Part 2

Environmental Sustainability, Loving the Earth

Key Performance

- SO 50001
  Cheng Shin's operations in Mainland China passed the external certification for the ISO50001energy management system.
- Greenhouse Gases Reduction
  The energy saving programs promoted in Taiwan and subsidiaries have reduced GHG emissions by a total of 38,934.21 tCO_2e.
- Reducing the Use of Water Resources
  A total of 34.574 million liters of water consumption was reduced in the Taiwan Region.
  Use of Green Energy
- Activated solar photovoltaic systems and the purchased of green power, generating approximately 4 million kWh annually in the Taiwan Region.

2.1. Risks and Challenges of Climate Change

In order to cope with the risk and impact of extreme weather, Cheng Shin convened relevant heads of all departments through the Sustainable Development Steering Group to identify major climate risk topics related to climate change based on the materiality principle and the Task Force on Climate-Related Financial Disclosures (TCFD), analyze their impact and opportunity, draw a climate change risk and opportunity matrix by identifying physical and transitional risks. Cheng Shin has developed a core and strategy for implementing climate change actions to address major risks in order to implement risk response measures, enhance the resilience of Cheng Shin to extreme climate and reduce the risk. Through regular review of the effectiveness of mitigation measures, Cheng Shin aims to standardize procedures to reduce the response time for similar risk treatment in the future.

Key steps to identify climate change risks/ opportunities and risk management processes

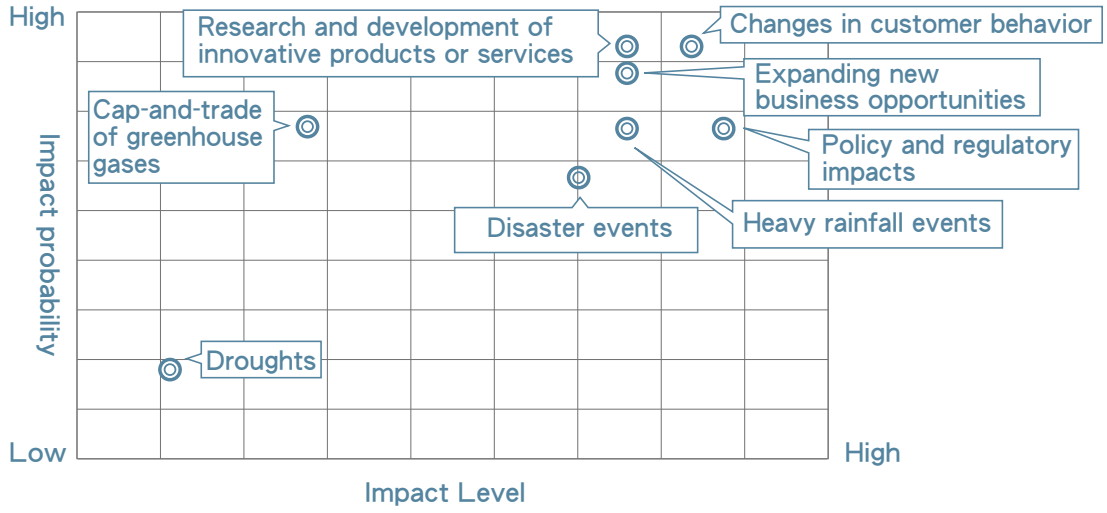
Cheng Shin's TCFD Indicator Disclosure Framework

Level	Indicator	Corresponding Chapter
Governance	A. Describe the board's oversight of climate-related risks and opportunities.	2.1. Risks and Challenges of Climate Change: Identifying Climate Change Risks and Opportunities P.65
	B. Describe the role of management in assessing and managing climate-related risks and opportunities.	
Strategy	A. Describe the short term, medium term and long term climate-related risks and opportunities that the organization has identified	2.1. Risks and Challenges of Climate Change: Climate Change Risk and Opportunity Impact Analysis P.66
	B. Describe climate-related risks and opportunities that would have a significant impact on the organization's business, strategy, and financial planning.	
	C. Describe the organization's strategic resilience, taking into account different climate change scenarios, including 2°C or lower.	
Risk Management	A. Describe the organization's processes for identifying and assessing climate-related risks.	2.1. Risks and Challenges of Climate Change: Climate Change Adaptation Strategies and Goals P.57
	B. Describe the organization's climate-related risks.	
	C. Describe the organization's integration of processes for identifying, assessing, and managing climate-related risks into its overall risk management framework.	
Goals and Targets	A. Disclosure of the indicators the organization uses to assess climate-related risks and opportunities in accordance with its strategy and risk management processes.	2.1. Risks and Challenges of Climate Change: Climate Change Risk and Opportunity Impact Analysis P.55
	B. Disclose the emissions and related risks within Scope 1, 2, and 3 (where applicable).	
	C. Describe the objectives and performance of the organization to manage climate-related risks and opportunities.	

Identify Risks and Opportunities of Climate Change

In response to climate change and the energy usage crisis, the Cheng Shin ESG Group collaborates with personnel from various departments to assess the "likelihood of impacts" and "degree of impacts" of various risks based on materiality criteria. Eight climate change risks and opportunities have been identified, integrating Maxxis' development with policies and solutions related to economic growth, environmental protection, and sustainable development. They also establish short, medium, and long-term objectives to continuously enhance climate resilience and foster an environmentally sustainable culture.

Climate Risk and Opportunity Matrix



Climate Change Risk and Opportunity Impact Analysis

CATEGORY	Potential Risks and Opportunities	Point of Impact	Impact on the Company	Response Measures
Transitional Risk	Policy and regulatory impacts	Short-term	In response to government enforced environmental regulations, it is necessary to promptly comprehend and assess compliance within the Company. This facilitates alignment with governmental policies and regulations, but it also leads to increased expenditure on manpower costs.	· Self-inspect the pollution prevention status and the pollution prevention equipment capability on a regular basis through the internal audit of the effective environmental management system. · Establish regulations on the identification and management of environmental safety and health-related laws and regulations and collects regulations updated by relevant competent authorities every month to identify and implement them accordingly. · Conduct compliance assessment once a year to comply with statutory provisions.

CATEGORY	Potential Risks and Opportunities	Point of Impact	Impact on the Company	Response Measures
Transitional Risk	Customer behavioral change	Mid-term	· Increasing concern on environmental issues: In order to improve environmental protection and driving safety, with the expectation on the tire industry to provide consumers with better tire quality, stricter standards of EU Labeling/Marking Requirements have been put forward to implement in stages (2017~2030). · Purchase of all-season tires: In some European countries, there is only light and light snow all year round, and although the temperature is cold, there are no extreme cold conditions, so for the sake of convenience, consumers are starting to buy all-season tires. In response to new trends, new product positioning and new R&D directions are planned, resulting in increased labor costs.	Continue to carry out market and customer demand surveys so as to provide the new generation of all-season tire products in line with the market and customer demand.
	Cap-and-trade of greenhouse gases	Long-term	Cheng Shin's head factory and Xizhou Plant are subject to a carbon tax on the GHG emissions in 2025, resulting in an increase in operating costs.	· The Energy Conservation and Carbon Reduction Committee and the energy conservation measures of each plant are regularly reported on the plans and results. · Proposal of voluntary reduction plan is submitted, and we strive to obtain preferential tariff A for Xizhou Plant and preferential tariff B for headquarter plant. Reduce operating costs
Physical risks	Heavy rainfall events	Short-term	The waterways in the plant are not easily drained and swell, causing water to accumulate on the roads and making it difficult for vehicles to pass, and the expenses are increased by assigning manpower and purchasing additional equipment to resolve the waterlogging situation.	Remove the silt in the waterway and increase water load. Add and purchase new equipment to increase the number of drainage motors in the plant to promote drainage efficiency.
	Droughts	Mid-term	The government's water restriction policy has affected the water required for the Company's operations, resulting in increased costs.	Continuously monitor government policies related to water use restrictions to prevent unanticipated policies from affecting the Company's production capacity.
	Disaster events	Long-term	Disasters cause interruptions in operations and damages to equipment, resulting in loss of revenue.	· Contingency shall be dealt with in accordance with the "Disaster and Accident Handling Management Methods". Such as: Emergency Response Plan Operation Process, Emergency Response Contact System, and Disaster Response Management, etc. In response to major industrial safety incidents · such as fire and explosion, the Company has initiated the self-inspection, review, and prevention on the cause of the incident, and communicates with other plants within the Group. Implement in accordance with the Technical · Guidelines on Emergency Response Measures and follow the Taiwan Occupational health and safety management systems (TOSHMS) guidelines and the five related technical guidelines (risk assessment, procurement management, contracting management, change management, and emergency response measures) issued by the Ministry of Labor.
Opportunities	Expanding new business opportunities	Mid-term	Climate anomalies can cause a change in customer demand. If we can predict the market demand and develop new products, we are likely to enter new markets and increase our revenue.	· Develop new products based on customer performance requirements. · Segmenting markets and finding new niches.

