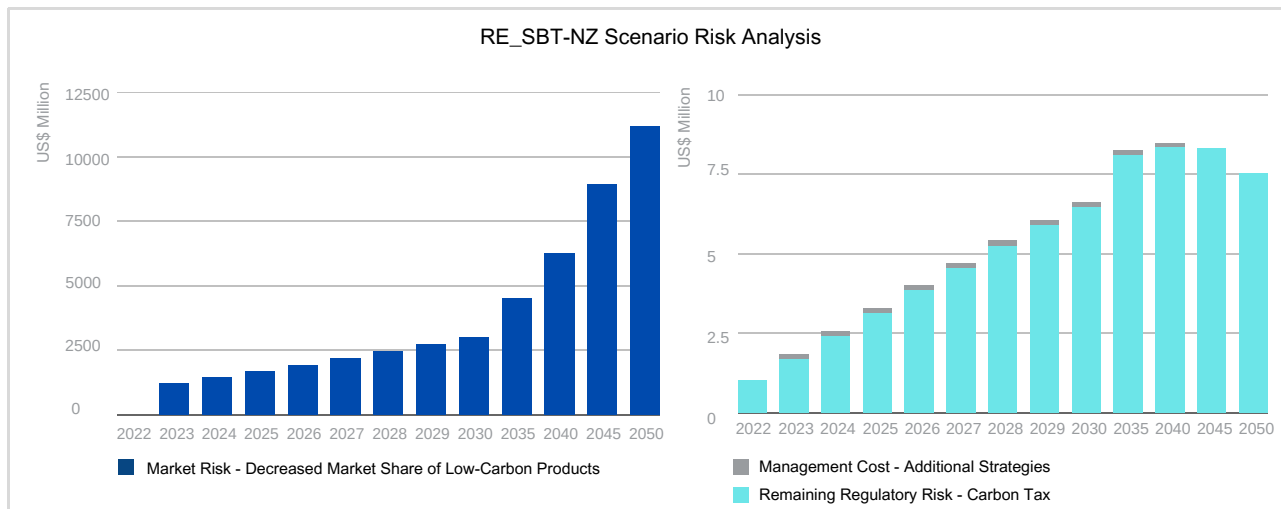


Figure8. Financial impacts to Wiyynn under

#### 4.1.7 Management cost analysis of transformation scenarios achieved

##### 1 | Management cost analysis under the scenario of satisfying government net zero goals

To satisfy the carbon emission amount of the government net zero goals, it requires to pay more purchase cost in renewable energy compared to that in the original RE strategy but pay less carbon tax. In the end, it only requires a cost around US\$1.38 million (use 2050 as an example, it will require US\$4.91 million to purchase renewable energy but can avoid a cost of US\$3.55 million to purchase from Taiwan Power) to achieve the government net zero goals without paying the cost of carbon removal. After achieving the government net zero goals, it has no financial impact caused by additional carbon penalty and market risks. (Figure 9)

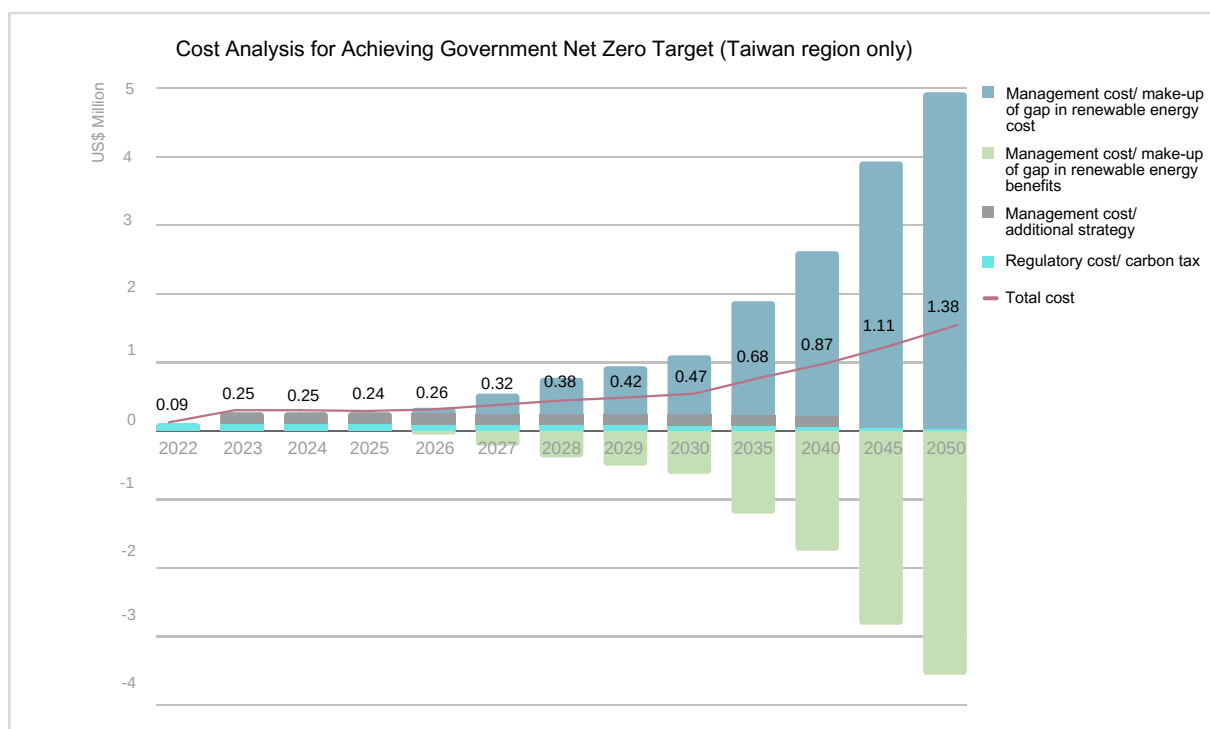


Figure9. Management cost analysis to achieve government net zero

## 2 | Management cost analysis to achieve SSP1-1.9

To achieve SSP1-1.9 goals, enterprises still need to purchase more renewable energy before they can achieve the goals. Therefore, the additional purchase cost for renewable energy is still the highest. Because of carbon emissions involved, the main cost structure is based on carbon tax and the purchase of renewable energy. When it is close to 2050, RE100 will have been achieved. As a result, SSP1-1.9 goals can only be achieved by reducing Scope 1 emissions through carbon removal (Figure 10).

