



泰鼎國際股份有限公司

APEX INTERNATIONAL CO., LTD

TWSE 4927



2024 年度

氣候相關財務揭露及風險管理
TCFD and Risk Management

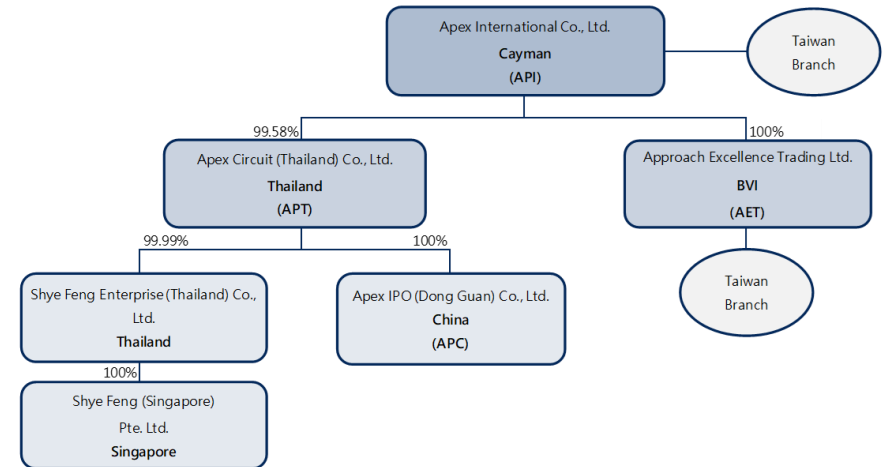
TCFD 與風險管理執行情形報告

TCFD and Risk Management Implementation Report

Contents

1.	Company overview	2
2.	TCFD and risk management implementation	3
2.1	Risk management promotion and management	3
(1)	Organization and functions	3
(2)	Risk management operations	4
(3)	Risk management process	4
2.2.	Identification and evaluation process	5
(1)	Risk identification	5
(2)	Stakeholder investigation	6
(3)	Factor categories	10
(4)	Risk analysis	12
2.3.	Risk appetite	14
2.4.	Assessment and response	16
(1)	Risks assessment and response	16
(2)	Opportunity assessment and response	19
3.	GREEN Project	19
3.1	GHG Emissions Situation	19
3.2	Solar Project	20
3.3	Lean Project	20
3.4	Aqua Project	21
4.	Supervisory and inspection	21
5.	Appendix-TCFD indicator comparison table	22

1. Company overview

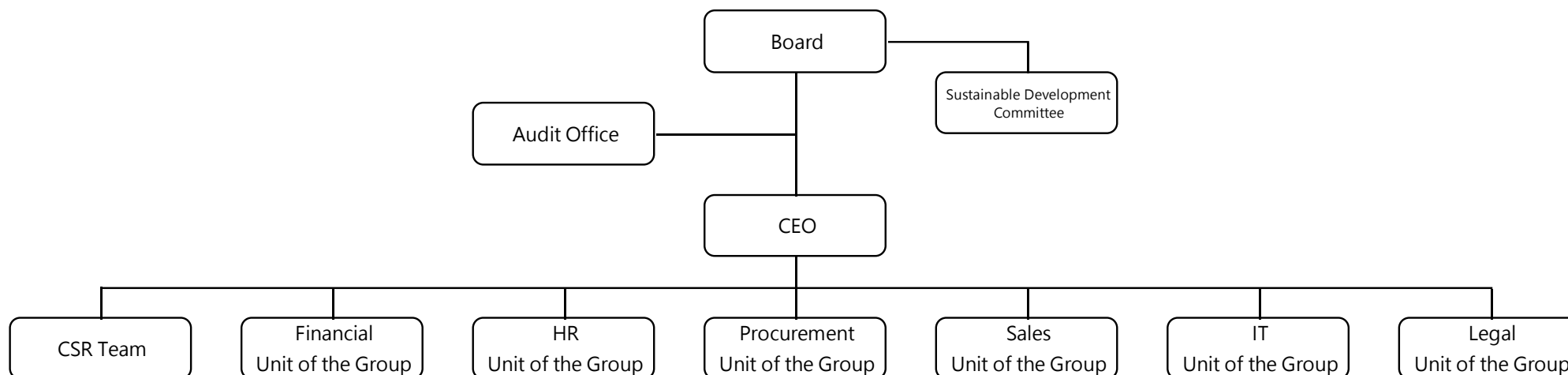


Establishment Date	October 28, 2009		Company Registration	Cayman Islands
Headquarters	Taiwan	Apex International Co., Ltd.		(Acronym: Apex)
Branch office	Taiwan	Approach Excellence Trading Ltd.		(Acronym: AET)
Subsidiary	Thailand	Apex Circuit (Thailand) Co., Ltd.		(Acronym: APT)
	Thailand	Shye Feng Enterprise (Thailand) Co., Ltd.		(Acronym: APC)
	China	Apex IPO (Dong Guan) Ltd.		(Acronym: APS)
	Singapore	Shye Feng (Singapore) PTE. LTD.		(Acronym: APSS)
Paid-Up Capital	NTD 2.19 Billion			
Products	Single-sided, Double-sided, Multi-layer, Printed Circuit Board (PCB) and HDI			
Production Facilities	APT: APEX1, APEX2, APEX3 APS			

2. TCFD and risk management implementation

2.1 Risk management promotion and management

(1) Organization and functions



In the company's risk management organizational structure, the Board of Directors is the highest governing authority for risk management. Its primary responsibilities include approving risk management policies, procedures, and frameworks, ensuring alignment between operational strategies and risk management policies, and promoting the establishment and development of corporate risk management mechanisms and culture. The board is also tasked with overseeing the effective operation of the overall risk management system and providing sufficient resources to support risk management efforts.

The promotion and execution of risk management are led by the CEO, who acts as the chairperson, coordinating key departments and senior management in planning, executing, and supervising risk management-related activities. Based on relevant risks and opportunities, assessments are conducted to establish corresponding strategies and objectives, with continuous risk analysis and control processes. Risk management training programs are also organized to raise awareness and strengthen the company's risk management culture.

(2) Risk management operations

Comprising members from various departments, the Sustainable Development Committee holds monthly meetings with the following key focuses:

- Formulating strategies and objectives for significant risks
- Monitoring risk management indicators
- Reviewing and adjusting implementation plans
- Executing risk assessments
- Reporting to the Sustainable Development Committee

Achievements in 2024:

- Apex moved up to the top 5% among listed companies for the first time in the 10th Corporate Governance Evaluation results and also ranked in the top 5% in the printed circuit board industry for the first time.
- 2024 AREA-Corporate Sustainability Reporting
- Obtained ISO 14064-1:2018 Greenhouse Gas Inventory Certification
- Awarded the Silver Award in the 2024 TCSA Corporate Sustainability Reports Award
- Attained a "Low Risk" rating in ESG risk assessment by Sustainalytics

(3) Risk management process



2.2. Identification and evaluation process

(1) Risk identification

Organizational Context

Item	Thinking	Content	Definition
Tenet	Core Values	By focusing on selecting only "one" concept, we can identify the most suitable mission for us. Apex's culture is people-oriented, emphasizing the integration of Western management discipline with Eastern philosophical spirit, balancing "emotion" and "reason." In the face of changes in both internal and external environments, the "Middle Path" is our guiding principle. We adhere to the "Middle Path" in our operations, responding to all changes accordingly.	Integrity, Gung Ho
Mission	The business value of creating	The key source of profit creation: Manufacture single side~20-layer PCB and HDI Plan the optimal production and sales balance strategy to meet customer demands for price and quality while simultaneously controlling risks.	Provide products with the best C/P ratio.
Vision	The ideals to be achieved	We emphasize the values of teamwork and family, and therefore, in our business operations, we aim to create value for stakeholders and foster mutually beneficial relationships. These stakeholders include employees, customers, suppliers, the government, society, shareholders, and banks. As a result, sustainability and resilience are our long-term goals.	Sustainability, Happiness

Analyze the organization

Changes in the external environment can impact business strategies and models. Therefore, paying attention to and analysing the external environment helps us understand our opportunities and challenges. This, combined with assessing our strengths and weaknesses, is the foundation for formulating business strategies.

