



TCFD

2023

Powertech Technology Inc.

**Task Force on Climate-related Financial
Disclosures Report**

A photograph of a wind farm at sunset. In the foreground, a large wind turbine is partially visible on the left. In the background, several other turbines are silhouetted against a warm, orange and yellow sky. A body of water and a distant city skyline are visible in the lower left.

CONTENTS

1. Preface	<u>3</u>
2. Climate Governance	<u>5</u>
3. Climate Strategy and Risk Management	<u>8</u>
4. Climate Action	<u>13</u>
5. Metrics and Targets	<u>23</u>
6. Prospect	<u>26</u>
7. Appendix	<u>27</u>

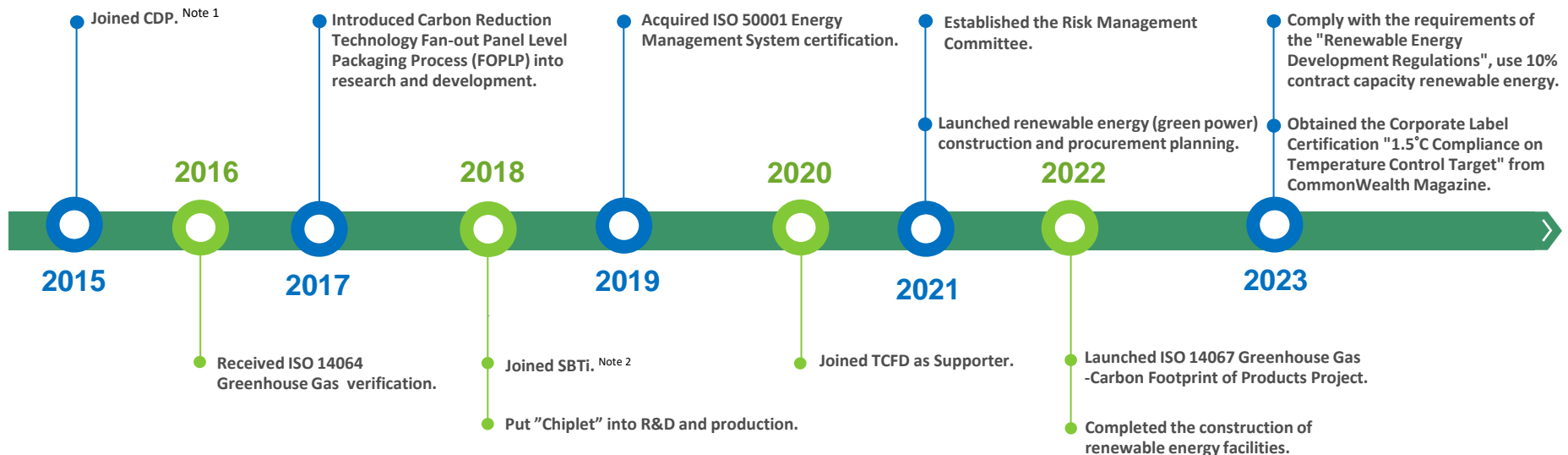
1 Preface

Climate change caused by global warming is a crisis faced by all mankind and an issue that the international community attaches great importance. Faced with the threat of extreme weather, PTI has been actively involved in environmental protection initiatives. Since 2015, it has participated in the climate change project initiated by CDP, revealing climate change and water security questionnaires; officially signed in July 2020 become a supporter of "Task Force on Climate-related Financial Disclosures (TCFD)", support climate adaptation governance, propose climate risk and opportunity identification based on the TCFD framework every year, and measure climate transition and physical oriented to global risks and opportunities, formulate environmental management policies and implement

measures to adapt and mitigate the impact of climate change, reduce environmental hazards, and ensure the sustainable development of enterprises.

In recent years, in order to curb the threat of climate change, "carbon reduction" has become the top priority. PTI has formulated a Net Zero Roadmap in 2022, promising to improve "Clean Technology (Clean Tech)", "the use of renewable energy" and "energy conservation and carbon reduction" in parallel, joining hands with employees, customers and suppliers to move towards the goal of net zero in 2050.

The Climate Change Response Milestone of PTI



Note 1: Carbon Disclosure Project (CDP), which invites companies to complete questionnaires designed by CDP to disclose their greenhouse gas emissions and strategies for addressing climate-related investment risks and opportunities.

Note 2: The Science Based Target initiative (SBTi) is a joint effort between the CDP, the UN Global Compact, the World Resources Institute and the World Wildlife Fund (WWF). It is based on a scientific approach and a weighted calculation of a reasonable amount of emissions (carbon reduction) for a specific industry and a specific company in a global carbon budget scenario.

Strengthening Climate Resilience - TCFD Report

Faced with the possible impact of climate change on operations, with the support of senior executives, PTI implements climate-related risks and opportunities in accordance with the framework of the "Task Force on Climate-related Financial Disclosures Recommendations (TCFD Recommendations)" to identify and assess climate change risks and responses across organizations.

PTI regularly holds the "Climate Change Risk and Opportunity Workshop" every year, identifies and ranks risks and opportunities for issues such as policies, regulations, markets, technologies, reputation, and physical risks, and formulates response measures based on the identification results to reduce the impact of climate risks and strengthen climate resilience.

PTI TCFD Framework

Governance

- The Board of Directors regularly reviews the risks and opportunities associated with climate change and water resources.
 - The Risk Management Committee regularly reports to the Board of Directors concerning the assessment and management measures of the climate and water resources related risks and opportunities.
 - Major issues reported in the quarterly meeting.

Strategy

- Conducted short, medium, and long-term climate risks and opportunities through cross-departmental discussions.
- Evaluated the impact of major risks and opportunities on company operations and finances.
- Identified the impact of major risks and opportunities by taking into consideration different climate-related scenarios.

Risk Management

- Established management mechanisms and countermeasures for major risks and opportunities; reported regularly to the Board of Directors and management team on the effectiveness of implementation.
- Evaluated future management measures and monetized the resources into financial costs.
- Organized workshops to strengthen the employees' climate awareness.

Metrics and Targets

- Developed management targets for climate-related risks and opportunities and regularly review performance against targets.
- Followed the ISO 50001 standard for energy management to reduce energy consumption.
- Reviewed various potential carbon emission sources using the materiality principle and decide the scope of the inspection based on the ISO14064-1 standard.
- Conducted ISO 14067 Carbon Footprint Verification.



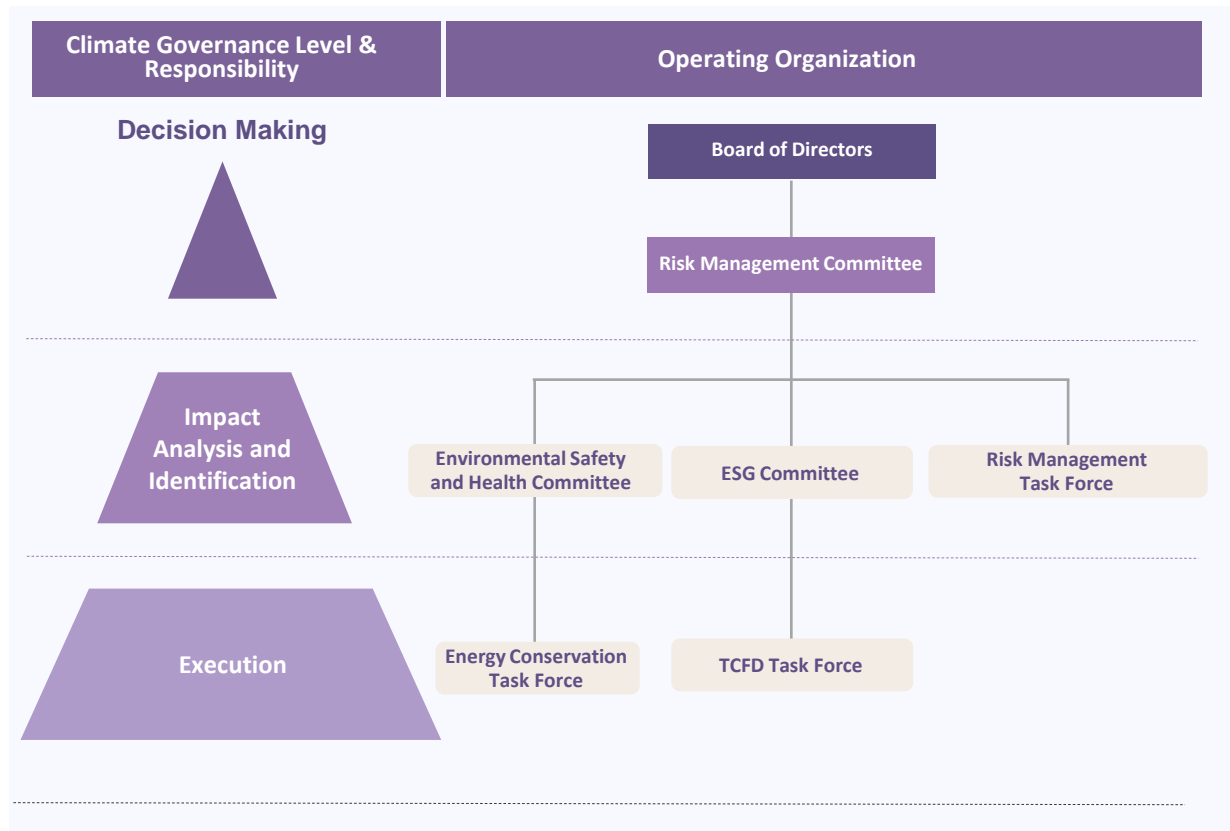
2 Climate Governance

PTI attaches great importance to the governance function of the senior management for corporate sustainability. We established climate risk identification and response procedures, completing the operating mechanism of climate governance by the approach of "top-down command and supervision, bottom-up response and report". Every year, regularly report the implementation of issues such as sustainability and climate change to the board of directors and various inter-organizational committees, and continue to strengthen the organization's resilience in the face of climate change.