Compared to the electricity price, overseas renewable energy is even lower. It makes overseas procurement more cost effective and leads to the result of cost reduction for enterprises.

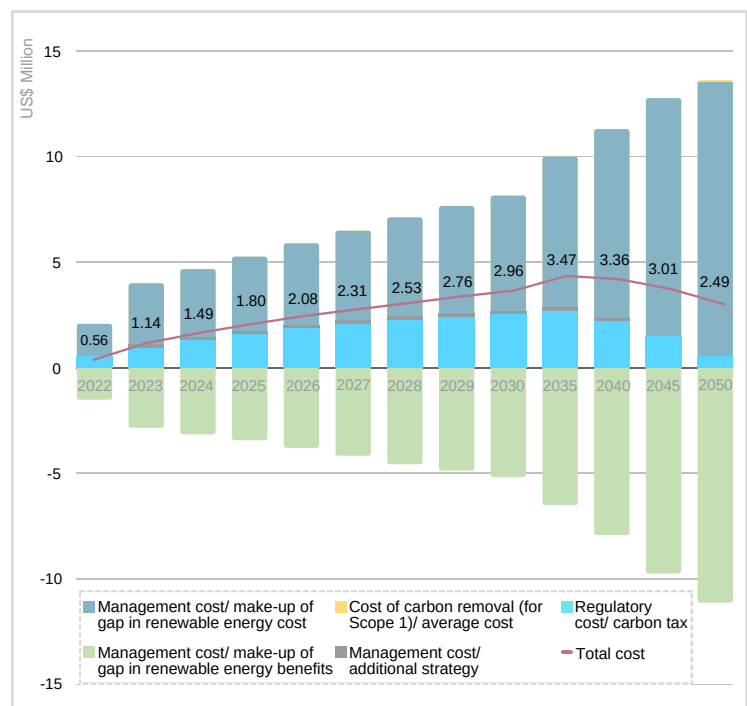


Figure10. Management cost analysis to achieve SSP1-1.9

## 3 | Management cost analysis to achieve SBT-NZ

Financial impacts of achieving SBT-NZ is similar to management cost, and the only difference is SBT-NZ requires net zero to be achieved earlier. Therefore, it has to purchase more renewable energy.

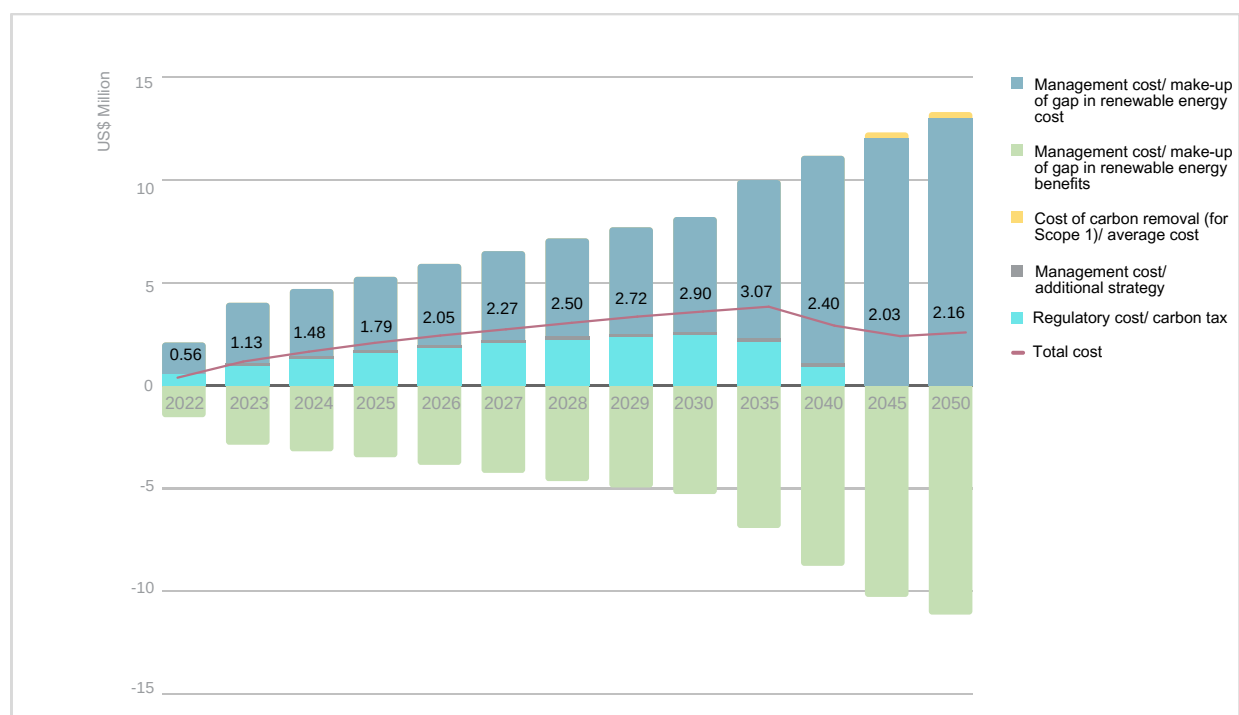


Figure11. Management cost analysis to achieve SBT-NZ



## 4.2 Physical Risk Scenario Analysis and Assessment

### 4.2.1 Climate risk evaluation

Climate risks consist of hazard, exposure, and vulnerability. According to the definition by Intergovernmental Panel on Climate Change (IPCC), hazard is the driving force of incidents related to climate. It might cause damage and loss to the subject matters. Exposure is the location that the subject matters might encounter negative impacts and the extent of loss suffered. Vulnerability includes adaptability and sensitivity. It refers to the tendency or degree that the subject matters suffer by disasters. According to above definition, risks can be estimated by classifying and quantifying hazard, exposure, and vulnerability. That is, levels of risks can be calculated after hazard, exposure, and vulnerability are classified. It can be used as an important accordance to determine adaptation orders and means in the future.