External Environment Analysis: **PESTEL**

P olitical
E conomic
S ocial
T echnological
E nvironmental
L egal

Analyze internal situation: **SWOT**

S trength
W eakness
O pportunity
T hreat

(2) Stakeholder investigation

i. Identify stakeholder

Each department, based on its business responsibilities, identifies frequently engaged stakeholders and presents the following table with the logic and results.

Department	Referred Logic	Group of Stakeholders
F&A	Main banks	Financial institutions
	External audit CPA	Bank
	Security supervisor	Accounting firm
MIS	Main system service vendor	Competent authority
PUR	Top 25 suppliers (significant proportion of purchase)	Supplier
BIZ	Top 10 customers (main revenue)	Supplier
MFG	Supplier of water and electricity	Customer
	Industry management companies	Supplier
GA	Main suppliers (waste, transportation, food)	Industrial property manager
HR	Main suppliers	Supplier
IR	Media and investor frequently contact with	Supplier

Note: Quantity and objects are miscellaneous. IR encouraged media and investor to fill in the questionnaire on our website, or directly comment to IR was also acceptable.

ii. Questionnaire on issues of concern to stakeholders

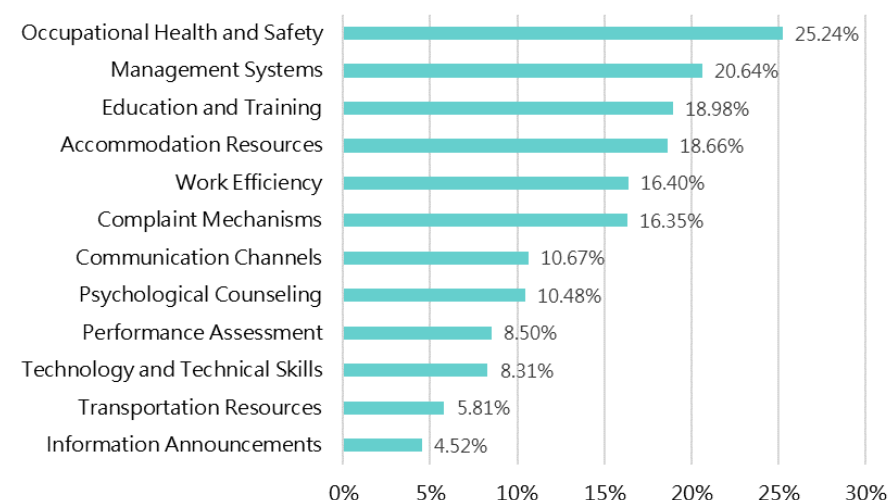
Identity	Quantity	Identity	Quantity	Identity	Quantity
Supplier	29	Customer	11	Investor	2
Employee	39	Financial Institution	5	Other Or Not Remarkd	2
Total					88

iii. Employee satisfaction survey

For employees, communication is conducted through employee satisfaction questionnaires, which are divided into four major items: work and development, team and culture, human rights issues, and welfare and resources. The survey statistics will end on July 31, 2024. Statistics cut off:

- Number of employees: 8,795
- Number of replies: 4,647
- Overall satisfaction: 78%
- Primary issues of concern: occupational health and safety, management systems, education and training, accommodation resources, work efficiency

The items I most look forward to the Company improving are...



Aspect	Issues	Concern Issues						Stakeholder Concerns
		Supplier	Customer	Investor	Employee	Financial Institution	Other	
Governance	Sustainability risk				✓			
	Compliance level	✓		✓			✓	
	Research development and innovation		✓	✓	✓		✓	
	Risk management	✓	✓	✓				
	Impact on goodwill			✓	✓	✓		
Social	Reporting obligation				✓			
	Board and corporate governance							
	Integrity		✓			✓		
	Remuneration and performance							
	Vision and mission					✓		
Economy	Social communication							
	Employee development and attraction to talents							
	Labor rights, diversity and equality						✓	
	Occupational safety and health	✓					✓	
	Supply chain sustainable management							
Environment	Quality management	✓	✓	✓				
	Customer relationship management	✓		✓				
	Product labelling						✓	
	Patent and intelligence management							
	Information safety		✓					
Environment	Digital transformation		✓					
	Water resource management					✓		
	Pollution and waste management				✓	✓		
	Climate change							
	CO2 emission and energy management							

■ Supplier
 ■ Customer
 ■ Investor
 ■ Employee
 ■ Financial Institution
 ■ Other

v. Stakeholder communication

Stakeholder	Concerned Topic	Response Department	Communication Channels	Frequency	Communication status in 2024
Society	Compliance level		Compliance with Relevant Regulations	Irregular	1. Engage in community outreach activities
	Research development and innovation	• RBA Team	Website Announcements	Irregular	2. Comply with environmental regulations
	Labor rights, diversity and equality	• ADM			3. Continuously improve water resource and waste management systems
	Occupational safety and health	• HR	Community Maintenance, Public Welfare Activities	Irregular	4. Plant greenery
	Product labelling		Interaction with Local Government	Irregular	5. Support women's employment
Customer	Research development and innovation	• BIZ	Phone Calls, Email Correspondence, Meetings, Site Visits	Irregular	1. Enhance sustainability reporting content
	Risk management	• QA	Internal and External Audits	Irregular	2. Respond to CDP questionnaire
	Integrity	• ADM			3. Continuously improve water resource and waste management systems
	Quality management	• R&D	Customer Satisfaction Surveys	Semi-annual	
	Information safety	• PUR			
	Digital transformation		International Regulations (RoHS, HF, Etc.) Compliance Assessments, Compliance Assessments of Customer-Requested Items	Irregular	
Employee			Email Notifications, Facebook Announcements, Line Official Account Announcements, Intranet Announcements	Irregular	1. Enhance sustainability reporting content
			Employee Welfare Committee Meetings, Internal Meetings, Complaint Box	Irregular	2. Compliance with regulations, no major compliance incidents
	Sustainability risk		Employee Satisfaction Surveys	Yearly	3. Link compensation with performance and conduct regular performance reviews
	Research development and innovation	• Employee Welfare Committee	Occupational Physical Check-ups	Yearly	4. Obtain various certifications such as ISO to ensure quality management
	Impact on goodwill	• ADM			
	Reporting obligation	• HR	Safety Awareness Campaigns, Safety and Occupational Committees; ISO45001 Committee	Irregular	5. Actively embrace digitalisation in operations
	Pollution and waste management		Fire Drills	Yearly	
			Employee Training	Annual Plan	