Opportunities	Research and development of innovative products or services	Mid-term	As the demand for electric vehicles continue to increase, we will develop EV products to increase brand power and market share in order to further increase the revenue.	We will continue to develop "sustainable materials and environmental and low-carbon products capable of reducing environmental impact".

Note: Short-term: 2023-2025 / Mid-term: 2025-2030 / Long-term: 2030-2050

Response Strategies and Objectives for Climate Change

CATEGORY	Strategy	Climate Response Strategy Development Objectives	Achievements in 2024
Transitional Risk	Internal audit and regulatory identification	Continuously ensure compliance through internal audits and regulatory identification, and advance regulatory deployment being superior to the laws and regulations.	Monthly review of the newly revised regulations and bulletins against the current status of implementation in our factory plants. Monitor draft amendments to laws and regulations and attend public hearings when necessary to express our opinions.
	Precise response to market	In response to the rapid development of the EV industry, we will develop electric vehicle products for passenger cars, bicycles, and motorcycles. 1. Low rolling resistance: Low rolling resistance can increase battery life and reduce charging times. 2. Grip: EVs have high torque, tires need to be specially designed to meet the acceleration mode of EVs. 3. Quietness: EVs produce little noise, so the tires need to be even quieter on the road to ensure optimal comfort. 4. Wear resistance: Due to the battery load and high-torque output characteristics of EVs, tires require enhanced wear resistance to accommodate high load capacity and high torque output.	Four-wheeled sedans: Low fuel consumption, low rolling resistance, and high mileage VS-EV tire specifications - expanded development and sales. Two-wheeled bicycle crossover commuter electric tire E-SUV Metropass AT developed for sale. Acceptance and delivery for introduction of electric motorcycle tires for GOGORO PULSE tires.
	Promote energy-saving and carbon-reducing manufacturing	・Align with the Bureau of Energy´s electricity saving targets each year ・Our goal is to reduce energy consumption by 1%.	The greenhouse gas emission intensity was 1.12 in 2023 and 1.09 in 2024.
Physical risks	Water resources risk management	・Conduct management in accordance with the Measures for Flood Control Pumping, adjust motor-related equipment as necessary (e.g., water level of each area, setting of stopping pumping water level, maintenance cycle, regional maintenance management). ・Continue to monitor climate-related information for advance development of relevant countermeasures.	・Continuously monitor government policies related to water use restrictions to prevent unanticipated policies from affecting the Company´s production capacity. ・Established a record file for obvious climate anomalies and related government policies.
	Enhance climate resilience	Conduct management according to the "Disaster Incident Management Regulations" every year, and continuously review and revise to conform to the current situation.	mplemented plant accident management in accordance with technical guidelines for emergency response measures, implemented and avoided disaster events in accordance with management regulations, and constantly revised and reviewed the contents of management provisions.

Opportunities	R&D innovation	・Passenger Car Tires / Light Truck/ Passenger Bus Tires: Continue to develop sustainable, eco-friendly, and low-carbon products.	・EU R117-04 compliance will account for 40% of sales in Europe, adhering to stricter environmental regulations (target of 100% by 2026). ・The development of EV tires contributed to carbon reduction and a sustainable circular economy. Sales in 2024 totaled NT$3.95 million. ・Low-carbon products accounted for 51%, a 13% year-over-year increase in sales.
		・Motorcycle Tires: ・Continue to develop sustainable and eco-friendly products	・MA-MBA’ s new product development utilizes APPROACH technology and features wet grip, wear resistance, and energy-saving capabilities, aligning with global carbon reduction trends. ・GOGORO New EV Model PULSE Delivery
		・Bicycle tires: Development of 90% sustainable material concept tire ・Sustainable materials introduced in mass-produced products	・At 2024 Eurobike, a concept product made with 90% sustainable materials was displayed. Currently, recycled fishing net yarn has been introduced into mass production. The subsequent evaluation will consider the use of rice husk silica and recycled steel wire to further increase the proportion of sustainable materials in mass-produced products. In 2024, the sustainable E-Cargo tire Metroloads Pro won the iF Design Award, the Red Dot Product Design, and the Good Design Award.
		・ATV Tires & Go Kart Tires: Go Kart EV tire research and development and sales of puncture-resistant, durable tires for Europe and the United States.	・Go Kart CIK and EV tires certified for lightweight, high-performance tires. ・Assessment of the introduction of sustainable materials and R&D of puncture-resistant tire development for ATV tires
		・Truck/Passenger Bus Tires: ・Continue to improve renewable performance Develop eco-friendly, low-energy products.	・The current TBR/LTS products fully meet renewable tire body design requirements, and will be continuously refined and optimized. ・Achieved 56% of products meeting the EU Labeling standard by 2024 (R117-02).
		・Materials and compound development:	・Development of rsteel electric furnace bead wires ・Development of bio-based silica materials Development of pyrolytic carbon black materials Development of bio-based processing oil materials EUDR natural rubber introduction

Climate scenario analysis

Cheng Shin’ s Sustainable Development Steering Group regularly analyzes the impact of specific climate risks under different greenhouse gas emission control conditions on the operations of the Cheng Shin Group based on the TCFD framework. The results are used for the development of the climate change response strategy of Cheng Shin. The climate scenarios used in the scenario analysis are mainly selected from the assessment reports released by the International Energy Agency (IEA), and multiple public scenarios were selected to conduct assessment for a more complete understanding of the potential impacts of the scenarios under the different results. With reference to the recommendation of the TCFD guidelines and adopting a scenario of 2° C or more severe, Cheng Shin selected the established policy scenario (STEPS) and the net-zero emissions scenario by 2050 (NZE) for analysis. The analysis followed the key year set in the guidelines based on the international initiatives and national policy, and the capital and investment plans of the Company were referred to, and the impact of 2030 was analyzed.

Description of selected climate scenarios

Scenario code	Scenario description	Corresponding to the warming scenario at the end of the century
IEA STEPS	Each country follows its National Contributions under the Paris Agreement, including existing and developing national policies and measures. Under this scenario, future greenhouse gas emissions will not be significantly different from today´s	~2.5℃
IEA NZE	The world is committed to achieving net-zero carbon dioxide emissions by 2050, so that the global average temperature by the end of the century does not exceed the pre-industrial level by 1.5 degrees. Under such circumstances, countries around the world will urge organizations to change their business practices through the extensive application of clean energy technology and the improvement of energy efficiency.	~1.5℃

Scenario analysis: Transition risk - GHG capping and trading

As Cheng Shin have operating locations throughout Asia and considering that governments around the world are to comply with the global trend of net zero emission reduction, we may be subject to various carbon pricing systems (GHG caps, carbon taxes, and carbon fees). To ensure that our carbon reduction strategy is in compliance with the laws and regulations of the countries where our operations are located, and to analyze the potential impact of our emissions in the future, we have assumed the current laws and regulations and the planned carbon pricing system at the locations where we are operating, and assess the financial impacts and results that Cheng Shin may face in 2030 according to the two scenarios described in the preceding paragraph. According to the results of the latest analysis conducted by Cheng Shin, under the NZE scenario, the financial impact of the carbon fee imposed by the Taiwan Region in 2030 will reach 2.03% of the operating revenue, which is significantly higher than the 0.36% under the STEPS scenario.

(Unit: Financial impact as a percentage of operating revenue)

	Carbon pricing in the STEPS scenario	NZE Scenario Carbon Pricing
Financial Impact in 2030	0.36	2.03

Note 1: The financial impact only assesses the impact of carbon pricing due to regulations, excluding the related costs that Cheng Shin expects to invest in greenhouse gas reduction.

Note 2: The scope of the above financial impact assessment only covers the Cheng Shin Taiwan area. The financial impact assessment for countries outside Taiwan will be included in the assessment scope in the future depending on the GHG inventory progress of each operating location and the development of local laws and regulations.

Note 3: The basis for estimating carbon fees in the Taiwan Region is based on the "Regulations Governing the Collection of Carbon Fees" officially announced by the Ministry of Environment on August 29, 2024 and the carbon fee rate released on October 21 of the same year, which was implemented in 2024 for enterprises with emissions of 25,000 metric tons and more will be levied a carbon fee of NT$300 per metric ton. This estimate assumes a 10% annual increase in carbon price and does not consider preferential rates or free allowances. Cheng Shin will re-execute this scenario analysis when the rules for collection of carbon fees are more clarified.