Wiwynn Corporation uses extreme rainfall under climate change as hazard, the flooding, landslide, and mudslide caused by the extreme rainfall as vulnerability, and location of the operating sites as exposure to carry out physical risk data analysis for each operating site. For the evaluation of hazard, [a variety of climate models \(GCM/ ESM\) are adopted to simulate the climate risks in the four scenarios, including RCP2.6, RCP4.5, RCP6.0, and RCP8.5](#) to avoid the simulation results being too extreme. As for vulnerability, the scope and degree of disasters are analyzed according to the map data published by the government. In terms of exposure, it is based on the location of 45 operating sites in total of Wiwynn's self-owned properties and from suppliers. In the end, the risk scores for the three types of vulnerabilities at each operating site are classified into four levels of risks, including no risk, low risks, moderate risks, and high risks, based on the risk matrix.

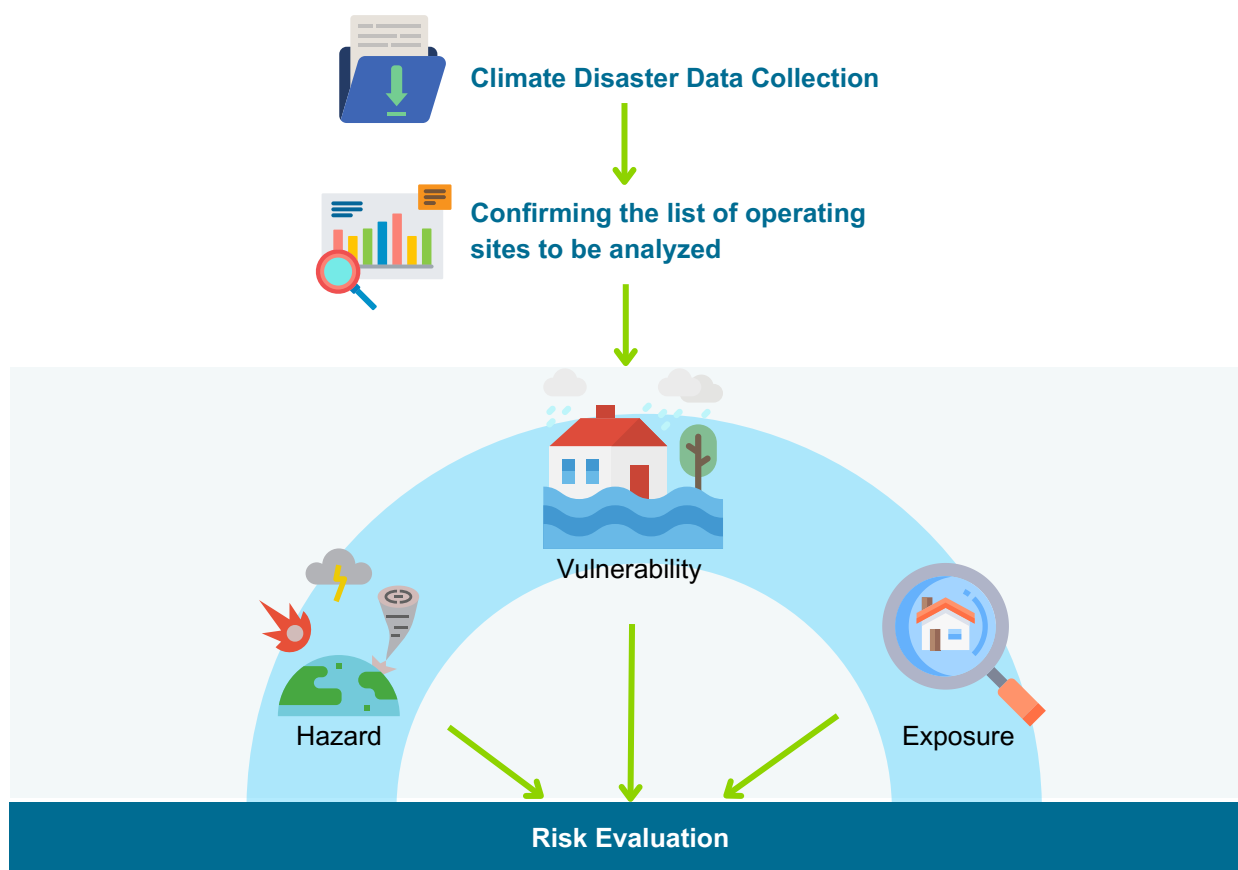


Figure12. Climate risk template

#### 4.2.2 Analysis results of self-owned operating site/ property physical risks

Wiwynn Corporation generates exactly the same results for self-owned operating sites/ properties under the scenarios of RCP2.6, RCP4.5, RCP6.0, and RCP8.5. There is one operating site located near geologically sensitive area of landslide and mudslide, and it makes the level of risks at that operating site a high-risk level. We adopted the measures of reinforcing slope stability and strengthening risk management to respond to the disaster potential and mitigate the loss caused to the operating site by the possible disasters. In comparison, there are 10 operating sites with no threat of flooding, landslide, and mudslide. Therefore, they are classified in the level of no risk. However, even though involving with no risk, Wiwynn Corporation will still review management measures regularly and further consider enhancing water resistance for the building structure and its risk management system to reduce the possible risks and losses in the future and ensure employee safety and the protection of property.