TCFD and Risk Management Implementation Report

Stakeholder	Concerned Topic	Response Department	Communication Channels	Frequency	Communication status in 2024
Government			Official letters, Media, Official Website, Email, MOPS, Seminars	Irregular	1. Participate in advocacy and seminars organized by regulatory authorities
					2. Compliance with regulations, no major compliance incidents
	Impact on goodwill	• Board	TCFD Report, ESG Report	Yearly	3. Conduct annual risk management analysis
	Integrity	• Corporate Governance			4. Receive ESG-related awards and international ratings
	Vision and mission	• F&A			5. Rank in the top 5% of 10th(Y2023) Corporate Governance Evaluation
	Water resource management	• ADM	Compliance with Relevant Regulations	Irregular	
	Pollution and waste management				
			Corporate Governance Evaluation	Yearly	
Shareholder	Compliance level	• IR	Shareholders' Meetings, Annual Report, ESG Report	Yearly	1. Shareholders' meeting
	Research development and innovation				2. Enhance sustainability reporting disclosure content
	Risk management				3. Publish significant information and various announcements in accordance with laws and regulations
	Impact on goodwill				
	Quality management		Earning Call, Spokesman Window, Mops, Official Website	Irregular	4. Participate in 4 domestic earning calls in 2024
	Customer relationship management				
Supplier	Compliance level	• PUR	Supplier Audit, Acceptance Review	Yearly	1. Compliance with regulations, no major compliance incidents
	Risk management				2. Obtain various certifications such as ISO to ensure quality management, occupational health and safety management, and labor rights
	Occupational safety and health	• PD			
	Quality management	• QA			
	Customer relationship management		Phone Calls, Emails, Meetings	Irregular	

(3) Factor categories

In identifying enterprise-level risks (the appropriateness of related risk controls at the operational level), the reference basis during execution is as follows:

- Self-own business model and operating content
- Analysis result of PESTEL and SWOT previously described
- Regulations of FSC
- ESG regulations (e.g., GRI, TCFD, COSO, ISSB, etc.)
- Comments from stakeholder communication previously described

The participants reviewed and discussed to compile 37 enterprise-level risks, of which risk factors 27-37 and opportunities 38-42 are listed based on the climate change scenario, as follows:

Risk Factors	Type	TCFD	ESG
1. Effectiveness of Board and corporate governance	Strategy	-	G
2. Integrity	Integrity	-	G
3. Remuneration and appraisal system	Strategy	-	G
4. Vision and core value positioning	Strategy	-	G
5. Change of political and social environment	Strategy	-	G
6. Sustainability risk	Strategy	-	G
7. Fail of digital transformation	Operation	-	G
8. Research development and innovation	Operation	-	G
9. Invalid control of information safety	Information	-	G
10. Inappropriate management of patent and intelligent property and customer privacy	Operation	-	G
11. Violation of waste management	Operation	-	E
12. Violation of pollution emission	Operation	-	E
13. Sustainability management of suppliers	Operation	-	G
14. Hazard of occupational safety and health	Operation	-	S
15. Employee development and attraction to talents	Operation	-	S
16. Working hours	Operation	-	S
17. Labor rights, diversity and equality	Operation	-	S

Risk Factors	Type	TCFD	ESG
18. Social communication	Integrity	-	S
19. Customer relationship management	Operation	-	G
20. Product quality management	Operation	-	G
21. Product labeling management	Operation	-	G
22. Uncertainty of Market Information	Operation	-	G
23. Against laws and regulations	Compliance	-	G
24. Capital management	Finance	-	G
25. Exchange rate management	Finance	-	G
26. Credit management	Finance	-	G
27. Tax management	Finance	-	G
28. Energy management	Operation	-	E
29. Rising price of GHG emission	Operation	Transition- policy and legal	E
30. Strengthening of reporting obligation	Compliance	Transition- policy and legal	G
31. Regulatory specifications enhancement	Compliance	Transition- policy and legal	G
32. Investment in new technologies	Operation	Transition- technology	E
33. Customer behavior changes	Operation	Transition- market	E
34. Rising sea level	Operation	Physical- Chronic	E
35. Temperature rise	Operation	Physical- Chronic	E
36. Supply chain disruption and cost fluctuation	Operation	Transition- market	G
37. Harmed reputation	Integrity	Transition- Reputational	G
38. Declining water quality	Operation	Physical- Chronic	E
39. Groundwater depletion	Operation	Physical- Chronic	E
40. Sustainable finance	-	Opportunity	G
41. Industry collaboration	-	Opportunity	G
42. Improvement in resource efficiency	-	Opportunity	E
43. Enhancement of climate governance and carbon management capabilities	-	Opportunity	G
44. Use of renewable energy sources	-	Opportunity	E

- Abstract

Risk Types

Risk Types	Quantity
Compliance Risk	3
Financial Risk	4
Strategic Risk	5
Integrity Risk	3
Information Risk	1
Operational Risk	23
Total	39

TCFD Categories

TCFD Categories	Factor
Transition-Policy & Legal	Rising price of GHG emission
	Strengthening of reporting obligation
	Regulatory specifications enhancement
Transition-Technology	Investment in new technologies
Transition-Market	Customer behavior changes
	Supply chain disruption and cost fluctuation
Transition-Reputation	Harmed reputation
Physical-Chronic	Rising sea level
	Temperature rise
	Declining water quality
	Groundwater depletion
Opportunity	Sustainable finance
	Industry collaboration
	Improvement in resource efficiency
	Enhancement of climate governance and carbon management capabilities
	Use of renewable energy sources

(4) Risk Analysis

2.1. Analyze and identify positive and negative impacts

Analyzing the identified enterprise-level risks and understanding their nature and characteristics, then knowing the positive and negative impacts, could be helpful for qualitative and quantitative evaluation.

2.2. Define evaluation index: possibility and impact

- Reference:
- Participants' management experience and professional knowledge
 - Balance of depth and efficiency of risk management implementation
 - Consider and design qualitative and quantitative standard

Frequency of occurrence or likelihood

Situation		Definition of Possibility	Score
Occurred	Not Occurred		
Occurs 4 times or more per year	Most Likely	4	4
Occurs no more than 3 times a year	Probably	3	3
Occurs no more than 2 times a year	Maybe	2	2
Occurs no more than 1 time a year	Possibly	1	1

Impact level

Negative Impact: refers to the potential harm or adverse effects that may result from the occurrence of a risk.

Reference Indicators						Definition of Impact	Impact Score
Definition and Principle	Financial Impact	Regulatory Impact	Production Capacity Impact	Business Impact	Occupational Safety Hazards		
Impact survival ability	More than 300 million baht	Collapse	impact capacity >50%	Over 50%	More than 1 person dead or injured.	Very Big	4
Significant loss	50 million - 300 million baht	Work stoppage; lawsuit losses of 1 million baht or more.	impact capacity 20%~50%	20~50%	1 fatality or injury.	Big	3
Harm profitability	10 million - 50 million baht	Lawsuit losses from 300 thousand - 1 million baht.	impact capacity 5%~20%	5~20%	Employee slightly injured	Small	2
Normal loss	Less than 10 million baht	No lawsuits; fines up to 300 thousand baht or less.	impact capacity <5%	Less than 5%	No injury occurs	Very Small	1

Positive Impact refers to the potential positive effects or benefits that may result from the occurrence of a relative opportunity.