Organization Operating Model

In response to climate impacts, PTI mitigates the impacts of climate change on business operations through the risk identification and cross-functional communication.

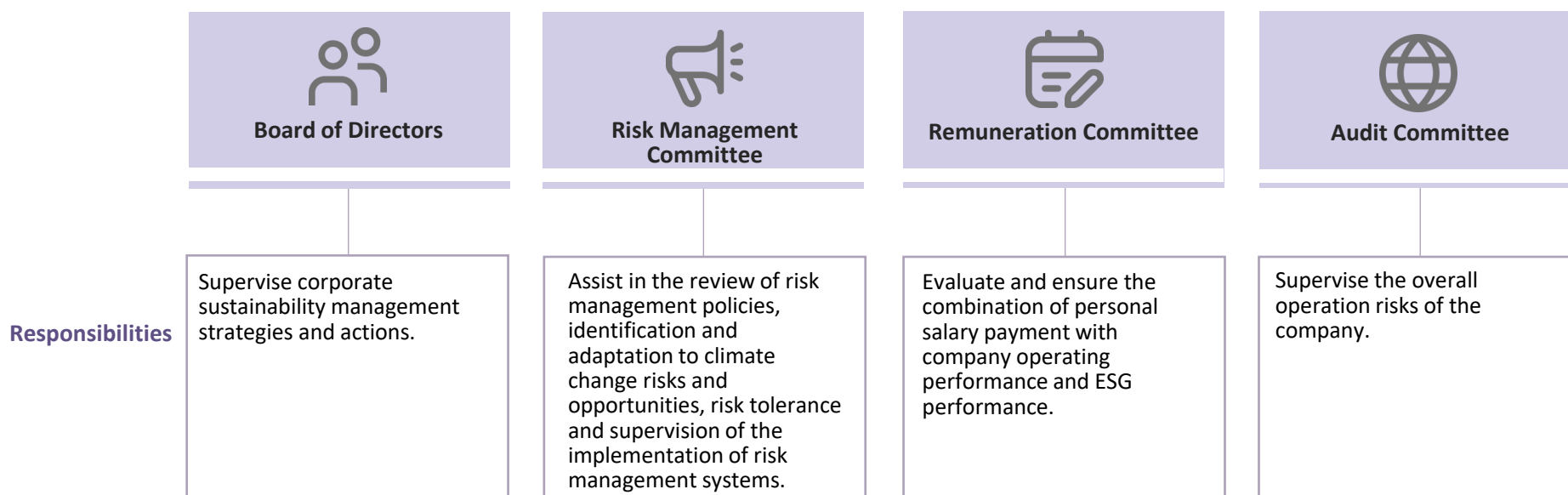


Board of Directors Participation and Operating Organization

PTI pays attention to sustainable development issues and attaches great importance to shareholders' rights and interests. The climate risk management organization takes the board of directors as the highest management and decision-making unit. There are 10 members of the board of directors, including 4 independent directors. The main responsibilities are to approve the company's business plan, financial report, to formulate important rules and regulations, to approve major investment cases, to supervise the risks and the impact of climate change, etc., affecting the company's operations, and to formulate strategies and response measures.

A total of 7 board meetings were held in 2023, and a number of important proposals were passed. In promoting climate change and sustainable management strategies, the board of directors plays the role of supervision and command. Under it, there are the Audit Committee, the Remuneration Committee and the Risk Management Committee to assist in supervising the company's sustainable development and climate change-related management actions, and regularly report the resolutions to the board of directors.

Climate Risk Operating Organization Responsibilities



Responsibilities and Roles of the Management

In the promotion of carbon reduction, environmental sustainability and other issues, in addition to the support of senior management, the participation and cooperation of all units are also required. Taking sustainable goals as the longitude and cross-functional organizations as the latitude, PTI outlines the content of environmental sustainability comprehensively in all aspects. It offers senior executives and management with a glimpse of the whole picture, providing effective support and cooperation.

Responsibilities of Climate Risk Management

	Risk Management Task Force	ESG Committee	Environmental Safety and Health Committee
Meeting Frequency	Meetings are held quarterly, and relevant content is reported to the Risk Management Committee.	Meetings are held quarterly, and reported to the Board of Directors.	Meetings are held quarterly.
Responsibilities	In order to operate climate governance smoothly, a "Risk Management Task Force" was established under the Risk Management Committee. It operates in the form of task grouping. The president serves as the team leader, appoints a deputy team leader, and the corporate governance supervisor serves as the executive secretary. Quarterly meetings are held to discuss risk issues, including the impacts and hazards of extreme weather on the company's operations. Submit relevant contents to the risk management committee for discussion to implement the effectiveness of risk management.	<p>To discuss corporate sustainable development management affairs, the president acts as the convener, and the Sustainability Management Office acts as the executive secretary, assisting in the promotion of sustainable development policies, goals and other related businesses, and communicating and discussing issues of concern to stakeholders.</p> <p>"TCFD Task Force" The Sustainability Management Office acts as the convener to carry out TCFD climate-related risk and opportunity identification every year, compiling the results of identification to report in the "ESG Committee" and provide them to the management team as decision reference.</p>	<p>The president acts as the convener and is responsible for the research and discussion of industrial safety and environmental protection related matters to prevent occupational accidents and pollution incidents, improve the safety and hygiene of the working environment and strengthen environmental safety and health management. Meeting are held once a quarter, the discussion includes climate change and environmental protection issues, e.g. formulating environmental and energy-saving performance indicators, tracking and improving greenhouse gas inventory results.</p> <p>"Energy Conservation Task Force" The Plant Engineering Department acts as the convener, conducts discussions and research on energy conservation issues and energy management in each factory area every year, and compiles and provides annual energy conservation statistics in the report of the Environmental Safety and Health Committee.</p>

3 Climate Strategy and Risk Management

The identification of climate change risks and opportunities at PTI is processed by the Sustainability Management Office which serves as the convener. After integrating external information and the Company's operation conditions to create climate risk and opportunity assessment items, it assembles personnel from plant engineering, ESH, R&D, sales, supply chain management, legal affairs and finance to convene the TCFD Workshop to review and discuss evaluation items for risks and opportunities. 10 climate change risks and 7 climate change opportunities were identified in 2023; 2 were high-risk factors and 2 were major opportunities while the others were low-risk factors and opportunities. PTI will continue to focus on the changes in related trends and issues.

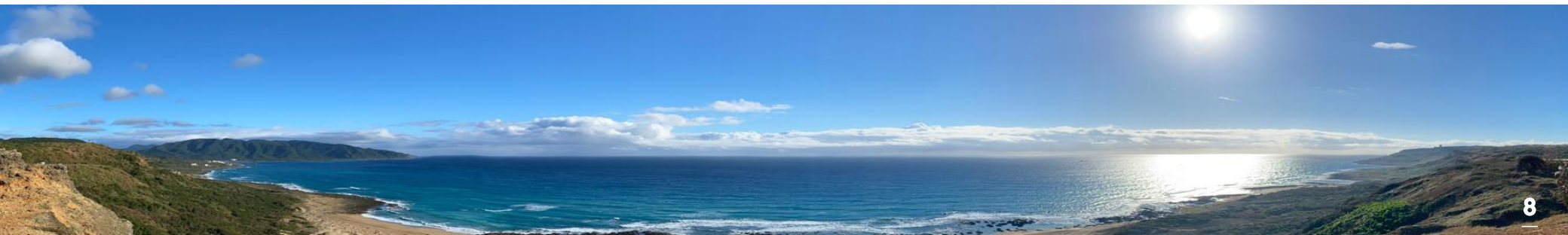
Through the TCFD task force and cross-departmental communication and discussion, PTI conducts climate risk and opportunity identification in consideration of the company's current operating conditions and scenario warming by 2°C. Evaluate according to the probability of occurrence and the degree of impact, quantify the possibility and the degree of impact and produce a climate risk and opportunity matrix.

Climate Scenario Setting

Climate-related risks and opportunities impact PTI's strategy and financial planning and we use quantitative and qualitative climate-related scenario analysis to adopt corresponding strategies. It is based on the 2°C scenario (2DS), the 1.5°C scenario and the RCP 8.5 high carbon emission scenario that represents the concentration pathway based on the "probability of occurrence", "potential scale" and "possible occurrence of the facility" of climate disasters. Assess the physical risks, transition risks and opportunities we may face under future climate scenarios.