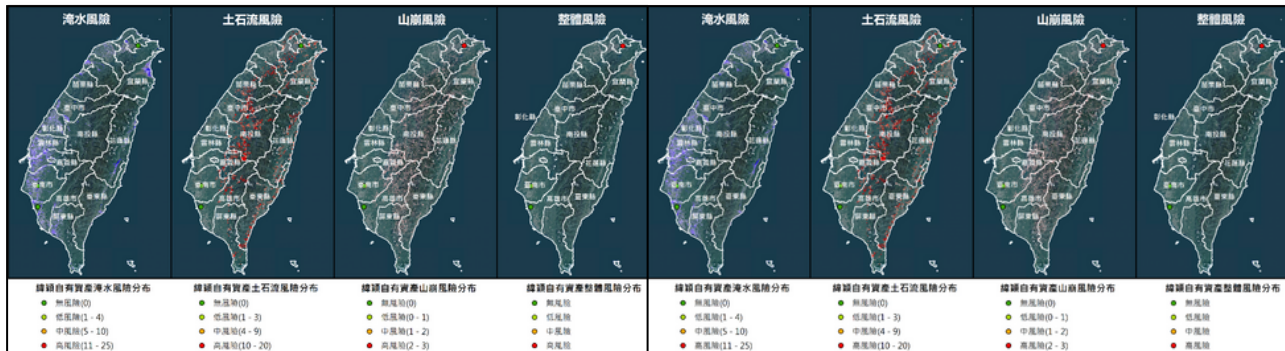


Figure13. Value-at-risk under the scenario of RCP2.6 on Wiwynn's self-owned operating sites/ properties

Figure14. Value-at-risk under the scenario of RCP4.5 on Wiwynn's self-owned operating sites/ properties

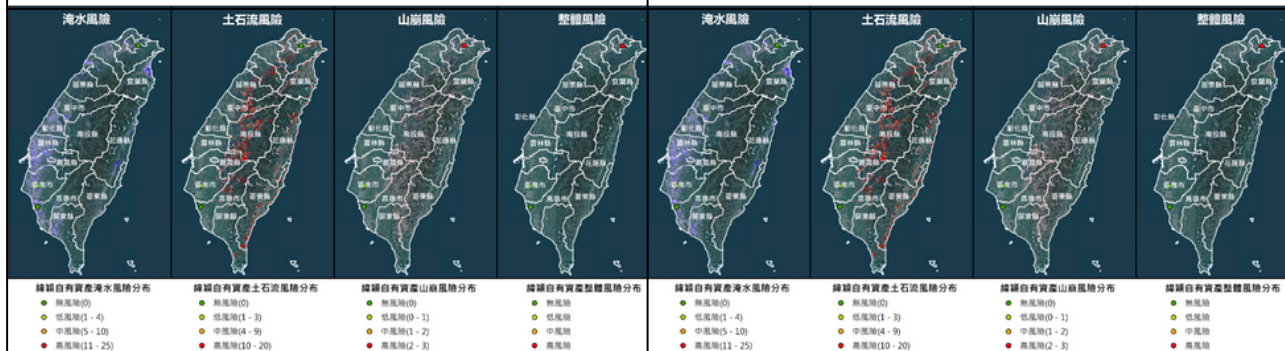


Figure15. Value-at-risk under the scenario of RCP6.0 on Wiwynn's self-owned operating sites/ properties

Figure16. Value-at-risk under the scenario of RCP8.5 on Wiwynn's self-owned operating sites/ properties



### Analysis Results

Class interval of value-at-risk	Responding measure	Self-owned property			
		Short term	Medium term	Medium to long term	Long term
<span style="color: green;">●</span> No risk	Maintaining the operating site/ property	10	10	10	10
<span style="color: yellow;">●</span> Low risk	Maintaining the operating site/ property	0	0	0	0
<span style="color: orange;">●</span> Moderate risk	Maintaining the operating site/ property and paying extra attention to the changes of disaster potential	0	0	0	0
<span style="color: red;">●</span> High risk	Establishing emergency plans and risk management measures	1	1	1	1
Total		11			

Note 1: Analysis results for scenarios of RCP2.6, RCP4.5, RCP6.0, and RCP8.5 are the same.

Note 2: The short term, medium term, medium to long term, and long term refer to 2021-2040, 2041-2060, 2061-2080, and 2081-2100 respectively.

### 4.2.3 Wiwynn's adaptation plans for self-owned operating site/ property physical risks

#### Short term (1-3 years)

- **Rolling discussion:** Conduct disaster risk evaluation on all the self-owned properties every year to achieve the goals established for risk management.
- **Emergency plans for high-risk plants:** Establishing emergency response procedures, including evacuation plans and material rescue plans, to ensure employee safety and the protection to properties.
- **Setting up a risk warning system:** Establishing a risk warning system to obtain risk notification and corresponded responding measures timely during the period of higher frequency of rainfall.

#### Medium term (5-10 years)

- **Establishing a flood control system:** Investigating the geological and hydrological situations in plant areas and establishing a proper flood control system to reduce the impact of flooding.
- **Reinforcing water resistance of buildings:** Strengthening the water resistance of the office building structure to reduce the damage to buildings caused by flooding.