Note 4: The state of carbon pricing in Taiwan is based on the Carbon Fee Regulations announced by the Ministry of Environment in 2024. The carbon fee has been implemented and the carbon fee collection mechanism has been activated for companies that emit more than 25,000 metric tons of carbon annually, and with the assumption that the tax threshold is lowered to 10,000 metric tons of carbon in 2030, a carbon fee is levied based on the annual emissions.

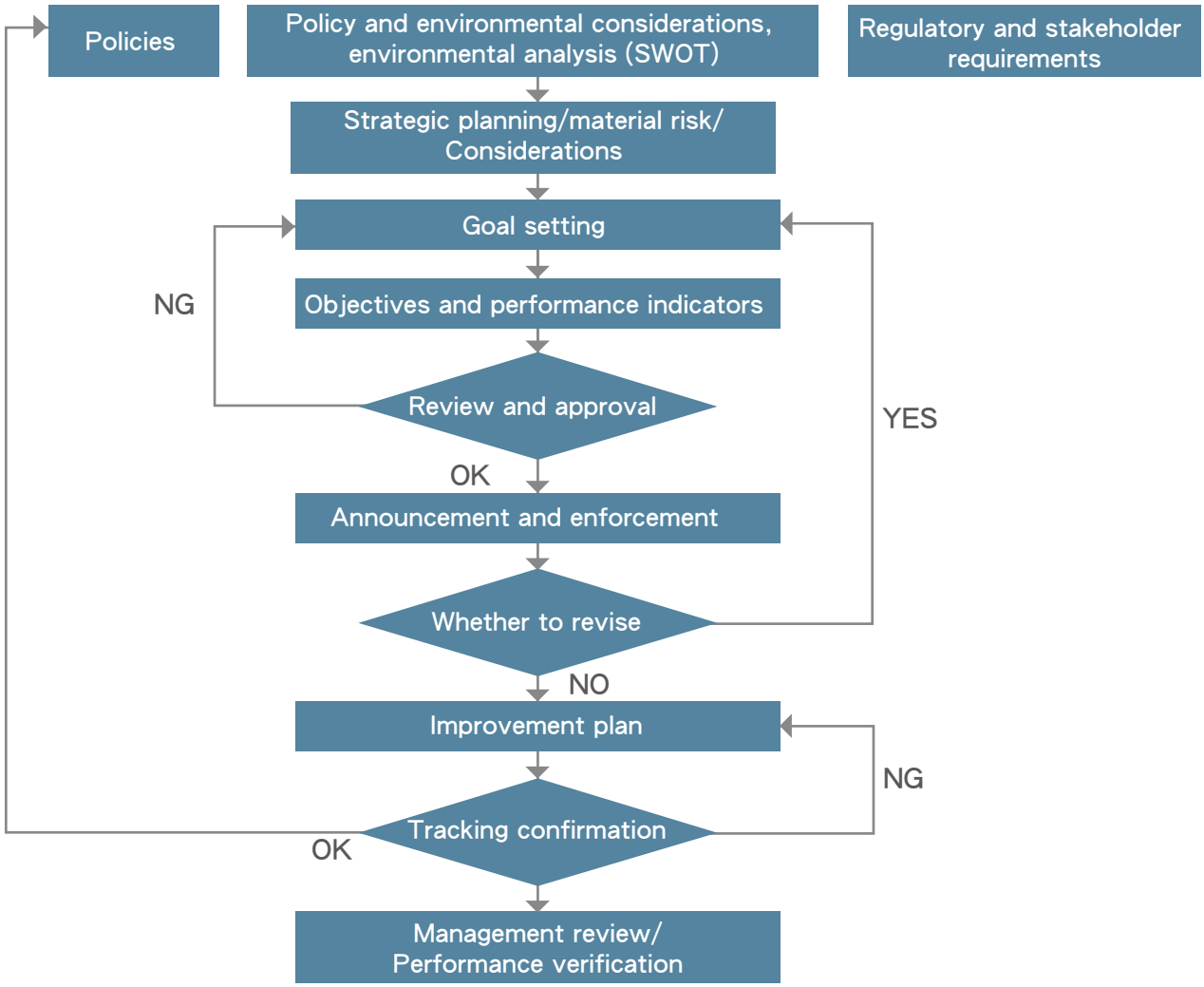
2.2. Environmental Management

The earth's climate and environment are deteriorating as a result of the effects of greenhouse gases, and Cheng Shin is fully aware of the fact that there is only one earth. As a global citizen, in order to comply with international norms such as the Paris Agreement and fulfill the corporate responsibility for environmental protection, Cheng Shin is committed to greenhouse gas inventory and has a good grasp of greenhouse gas emissions. Based on the inventory results, Cheng Shin further promotes voluntary greenhouse gas reduction programs and implements the environmental policy of "energy saving, resource recovery, operational safety, pollution prevention".

Cheng Shin believes that environmental protection is an indispensable factor in the sustainable operation of its business and has established a corporate environmental management system in line with the global environmental protection philosophy. Cheng Shin is committed to environmentally friendly product design and improving the equipment and operating environment, and has reduced the waste gas, wastewater, noise, and waste from the process and saved energy, achieving proper recycling of resources. Cheng Shin also strengthens the promotion of industrial safety, continues to carry out all kinds of pollution prevention and control to enhance its strength, enabling the harmonious coexistence and strong growth of the enterprise while protecting the environment.

Cheng Shin's commitment to the environment is:

- Comply with all work safety and environmental laws and regulations and related requirements.
- In considering the product life cycle, Cheng Shin is committed to continuous improvement of technology and methods during the process of design, raw material, manufacturing, storage, transportation, usage, and waste disposal, so as to reduce the impact on the environment and enhance safety.
- Set up a sound internal and external communication channel and promote the concept of environmental protection to partner suppliers.
- Continue to promote industrial waste reduction, resource recycling, and pollution prevention.
- Continue to promote environmental education and establish a complete and effective environmental management system.



Environmental Management System Flow Chart

In terms of environmental management policy, Cheng Shin's Taiwan operations have passed the ISO14001:2015 version change certification in 2023 and continued improvement through the "Plan-Do-Check-Act" model of the ISO14001 environmental management system. It has set annual targets for energy saving, water saving, waste reduction, and resource conservation and effectively improved the overall environmental performance through regular monitoring and tracking management by the ESH Committee. In addition, in order to comply with the national promotion of energy saving and carbon reduction, the industry is moving towards green industry, in line with the international trend of environmental protection, and to promote the sustainable development of the industry.

ISO 14001：2015 Certificate

Incorporation of the internal carbon pricing system into the environmental management strategy

Starting from 2025, we will set an internal carbon price (ICP) of NT$300 per metric ton, referencing the Ministry of Environment's "Regulations Governing the Collection of Carbon Fees". This will introduce an internal carbon fee mechanism, applied to energy-saving and carbon reduction projects and renewable energy use across all Company units. We will also encourage employees to propose energy improvement projects to further reduce carbon emissions and improve energy efficiency at all our operating sites.

Since the introduction of this carbon pricing mechanism, various units have successively proposed a range of energy-saving and carbon-reduction plans, including replacing ice water machines, conducting regular inspections of air compressor systems, upgrading equipment, and evaluating and replacing energy-consuming devices. These measures aim to improve energy efficiency and establish this internal carbon pricing system, which will help the Company proactively address carbon fees and international carbon tax mechanisms, and serve as a key management tool for transitioning to low-carbon operations and net-zero emissions. Meanwhile, the ISO 50001 energy management system was established in 2025, and the Douliu 2nd Plant and the Zhongzhuang Plant passed the ISO 50001 external audit in June 2025. We hope that through the joint efforts of all colleagues, we can achieve a carbon reduction of at least 22% by 2030.

Environmental Communication

Adequate environmental communication and dialogue with stakeholders enables them to understand the emphasis Cheng Shin places on the management of environmental protection. In accordance with the principles of "environmental communication procedures" in the ISO14001 environmental management system, each plant will conduct community and neighborhood activities from time to time to establish smooth communication channels with the community and nearby residents. In addition, Cheng Shin also provides channels for telephone complaints for local residents or external stakeholder groups who have concerns about the environmental impact of the production process. When each plant receives a telephone complaint, the handling process will be recorded in detail in the "External Communication Record Form". If there is any improvement, it will be made by the competent and responsible unit according to the complaint content and tracked by the environmental management department.

Important Communication Records of Cheng Shin Taiwan and Subsidiaries in 2024

Region	External Agencies	Communication / Summary	Internal Handling Situation
Taiwan Region	Local Agencies	The public complained about the odor situation, and routine inspections were conducted at the plant.	1. Related prevention equipment shall be installed and maintained in normal operating condition as per the permit. 2. Continue to conduct external odor inspections.
	Community residents	People reported that the noise from Douliu Plant 1 was too loud at night.	1.Implemented isolation or closure of noise sources within the plant. No anomalies detected by the Department of Environmental Protection.
Subsidiary	No related complaints in 2024.		