Process for Climate Risks and Opportunities Identification

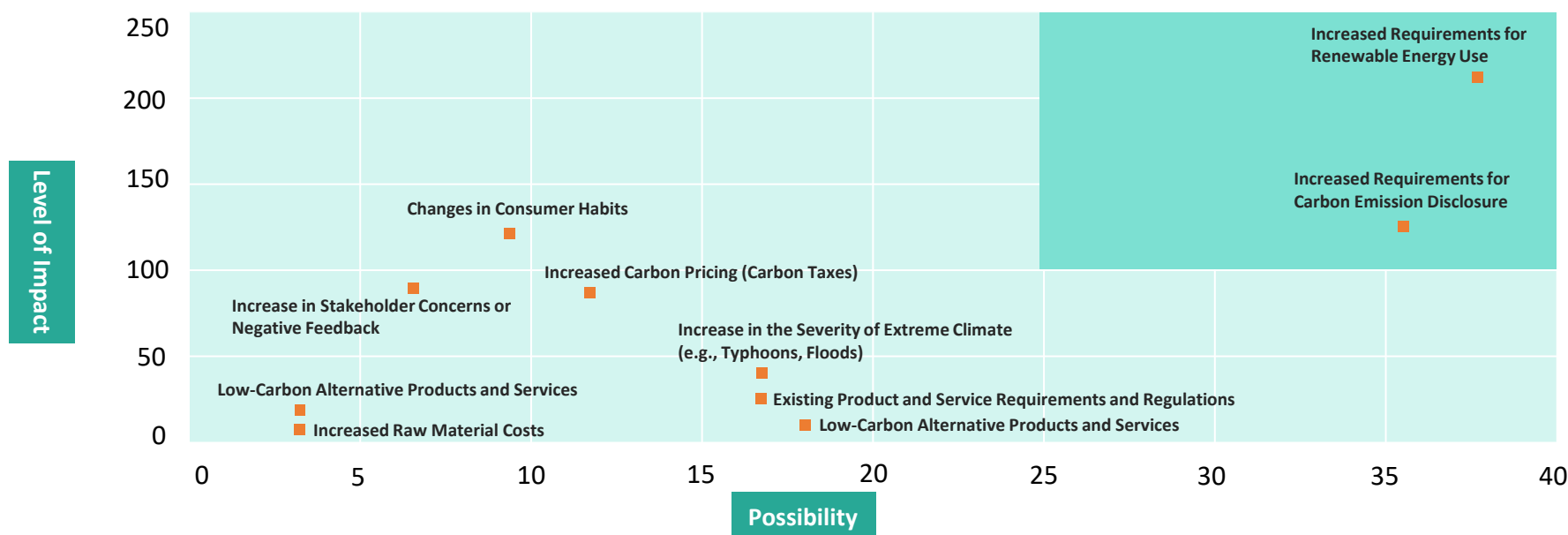
- 1 Collect issues to make a list for climate risks and opportunities evaluation.
- 2 Identify climate risks and opportunities.
- 3 Assess the climate risk and opportunity impact level/likelihood of occurrence.
- 4 Rank the climate risks and opportunities.
- 5 Produce the risk and opportunity matrix.
- 6 Formulate response strategies.



Climate Risks Identification

PTI assesses the impact of climate-related risks and opportunities on the company, and ranks the risks according to the importance of the relevant risks; proposes response strategies for the climate-related risks and opportunities faced. For the risk part, we carry out management and control measures for two high-risk factors, and conduct resource inventory for the response measures. The result of the risk matrix shows that the first two major risks mainly focus on the category of "policies and laws", which are "Increased Requirements for Renewable Energy Use" and "Increased Requirements for Carbon Emission Disclosure" in order.

Climate Risks Matrix



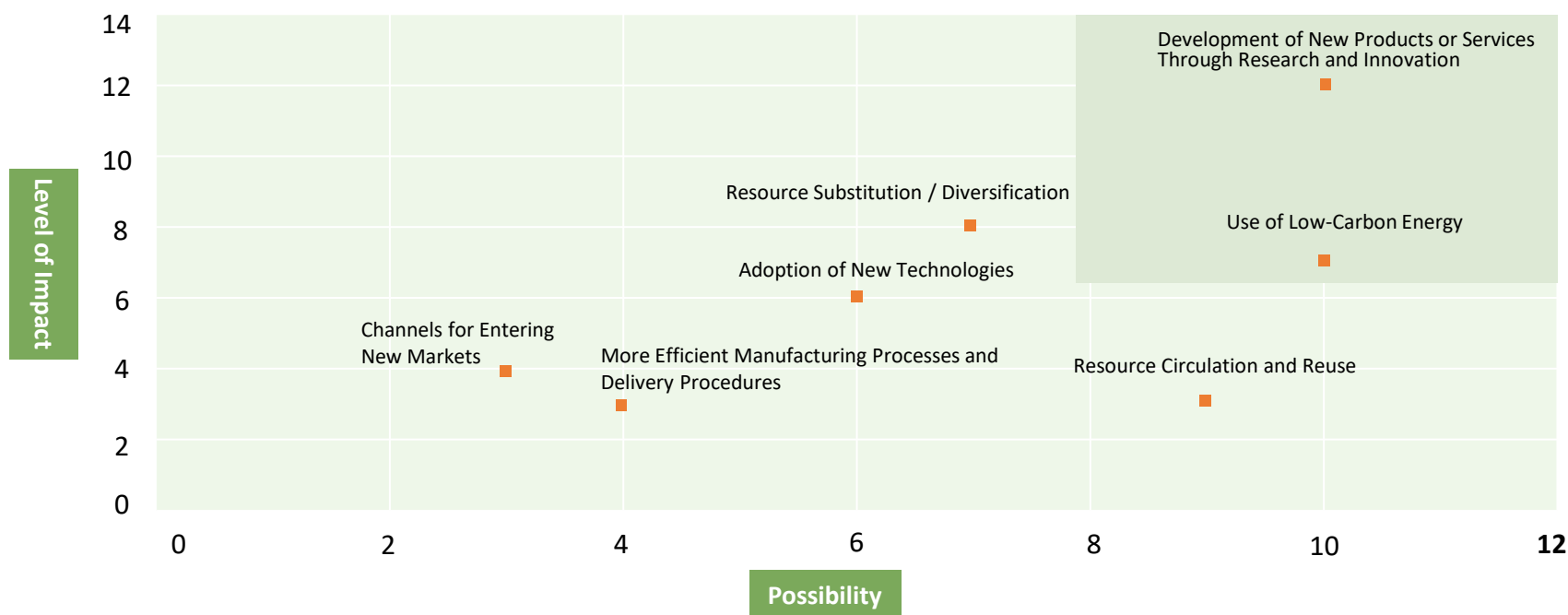
The identification of climate risks is explained by risk category as follows:

Risk Category	Risk Factor	Time	Degree of Possibility	Degree of Financial Impact	Risk Ranking
Policies and Laws	Increased Requirements for Renewable Energy Use	Short Term	Very High	High	1
Policies and Laws	Increased Requirements for Carbon Emission Disclosure	Short Term, Medium Term, Long Term	Very High	High	2

Climate Opportunities Identification

Based on the importance of opportunity categories such as “Resource Efficiency”, “Energy Sources”, “Products and Services”, “Market” and “Resilience”, and the importance of opportunity factors, PTI identifies the company's top two opportunities, “Development of New Products or Services Through Research and Innovation” and “Use of Low-Carbon Energy”. In terms to opportunities, PTI has actively evaluated future feasible solutions, with the aim of maximizing the benefits generated by potential opportunities, along with reviewing the necessary resources and analyzing potential financial costs in order to strengthen the company's assessment of the resources required to practice opportunities.