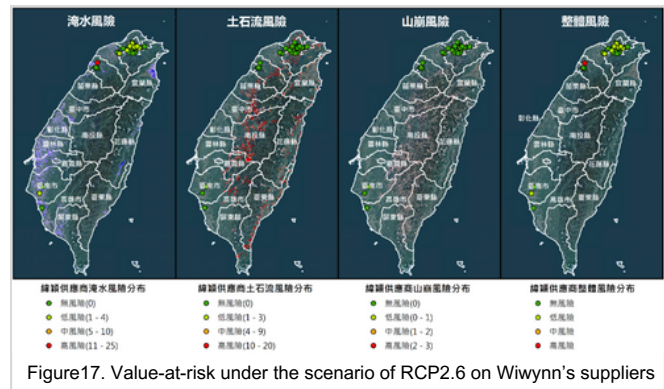
#### Long term (>10 years)

- **Reconstructing and relocating operating sites:** Considering to reconstruct or relocate the operating site located at the high-risk location to avoid the risk of hazardous areas.
- **Sustainable development plans:** Establishing sustainable development plans to reduce the impact to the environment, such as ensuring long-term economic and environmental stability through energy conservation, emission reduction, and recycling for utilization.

## 4.2.4 Analysis results of supplier physical risks

### 1 | Analysis results of supplier physical risks under the scenario of RCP2.6

Under the scenario of RCP4.5, there are 10 suppliers of Wiyynn's with the potential of flooding. Among them, the number of operating sites with low risks is between 5 and 8 places. They are mainly in Taipei City, New Taipei City, Taoyuan City, Hsinchu County, and Tainan City. The risks for the time scale between short term and long term are roughly the same. Suppliers might suffer from the impact of short-duration intense rainfall, but the potential risks are relatively lower.



For low-risk areas, Wiyynn Corporation suggests our suppliers to strengthen their disaster prevention measures, such as strengthening the drainage system and repairing flood prevention embankment, to respond to the incidents caused by extreme weather.

In comparison, the number of suppliers in the level of moderate risks is lower between 2 and 5. They are mainly in Taipei City, Taoyuan City, and Hsinchu County. Suppliers with moderate risks are suggested to reinforce disaster prevention measures, such as strengthening the regional monitoring and warning system, to respond to extreme incidents. The number of suppliers with high risks is very few between 1 and 1. It is a site in Hsinchu County. Therefore, a stricter risk evaluation and disaster prevention measures will be needed for that area to respond to possible extreme weather incidents. It is suggested the supplier to implement active disaster prevention measure, like strengthening the drainage system and improving building structure, to reduce the possible loss caused by disrupting supply chain. The rest 24 sites are with no risk. However, for sites with no risk, Wiyynn Corporation will carry out rolling adjustment through the discussion of risks for each supplier every year.



### Analysis Results

Class interval of value-at-risk for RCP 2.6	Responding measure	Supplier			
		Short term	Medium term	Medium to long term	Long term
<span style="color: green;">●</span> No risk	Normal cooperation	24	24	24	24
<span style="color: yellow;">●</span> Low risk	Normal cooperation	9	7	9	9
<span style="color: orange;">●</span> Moderate risk	Normal cooperation but pay extra attention to the development of potential hazard of disasters.	1	2	0	1
<span style="color: red;">●</span> High risk	Based on the nature of the industry, include disaster risk-related package and violation compensation system in the contract and evaluate the potential loss for long-term project cooperation.	0	1	1	0
Total		34			

Note: The short term, medium term, medium to long term, and long term refer to 2021-2040, 2041-2060, 2061-2080, and 2081-2100 respectively.

## 2 | Analysis results of supplier physical risks under the scenario of RCP4.5

Under the scenario of RCP4.5, there are 10 suppliers of Wiyynn's with the potential of flooding. Among them, the number of operating sites with low risks is between 5 and 8 places. They are mainly in Taipei City, New Taipei City, Taoyuan City, Hsinchu County, and Tainan City. The risks for the time scale between short term and long term are roughly the same. Suppliers might suffer from the impact of short-duration intense rainfall, but the potential risks are relatively lower.

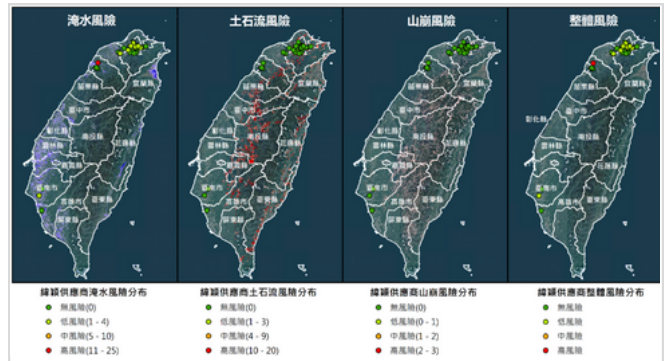


Figure 18. Value-at-risk under the scenario of RCP4.5 on Wiyynn's suppliers

For low-risk areas, Wiyynn Corporation suggests our suppliers to strengthen their disaster prevention measures, such as strengthening the drainage system and repairing flood prevention embankment, to respond to the incidents caused by extreme weather.

In comparison, the number of suppliers in the level of moderate risks is lower between 2 and 5. They are mainly in Taipei City, Taoyuan City, and Hsinchu County. Suppliers with moderate risks are suggested to reinforce disaster prevention measures, such as strengthening the regional monitoring and warning system, to respond to extreme incidents. The number of suppliers with high risks is very few between 1 and 1. It is a site in Hsinchu County. Therefore, a stricter risk evaluation and disaster prevention measures will be needed for that area to respond to possible extreme weather incidents. It is suggested the supplier to implement active disaster prevention measure, like strengthening the drainage system and improving building structure, to reduce the possible loss caused by disrupting supply chain. The rest 24 sites are with no risk. However, for sites with no risk, Wiyynn Corporation will carry out rolling adjustment through the discussion of risks for each supplier every year.