Community refers to the local community near each plant.[1]

2.3. Energy Resources and Greenhouse Gas Management

2.3.1. Resource Management

The products manufactured by Cheng Shin are tires, and mainly consume raw materials such as raw rubber, synthetic rubber, carbon black, steel wire, etc. In order to reduce the exploitation of earth resources and save procurement costs, Cheng Shin adopts the following methods to reduce raw material consumption as much as possible.

- ◆ Adjust process parameters to reduce raw material consumption.
- ◆ Seek substitution of by-products, or reduce the amount to eliminate the use of by-products.
- ◆ Review the reasonableness of material usage regularly.
- ◆ Look for high-strength and lightweight reinforcing materials as alternative materials.

In 2024, the total amount of raw materials used in Taiwan and subsidiaries was 106,829 and 741,594.85 metric tons respectively. The production of tires (including inner tubes) amounted to 104,603 and 715,590.36 metric tons respectively. The material usage intensity was 0.979 and 0.965 for Taiwan and Mainland China. Cheng Shin continues to enhance material management, reduce waste generation, and minimize losses from scrapped products. As a result, we are able to maintain high material usage intensity. In the future, Cheng Shin will continue to utilize raw materials efficiently and maintain the intensity of raw material usage.

Usage intensity of raw materials

Manufacturing Plants		2022	2023	2024
Taiwan Region		0.956	0.984	0.979
Mainland China	Cheng Shin Kunshan	0.999	0.992	-
	Cheng Shin Chongqing	0.999	0.991	-
	Cheng Shin Xiamen	0.995	0.994	-
Subsidiary		-	-	0.965

Note: Material usage intensity = Total product weight (metric tons) / Total consumed materials (metric tons)

Years	2024				
Manufacturing Plants	Consumption of Renewable Raw Materials (Tons)	Total Consumption of Materials (Tons)	Proportion of renewable raw materials	Gross Weight of the Product (Tons)	Usage intensity of raw materials
Taiwan Region	24,034	106,829	22.50%	104,603	0.979
Subsidiary	177,879	741,594	23.99%	715,590	0.965

2.3.2. Energy Management

Cheng Shin adheres to the energy policy of "Energy Conservation, Carbon Reduction, and Efficiency Enhancement." We have always attached great importance to energy usage and implemented energy management as a fundamental commitment to the environment. Energy management organizations have been established in all plants of Cheng Shin, each setting annual energy-saving goals and execution plans. By breaking down energy-saving targets, implementing assessment and incentive systems, various departments are motivated to actively adopt energy-saving technology upgrades, progressively implementing energy conservation and carbon reduction initiatives. At Cheng Shin Taiwan in 2024, the solar photovoltaic system provided 4.02 million kWh annually, reducing about 1,908 tCO_2e emissions. The subsidiary continued to purchase green power, reducing a total of 25,431.35 tCO_2e emissions in 2024. All energy management personnel have been trained in the requirements of the ISO50001 energy management system, and all have obtained the internal auditor's qualification certificate and are equipped to manage the relevant requirements. In addition, Cheng Shin has already passed the third-party management system certification, and the Kunshan plant has been awarded the Energy Efficiency Star Level 3 energy award.

ISO50001 Certificate of our Mainland China Plant

Regarding energy usage, Cheng Shin primarily utilizes electricity, gasoline, diesel, and natural gas. In 2024, the energy consumption in Cheng Shin Taiwan and Mainland China was 1,199,392.87 GJ and 7,277,487.35 GJ respectively. The energy intensity in the Taiwan Region was 11.47 GJ per metric ton, while in the China Region, it was 10.17 GJ per metric ton. Diesel fuel is used to power forklifts, company vehicles (included in the calculation in 2023), and emergency generators, while gasoline is used for Company vehicles.

Energy Usage Intensity

Region	2022	2023	2024
Taiwan Region	11.84	11.67	11.47
Subsidiary	NA	NA	10.17

Note: Energy Usage Intensity = amount of energy used (GJ) (including externally purchased energy and self-generated electricity) / Gross Weight of the Product (Tons)

State of energy use
Taiwan Region

Energy		Unit	2022	2023	2024
Electricity	Self-consumption and renewable	GWh	0	4.30	4.29
		GJ	0	15,466.53	15,439.50
	Externally purchased non-renewable energy	GWh	0	0	0
		GJ	0	0	0
	Externally purchased non-renewable energy	GWh	186.86	160.14	157.44
		GJ	672,680.56	576,499.57	566,769.55
Natural gas[2]		million kiloliter (kL)	24.12	19.40	17.78
		GJ	992,397.96	649,291.53	595,207.71
Gasoline		kiloliter (kL)	92.83	109.69	98.48
		GJ	2,919.50	3,579.63	3,213.77
Diesel fuel		kiloliter (kL)	41.71	503.87	533.85
		GJ	1,497.60	17,708.96	18,762.34
Total Renewable Energy Consumption		GJ	0	15,466.53	15,439.50
Total Non-Renewable Energy Consumption		GJ	1,669,495.62	1,247,079.69	1,183,953.37
Total Energy Consumption		GJ	1,669,495.62	1,262,546.22	1,199,392.87
Percentage of Purchased Electricity		%	40.29	45.66	47.25
Renewable energy utilization rate		%	0	1.23	1.29

Note 1: The calorific value coefficient is based on the Energy Statistics Handbook of the Bureau of Energy, Ministry of Economic Affairs (updated October 4, 2024).
Note 2: Diesel consumption has been included under company cars since 2023.
Note 3: Percentage of externally purchased electricity is externally purchased electricity consumption/total energy consumption.

Subsidiary

Energy		Unit	2024年
Electricity	Self-consumption and renewable	GWh	0.00
		GJ	0.00
	Purchased Renewable	GWh	47.72
		GJ	171,802.00
	Purchased Non-renewable	GWh	909.86
		GJ	3,275,095.81
Purchased steam		Thousand metric tons	1,334.34
		GJ	3,623,873.36
Gasoline		kiloliter (kL)	136.59
		GJ	4,471.59
Diesel fuel		kiloliter (kL)	847.57
		GJ	30,442.59
Total Renewable Energy Consumption		GJ	171,802.00
Total Non-Renewable Energy Consumption		GJ	7,105,685.35
Percentage of Purchased Electricity		%	100.00%
Renewable Energy Utilization Rate		%	2.42%

Note 1: The energy category of each subsidiary was counted based on the energy supervision items stipulated by local laws and regulations.

Correction: The total non-renewable energy usage and total energy consumption in Taiwan in 2022 were incorrectly reported as[2]1,481,820; the correct value should be 1,699,495.62.

2.3.3. Energy Conservation and Carbon Reduction Measures

As for the energy reduction goals of Cheng Shin, refer to the "Energy Conservation Targets and Implementation Plans by Energy Users" of the Energy Administration, Ministry of Economic Affairs, R.O.C.. The annual and average electricity saving rate should reach more than 1%; the energy usage intensity should be reduced by 1% every year.

This electricity saving calculation excludes the energy reduction due to production capacity or production outsourcing. Since 2009, various Cheng Shin manufacturing plants have been implementing multiple energy-saving initiatives. In 2024, the main focus of energy-saving efforts was on process/plant equipment optimization, replacing outdated equipment, and implementing energy-saving control and management measures.

After the direct measurement and consolidation of the 2024 energy-saving plan, GHG emissions were reduced. Taiwan and its subsidiary reduced emissions by 4,595.55 tCO_2e and 34,338.66 tCO_2e respectively, for a total reduction of 38,934.21 tCO_2e.

Major Energy Saving Initiatives:

Region	Item	Content	Annual Energy Saving Performance		Annual Carbon Reduction Performance (tCO_2e)
Taiwan Region	Equipment upgrades and optimization	The purpose of carbon reduction can be achieved by modifying the operation of the equipment or modify the equipment.	239,200 kWh	861.18GJ	113.39
	Replacement with energy-saving equipment	Replace old equipment with more energy-efficient equipment.	1,326,900 kWh	4,776.89GJ	628.96
	Technical optimization	Application of production technology or equipment technology transformation, in order to achieve the purpose of carbon reduction.	1.Electricity Capacity: 1,520,000 kWh 2.Natural gas: 587,968 m^3	2,512.45GJ	1,944.31
	Green energy use	Solar energy system construction.	4,072,000 kWh	14,497.93GJ	1,908.89
				Subtotal	4,595.55
Subsidiary	Equipment upgrades and optimization	The purpose of carbon reduction can be achieved by modifying the operation of the equipment or modify the equipment.	1.Electricity Capacity: 6,633,160 kWh 2.Steam: 1,152.00 tons	27,070.46GJ	3,074.18
	Replacement with energy-saving equipment	Replace old equipment with more energy-efficient equipment.	333,000 kWh	1,201GJ	228.00
	Technical optimization	Upgrade production technology or equipment technology transformation, in order to achieve the purpose of carbon reduction.	1.Electricity Capacity: 4,300,810 kWh 2.Steam: 12,583.43 tons	49,916.17GJ	5,605.13
	Green energy use	Purchase green power.	45.27183 million kWh	162,978.47GJ	25,431.35
				Subtotal	34,338.66
				Total	38,934.21

Note 1: The baseline for calculating the reduction in energy consumption is calculated with reference to the electricity consumption of the old equipment.