Reference Indicators					Definition of Impact	Impact Score
Definition and Principle	Profit Impact	Capacity Impact	Business Impact	Overall Efficiency Improvement		
Impact on survivability, implications for business model	More than 300 million baht	Over 50%	Over 50%	Over 20%	Very Big	4
Significant impact on competitiveness, profitability, sustainability	50 million - 300 million baht	20~50%	20~50%	10-20%	Big	3
Significantly enhances competitiveness, profitability, sustainability	10 million - 50 million baht	5~20%	5~20%	3-10%	Small	2
General improvement/opportunity	Less than 10 million baht	Less than 5%	Less than 5%	0-3%	Very Small	1

Note: Climate change assumption scenarios (TCFD) for risk factors 29-39 and opportunities 40-44.

The scenarios used in this assessment combine the "Shared Socioeconomic Pathways (SSPs)" and "Representative Concentration Pathways (RCPs)."

Through scenario simulation, we evaluate the impacts of policy implementation on social and economic dimensions. RCPs are added to focus on future greenhouse gas concentrations and other radiative drivers in climate models, estimating various levels of global warming scenarios.

This report uses the SSP2-4.5 scenario, categorized as a moderate scenario. Under regional competition, countries pay limited attention to sustainability, prioritizing economic and security issues within their regions, often at the expense of broader development. Uneven progress among countries leads to unclear policy effectiveness. Despite the efforts of global and national institutions, progress towards sustainable development goals remains slow. RCP 4.5 represents a moderate emissions scenario, where CO₂ emissions only begin to decrease by mid-century, with net-zero emissions unattainable before 2100, aligning more closely with current development trajectories.

Climate change risks and opportunities impact the company's strategy and financial planning. Therefore, based on TCFD recommendations, the company applies transition and physical risk types, along with climate opportunities, to assess the resilience of our strategy under moderate scenarios.

The scenario settings are as follows:

1.5°C Scenario, Thailand's Climate Change Master Plan (2015-2050), Taiwan's 2050 Net-Zero Emissions Pathway and Strategy, Taiwan's "Climate Change Response Act" scenario estimation description, etc.

Carbon tax collection	The Taiwanese government levies carbon taxes on businesses following the Climate Change Response Act. The estimated carbon tax rates are as follows: Short-term 300NTD/ t CO ₂ e, Mid-term 500NTD/ tons CO ₂ e, and Long-term 750~1,500NTD/ tons CO ₂ e.
Implementation of the Thai V-ETS	Since 2013, Thailand has been promoting the voluntary carbon emissions trading system (V-ETS). This system targets high-carbon emission industries and sets limits on both direct carbon emissions and energy-related indirect carbon emissions. It also outlines policies for implementing a nationwide mandatory Emission Trading System (ETS).
Enhanced regulatory standards	The "Climate Change Master Plan (2015-2050)" of Thailand outlines the goal of simultaneously limiting greenhouse gas emissions and achieving economic expansion. To accomplish this, it focuses on enhancing green building standards, building energy efficiency standards, lighting and air conditioning standards, and promoting high-efficiency transportation systems.
Energy shortages	The National Economic and Social Development Board (NESDB) of Thailand has conducted an analysis indicating that Thailand's available regional energy resources can only provide a 20-year supply reserve.
Changes in customer behavior	Customers are requesting the provision of carbon reduction strategies and actions. They may also require proof of carbon neutrality in the medium to long term.
The government provides relevant subsidies.	The Taiwanese government provides various subsidies to businesses for carbon reduction, renewable energy, energy storage systems, carbon capture, and related initiatives under the Climate Change Response Act.

The Intergovernmental Panel on Climate Change (IPCC), in its Sixth Assessment Report (AR6), describes a moderate global warming scenario known as SSP2-4.5. This scenario envisions a future with moderate climate change mitigation action. In this scenario

Temperature	Global temperatures are projected to continue rising. Under the moderate global warming scenario (SSP2-4.5), relative to the period from 1850 to 1900, global temperatures in the 21st century are expected to increase by more than 2°C and move toward 3°C. As for Thailand, the average temperature rise by the middle and end of this century is estimated at 1.6°C and 2.4°C, respectively.
Extreme High Temperatures	Future temperature changes will become more significant and noticeable. In 1995, the median number of days with temperatures exceeding 35°C across Thailand was 44 days. Under the moderate global warming scenario (SSP2-4.5), by the end of this century, the median number of days with temperatures exceeding 35°C in Thailand is projected to reach 195 days.
Intense Rainfall	Under the scenario, SSP2-4.5, Thailand's average daily maximum rainfall is expected to increase by approximately 4.99% by mid-century and 11.01% by the end of the century.
Sea Level Rise	The global average sea level will continue to rise throughout the 21st century. Under the scenario SSP2-4.5, by the end of this century, the possible range of global average sea level rise is projected to be between 0.66 and 1.33 meters.

2.3. Risk Appetite

Upon reviewing the actual scoring and considering the size of financial impacts in both qualitative and quantitative indicators, risks are categorized based on the product of risk possibility and impact with classification as follows: A for a product which is greater or equal to 5.5, indicating the highest risk; B for a product which is greater or equal to 4.5 but not reaching 5.5, indicating a high risk; C for a product which is greater or equal to 4.0 but not reaching 4.5, indicating a moderate risk; and D for a product with a product below 4.0, indicating a low risk. Using 4.5 as the risk appetite, risks with a product greater or equal to 4.5 are considered significant and defined as material topics in the ESG report.