### Analysis Results

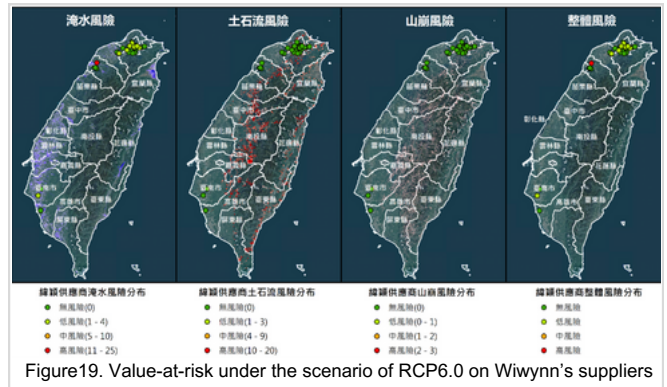
Class interval of value-at-risk for RCP 4.5	Responding measure	Supplier			
		Short term	Medium term	Medium to long term	Long term
<span style="color: green;">●</span> No risk	Normal cooperation	24	24	24	24
<span style="color: lightgreen;">●</span> Low risk	Normal cooperation	9	8	5	8
<span style="color: orange;">●</span> Moderate risk	Normal cooperation but pay extra attention to the development of potential hazard of disasters.	0	2	5	2
<span style="color: red;">●</span> High risk	Based on the nature of the industry, include disaster risk-related package and violation compensation system in the contract and evaluate the potential loss for long-term project cooperation.	1	0	0	0
Total		34			

Note: The short term, medium term, medium to long term, and long term refer to 2021-2040, 2041-2060, 2061-2080, and 2081-2100 respectively.



### 3 | Analysis results of supplier physical risks under the scenario of RCP6.0

Under the scenario of RCP6.0, there are 10 suppliers of Wiyynn's with the potential of flooding. Among them, the number of operating sites with low risks is between 7 and 9 places. They are mainly in Taipei City, New Taipei City, Taoyuan City, Hsinchu County, and Tainan City. The risks for the time scale between short term and long term are roughly the same. Suppliers might suffer from the impact of short-duration intense rainfall, but the potential risks are relatively lower.



For low-risk areas, Wiyynn Corporation suggests our suppliers to strengthen their disaster prevention measures, such as strengthening the drainage system and repairing flood prevention embankment, to respond to the incidents caused by extreme weather.

In comparison, the number of suppliers in the level of moderate risks is lower between 0 and 2. They are mainly in Taipei City, Taoyuan City, and Hsinchu County. Suppliers with moderate risks are suggested to reinforce disaster prevention measures, such as strengthening the regional monitoring and warning system, to respond to extreme incidents. The number of suppliers with high risks is very few between 1 and 1. It is a site in Hsinchu County. Therefore, a stricter risk evaluation and disaster prevention measures will be needed for that area to respond to possible extreme weather incidents. It is suggested the supplier to implement active disaster prevention measure, like strengthening the drainage system and improving building structure, to reduce the possible loss caused by disrupting supply chain. The rest 24 sites are with no risk. However, for sites with no risk, Wiyynn Corporation will carry out rolling adjustment through the discussion of risks for each supplier every year.



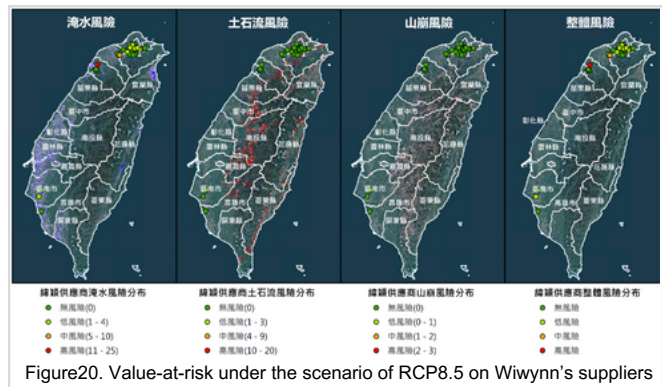
#### Analysis Results

Class interval of value-at-risk for RCP 6.0	Responding measure	Supplier			
		Short term	Medium term	Medium to long term	Long term
<span style="color: green;">●</span> No risk	Normal cooperation	24	24	24	24
<span style="color: yellow;">●</span> Low risk	Normal cooperation	9	9	8	7
<span style="color: orange;">●</span> Moderate risk	Normal cooperation but pay extra attention to the development of potential hazard of disasters.	0	1	2	2
<span style="color: red;">●</span> High risk	Based on the nature of the industry, include disaster risk-related package and violation compensation system in the contract and evaluate the potential loss for long-term project cooperation.	1	0	0	1
Total		34			

Note: The short term, medium term, medium to long term, and long term refer to 2021-2040, 2041-2060, 2061-2080, and 2081-2100 respectively.

#### 4 | Analysis results of supplier physical risks under the scenario of RCP8.5

Under the scenario of RCP8.5, there are 10 suppliers of Wiyynn's with the potential of flooding. Among them, the number of operating sites with low risks is between 7 and 8 places. They are mainly in Taipei City, New Taipei City, Taoyuan City, Hsinchu County, and Tainan City. The risks for the time scale between short term and long term are roughly the same. Suppliers might suffer from the impact of short-duration intense rainfall, but the potential risks are relatively lower.



For low-risk areas, Wiyynn Corporation suggests our suppliers to strengthen their disaster prevention measures, such as strengthening the drainage system and repairing flood prevention embankment, to respond to the incidents caused by extreme weather.

In comparison, the number of suppliers in the level of moderate risks is lower between 1 and 3. They are mainly in Taipei City, Taoyuan City, and Hsinchu County. Suppliers with moderate risks are suggested to reinforce disaster prevention measures, such as strengthening the regional monitoring and warning system, to respond to extreme incidents. The number of suppliers with high risks is very few between 1 and 1. It is a site in Hsinchu County. Therefore, a stricter risk evaluation and disaster prevention measures will be needed for that area to respond to possible extreme weather incidents. It is suggested the supplier to implement active disaster prevention measure, like strengthening the drainage system and improving building structure, to reduce the possible loss caused by disrupting supply chain. The rest 24 sites are with no risk. However, for sites with no risk, Wiyynn Corporation will carry out rolling adjustment through the discussion of risks for each supplier every year.