Note 2: The amount of carbon dioxide in the Taiwan Region: refers to the electricity emission coefficient announced by the Bureau of Energy, citing the electricity coefficient for 2024 provided in the announcement issued on April 14, 2025.

Note 3: The carbon dioxide conversion coefficient for Mainland China is based on the data submitted in the "Model Greenhouse Gas Accounting Reports for Other Industrial Sectors" filed in 2024. Emission coefficient for steam: 0.11 CO_2e/GJ, emission coefficient for electricity: 5.978 CO_2e/10,000 kWh.

2.3.4. Greenhouse Gas Management

The Intergovernmental Panel on Climate Change (IPCC) emphasizes that the global average temperature increase is "very likely" caused by human-induced greenhouse gas emissions. In response to international regulations such as the Paris Agreement and to fulfill our corporate responsibility for environmental protection, we are committed to conducting greenhouse gas inventories to grasp the exact status of greenhouse gas emissions and, based on the results of these inventories, to further promote voluntary greenhouse gas reduction programs and implement energy-saving improvements to reduce energy consumption and greenhouse gas emissions. In the past, Cheng Shin has referenced ISO 14064-1:2006 for organizational greenhouse gas inventory procedures and the Environmental Protection Administration's guidelines for greenhouse gas inventory reporting. We voluntarily disclose our greenhouse gas emissions annually. In 2022, the Taiwan Region officially introduced the ISO 14064-1:2018 version to conduct an inventory of seven categories of GHGes (CO_2, N_2O, CH_4, HFCs, PFCs, SF_6, and NF_3). In addition, the Group' s GHG inventory and verification planning schedule are also underway according to the "Sustainable Development Roadmap" published by the Financial Supervisory Commission in March 2022. The goal is to conduct a GHG inventory for all plants, with 2023 set as the base year for energy conservation and carbon reduction. Following a meeting of the Energy Conservation and Carbon Reduction Committee, the base year was changed to 2019, with a reduction target of 22% in emissions by 2030 compared to the base year. In 2024, the total GHG emissions of Taiwan and its subsidiaries for Scope 1 and 2 were tCO_2e114,036.801 and 900,983.738 tCO_2e respectively. Cheng Shin is seeing a downward trend in direct emissions. It is presumed that the direct emission project has been effective because of the continuous energy saving measures carried out at each plant year after year to improve the operating equipment required for manufacturing processes.

Three-Year GHG Emissions

Unit: tCO_2e

Region	Item	2022	2023	2024
Taiwan Region	Scope 1: Direct Emissions	56,656.489	42,670.504	39,423.413
	Scope 2: Indirect Energy Emissions	89,791.781	79,131.433	74,613.388
	Total	146,448.270	121,801.937	114,036.801
	Scope 3 other indirect emissions	NA	306,173.638	294,140.778
Subsidiary	Scope 1: Direct Emissions	NA	NA	33,565.545
	Scope 2: Indirect Energy Emissions	NA	NA	867,418.193
	Total	NA	NA	900,983.738
	Scope 3 other indirect emissions	NA	NA	NA
Total		NA	NA	1,309,161.317

Note 1: Emissions in the Taiwan Region were calculated based on the "GHG Emission Coefficient announced on February 5, 2024" by the Ministry of Environment of Taiwan.
Note 2: The organizational boundaries are set using the operational control method.
Note 3: GWP values for GHG type are based on the IPCC Sixth Assessment Report (2021). Note 4: The carbon emission coefficient for electricity is referenced from the announcement by the Bureau of Energy on April 14, 2025, based on the 2024 electricity carbon emission coefficient.
Note 5: The data of subsidiaries for 2022 and 2023 only discloses information for the China Region.
Note 6: The above GHG information does not include carbon dioxide emissions from biogenic sources.
Note 7: The GHG emissions of the subsidiaries are voluntarily disclosed, and the scope of inventory will be expanded to include Scope 3 starting in 2026.

GHG emissions intensity

Unit: tCO_2e

Region	2022	2023	2024
Taiwan Region	1.170	1.120	1.090
Subsidiary	NA	NA	1.259

Note: GHG emission intensity = (Scope 1 + Scope 2 GHG emissions) (tCO_2e)/total product weight (t)

2.3.5. Climate-related Information

2.3.5.1. Risks and opportunities for the Company arising from climate change and related measures taken by the Company.

Items and implementation status

1. Describe the board's and management's oversight and governance over climate-related risks and opportunities.

Implementation status: In response to climate change and the energy usage crisis, Cheng Shin' s Board of Directors conducts monitoring and the Sustainability Development Task Force works with various department personnel to assess the "likelihood of impacts" and "degree of impacts" of various risks and opportunities based on materiality criteria. Eight climate change risks and opportunities have been identified, integrating Cheng Shin' s development with policies and solutions related to economic growth, environmental protection, and sustainable development. They also establish short, medium, and long-term objectives to continuously enhance climate resilience and foster an environmentally sustainable culture.

2. Describe how the identified climate risks and opportunities affect the business, strategy and finances of the Company (short, medium and long term).

Implementation status:

CATEGORY	Potential Risks and Opportunities	Point of Impact	Impact on the Company	Response Measures
Transitional Risk	Policy and regulatory impacts	Short-term	In response to government enforced environmental regulations, it is necessary to promptly comprehend and assess compliance within the Company. This facilitates alignment with governmental policies and regulations, but it also leads to increased expenditure on manpower costs.	・Self-inspect the pollution prevention status and the pollution prevention equipment capability on a regular basis through the internal audit of the effective environmental management system. ・Establish regulations on the identification and management of environmental safety and health-related laws and regulations and collects regulations updated by relevant competent authorities every month to identify and implement them accordingly. ・Conduct compliance assessment once a year to comply with statutory provisions.
	Customer behavioral change	Mid-term	Increasing concern on environmental issues: In order to improve environmental protection and driving safety, with the expectation on the tire industry to provide consumers with better tire quality, stricter standards of EU Labeling/Marking Requirements have been put forward to implement in stages (2017~2030). Purchase of all-season tires: In some European countries, there is only light and light snow all year round, and although the temperature is cold, there are no extreme cold	Continue to carry out market and customer demand surveys so as to provide the new generation of all-season tire products in line with the market and customer demand.

			conditions, so for the sake of convenience, consumers are starting to buy all-season tires. In response to new trends, new product positioning and new R&D directions are planned, resulting in increased labor costs.	
	Cap-and-trade of greenhouse gases	Long-term	Cheng Shin's head factory and Xizhou Plant are subject to a carbon tax on the GHG emissions in 2025, resulting in an increase in operating costs.	· The Energy Conservation and Carbon Reduction Committee and the energy conservation measures of each plant are regularly reported on the plans and results . · Proposal of voluntary reduction plan is submitted, and we strive to obtain preferential tariff A for Xizhou Plant and preferential tariff B for headquarter plant. Reduce operating costs
Physical risks	Heavy rainfall events	Short-term	The waterways in the plant are not easily drained and swell, causing water to accumulate on the roads and making it difficult for vehicles to pass, and the expenses are increased by assigning manpower and purchasing additional equipment to resolve the waterlogging situation.	Remove the silt in the waterway and increase water load. Add and purchase new equipment to increase the number of drainage motors in the plant to promote drainage efficiency.
	Droughts	Mid-term	The government's water restriction policy has affected the water required for the Company's operations, resulting in increased costs.	Continuously monitor government policies related to water use restrictions to prevent unanticipated policies from affecting the Company's production capacity.
	Disaster events	Long-term	Disasters cause interruptions in operations and damages to equipment, resulting in loss of revenue.	· Contingency shall be dealt with in accordance with the "Disaster and Accident Handling Management Methods". Such as: Emergency Response Plan Operation Process, Emergency Response Contact System, and Disaster Response Management, etc. · In response to major industrial safety incidents such as fire and explosion, the Company has initiated the self-inspection, review, and prevention on the cause of the incident, and communicates with other plants within the Group. Implement in accordance with the Technical · Guidelines on Emergency Response Measures and follow the Taiwan Occupational health and safety management systems (TOSHMS) guidelines and the five related technical guidelines (risk assessment, procurement management, contracting management, change management, and emergency response measures) issued by the Ministry of Labor.
Opportunities	Expanding new business opportunities	Mid-term	Climate anomalies can cause a change in customer demand. If we can predict the market demand and develop new products, we are likely to enter new markets and increase our revenue.	· Develop new products based on customer performance requirements. · Segmenting markets and finding new niches.
	Research and development of innovative products or services	Mid-term	As the demand for electric vehicles continue to increase, we will develop EV products to increase brand power and market share in order to further increase the revenue	We will continue to develop "sustainable materials and environmental and low-carbon products capable of reducing environmental impact".