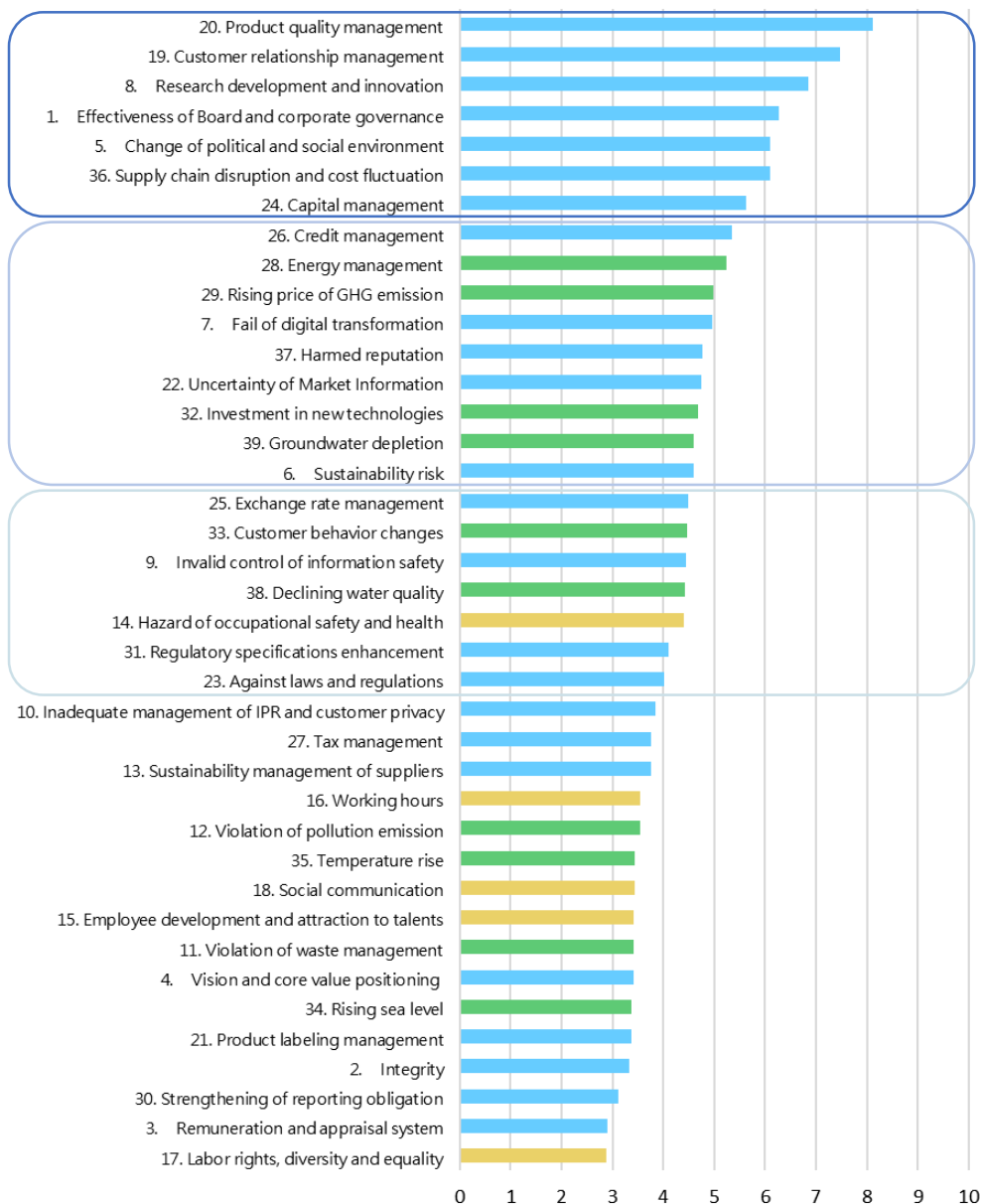
Financial impact level

Very big, or > ¥300 M	4	8	12	16
Big, or ¥50M-300M	3	6	9	12
Small, or ¥10M-50M	2	4	6	8
Very small, or under ¥10M	1	2	3	4
	Very small	Small	Big	Very big
	Frequency of occurrence/ Possibility			

Rank	Risk factors	Score	Risk level	Material	Climate-Related
1.	20. Product quality management	8.12	A	V	
2.	19. Customer relationship management	7.48	A	V	
3.	8. Research development and innovation	6.85	A	V	
4.	1. Effectiveness of Board and corporate governance	6.27	A	V	
5.	5. Change of political and social environment	6.10	A	V	
6.	36. Supply chain disruption and cost fluctuation	6.09	A	V	V
7.	24. Capital management	5.63	A	V	
8.	26. Credit management	5.36	B	V	
9.	28. Energy management	5.25	B	V	
10.	29. Rising price of GHG emission	4.98	B	V	V
11.	7. Fail of digital transformation	4.97	B	V	

Rank	Risk factors	Score	Risk level	Material	Climate-Related
12.	37. Harmed reputation	4.76	B	V	V
13.	22. Uncertainty of Market Information	4.74	B	V	
14.	32. Investment in new technologies	4.68	B	V	V
15.	6. Sustainability risk	4.59	B	V	
16.	39. Groundwater depletion	4.59	B	V	V
17.	25. Exchange rate management	4.48	C	-	
18.	33. Customer behavior changes	4.47	C	-	V
19.	9. Invalid control of information safety	4.45	C	-	
20.	38. Declining water quality	4.43	C	-	V
21.	14. Hazard of occupational safety and health	4.40	C	-	
22.	31. Regulatory specifications enhancement	4.10	C	-	V
23.	23. Against laws and regulations	4.01	C	-	
24.	10. Inadequate management of IPR and customer privacy	3.84	D	-	
25.	27. Tax management	3.77	D	-	
26.	13. Sustainability management of suppliers	3.76	D	-	
27.	12. Violation of pollution emission	3.54	D	-	
28.	16. Working hours	3.54	D	-	
29.	18. Social communication	3.43	D	-	
30.	35. Temperature rise	3.43	D	-	V
31.	4. Vision and core value positioning	3.43	D	-	
32.	11. Violation of waste management	3.43	D	-	
33.	15. Employee development and attraction to talents	3.43	D	-	
34.	21. Product labeling management	3.36	D	-	
35.	34. Rising sea level	3.36	D	-	V
36.	2. Integrity	3.33	D	-	
37.	30. Strengthening of reporting obligation	3.11	D	-	V
38.	3. Remuneration and appraisal system	2.91	D	-	
39.	17. Labor rights, diversity and equality	2.88	D	-	

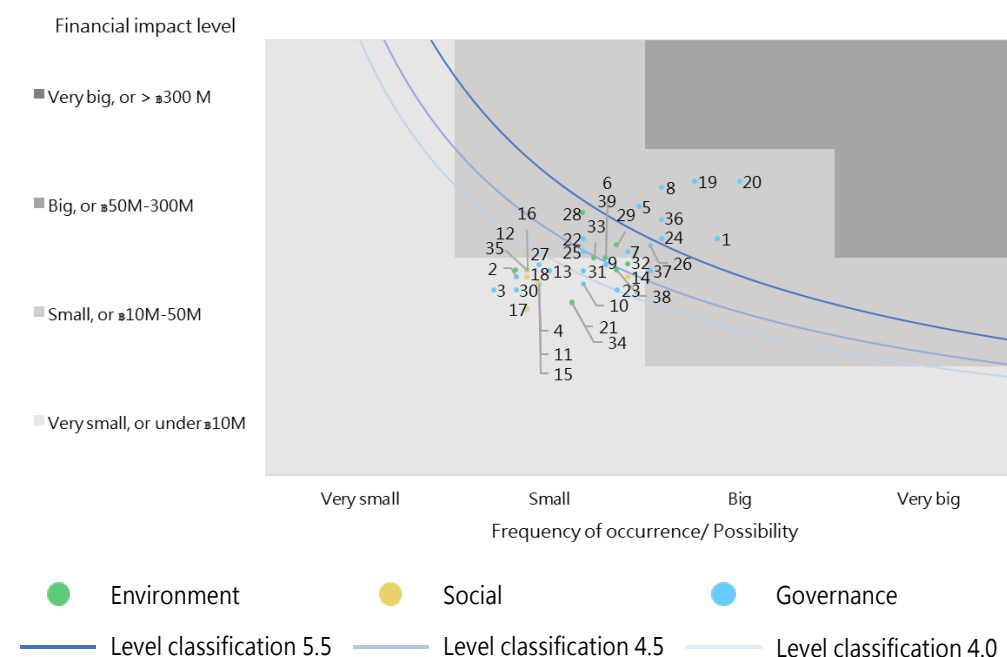
Rank	Opportunity factors	Score	Climate-Related
1.	44. Use of renewable energy sources	2.52	V
2.	42. Improvement in resource efficiency	2.91	V
3.	43. Enhancement of climate governance and carbon management capabilities	3.65	V
4.	41. Industry collaboration	3.88	V
5.	40. Sustainable finance	4.60	V



Upon reviewing the actual scoring ranking results and considering the financial impact size of qualitative and quantitative indicators, risk levels are classified as 5.5, 4.5, and 4.0 based on the product of risk likelihood and impact. A product of 5.5 or above is classified as Risk Level A, indicating the highest level of risk. A product above 4.5 but below 5.5 is classified as Risk Level B, indicating a high level of risk. A product above 4.0 but below 4.5 is classified as Risk Level C, indicating a moderate level of risk. A product below 4.0 is classified as Risk Level D, indicating a low level of risk.