#### Analysis Results

Class interval of value-at-risk for RCP 8.5	Responding measure	Supplier			
		Short term	Medium term	Medium to long term	Long term
<span style="color: green;">●</span> No risk	Normal cooperation	24	24	24	24
<span style="color: yellow;">●</span> Low risk	Normal cooperation	8	8	7	7
<span style="color: orange;">●</span> Moderate risk	Normal cooperation but pay extra attention to the development of potential hazard of disasters.	1	2	3	3
<span style="color: red;">●</span> High risk	Based on the nature of the industry, include disaster risk-related package and violation compensation system in the contract and evaluate the potential loss for long-term project cooperation.	0	1	1	0
Total		34			

Note: The short term, medium term, medium to long term, and long term refer to 2021-2040, 2041-2060, 2061-2080, and 2081-2100 respectively.



#### 4.2.5 Wiwynn's adaptation plans for supplier physical risks

##### Short term (1-3 years)

- **Rolling discussion:** Conduct disaster risk evaluation on all the Wiwynn suppliers every year to achieve the goals of risk management.
- **Emergency plans:** Establishing emergency responding procedures to ensure no supply interruption.
- **Settin up a risk warning system:** Establishing a risk warning system to obtain risk notification and corresponded responding measures timey when there is a risk.

##### Medium term (5-10 years)

- **Suggesting suppliers to establish a flood control system or reinforce water resistance of buildings.**
- **Supplier back-up plans.**

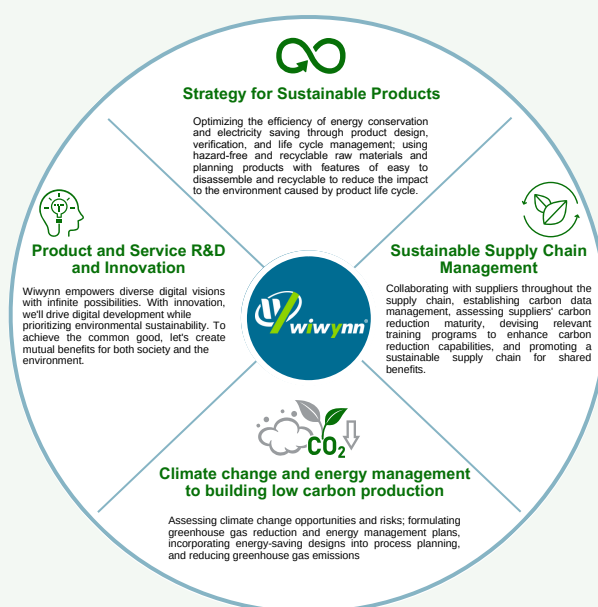
##### Long term (>10 years)

- **Suggesting suppliers to reconstruct or relocate the site.**
- **Supplier back-up plans.**

## 05

# Climate Metrics and Targets

Wiwynn dedicated to product and service research and development innovation, actively advancing sustainable products, and providing customers with low-carbon product options to achieve energy-saving benefits. In line with the international decarbonization path, Wiwynn's carbon reduction targets were approved by the SBTi in January 2023. As part of the gradual carbon reduction efforts, Wiwynn focuses on low-carbon production processes, achieving a global renewable energy utilization rate of 27.73%. Additionally, through the implementation of a carbon management platform, Wiwynn collaborates with suppliers to establish carbon data management, assess suppliers' carbon reduction maturity, and devise relevant training plans to enhance carbon reduction capabilities. The establishment of a sustainable supply chain enables Wiwynn and its partners to work together in creating positive environmental benefits.



## 5.1 Greenhouse Gas Emission Indicators and Targets

The Company follows Decarbonization Pathway established by SBTi to calculate and estimate relevant indicators for climate mitigation and adaptation. Year 2021 is used as the base year. Emissions of Scope 1+2 will achieve an absolute reduction of 2.5% every year. By 2031, Scope 1+2 will be reduced 25% and 12.3% for Scope 3 (Note). Besides, Wiwynn also promises to achieve 30% utilization of renewable energy in 2030. In 2022, our global renewable energy utilization rate was 27.73% with an achievement rate of 92.43%. In 2023, Wiwynn further sets two key long-term goals of 100% renewable energy utilization in 2030 and net zero emission in 2040.

### Greenhouse gas emission statistics

Unit: Tons CO<sub>2</sub>e

Category		2019	2020	2021	2022
Scope 1		33.9434	44.0779	361.1265	1,186.6308
Scope 2	Location-based	3,689.3964	5,913.0248	14,785.6430	25,961.5777
	Market-based	-	-	-	19,170.5147
Sum of Scope 1+2	Location-based	3,723.3398	5,957.1027	15,146.7695	27,148.2085
	Market-based	-	-	-	20,357.1455
Unit revenue emission (tons of CO <sub>2</sub> e/ NT\$100 million)	Location-based	2.28	3.19	7.86	9.27
	Market-based	-	-	-	6.95

The subsidiary in Mexico was established on February 14, 2019. Its operating function was expanded to production and manufacturing in the second half year of 2021. To line up emission border, we adopted the method of economic data allocation to disclose the annual emissions in the Mexican subsidiary between 2019 and 2021. The production emission per unit in the three most recent years was 0.012. To actively fulfill the carbon reduction targets, we reduced the production emission per unit to 0.009 in 2022 through the purchase of renewable energy.