Note: Short-term: 2023-2025 / Mid-term: 2025-2030 / Long-term: 2030-2050

3. Describe the financial impact of extreme climate events and transformational actions.
Implementation status:

CATEGORY	Potential Risks and Opportunities	Point of Impact	Financial impact on the Company	Response Measures
Transformation action	Policy and regulatory impacts	Short-term	In response to government enforced environmental regulations, it is necessary to promptly comprehend and assess compliance within the Company. This facilitates alignment with governmental policies and regulations, but it also leads to increased expenditure on manpower costs.	Self-inspect the pollution prevention status and the pollution prevention equipment capability on a regular basis through the internal audit of the effective environmental management system. Establish regulations on the identification and management of environmental safety and health-related laws and regulations and collects regulations updated by relevant competent authorities every month to identify and implement them accordingly. Conduct compliance assessment once a year to comply with statutory provisions.
	Customer behavioral change	Mid-term	Increasing concern on environmental issues: In order to improve environmental protection and driving safety, with the expectation on the tire industry to provide consumers with better tire quality, stricter standards of EU Labeling/Marking Requirements have been put forward to implement in stages (2017~2030). Purchase of all-season tires: In some European countries, there is only light and light snow all year round, and although the temperature is cold, there are no extreme cold conditions, so for the sake of convenience, consumers are starting to buy all-season tires. In response to new trends, new product positioning and new R&D directions are planned, resulting in increased labor costs.	Continue to carry out market and customer demand surveys so as to provide the new generation of all-season tire products in line with the market and customer demand.
	Collection of greenhouse gas emission carbon fee	Long-term	Cheng Shin's headquarter plant and Xizhou Plant are subject to a carbon tax on the GHG emissions in 2025, resulting in an increase in operating costs.	The Energy Conservation and Carbon Reduction Committee and the energy conservation measures of each plant are regularly reported on the plans and results . Proposal of voluntary reduction plan is submitted, and we strive to obtain preferential tariff A for Xizhou Plant and preferential tariff B for headquarter plant. Reduce operating costs.
Extreme climate	Heavy rainfall events	Short-term	The waterways in the plant are not easily drained and swell, causing water to accumulate on the roads and making it difficult for vehicles to pass, and the expenses are increased by assigning manpower and purchasing additional equipment to resolve the waterlogging situation.	Remove the silt in the waterway and increase water load. Add and purchase new equipment to increase the number of drainage motors in the plant to promote drainage efficiency.
	Droughts	Mid-term	The government's water restriction policy has affected the water required for the Company's operations, resulting in increased costs.	Continuously monitor government policies related to water use restrictions to prevent unanticipated policies from affecting the Company's production capacity.
	Disaster events	Long-term	Disasters cause interruptions in operations and damages to equipment, resulting in loss of revenue.	Contingency shall be dealt with in accordance with the "Disaster and Accident Handling Management Methods". Such as: Emergency Response Plan Operation Process, Emergency Response Contact System, and Disaster Response Management, etc. In response to major industrial safety incidents such as fire and explosion, the Company has

				initiated the self-inspection, review, and prevention on the cause of the incident, and communicates with other plants within the Group. Implement in accordance with the Technical Guidelines on Emergency Response Measures and follow the Taiwan Occupational health and safety management systems (TOSHMS) guidelines and the five related technical guidelines (risk assessment, procurement management, contracting management, change management, and emergency response measures) issued by the Ministry of Labor.

4. Describe how climate risk identification, assessment and management processes are integrated into the overall risk management system.

Implementation status:
(1) Convene the Sustainable Development Task Force and divide groups with relevant department's responsible persons → (2) Identify and list the main risks and opportunities of Cheng Shin, and discuss their relevance to Cheng Shin → (3) Assess the urgency and incidence of the risks and opportunities → (4) Assess the intensity of the impact posed by climate change risks to Cheng Shin → (5) Draw climate risk and opportunity matrix → (6) Formulate climate risk response measures and assess whether the cost is correspondent to effects to carry out mitigation measures → (7) Regularly review the effectiveness of the mitigation measures. If the improvement is not satisfactory, reduce the level of impact through a second discussion or risk transfer → (8) Review the process and formulate standardized procedures for future related impacts, in order to reduce the response time to risk treatment in the future.

5. If scenario analysis is used to assess the resilience to climate change risks, describe the scenarios, parameters, assumptions, analytical factors, and key financial impacts.
Implementation status: Cheng Shin selects material climate risks and opportunities each year for scenario analysis and management, and discloses them in the Sustainability Report and CDP questionnaire.
Cheng Shin selected and analyzed the financial impact posed by the carbon fee levied by the government agency for Cheng Shin´s specific operating locations under different scenarios with reference to the trend of domestic law and regulation and the public information of international peers;
For the parameters, assumptions, analysis factors and main financial impact used in the aforementioned scenario analysis, please refer to Chapter 2.1 of the Sustainability Report.

6. If there is a transition plan for managing climate-related risks, describe the plan, as well as the metrics and targets used to identify and manage physical risks and transition risks.
Implementation status: The demand for eco-friendly products will continue to grow worldwide, especially in the automobile industry. The market for electric vehicles and high-performance low-emission tires will see significant growth, and governments in various countries will introduce stricter environmental regulations. For example, Taiwan's tire levy mechanism will force companies to accelerate their transformation. Tire manufacturing technology and material science have also made significant progress in recent years, particularly in the use of renewable materials and extending tire lifespan. We have passed third-party certification for ISO 14001:2015 environmental management systems. By effectively implementing our environmental policy, we integrate climate risks and opportunities based on our dependencies and impacts, putting our environmental strategy and goals into practice. This ensures compliance with international and domestic laws and regulations, responsiveness to stakeholder expectations, and collaboration with supply chain partners and research institutions to develop new technologies and products.

The current transformation plan of Cheng Shin includes:
(1) In response to the "Net-Zero Pathway for the Manufacturing Sector" published by Taiwan's Ministry of Economic Affairs, which sets 2019 as the base year for GHG reduction, the reduction target is a 22% decrease in emissions by 2030 compared to that base year.
2.In August 2024, the renewable energy target was set: Achieve 12% renewable energy penetration by 2030.
(3) In response to the energy saving target of the Bureau of Energy, MOEA to reduce energy consumption by 1% per year, we have set out the energy saving target for next year and the performance of this year´s implementation in order to explore the benefits of energy saving measures each year.
(4) In response to the "Renewable Energy Development Act", we have installed a solar photovoltaic system, which provided 4.46 million kWh of electricity in 2023, reducing CO2e emissions by approximately 2,206 tons.
In terms of resource planning, we will take measures to obtain the necessary resources, including R&D investment, capital arrangement, talent cultivation, and supply chain management. Through these measures, we are committed to achieving our sustainable development goals and maintaining competitiveness in the global market.
In terms of indicators and targets,we have established energy use indicators and targets - 13.05 Energy Use (GJ)/ Total Product Weight (tons) - to control the energy use of production sites and address the transformation risk of future cost impacts from carbon levies for GHG emissions.

7. If internal carbon pricing is used as a planning tool, elaborate on the basis for setting the price.
Implementation status: Relevant information is being collected for research and introduction.

8. If climate-related targets have been set, please provide information about the covered activities, scope of greenhouse gas emissions, planning schedule, progress achieved each year, etc. If carbon offsets or Renewable Energy Certificates (RECs) are used to achieve these goals, please explain the source and quantity of the offset carbon emissions or the number of RECs used for the purpose.
Implementation: Cheng Shin has set 2019 as the base year for greenhouse gas reduction, and the reduction target is to reduce the emission by 22% by 2030 compared with the base year; covering the tire production activities of each plant, the scope of greenhouse gas emissions: Scope 1: direct emissions from burning fossil fuels, and Scope 2: Indirect emissions from energy use. In response to the government's renewable energy policy, we actively adopt the self-generation and self-use approach to obtain green power. In 2024, our green power usage totaled 4.02 million kWh, and we applied for 621 renewable energy certificates (T-REC) from the National Renewable Energy Certification Center, with certificate numbers ranging from 23SP0406-B024000001 to 621.