The threshold for risk appetite is set at a product of 4.5; risks exceeding this threshold are considered significant and defined as material topics in the ESG report.

Risk Level Matrix



	Risk level	Classification	Amount
A	Highest risk	≥ 5.5	7
B	High risk	≥ 4.5 , but < 5.5	9
C	Moderate risk	≥ 4.0 , but < 4.5	7
D	Low risk	< 4.0	16

2.4. Assessment and response

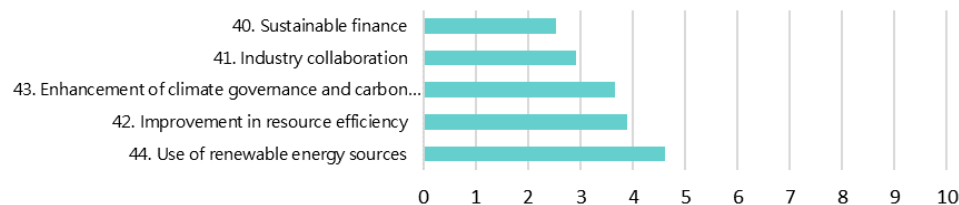
(1) Risks assessment and response

Rank	Risk factors	Risk response	
		Short-term	Mid-term/ Long-term
1.	20. Product quality management	Promote implementation of quality concept (14Q project)	Improve quality management system innovate management method (method for handling different quality spec in the same factory)
2.	19. Customer relationship management	Periodically review information of market demand, frequently interact with customers and agents to ensure credibility; periodically review customer complaints and progress to manage core problems of defect.	To supplement training of communication and negotiation, customer relationship management and marketing analysis; to build up channel of summary of political and economic situations.
3.	8. Research development and innovation	We' ve set up a laboratory and relative management standards; keep review manufacturing ability and quality management practice then find improvement opportunity; improve factory ability through develop new product with customers.	Study proper educational cooperation plan with schools to raise talents; study feasibility of far-distance working pattern to reduce geography limit.
4.	1. Effectiveness of Board and corporate governance	Based on existed good governance environment, introduce external evaluation.	Mid-term: Observe industry dynamics, continuously update performance systems, risk management systems, and establish appropriate nomination systems. Long-term: Continuously improve management systems.
5.	5. Change of political and social environment	Through interaction with external counter parties by PUR, BIZ, F&A to collect market information and cross check then feedback understanding to management team to plan operation.	Set up channel of summarizing political and economic information; study mature educational operation plan with schools; to improve qualitative system of employee career skills.
6.	36. Supply chain disruption and cost fluctuation	Raise management intensity of present process of production plan, purchase and business work, logistic management, adjust management organization to increase flexible options of digesting materials corresponding to sales plan.	Observe industry movement status; increase choice and audit of local vendors and think of innovative collaboration model.
7.	24. Capital management	Periodically review long-term/short-term capital arrangement, manage financing channels and financial tools.	
8.	26. Credit management	Periodically analyze AR and review overdue with BIZ in order to early control customer status; periodically review credit status of customers; F&A keeps monitoring macroeconomic and industrial change.	Keep interacting with professional institutions (ex: banks, accounting firms) to improve credit management system.
9.	28. Energy management	Installing solar energy equipment for self-generated power and implementing ISO 50001 certification.	Gradually expanding the scale of solar power generation.
10.	29. Rising price of GHG emission	We have proceeded GHG inventory count and been installing ISO 14064-1; keep promoting energy-saving projects.	Study schedule of installing carbon footprint and carbon pricing; adjust carbon strategy during the instalment.
11.	7. Fail of digital transformation	MIS has internally set up a responsible window to gradually improve information system in order to support digitalization request of each department.	To study and discuss of schedule, necessity and feasibility of installing new-generation information system.
12.	37. Harmed reputation	Keep effectively manage operation and ESG works.	Keep improve risk control system; study schedule of introducing international standards.
13.	22. Uncertainty of Market Information	We have relative control regulations and fit customer audit requirement and international standard.	Keep monitoring relative laws and regulations to fit requirement of carbon declaration in the future.
14.	32. Investment in new technologies	Keep bringing in new products and promoting technical ability by collaborating with customers.	Study transformation plan of consideration of carbon reduction strategy.

Rank	Risk factors	Risk response	
		Short-term	Mid-term/ Long-term
15.	6. Sustainability risk	We' ve set up corporate governance relative internal control system and complied with it to make process of decision-making diversified; major investment projects have been executed by following internal control rules with managers' appropriate managing and discussion; we have multiple channels for employees to comment and complain.	Keep promoting risk management system.
16.	39. Groundwater depletion	Internally, water management workflows and review mechanisms have been established. Maintenance budgets and schedules are planned based on past experience, internal knowledge, and supplier recommendations. A business continuity team has been set up to regularly assess major risks and relevant external information. Currently, there are no significant violations, and an investment project for wastewater recycling facilities has been initiated.	Completion of the wastewater recycling investment project at the Sinsakhon facility and monitoring its effectiveness. Discussions are underway for the implementation of ISO 46001 Water Efficiency Management standards.
17.	25. Exchange rate management	We' ve set up predict system of foreign currency position and periodically review and manage. We use forward to hedge risk of foreign exchange; F&A keeps monitoring macroeconomic change.	
18.	33. Customer behavior changes	Proactively exchange ideas with customers and vendors about ESG expectation in order to know schedule of realization in audit activities.	To seek opportunity of management innovation and transformation.
19.	9. Invalid control of information safety	Engage external experts to assist in enhancing information security control systems and environment, and consistently maintain the ISO 27001 Information Security Management System standard.	Study appropriate cloud system; keep planning of appropriate fire-wall system.
20.	38. Declining water quality	Internally, water management workflows and review mechanisms have been established, ensuring control over water intake treatment. Investments have been made in wastewater treatment systems to treat wastewater in compliance with discharge standards or for reuse.	Ongoing attention is given to external research findings and developments in Thailand or ASEAN's electronic industry clusters, with timely evaluations and discussions on the feasibility of other facilities.
21.	14. Hazard of occupational safety and health	We have good historical record in occupational-safety aspect and will keep control it by following present management procedures.	Maintain certificated control quality of ISO 14001 and ISO 45001; keep interacting and studying from external experts and governments.
22.	31. Regulatory specifications enhancement	Our responsible managers of each department pay attention to change of laws and regulations irregularly per scope of their own duty. We also study whether the change will affect present operation; the company has started ESG projects and relative training.	Keep proposing feasible projects, to prepare for the more and more strict regulatory environment proactively.
23.	23. Against laws and regulations	We' ve considered relative laws into work flows and procedures with well management; each department irregularly monitor change of laws per scope of their own duty and study whether it affect present operation or not.	Keep maintaining good governance environment and promoting risk management system.
24.	10. Inadequate management of IPR and customer privacy	Keep applying for patent registration based on our outcomes which is valuable, and strengthening protection of trade secret per present control system and procedures.	Study project of encouraging whole employee to join innovation; actively collaborate with customers, suppliers and chemical suppliers by following the trend of carbon reduction.
25.	27. Tax management	We have clear manual for tax calculation, each department also has control system, we also assign external CPA to audit periodically; F&A irregularly send employee to join seminar to understand status of tax laws.	Keep managing and learning new knowledge; think of necessity of setting up tax department by considering scale and complexity of business.