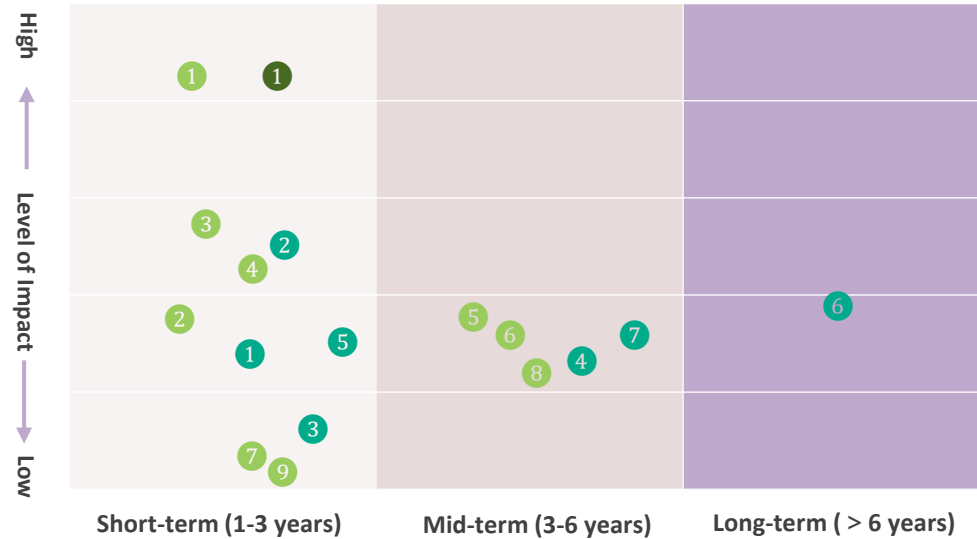
Climate Opportunities Matrix



The identification of climate opportunities is explained by opportunity category as follows:

Opportunity Category	Opportunity Factor	Time	Degree of Possibility	Degree of Financial Impact	Opportunity Ranking
Products and Services	Development of New Products or Services Through Research and Innovation	Short Term, Medium Term, Long Term	Very High	High	1
Energy Sources	Use of Low-Carbon Energy	Short Term	Very High	High	2

Major Climate Risks and Opportunities



Opportunities

- 1 Development of New Products or Services Through Research and Innovation
- 2 Use of Low-Carbon Energy
- 3 Resource Circulation and Reuse
- 4 Resource Substitution/Diversification
- 5 Adoption of New Technologies
- 6 Channels for Entering New Markets
- 7 More Efficient Manufacturing Processes and Delivery Procedures

Risks

- Transitional Risks**
- 1 Increased Requirements for Renewable Energy Use
 - 2 Increased Requirements for Carbon Emission Disclosure
 - 3 Changes in Consumer Habits
 - 4 Increased Carbon Pricing (Carbon Taxes)
 - 5 Existing Product and Service Requirements and Regulations
 - 6 Increase in Stakeholder Concerns or Negative Feedback
 - 7 Low-Carbon Alternative Products and Services
 - 8 Transition Costs to Low-Carbon Technologies
 - 9 Increased Raw Material Costs
- Physical Risks**
- 1 Increase in the Severity of Extreme Climate (e.g., Typhoons, Floods)



Climate Change Financial Impact and Strategy

Category	Climate-related Risk (▲) / Climate-related Opportunities (★)	Potential Financial Impact	Response Plans	Administrative Cost
Transition Risks	▲ Increased requirements for renewable energy use (short-term) ★ Use of low-carbon energy (short-term)	• Directly increases operational costs and requires additional expenditure for renewable energy infrastructure.	• Established a renewable energy procurement project team. Set up renewable energy power generation facilities (solar panels) and energy storage facilities and purchased renewable energy certificates to ensure a stable supply of renewable energy sources. • Continue to focus on renewable energy regulations, development trends, and customer requirements and plan follow-up management measures.	• NT\$60 million is invested annually in the construction, maintenance, and procurement of renewable energy equipment.
	▲ Increased requirements for carbon emission disclosure (short-term)	• Increased operating costs due to customer and regulatory disclosure requirements.	• Implement ISO 14064 greenhouse gas inventory and establish a carbon emissions inventory subject to third-party certification. • Conduct annual ISO 14067 product carbon footprint inventory for specific products and third-party certification to understand related product carbon emission hotspots. • Participate in the disclosure of climate-related information, such as CDP and self-prepared TCFD reports.	• About NT\$800 thousand is invested annually in GHG inventory and carbon information disclosure.
	▲ Increased carbon pricing (carbon taxes) (short-term) ★ Resource substitution/diversification (medium-term)	• Increased operating costs (e.g., purchase / repairs of energy conservation and carbon reduction facilities and operating costs).	• Establishment and operation of the ISO 50001 Energy Management System. • Implement energy efficiency improvement projects, replace old equipment, factory facilities, and other energy-saving and carbon-reduction measures.	• About NT\$5 million is invested annually in implementing ISO 50001 and various energy-saving and carbon-reduction measures.
	▲ Existing product and service requirements and regulations (medium-term) ▲ Change in consumer habits (short-term) ★ Adoption of new technologies (short-term)	• Decrease in product orders and increase in additional communication costs for the client.	• Establish a monitoring mechanism for relevant laws, regulations, and trends, and make good use of multiple channels to maintain smooth communication and engagement with stakeholders. • Voluntarily join domestic and foreign climate-related organizations or initiatives.	• About NT\$4.5 million is invested annually in research and monitoring regulations and trends, establishing multiple communication channels and participating in domestic and international initiatives.
	▲ Increase in stakeholder concerns or negative feedback (medium-term)	• Unable to satisfy the stakeholders' expectations, resulting in damage to the company's reputation.	• Disclose the Company's low-carbon and sustainability actions with transparency and openness for responding to climate change to improve the Company's sustainability image.	
	▲ Low-carbon alternative products and services (short-term) ▲ Transition costs to low-carbon technologies (medium-term) ★ Channels for entering new markets (long-term) ★ More efficient manufacturing processes and delivery procedures (medium-term) ★ Development of new products or services through research and innovation (short-term)	• Increased R&D and operating costs. • Capacity planning constraints (reduction in the demand for existing specific services and technologies).	• Invest in low-carbon and eco-friendly products or processes. • Move towards green manufacturing processes and smart factories.	• About NT\$20 million is invested annually in the R&D and innovation of low-carbon products and raw materials.
	▲ Increased raw material costs (short-term)	• The increase in the cost of energy and other raw materials leads to an increase in expenditures and a decrease in profits.	• Continue to search for diverse suppliers to stabilize purchase prices in the market. • Continue to communicate with suppliers to control the increase in material costs.	
	▲ Increase in the severity of extreme climate (e.g., typhoons, floods) (short-term) ★ Resource circulation and reuse (short-term)	• Conditions affect production and cause financial losses and decreased revenue. • Unstable prices of material supply increase operating costs.	• Strengthen the management and monitoring of water resources and introduce the ISO 46001 Water Efficiency Management System to reduce the risk of water shortage or flood disasters. • Implement waste recycling and reduce waste generation. • Operate the ISO 22301 Business Continuity Management System to strengthen the resilience of disaster response and recovery.	• About NT\$8 million is invested annually in water resource management, circular economy, and the building of disaster and response capabilities.

4 Climate Action

PTI formulates adaptation measures for natural disaster impacts and external policies, regulations, and environment, as well as complete disaster operation continuation plans for factory operations, assets and equipment, and raw material storage and transportation. In terms of power stability, PTI has prepared voltage and frequency stabilization systems and backup power supplies to stabilize the power quality of the factory and improve energy efficiency through the ISO 50001 management system. If the number of days without rainfall increases, it caused as the frequency of droughts increases, PTI actively promotes water-saving measures and is committed to water recycling and reuse to strengthen its adaptation capabilities and to take concrete actions to mitigate and adapt to the impacts of climate change.

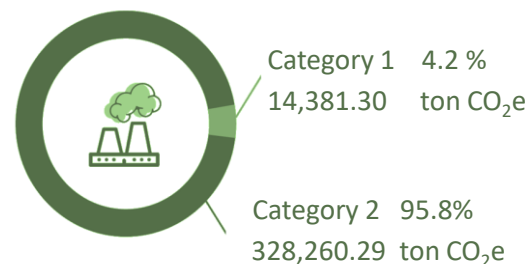
Greenhouse Gas Inventory

PTI referenced inventory guidelines of domestic and international institutions such as ISO 14064–1:2018 and the GHG Protocol to establish greenhouse gas inventory and management procedures. The 2023 PTI GHG emissions data consists of actual inventory checks performed at respective plants. The data encompasses operation-related direct GHG emission sources (Category 1), energy indirect GHG emission sources (Category 2) and other indirect GHG emission sources (Category 3 to 6). Direct GHG emissions (Category 1) were 14,381.30 ton CO₂e, energy indirect GHG emissions (Category 2) were 328,260.29 ton CO₂e, and the total annual emissions of Category 1 and Category 2 were 342,641.59 ton CO₂e, compared with 2022, it has decreased by 12.52%. The Category 1 direct GHG emissions accounted for around 4.20% of total emissions, while the Category 2 indirect GHG emissions accounted for approximately 95.80% of total emissions. This is predominantly generated by the use of external purchased electricity. Consequently, PTI's GHG reduction strategy focuses on electricity consumption management and the use of renewable energy, effectively achieving the objective of reducing GHG emissions. In 2023, the GHG emission intensity was reduced by 2.3% compared to 2020 (base year), exceeding the original annual target of 2% reduction.

Greenhouse Gas Emissions in the Past Two Years (unit: ton CO₂e / year)

Item	2022	2023	Ratio% (Compared to 2022)
Category 1	14,452.87	14,381.30	-0.49%
Category 2	377,208.72	328,260.29	-12.97%
Total	391,661.59	342,641.59	-12.52%

Greenhouse Gas Emissions in 2023



Note:

1. For the GWP value of the fluorine-containing gases, the IPCC Sixth Assessment Report (2021) is adopted.
2. The emission factor for electricity of year 2023 is 0.494 kg CO₂e/kWh released by the Taiwan Bureau of Energy.
3. The emission factors of CO₂, CH₄, and N₂O from stationary and mobile combustions are calculated based on the GHG emission factors management chart version 6.0.4 announced by the Environmental Protection Administration, Executive Yuan.
4. The operational control approach was adopted to compile total GHG emissions.