9. Greenhouse gas inventory and assurance status, as well as reduction goals, strategies, and concrete action plans (indicated in 1-1 and 1-2 separately).

2.3.5.2. GHG inventory and assurance in the last 2 years

Greenhouse Gas Inventory Information

Describe the greenhouse gas emission volume (metric tCO_2e), intensity (metric tCO_2e/NTD million), and data coverage for the most recent two years.

Year		2023 (assured by third-party in the Taiwan Region)		2024 (assured by third-party in the Taiwan Region)	
Item (Unit)		Emissions (tCO_2e)	Intensity (metric tons of CO_2e/NTD million of revenue)	Emissions (tCO_2e)	Density (tCO_2e/NT$ million)
Taiwan Region	Scope 1	42,670.5037	-	39,423.4137	-
	Scope 2	79,131.4331		74,613.3876	
	Subtotal	121,801.9368		114,036.8013	
All subsidiaries included in the consolidated financial statements	Scope 1	-		33,565.5450	
	Scope 2	-		867,418.1930	
	Subtotal	-		900,983.7380	
Total		121,801.9368	1.266	1,015,020.5393	10.546
Taiwan Region	Scope 3	306,173.6382	17.549	294,140.7776	17.528

Data coverage: All plants in Taiwan (including Headquarters, Plant II, Plant III, Zhongzhuang Plant, Xizhou Plant, and Douliu Plants I, II and V) and all subsidiaries covered in the consolidated financial statements. The 2024 emission data was inventoried and externally verified according to ISO 14064-1:2018, as detailed in the table above.

Group-wide Scope 1 + Scope 2 emissions intensity = Group-wide Scope 1 + Scope 2 emissions/consolidated revenue; Taiwan Region's Scope 3 emissions intensity = Taiwan Region's Scope 3 emissions/revenue indicated in the parent company only financial statements.

GHG Assurance Information

Describe the circumstances of assurance in the last two years, including the scope of assurance, assurance body, assurance criteria, and assurance opinions.

The 2023 annual emission data was inventoried and externally verified according to ISO 14064-1:2018. Assurance scope: All plants in Taiwan (including Headquarter Plant, Plants 2, 3, Zhongzhuang, Xizhou, Douliou 1, Plants 2, and 5, Taipei Office)

The 2023 annual emission data was inventoried and externally verified according to ISO 14064-1:2018.
Assurance scope: All plants in Taiwan (including Headquarter Plant, Plants 2, 3, Zhongzhuang, Xizhou, Douliou 1, Plants 2, and 5, Taipei Office)
Assurance institution: The external verification is commissioned to AFNOR Asia Ltd., and greenhouse gas verification report has been obtained.
Assurance opinions: None.
For the annual emissions data for 2024, inventory inspection and external verification were performed according to the ISO14064-1:2018 version. After verification, the data may be revised.
Assurance scope: All plants in Taiwan (including Headquarter Plant, Plants 2, 3, Zhongzhuang, Xizhou, Douliou 1, Plants 2, and 5, Taipei Office)
Assurance institution: The external verification is commissioned to AFNOR Asia Ltd., and greenhouse gas verification report has been obtained.
Assurance opinions: The Company expects to obtain a GHG Verification Report in August 2025.

GHG reduction goals, strategies and concrete action plans

Describe the GHG reduction base year and data, reduction goals, strategies, and concrete action plans and achievement of the reduction goals.

In 2023, we established the Energy Conservation and Carbon Reduction Committee, and set 2019 as the base year for GHG reduction. The reduction target is to reduce emissions by 22% by 2030 in comparison to the emissions in the base year.
Reduction actions will be divided into three major aspects: A. Update and replacement of equipment; B. Improvement of equipment (energy leakage, etc.); C. improvement of process.
Through the direct measurement and integration of the implemented energy conservation plans in 2024, GHG emissions were reduced. In Taiwan and subsidiaries, 4,595.55 tCO_2e and 34,338.66 tCO_2e were be reduced, for a total of 38,934.21 tCO_2e.

2.4. Water Resource Management

2.4.1. Water Use Management

Due to climate change, water resources are becoming increasingly scarce. Both developed and developing countries have been affected by dwindling water resources. Moreover, in the Global Risk Report of the World Economic Forum issued over the past three years, "water crises" around the world have been listed as one of the five global risks. Amidst the difficult conditions of poor water resources, the stability of water supply is becoming a growing concern for business operations. Based on the position of risk control and corporate sustainability, Cheng Shin has already promoted cooling water recycling through dedicated pipes, boiler steam recovery, etc., and advocated water saving, and installed faucets with water-saving features. Cheng Shin´s RO reverse osmosis is mainly used for boilers, and the wastewater after reverse osmosis is reintroduced with cooling water for recycling to avoid water waste. The water sources used by Cheng Shin include tap water and underground water. Cheng Shin holds the water rights certificate issued by the competent authority for all wells in which groundwater is extracted and uses water according to the authorized amount. In 2024, Taiwan and its subsidiaries consumed a total of 782.933 and 1,541.635 million liters of water, respectively. Thanks to production adjustments and increased employee awareness of water conservation, total water consumption decreased by 5.50% compared to 2023.

Water Withdrawal Over the Past Three Years

Unit: megaliters

Region	Item	2022	2023	2024
Taiwan Region	Tap water	236.964	212.235	177.937
	Groundwater	517.786	474.850	461.340
	Third Party Park Water Supply	NA	141.447	143.656
	Total	754.750	828.532	782.933
Subsidiary	Tap water	907.763	950.736	1,055.760
	Groundwater	0.000	0.000	0.000
	Third Party Park Water Supply	402.323	370.754	485.875
	Total	1,310.086	1,321.490	1,541.635

In addition, Cheng Shin' s Mainland China operations have always attached importance to water conservation, educating employees on water conservation in work activities, and posting water conservation reminders and signage around employee bathrooms, toilets, and sinks. The Company also encourages the multiple reuse of water resources, eliminate water leakage and waste, improve industrial water reuse, and reduce waste water discharge.

Cheng Shin's Kunshan Plant in China was awarded a "Water-Saving Enterprise"

2.4.2. Wastewater Management

For wastewater generated from daily operations, Cheng Shin conducts wastewater discharge operations in accordance with local laws and regulations and ensures that the quality of the discharge water is within the limits of the "Effluent Standards". In order to reduce the discharge of wastewater, the boiler water in Taiwan plants is replaced with RO pure water so that the residual water can be recycled for process use and the reverse washing water for process water can be recycled. In addition, a water recovery facility has been set up in the Xizhou Plant to recycle about 35% effluent of the waste (sewage) water for irrigation and toilet flushing to reduce the discharge of water. In addition, by integrating the production configuration of each plant, Cheng Shin effectively utilizes the space and water sources in the plant, fully verifies the discharge pipelines in the plant, diverges the flow direction of wastewater and rainwater, integrates the main pipelines, and eliminates those with water leakage, damage and low frequency of use. This improvement plan can effectively reduce the discharge of wastewater (sewage).
In 2024, Taiwan and its subsidiaries generated 316.035 and 890.152 million liters of wastewater, respectively.

Wastewater Discharge over the Past Three Years (water discharge)

Unit: million tons

Region	Wastewater characteristics	2022	2023	2024
Taiwan Region	Mainly consists of domestic wastewater and cooling wastewater	374.999	327.060	316.035
Subsidiary	Mainly domestic wastewater, industrial wastewater, and cooling wastewater.	764.840	722.776	890.152
Total		1,139.839	1,049.836	1,206.187

Note 1: At Cheng Shin Taiwan, wastewater volume is calculated using flowmeter equipment. Flow meters are calibrated by qualified third-party verification units in accordance with Taiwan's environmental regulations. Calibration is conducted once a year.

Water Consumption

The calculation of water consumption is based on water withdrawal minus water discharge.

Water Consumption in the Recent Three Years

Unit: million liters

Region	Wastewater characteristics	2022	2023	2024
Taiwan Region	Mainly consists of domestic wastewater and cooling wastewater	379.751	501.472	466.898
Subsidiary	Mainly domestic wastewater, industrial wastewater, and cooling wastewater.	142.923	227.960	651.483
Total		522.674	729.432	1,118.381

Wastewater Discharge Basin and Environmentally Sensitive Areas

The wastewater from the Changhua main plant and each branch plant is first treated internally before being discharged to the Yangzaicuo River and the Zhuoshui River respectively, while the wastewater from each branch plant in Douliou is discharged to the Huwei River after being treated by the wastewater treatment plant in the Yunlin Technology-based Industrial Park (Zhuweizi Zone). None of the above discharge river sections affect particularly sensitive water bodies, wetlands or other nature reserves.