Rank	Risk factors	Risk response	
		Short-term	Mid-term/ Long-term
26.	13. Sustainability management of suppliers	Present supplier audit items have include ESG relative contents; keep interacting with suppliers to exchange information of practical methods of sustainability topics of supply chain.	Gradually increase option of sustainable suppliers; study to install ISO 20400 Sustainable Procurement Guidance.
27.	12. Violation of pollution emission	We have compliant and effective management system of each source of pollution; there was no significant violation case.	Upgrade present system by including ESG concepts.
28.	16. Working hours	Relevant management systems have been established and are continuously aligned with legal requirements, meeting customer audit standards and international regulations.	Ongoing attention is given to relevant laws and initiatives, with continuous investment in employee welfare.
29.	18. Social communication	We have routine system and management pattern of stakeholder communication.	Based on present mechanism, study to increase diversity of communication pattern.
30.	35. Temperature rise	Maintain good governance environment, open and diversified decision-making team and communication pattern.	Keep improving risk management system.
31.	4. Vision and core value positioning	Maintain good governance environment, open and diversified decision-making team and communication pattern.	Keep improving risk management system.
32.	11. Violation of waste management	We have compliant and effective management system of waste; at present, there was no significant violation case.	To promote present mechanism by including ESG items.
33.	15. Employee development and attraction to talents	Keep complying with laws and internal goals to plan education materials; we' ve build up monthly appraisal KPI list for employees as being accordance of annual appraisal; discuss of educational cooperation plan with schools every year.	Study long-term educational cooperation plans.
34.	21. Product labeling management	We have relative control regulations and fit customer audit requirement and international standard.	Keep monitoring relative laws and regulations to fit requirement of carbon declaration in the future.
35.	34. Rising sea level	A well-established facility management model and system have been implemented, considering past experiences, internal knowledge, supplier recommendations, etc., to plan maintenance budgets and schedules. A continuous operations team has been established to regularly assess risks related to significant hazards and external information, focusing on specific studies evaluating the impact of sea-level rise.	Continuously monitoring external research findings and keeping a close eye on the development status of the electronics industry clusters in Thailand or the ASEAN region. Regularly evaluating and discussing the possibility of other plant locations based on the industry landscape.
36.	2. Integrity	We' ve set up corporate governance relative internal control system and comply it maintaining well governance environment; we formulate integrity policy and request major suppliers to follow.	Keep promoting risk management system.
37.	30. Strengthening of reporting obligation	We' ve set up relative internal control system and there was no significant defect found by security supervisor and accounting firm.	Keep learning reporting regulations and update of laws; to provide internal training.
38.	3. Remuneration and appraisal system	We' ve set up appraisal list of monthly KPI for employees to be accordance of annual appraisal; appraisal of managers is periodically reviewed by his/her supervisors, discussion of work is irregularly executed in usual days; set up Remuneration Committee to review salary of governance and management level.	Keep improving effectiveness of remuneration appraisal.
39.	17. Labor rights, diversity and equality	We' ve set up relative teams and systems to manage human rights, occupational safety, welfare affairs etc.	Keep input resource in employee welfare and promoting activities or systems of open communication environment.

(2) Opportunity assessment and response



Rank	Opportunity factors	Management measures
1.	44. Use of renewable energy sources	Engage in renewable energy procurement and investment, gradually increasing the proportion of renewable energy usage annually.
2.	42. Improvement in resource efficiency	Through internal and external projects, plan adjustments to production equipment and replacement of components, actively improve equipment operational efficiency, and reduce energy usage. Enhance the efficiency of the wastewater recovery system to increase water recovery rates.
3.	43. Enhancement of climate governance and carbon management capabilities	Organize promotional events periodically.
4.	41. Industry collaboration	Participate in association courses to learn sustainable improvement methods.
5.	40. Sustainable finance	Promote sustainable supply chain management and actively respond to customer expectations.

3. GREEN Project

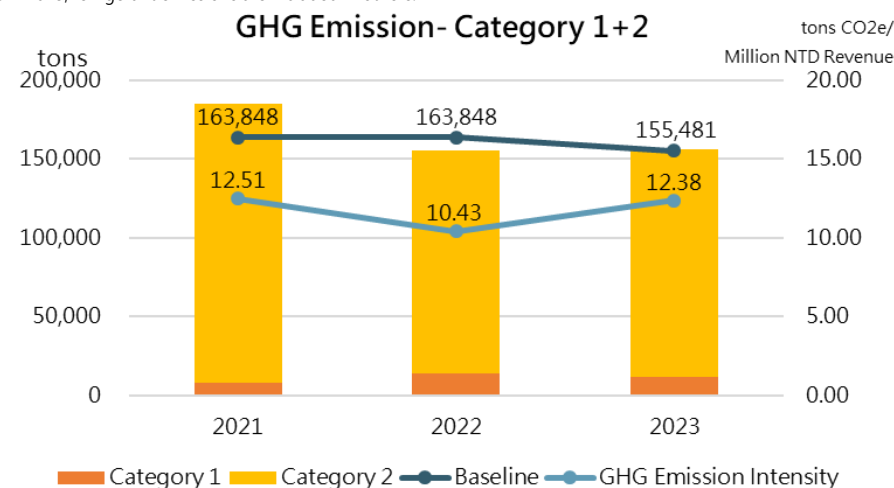
Faced with the challenges of global climate change, our company recognizes its profound impact on the environment, society, and economy and actively assumes environmental responsibility. To strengthen ESG development comprehensively, we have launched the Apex GREEN Project, focusing on three key pillars: "Renewable Energy," "Wastewater Recycling," and "Enhancing Energy Efficiency."

We firmly believe that businesses must coexist and thrive with the planet while pursuing growth and profitability. Through innovative technologies and sustainable strategies, we aim to minimize environmental impact and create a more friendly and prosperous future for the Earth and generations to come.

3.1 GHG Emissions Situation

Category	2021	2022	2023
Category 1 (A)	8,158	13,667	11,937
Category 2 (B)	176,959	141,814	144,389
Subtotal (A)+(B)	185,117	155,481	156,326
GHG Emission Intensity (CO ₂ ^e /Million NTD Revenue)	12.51	10.43	12.38
Category 3 (C)	21,289	18,312	17,199
Others (D)	5	5	5,720
Total (A+B+C+D)	206,411	173,798	179,245

Note: In 2023, refrigerant emissions are included in others.



3.2 Solar Project

The Solar Project is planned to be implemented in three phases from 2022 to 2027 across various plants in Thailand. Upon full completion in 2027, the total installed capacity of the company's solar photovoltaic system is expected to exceed 20,000 kilowatt-hours, with an anticipated reduction of nearly 15,000 tons of carbon dioxide emissions. Compared to the company's 2021 greenhouse gas inventory data as the baseline year, this equates to a reduction of more than 8% in carbon emissions.

(1) Execution goals

- i. Proportion of renewable energy usage

Y2025	5%
Y2035	10%
Y2045	30%
Y2060	50%
- ii. Reduce GHG emissions Reduce GHG emissions by 5% in 2027 (base year 2022)

(2) Execution period 2022 to 2027

(3) Implementation Status

Since the Solar Project gradually began construction in 2022, the cumulative installed capacity of solar systems currently in operation is approximately 8.3MW. Solar energy usage in 2023 will be 5,990MWh, accounting for 2.03% of energy use. From January 1 to October 31, 2024, a total of 7,740MWh of solar energy will be produced.