Energy Roadmap and Implementation Status

It is scientifically confirmed that the impact of climate change has been quite urgent and climate issues have attached great importance to international attention. Taiwan officially announced the "2050 Net-Zero Emissions Policy Path Blueprint", which provides a track and action path of net zero in 2050 to promote technology, research and innovation in critical areas, guide the green transformation of the industry and drive a new wave of economic growth. Starting to strengthen reduction at an attempt and strive to achieve the net zero emission target in 2050.

The plans for using renewable energy are mainly implemented in the three following stages based on the development of the domestic renewable energy industry:

Stage 1

In compliance with the requirements of the Renewable Energy Development Act for major electricity users, the usage of renewable energy amounted to 8,535,594 kWh/year in 2023, achieving 10% of the electricity contract capacity of the installation of renewable energy facilities.

Stage 2

Gradually increasing the use of renewable energy, adopting methods such as solar and wind power, to achieve renewable energy usage up to 15% by 2030.

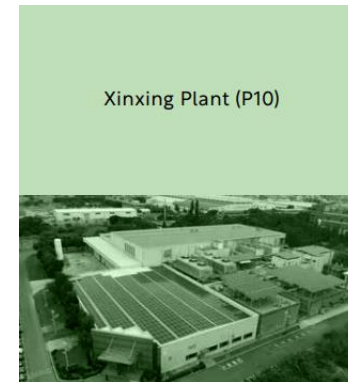
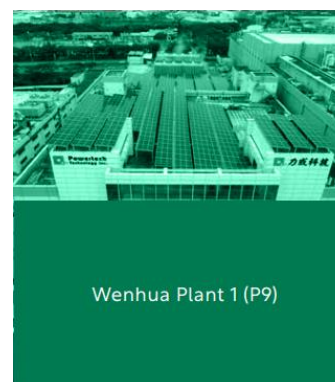
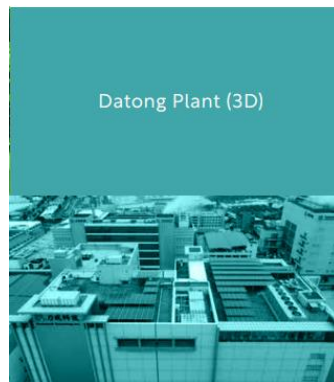
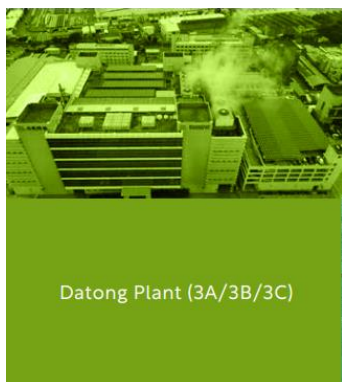
Stage 3

Attain the net zero emission targets of the government and the RE100 supply chain requirements of their customers by 2050.

Response Measures	Capacity (kWh)	Estimated Renewable Energy Generation/ Purchasing Volume (kWh/year)	Completion Date	Actual Volume in 2023 (kWh/year)
Installation of Solar Power Generation Equipment	2,865	3,137,175	2022/12/30	3,545,149
Purchase of Renewable Energy Certificate (REC)	3,360 (Note)	4,200,000	2023/12/30	4,990,445
Total	6,225	7,337,175	-	8,535,594

Note: Amount of renewable energy certificate purchased = Amount of renewable energy purchased (kWh/year)/1,250

Actively build solar power generation equipment



Implement ISO 50001 Energy Management to Improve Energy Efficiency

All of PTIs' plants have passed and obtained the ISO 50001 energy management system certification to implement energy conservation. It is planned to introduce green building design to reduce energy and resource consumption when the new factory is established. We select environmentally friendly refrigerants with low greenhouse effect potential, use high-efficiency motors for rotating equipment, and continue to replace old unit equipment to achieve the purpose of energy saving.

Implement energy-saving measures for facilities, processes, and buildings in order to reduce energy consumption. For example, changing the cooling water of air compressors to ice water systems, replacing old dryers with high-efficiency models, recycling process water, optimizing machine settings, replacing computers, lighting improvement and turn computers off after work, etc.

PTI Energy Conservation and Carbon Reduction Measures

Category	Description of Measures	Number of Measures	Power Consumption Reduction (Unit: kWh)	Carbon Emission Reduction (Unit: tons)
Equipment Replacement	<ul style="list-style-type: none"> Replacement of dryer equipment Replaced the pump with an IE3 energy-saving motor 	14	1,372,848	680
Parameter Optimization	<ul style="list-style-type: none"> Cleaning and maintenance of the chiller condenser Cleaning and maintenance of the air compressor cooler Adjustment of the operating hours and frequency of regional fans Optimization of dryer cooler temperature setting Parameter optimization of the factory equipment in response to the climate Optimization of air intake in the server room 	66	11,642,639	5,763
Lighting Replacement	<ul style="list-style-type: none"> Use high-efficiency LEDs Adjustment of the quantity of lighting equipment in public areas and optimization of its location 	36	680,315	337
Solar Energy	<ul style="list-style-type: none"> Installed solar panels for self-generated and self consumption in Datong Plant (3A/3B/3C/3D), Wenhua Plant 1 (P9) and Xinxing Plant (P10) 	1	3,545,149	1,755

2023 Achievements in Energy Conservation and Carbon Reduction



Completed **117** energy conservation and carbon reduction measures.



Reduced electricity consumption by approx. **17,240,951 kWh**.



A reduction in approximately **8,535 tons** CO₂e emissions.

Note: CO₂e is calculated based on the emission factor published by Taiwan's Bureau of Energy in 2022 (0.495 kg CO₂e/kWh).

Green Building

When setting up a new facility, we properly planned and introduced green building design to reduce energy and resource consumption, selecting environmentally friendly refrigerants with low greenhouse effect potential, and high-efficiency motors for rotating equipment. At the same time, lighting was replaced with LED lights, and continue to replace the old unit equipment to achieve the goal of energy conservation.

PTI HSP Plant 3 (P11B) was recognized as the certified level of Green Building.



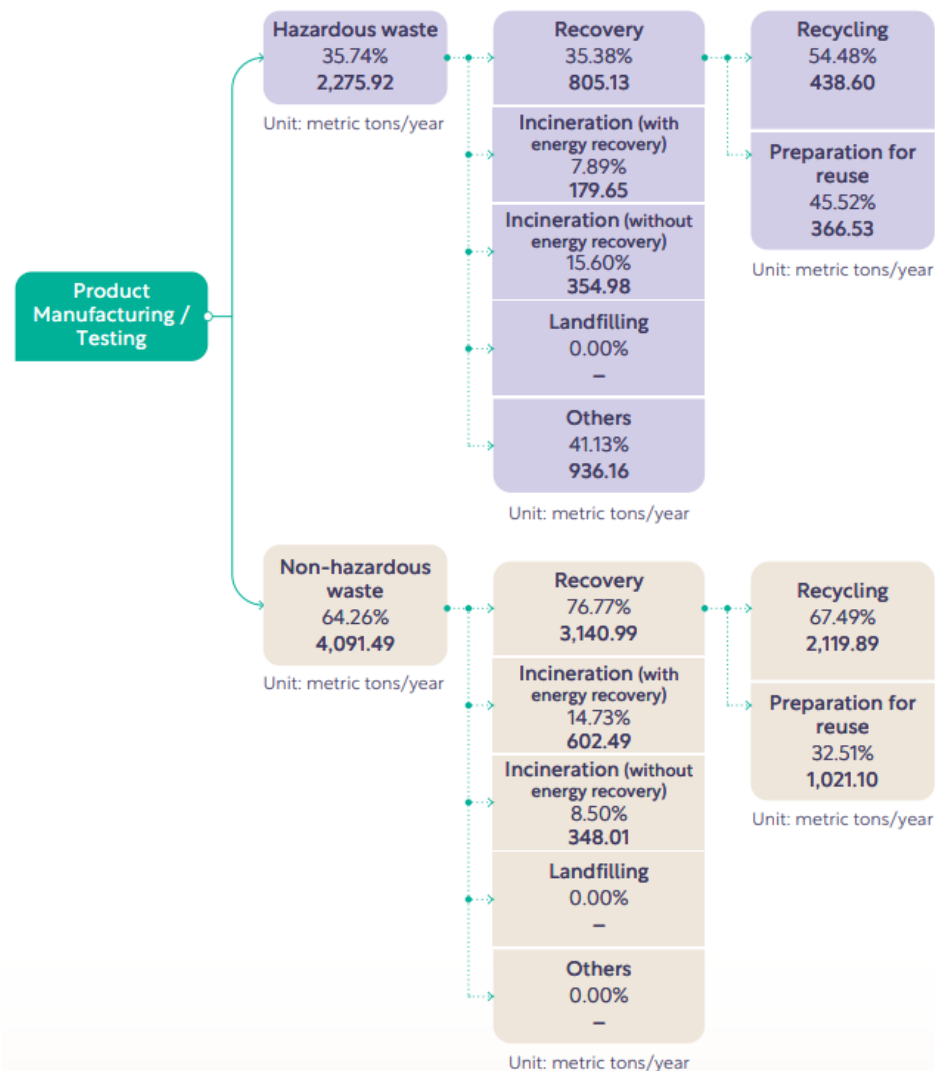
Waste Management and Pollution Prevention

PTI complies with regulatory requirements and is devoted to the corporate mission of “green sustainability” by enforcing preventive measures against wastewater, wastes, air pollution and noise. PTI passed the ISO 14001 Environmental Management System certification in 2003 and has been following the said standard to monitor pollution prevention and control equipment and the recycling of waste resources to prevent environmental pollution and facilitate the conservation of resources. Meanwhile, recycling and reuse continue to be carried out to reduce emissions and achieve the amount of waste produced.