## Greenhouse gas emission statistics over the years (emission border adjustment)

Unit: Tons CO<sub>2</sub>e

Category		2019	2020	2021	2022
Scope 1		733.6264	1,127.6788	1,115.9605	1,186.6308
Scope 2	Location-based	14,649.8611	17,464.5190	23,581.8583	25,961.5777
	Market-based	-	-	-	19,170.5147
Sum of Scope 1+2	Location-based	15,383.4875	18,592.1978	24,697.8188	27,148.2085
	Market-based	-	-	-	20,357.1455
Unit production emission (tons CO <sub>2</sub> e/ unit production PCS)	Location-based	0.036	0.012	0.012	0.012
	Market-based	-	-	-	0.009

In 2022, the main sources of emissions in Scope 3 were the purchased products and services, as well as the use of sold products. We will continue to strengthen supply chain management, engage with suppliers to establish carbon reduction targets, and collaborate with customers to develop environmentally beneficial products. Additionally, we will strive to improve product energy efficiency continuously.

## Scope 3 Greenhouse gas emission statistics over the years

Unit: Tons CO<sub>2</sub>e

Category	2019	2020	2021	2022
Purchased products and services*	4.04	14.95	1,848,446.65	1,408,286.77
Capital goods*	-	-	4,306.39	133,171.11
Fuel and energy related activities*	348.82	1,266.25	1,306.64	1,656.48
Upstream transportation and distribution*	-	-	393.96	1,084.20
Waste generated in operations	1.05	17.18	8.25	3.63
Business travel	492.64	30.84	13.36	144.34
Employee commuting*	-	-	3,433.37	5,335.03
Upstream leased assets	-	-	Note1	Note1
Downstream transportation and distribution*	-	-	13,115.94	5,735.47
Processing of sold products*	-	-	1,526.51	1,769.36
Use of sold products*	-	-	2,310,467.87	2,588,632.28
End of life treatment of sold products*	-	-	13,093.07	21,016.04
Downstream leased assets	-	-	Note2	Note2
Franchises	-	-	Note2	Note2
Investments*	-	-	91.01	238.94
Total	846.55	1,329.22	4,196,203.02	4,167,073.65





Note: \* It is not included for the investigation/ incomplete scope of investigation of the fiscal year.

Note1: It has been included in Scope 1 and Scope 2. Therefore, no double counting.

Note2: There is no relevant operating activity.

## 5.2 Measures of energy saving and carbon reduction

It was estimated that 528,067 kWh of electricity could be saved every year through the energy saving and carbon reduction measures implemented in 2022. It also reduced around NT\$1.84 million electricity expense at the same time, which was equivalent to reducing emission of 268.79 tons CO<sub>2</sub>e. Wiwynn will continue enhancing equipment efficiency to ensure effective utilization of energy.

	Number of kWh saved (kWh/year)	Greenhouse gas emission reduced (ton CO <sub>2</sub> e/year)
 <b>Taipei Operation Headquarters C8F main water-cooled water chiller unit replacement</b> <ul style="list-style-type: none"> <li>Old reciprocating unit: Total electricity consumption in 2021 was 166,480 kWh.</li> <li>New magnetic levitation unit: Total electricity consumption in 2022 was 129,040 kWh.</li> <li>Annual energy saving was 37,440 kWh in total.</li> </ul>	<b>37,440</b>	<b>19.06</b>
 <b>Taipei Operation Headquarters- Rack Integration Testing Lab uses natural air inlet to adjust temperature</b> <ul style="list-style-type: none"> <li>Natural air inlet: PUE 1.41</li> <li>Traditional air cooling: PUE 1.77</li> <li>Annual energy saving was 303,888 kWh in total.</li> </ul>	<b>303,888</b>	<b>154.68</b>
 <b>MAU energy saving</b> Adjust air outlet temperature of MAU from 15°C to 14°C to reduce MAU heater electricity consumption <ul style="list-style-type: none"> <li>The air outlet temperature of MAU heater was reduced from 15°C to 14°C.</li> <li>Projected annual energy savings based on actual measurements is 103,494.3 kWh/year.</li> </ul>	<b>103,494</b>	<b>52.68</b>
 <b>MAU cooling water energy saving</b> Adjust MAU air outlet humidity from 75% to 85% to reduce the usage of MAU cooling water <ul style="list-style-type: none"> <li>Full flow of MAU pipeline is 158CMH.</li> <li>When MAU air outlet humidity was adjusted from 75% to 85%, it is estimated to saving 5% of flow.</li> <li>It is expected to save 57,259CMH of cooling water.</li> <li>It is equivalent to 83,245 kWh of electricity.</li> </ul>	<b>83,245</b>	<b>42.37</b>

## Appendix - TCFD Reference Table

Governance		
Board's oversight of climate-related risks and opportunities.	2.1 Board Participation and Management Responsibility	4
Management's role in assessing and managing climate-related risks and opportunities.	2.1 Board Participation and Management Responsibility	4
Strategy		
Climate-related risks and opportunities identified over the short, medium, and long term.	3.1 Risk Strategies and Planning	5
Impact of climate related risks and opportunities on businesses, strategy, and financial planning.	3.2 Risk evaluation and management	5
Scenario Analysis (including 2°C or worse scenarios).	4.1 Transitional Risk Scenario Analysis and Assessment	8
	4.2 Physical Risk Scenario Analysis and Assessment	16
Risk Management		
Processes for identifying and assessing climate-related risks.	3.2 Risk evaluation and management	5
Process for managing climate-related risks.	3.2 Risk evaluation and management	5
How processes for identifying, assessing, and managing climate-related risks are integrated into overall risk management.	3.1 Risk Strategies and Planning 3.2 Risk evaluation and management	5
Metrics and Targets		
Disclose the metrics and targets used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	5.1 Greenhouse Gas Emission Indicators and Targets	24
Disclose Scope 1, Scope 2, and if appropriate, Scope 3 GHG emissions, and the related risks.	5.1 Greenhouse Gas Emission Indicators and Targets	24
Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	5.1 Greenhouse Gas Emission Indicators and Targets	24
	5.2 Measures of energy saving and carbon reduction	26