(4) Installation plan

Solar Plant	2022	2023	2024	2025	2026-2027
Phase 1 Completed	2,771				
		2,351			
			3,175		
Phase 2				454	
				4,000	
				1,100	
Phase 3					4,500
					2,000
Solar Capacity (kWp)	2,771	2,351	3,175	5,554	6,500
Accumulate Solar Capacity (kWp)	2,771	5,122	8,297	13,851	20,351
GHG Reduction (tons)	2,022	3,739	6,055	10,109	14,853

3.3 Lean Project

The project, guided by external expertise, aims to improve equipment operational efficiency. Using 2022 data as the baseline, the effectiveness of the plan is evaluated. The improvement measures are as follows:

- Reducing power system energy consumption through current optimization technology.
- Resolving turbine compressor unloading issues.
- Installing high-efficiency vacuum blowers with system control.
- Using temperature differential sensors to monitor and control hot water loads and altering hot water heating methods.
- Employing high-performance cooling systems with system monitoring to ensure operational efficiency.

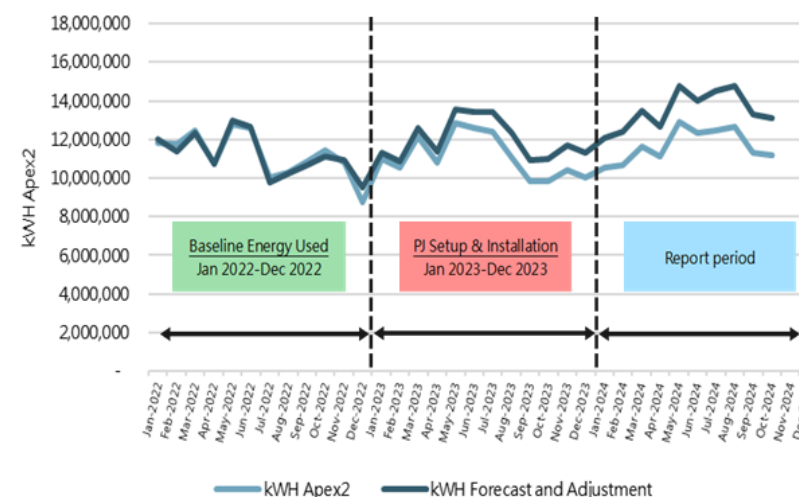
(1) Execution goals

The project aims to reduce energy consumption of related equipment by 8%.

(2) Execution Period 2022 to 2024

(3) Implementation Status

From January 1 to October 31, 2024, the various improvement measures have resulted in an estimated reduction of 18,320 MWh in electricity usage, saving an average of 13.56% in power consumption for related equipment per month.



3.4 Aqua Project

Apex officially launched the Aqua Project in 2022, and established a water resources task force to work with suppliers to discuss from three aspects: physical treatment, chemical treatment, and biochemical treatment, and plan to separate the factory wastewater, and then use wastewater treatment technology to let the water Resource recycling, more detailed classification and treatment of substances in wastewater, clean discharge and reduction of water resources.

1. Execution goals

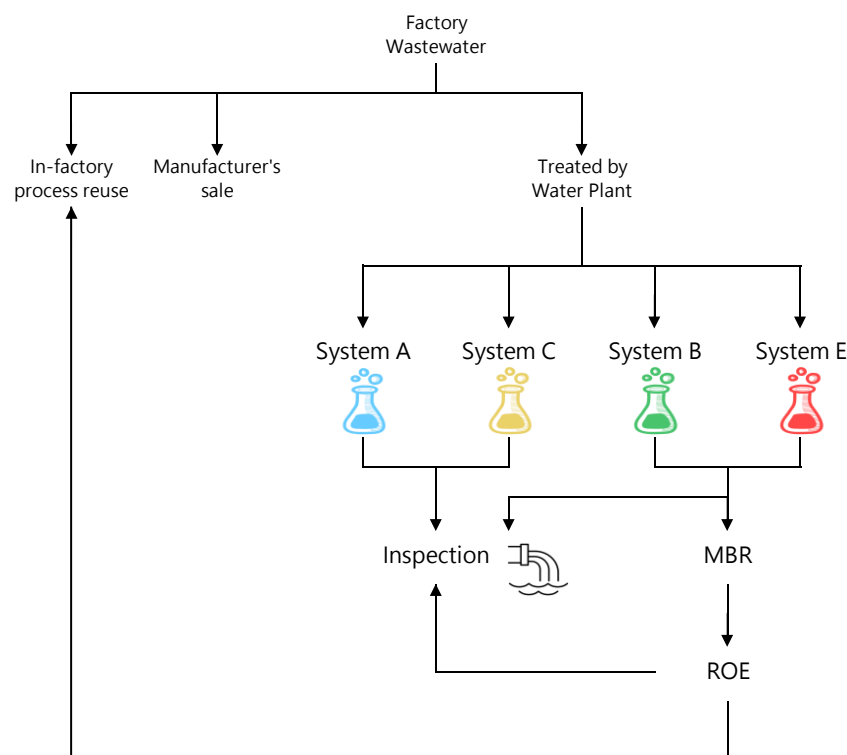
Wastewater Recycling Rate	Y2025	30%
	Y2035	40%
	Y2045	50%

2. Execution Period

2022 to 2025

3. Implementation Status

As of October 31, 2024, the average monthly recovery rate is approximately 21.64%.



4. Supervisory and Inspection

Implementation is:

- At the corporate level, after the risk management process is executed by participating personnel and their departments, discussions and reviews are conducted with the CSO.
- The current effectiveness of various risk responses, ongoing control implementation, plans in progress, and future exploration directions are reported to the CSO in the fourth quarter of this year, in addition to the regular work carried out by each unit and responsibility manager during routine operations.
- This execution report will also be submitted to the Sustainability Development Committee and the Board of Directors for review and discussion.
- The effectiveness of control and management of operational-level risks is audited by the audit unit according to the audit plan. The company also conducts self-checks internally annually. The audit results are submitted to the Audit Committee and the Board of Directors for review, and no significant deficiencies have been found this year.

5. Appendix-TCFD indicator comparison table

	Disclosure Item	Chapter	Page
Governance	Describe the board' s oversight of climate-related risks and opportunities.	2-1 Risk management promotion and management 4 Supervisory and inspection	3-4 21
	Describe management' s role in assessing and managing climate-related risks and opportunities.	2-1 Risk management promotion and management 4 Supervisory and inspection	3-4 21
Strategy	Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	2-2 Identification and evaluation process	5-13
	Describe the impact of climate-related risks and opportunities on the organization' s businesses, strategy, and financial planning.	2-2 Identification and evaluation process	5-13
	Describe the resilience of the organization' s strategy, taking into consideration different climate-related scenarios.	2-2 Identification and evaluation process	5-13
Risk Management	Describe the organization' s processes for identifying and assessing climate-related risks.	2-4 Assessment and response	16-19
	Describe the organization' s processes for managing climate-related risks.	2-4 Assessment and response	16-19
Risk Management	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization' s overall risk management.	2-4 Assessment and response	16-19
Metrics and Targets	Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	2-1 Risk management promotion and management 3 GREEN Project	3-4 19-21
	Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.	2-4 Assessment and response 3 GREEN Project	16-19 19-21
	Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	3 GREEN Project	19-21