In 2023, PTI generated a total of 6,367.41 metric tons of waste, all of which were properly cleared and handled by qualified cleaning contractors upon departure. Out of this total, 2,275.92 metric tons consisted of hazardous waste primarily generated from the process of cleaning wafers. The remaining 4,091.49 metric tons consisted of non-hazardous waste, primarily generated from the sludge produced during wastewater treatment processes. Implement circular economy and aimed at reducing environmental impact, through actively building recycling and reuse channels, in 2023, the non-hazardous waste recycling quantity (including energy recovery) amounted to 3,743.48 metric tons. The non-hazardous waste recycling rate (including energy recovery) reached 91.5% in 2023.

Note: Data compiled based on the information reported on the Industrial Waste Reporting and Information Management System brochures.

PTI Waste Generation and Disposal

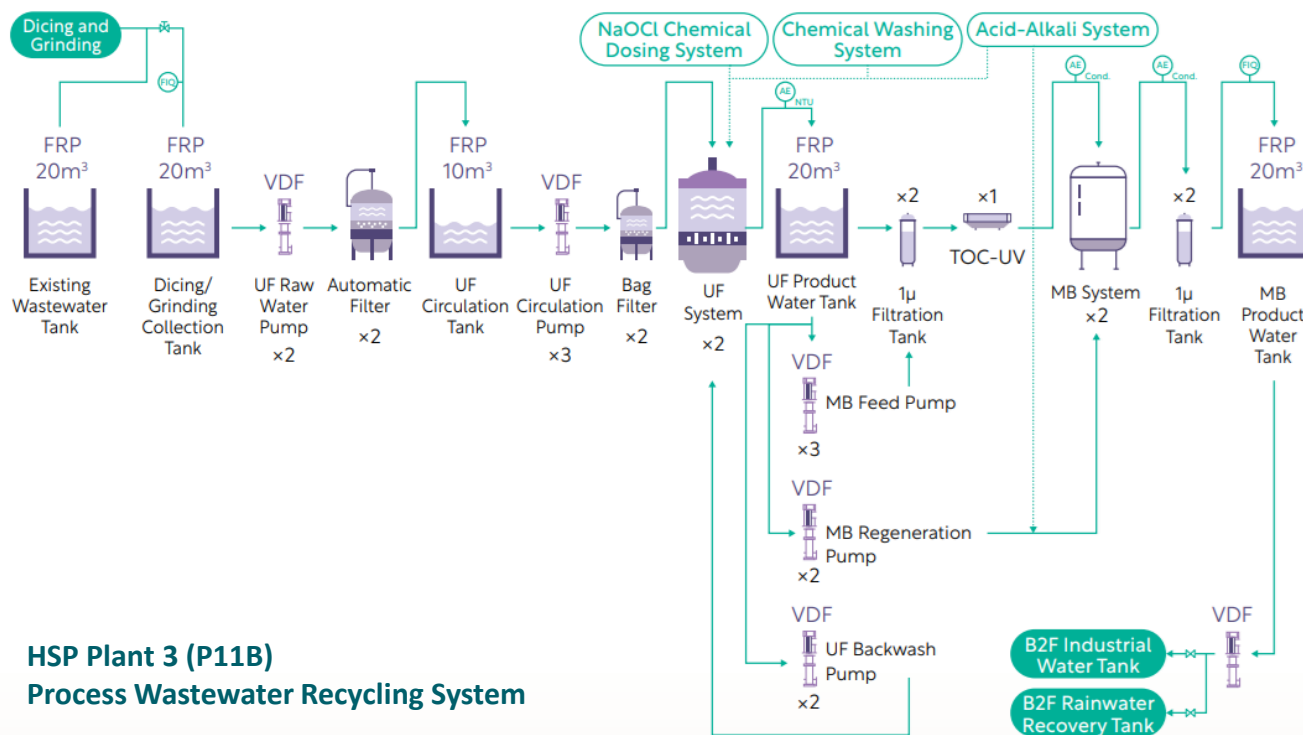


Sustainable Water Resources - Water Saving Process, Strengthening Management and Efficiency

PTI has established a water resources management mechanism, regularly collects and supervises the use of water resources by the Environmental Safety and Health Committee and reports the identification, assessment and management process of water risks to the Risk Management Committee to complete the operation mechanism of water resources governance. The Risk Management Committee regularly reports to the board of directors every year to continuously strengthen the organization's ability to face water resource management. The plants with dicing/grinding processes are equipped with dicing/grinding wastewater recycling systems and the manageable hourly volume is designed based on the estimation of production needs. We continue to expand the recycling system to accommodate the Company's production capacity plans. We use reliable and easy-to-maintain key components to increase the water recycling amount and increase the amount of water recycled and enhance the recycling efficacy of equipment. The water recycling system effectiveness in the dicing/grinding process remained above the target value of 85% from 2018 to 2022.

The recycling rate of the dicing and grinding process recycling water system in PTI Taiwan was 88.68% in 2023. The water recycled in the packaging process in 2023 totaled 1,282.359 megaliters, which was a decrease of 86.708 megaliters (a decrease of approximately 6.33%) compared to 2022 mainly due to the process adjustments. The plants will continue to improve their systems and adopt reliable and easy-to-maintain key components to increase the amount of water recycled and enhance the recycling efficacy. In 2023, the process water recycling system was installed at the HSP Plant 3 (P11B), with a daily capacity of treating 800 tons of wastewater. The equipment has a treatment efficiency of over 85% and will be officially operational in 2024.

PTI has actively implemented process wastewater recycling in all plants by applying a UF (ultra-filtration) system to filter out insoluble solids through the hollow fiber membrane, to steadily recycle and reuse the wastewater from the dicing and grinding process.



Improve the Water Recycling Efficiency

In addition to emergency preparedness measures, PTI implements water resources management in daily life, and improves water conservation and water efficiency in daily business operations. The main water cycle projects include process wastewater recycling, reclaimed water recycling, rainwater recycling and domestic water conservation.

Category	Description of Measures
Process Wastewater Recycling	Accounting for the bulk of the water cycle, the efficiency of recycled water was 88.68% in 2023.
Reclaimed Water Recycling	Applied to cooling tower water, toilet water, etc.
Rainwater Recycling	Storage and application for cleaning water, gardening plant watering, etc.
Domestic Water Conservation	Purchasing appliances and faucets with water-saving labels; promoting personal water-saving habits.

Saving Water

In order to improve the results of water conservation, not only installing water-saving and environmental protection equipment in the PTI facility area, but also the use of water-saving devices, such as water-saving faucets, sprinklers, toilet facilities, etc. Also, implementing habits of saving water through continuous promotion and reminder.

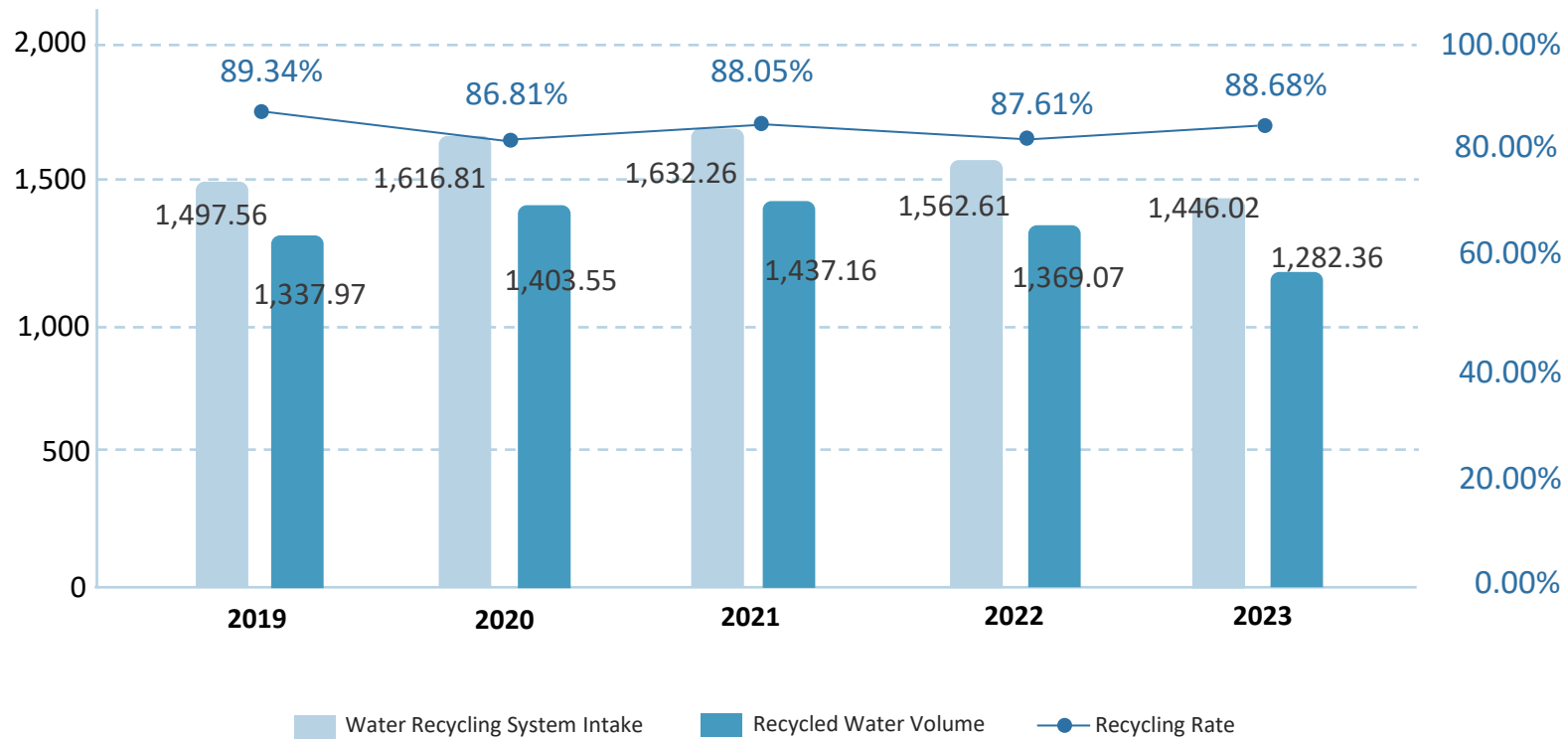


Water Conservation Process

PTI learned that the "open source" approach was limited, it has actively implemented process wastewater recycling in all plants by applying a UF (ultra-filtration) system to filter out insoluble solids through the hollow fiber membrane, to steadily recycle and reuse the wastewater from the dicing and grinding process. In order to meet the company's capacity planning, the recycling system is still being expanded and built, and the key components with high reliability and easy maintenance are imported to increase the amount of recycled water and improve recycling. The recycling water efficiency is higher than 85%.

Unit: Megaliters

PTI Recycling Water System Efficiency Process



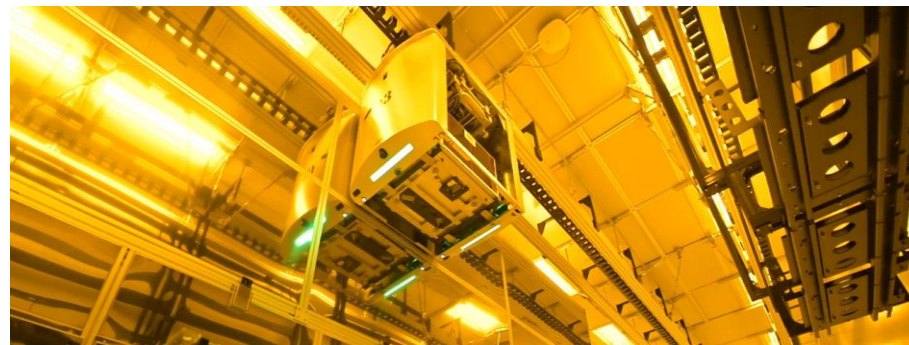
Clean Tech - Committed to Low-Carbon Innovative Research and Development

As the regulations and requirements for environmental sustainability become more and more significant, and the investment in transformational products that meet market needs gradually brings benefits, PTI has taken a proactive approach of mitigation and adaptation, including the development of clean technology as its primary axis of action. To create a win-win situation for both the economy and the environment, PTI has developed a blueprint for sustainable corporate management.



Strategy

- Implemented a climate-related risk and opportunity identification process in accordance with the Task Force on Climate-related Financial Disclosures Recommendations (TCFD Recommendations). (Please refer to Ch. 3 Climate Strategy and Risk Management in the Report for details.)
- Adopted and implemented the development strategy of "Clean Tech".
- Invested in the development of "Clean Tech", such as FOPLP (fan-out panel level packaging) and advanced packaging.



Ratio of R&D Expense to Revenue	Investment in R&D Expenses such as FOPLP, Advanced Packaging, etc.	Annual Revenue	Annual Revenue in FOPLP, Advanced Packaging, etc.
<ul style="list-style-type: none"> ● R&D expenses accounted for 5% of net operating income in 2023, an increase from the last year. ● R&D expenses accounted for 63% of annual operating expenses in 2023. 	<ul style="list-style-type: none"> ● In 2023, the R&D expenses of FOPLP and advanced packaging will account for 56% of the overall R&D expenses, and there is a trend of continuous growth. 	<ul style="list-style-type: none"> ● PTI's individual revenue in 2023 was NT\$42.3 billion, down 19.7% from 2022. (Due to global economic climate and semiconductor inventory factors) 	<ul style="list-style-type: none"> ● In 2023, the revenue of FOPLP and advanced packaging will account for < 5% of the overall revenue, but there is a tendency for continuous growth.

Clean Tech - Carbon Reduction Packaging Processes

As semiconductor wafer saw technology continues to evolve from traditional Blade Saw process to Stealth Dicing (SD) technology. In 2017, PTI began to gradually introduce this technology into the process and now the process has introduced 40% of Stealth Dicing technology which has significantly **reduced electricity consumption by 80%** and **save water consumption by 100%**, as well as using this technology to destroy wafers to achieve **zero silicone waste emissions** and improve the quality of the process.

Although the equipment cost is relatively high, we continue to implement ESG sustainability and actively invest in the development of this technology to achieve green and sustainable low-carbon goals.

Wafer Dicing Technology Converts “Blade Saw” to “Stealth Dicing”

Items	Blade Saw	Stealth Dicing
Equipment Cost	Low	High
Range of Cutting Damage	Large	Little
The Amount of Waste	High (326 mm ³ /pcs)	Low (0 mm ³ /pcs) (zero silicone)
Cost of Waste	High	Low
Operating Time	Long (20 min/pcs)	Short (4 min/pcs)
Electricity Consumption	High (1.3 kWh/pcs)	Low (0.15 kWh/pcs)
Water Consumption	High (195 L/pcs)	Low (0 L/pcs)



▼ **80%**

Electricity
Consumption
(kWh/pcs)



▼ **100%**

Water
Consumption
(L)



▼ **100%**

The Amount
of Waste
(mm³/pcs)

Join Hands with the Supply Chain Towards Low-Carbon Transformation

Facing the impact of extreme climate and global warming, PTI is committed to achieving net-zero emissions by 2050. In addition to continuing to improve its climate change management, PTI has formulated carbon management strategies, adopted a number of energy-saving and carbon-reducing measures and also actively advocates low-carbon transformation to green supply chain, practice responsible production and actions, strive for a better society and environmental sustainability and work with value chain partners in business activities including interactions with suppliers to jointly create a low-carbon supply chain.

PTI has collaborated with customers and supply chain partners to participate in the "Manufacturing Industry Low-Carbon Transformation Project" to continuously improve the carbon reduction effect of the supply chain. A total of 13 business operators have joined the carbon reduction action. It is expected to reduce 5,667 tons of carbon dioxide equivalent (ton CO₂e) every year from August 2025, equivalent to the carbon dioxide adsorption capacity of 15 Taipei Daan Forest Parks.

Action Plan:

- Work with customers and suppliers to create a low-carbon and energy-saving production environment.
- Conduct organizational GHG inventory and product carbon footprint checks to identify carbon emission hotspots in the product manufacturing process for improvements.



Communicate Environmental Sustainability Through the Supplier Forum

Through the Supplier Forum every year, PTI conveys its information on performing greenhouse gas inventory and setting targets proactively to reduce carbon emissions. Tracking the progress of their implementation during supplier audits to bolster the power and effectiveness of carbon reduction in the supply chain.

Year	2021	2022	2023
Number of Companies	127	149	156
Number of Participants	142	177	184

5 Metrics and Targets

PTI attaches great importance to the sustainable development of enterprises. In terms of mitigation, in order to comply with the Paris Agreement's goal of controlling the earth's temperature rise to no more than 2°C before the end of the century and pursuing 1.5°C, we refer to international IPCC AR6 and other reports to formulate climate strategies and implementation goals. Set a carbon reduction target with 2020 as the base year, and in conjunction with mitigation measures, move towards a path of 5% carbon reduction in 2025, 15% carbon reduction in 2030, and net-zero emissions in 2050. In addition, PTI continues to aim at uninterrupted operations and zero accidents, strengthens factory operation facilities, enhances natural disaster adaptation capabilities and sets goals. It also actively participates in CDP climate initiatives, pays attention to issue trends and raises relevant awareness to comply with the needs of stakeholders expect.

In the face of environmental sustainability, PTI continues to pay attention to climate change issues and increase the proportion of renewable energy usage, making every effort to achieve the goal of net zero emissions by 2050.

Short, Medium and Long-term Plans for Environmental Sustainability

The importance of sustainable corporate development and environmental sustainability is a priority for PTI. To enhance our ability to operate in a sustainable manner, we are committed to developing short, medium, and long-term plans for our business.

Short-Term Plan for 2024

- Renewable energy usage up to **3%**.
- Reduce electricity consumption by **1%** compared to 2023.
- Reduce carbon emissions by **1%** compared to 2023.
- Process water recycling rate attains **85%**; the water intensity is reduced by **6%** compared to 2018, the base year.
- Non-hazardous waste recycling rate **> 80%**.
- Obtain cleaner production certification.

Medium and Long-Term Plan (2025-2030)

- Introduce the identification of natural risks and opportunities for TNFD and issue a TNFD report.
- Use **5%** renewable energy by 2025 and **15%** by 2030.
- Reduce carbon emissions by **5%** in 2025 and **15%** in 2030.
- Process water recycling rate attains **90%**, increasing water resource usage efficiency.
- Advocate for SBTi science-based emissions reduction targets.



GHG Emissions Targets and Goals

PTI actively organizes activities related to energy saving and GHG reduction. Each year, energy conservation goals are set and electricity consumption efficiency is enhanced while related incentives are provided to reward supervisors and employees that are engaging in energy conservation. We implement carbon reduction projects that are measurable, reportable, and verifiable, and these are linked to SDGs Goal 13: "Climate Action" to combat climate change and its impacts.

Measure Management and Objectives

- Continuous improvement based on annual GHG inventory results, regular tracking, and regular reporting.
- Reduction of greenhouse gas emissions by 15% by 2030, with 2020 as the base year.

2023 for All PTI Plants

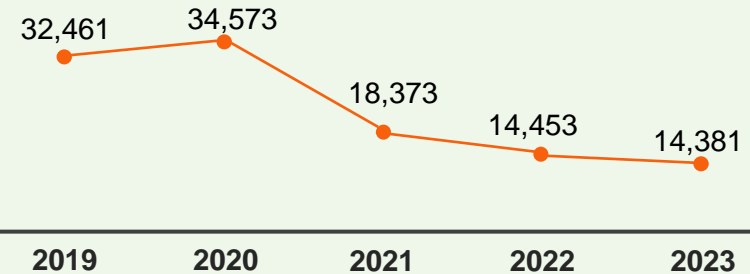
- Completed the greenhouse gas emission inventory (Category 1-6) ISO 14064-1 certification by third-party verification.
- Obtained ISO 50001 Energy Management certification.

The achievements of the science and technology industry drive the convenience of human life. PTI sets medium and long-term goals for different climate management indicators, reviews the achievement status every year, and makes rolling adjustments according to external environmental trends, and mitigates the impact of climate change through management measures and goals, making good use of resources and create maximum value, actively practicing green sustainability.

● GHG Emissions

Scope 1

Unit : ton CO₂e



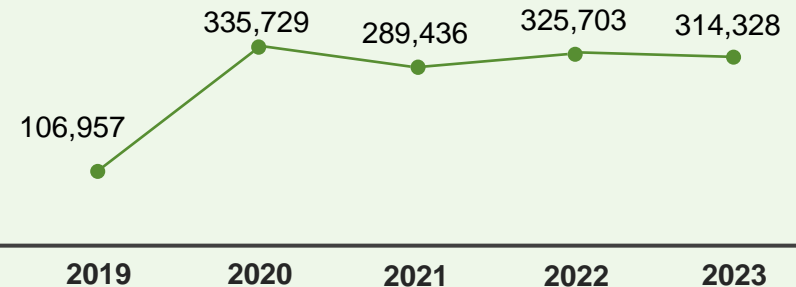
Scope 2

Unit : ton CO₂e



Scope 3

Unit : ton CO₂e



Key Indicators to Environmental Sustainability

Item		2021	2022	2023	Management Measures and Targets
Water Management	Water withdrawal (metric tons)	3,017,359	2,967,257	2,780,544	<ul style="list-style-type: none"> ● Increase the utilization of water resources and water recycling capacity. ● Establish a water recycling system to steadily recycle and reuse the process wastewater in the plants. Furthermore, water resource management performance is reviewed regularly. ● Water intensity decreased by 6% compared with 2018. ● Attain 85% water recycling system effectiveness from the dicing/grinding process.
	Wastewater discharged/ effluents (metric tons)	1,991,060	2,115,966	1,967,811	
	Water intensity				
	Water withdrawal/revenue (million (NTD))	58.86	56.30	65.77	
	Process water recycling rate (%)	88.05%	87.61%	88.68	
Energy Management	Energy consumption (GJ)	2,703,523.00	2,757,696.70	2,440,671.95	<ul style="list-style-type: none"> ● Continue to promote energy conservation programs and reduce electricity consumption by 1% per year. ● Launch the Green Power Purchase Project to achieve a 10% contracted capacity renewable energy requirement by 2023. ● Use of renewable energy to reach 5% in 2025, 15% in 2030, and 100% in 2050.
	Electricity consumption (kWh)	750,978,720	762,571,840	673,153,150	
	Power saving (kWh)	13,036,365	11,435,224	17,240,951	
	Renewable energy consumption (kWh)	-	146,196	8,535,594	
	Electricity intensity				
Waste Management	Electricity consumption/revenue (thousand (NTD))	14.65	14.47	15.92	<ul style="list-style-type: none"> ● Strengthen waste reduction at the source and waste recycling and reuse. ● Improve pollution prevention and decrease the impact on the environment. ● Waste recycling rate is higher than 40%.
	Waste recycling rate (%)	44.67	50.79	51.87	
	Waste intensity				
Carbon Management	Waste generated/revenue (million (NTD))	0.16	0.15	0.15	<ul style="list-style-type: none"> ● Set annual target for carbon reduction rate by 1% and continues to promote carbon reduction measures. ● Implementation of ISO 14067 Carbon Footprint Verification. ● Carbon reduction by 5% in 2025, 15% in 2030, and net zero in 2050.
	Greenhouse gas emission (ton CO ₂ e)	689,155.06	717,364.82	656,970.43	
	Scope 1 (ton CO ₂ e)	18,372.82	14,452.87	14,381.30	
	Scope 2 (ton CO ₂ e)	381,346.17	377,208.72	328,260.29	
	Scope 3 (ton CO ₂ e)	289,436.07	325,703.24	314,328.84	
	Greenhouse gas emission intensity (Scope 1+ Scope 2)/revenue (million (NTD))	7.80	7.43	8.10	

6 Prospect

As the issues of net zero and carbon reduction continue to ferment, environmental sustainability has become a new prominent philosophy for enterprises. PTI attaches great importance to and pays attention to the problems caused by extreme climates, and drives the transformation of products and services through climate change mitigation and adjustment actions as well as the use of renewable energy, the practice of energy conservation and carbon reduction, and other measures to realize the commitment to create a green environment from the inside out. At the same time, strengthen the company's operating physique and resilience, moving towards sustainable business operations.



7 Appendix

About the Report

The TCFD Report is based on the Task Force On Climate-related Financial Disclosures (TCFD) published by the Financial Stability Board (FSB), which discloses four core elements: "Governance", "Strategy", "Risk Management" and "Metrics and Targets". The Report is published in both English and Chinese and is available on the official website of PTI. If you have any feedback, advice, or suggestion, please feel free to contact us.

Powertech Technology Inc.
Sustainability Management Office

- TEL: +886-3-598-0300 EXT: 338926
- E-mail: csr@pti.com.tw
- Website: www.pti.com.tw

TCFD Disclosure Comparison Table

Dimension	TCFD Disclosure Recommendation	Chapter	Page
Governance	How the Board performs oversight on climate-related issues.	2 Climate Governance	05
	How management assesses and manages climate-related issues.	2 Climate Governance	05-07
Strategy	The climate-related risks and opportunities the organization has identified over the short, medium, and long term.	3 Climate Strategy and Risk Management	08-10
	The impact of climate-related risks and opportunities on the organization's business, strategy, and financial planning.	3 Climate Strategy and Risk Management	11-12
	Scenarios analysis (including disclosure under a 2°C or lower scenario).	3 Climate Strategy and Risk Management	08
Risk Management	Processes for identifying and assessing climate-related risks.	3 Climate Strategy and Risk Management	08
	Processes for managing climate-related risks.	3 Climate Strategy and Risk Management	09-10
	Processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	4 Climate Action	13-22
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.	5 Metrics and Targets	23
	Disclose Scope 1, Scope 2, and if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	5 Metrics and Targets	24
	Management targets and related performance.	5 Metrics and Targets	23-25



Copyright © 2024 Powertech Technology Inc. All Rights Reserved.

Power To Innovate

**Let us create new paths to sustainability one step at a time,
towards net zero carbon emissions.**