Region	Treatment Unit	Discharge Basin	Whether flowing throughparticularly sensitive water bodies, wetlands or other nature reserves
Changhua Plant	Self-treatment	Yangzaicuo River	No
Changhua Plant 2	Self-treatment	Yangzaicuo River	No
Changhua Plant 3	Self-treatment	Yangzaicuo River	No

Changhua Zhongzhuang Plant	Self-treatment	Yangzaicuo River	No
Changhua Xizhou Plant	Self-treatment	Yangzaicuo River	No
Douliou Plant 1	Yunlin Technology-based Industrial Park (Zhuweizi Zone) Sewage Treatment Plant	Huwei River	No
Douliou Plant 2	Yunlin Technology-based Industrial Park (Zhuweizi Zone) Sewage Treatment Plant	Huwei River	No
Douliou Plant 5	Yunlin Technology-based Industrial Park (Zhuweizi Zone) Sewage Treatment Plant	Huwei River	No

The water quality standards in Cheng Shin Taiwan and Mainland China vary in accordance with the regional nature of the discharge standards. The standards for general areas and industrial areas in Taiwan are detailed in the following table. The wastewater in industrial areas is treated by the waste-water treatment facilities in the plants and discharged after reaching the discharge standard. The wastewater in industrial areas is treated by the treatment facilities in the plants and discharged to the wastewater treatment plants in the industrial parks, so the water quality and quantity standards are different from those in general areas. For water quality and quantity that exceeds the allowable discharge standard of the industrial area, additional treatment fees will be paid and the industrial area will be subject to regular water quality and quantity spot checks.
Cheng Shin adheres to local testing and reporting regulations. At Cheng Shin Taiwan, water quality testing is conducted every six months to facilitate reporting. The water quality tests conducted in 2024 all met the standards for wastewater discharge

Taiwan Region

Water Quality Item	Taiwan Effluent Standards		Effluent Testing of Main Plant (Applicable to general local standards)	Effluent Testing of Douliou Plant 1 (Applicable to industrial area standards)
	General area	Industrial area	Effluent	Effluent
Water temperature(℃)	5-9月38℃ 10-4月35℃	45	37.8	30.8
Suspended solids(mg/L)	30	320	1.4	1.1
Biochemical oxygen demand(mg/L)	30	320	2.3	3.9
Chemical oxygen demand(mg/L)	100	480	11.8	15.4
pH	6-9	5-9	7.4	8.3
Oil and grease(mg/L)	10	10	2.7	0.6

Note: The relevant testing standards are as follows: Suspended solids (NIEA W210.58A), biochemical oxygen demand (NIEA W510.55B), chemical oxygen demand (NIEA W517.53B), pH (NIEA W424.53A), and water temperature (NIEA W217.51A).

2.5. Waste and Recycling

Currently, Cheng Shin manages its waste disposal according to approved "Business Waste Cleanup Plans" by local environmental authorities. The Company follows the regulations outlined in the "Regulation for the Administration of an Institution Jointly Handling and Disposal the Wastes" by the Ministry of Economic Affairs and the Waste Disposal Act by the Executive Yuan. Waste materials are entrusted to certified and qualified environmental transport companies for proper disposal. The Company regularly monitors the transportation routes of these companies to ensure the legality of the waste's final destination. Additionally, Cheng Shin retains the waste transport triplicate forms issued by government systems and cross-references them with inventory records to ensure data consistency. Recyclable waste (residual) includes waste rubber, waste metal, waste plastic, waste pallet, and waste paper/carton, etc., which are sorted and collected by qualified local recyclers for recycling to enhance the life cycle of recycling of waste resources. Cheng Shin also announces the waste items and containers that should be recycled, and has properly established a sorting and recycling system to strengthen the concept of resource recycling among all personnel. In addition to compliance with the regulations for waste disposal, Cheng Shin also adopts the following practices to minimize waste generation:

- Waste is classified and recycled to reduce the type and quantity of waste disposal.
- Cheng Shin has developed Level 1-3 independent maintenance plans to extend the service life of articles by regular maintenance and gradually introduce consumables and raw materials of eco-friendly materials.
- In accordance with regulations concerning the operation of business waste reuse, Cheng Shin entrusts recycling firms to handle the Company's recyclable (scrap) waste materials.
- Reduce the use of disposable tableware, provide staff with personal tableware and use stainless steel tableware in restaurants for reuse.
- In 2024, the categories of waste from Cheng Shin included domestic waste, general industrial waste, and hazardous industrial waste, with a total waste generation of 22,810.83 metric tons.

Waste generation and treatment statistics

Unit: tons

Region	2021	2022	2023
Taiwan Region	2,992.840	2,931.508	2,705.820
Subsidiary	14,581.060	14,663. 404	20,105.010
Total	17,573.900	17,594.912	22,810.830

Note: The above data has been cross-referenced with the government's waste transport triplicate forms and confirmed to be consistent.

Region	Waste type	Disposal method (Unit：metric tons)			Total	%
		Incineration	Landfill	Recycling		
Taiwan Region	Domestic waste	205.49	0.00	0.00	205.49	7.59%
	General Business Waste	222.03	45.53	2,232.31	2,499.87	92.39%
	Toxic Business Waste	0.46	0	0	0.46	0.02%
	Total				2,705.82	100.00%
Subsidiary	Domestic waste	1,007.17	219.44	158.39	1,385.00	6.89%
	General Business Waste	972.85	122.45	16,287.20	17,382.50	86.46%
	Toxic Business Waste	431.25	295.79	610.48	1,337.52	6.65%
	Total				20,105.02	100.00%

Note 1: The above data has been cross-referenced with the government's waste transport triplicate forms and confirmed to be consistent.
Note 2: The recycling rate of hazardous industrial waste reached 45.63% for Cheng Shin overall, and was 0% for its Taiwan Region.

2.6. Air Pollution Prevention

In the tire industry, the main sources of air pollutants are process emissions and exhaust gases from combustion in boilers. The types of pollutants include dust, particulate matter, nitrogen oxides, volatile organic compounds (VOCs), and odors. There are no substances produced that would harm the ozone layer (ODS). To control various pollutants, Cheng Shin primarily focuses on improving the efficiency of end-of-pipe treatment and implementing rigorous monitoring. The Company invests significant resources in optimizing and upgrading exhaust gas treatment equipment. For the treatment of VOCs and odors in the Cheng Shin Taiwan plants, Cheng Shin has implemented water-washing scrubbers and photocatalytic systems at the backend of the compounding process. These measures effectively reduce the emissions of VOCs and the dispersion of odors. At the Taiwan Region, historical air pollution emissions have shown a decreasing trend, primarily due to the replacement of heavy oil boilers with more eco-friendly natural gas boilers.

Air pollution emissions over the past three years

Unit: kg

Region		2022	2023	2024
Taiwan Region	Oxysulfide	0	0	0
	Nitrogen Oxides	43,520	32,680	33,732
	Volatile Organic Compounds	131,860	122,020	107,658
	Particulates	1,100	896	818
	Total	176,480[2]	155,596	142,208
Subsidiary	Oxysulfide	0	0	143
	Nitrogen Oxides	0	0	452
	Volatile Organic Compounds	57,073	96,726	12,610
	Particulates	24,281	18,750	7,953
	Hydrogen sulfide(H2S)	52	317	103
	Total	81,406	115,793	21,261

Note 1: Statistics were conducted according to the major controlled pollutants according to local regulations.
Note 2: The emission factors used in this table are as follows.
SOx: NIEA A413.76C, NOx: NIEA A411.75C; volatile organic compounds: announcement letter no. Huan-Shu-Kong-Zi-Di 1050059294 Industry process emission coefficients of volatile organic compounds for air pollution control fees declared for stationary pollution sources in public and private places; operation unit (including equipment components) emission coefficient; control efficiency; and other measurement regulations, particulate matter: NIEA A101.77C.

[3]Correction: The total number of pollutant types in the Taiwan Region in 2022 was mistakenly printed as 176,840; it should be 176,480. This is hereby corrected.

2.7. Compliance with Environmental Regulations

Cheng Shin adheres to the principle of complying with laws and regulations, improving environmental quality, and reducing environmental pollution. Through effective internal audits of the environmental management system, Cheng Shin regularly reviews the pollution prevention situation and the proper rate of pollution control equipment, and corrects any deficiencies immediately. Additional provisions are established for the identification and management of environmental, health, and safety regulations. The OSH and ESH units collect relevant updates from regulatory authorities on a monthly basis and verify their compliance one by one in accordance with the implemented regulations. An annual assessment of regulatory compliance is conducted to ensure adherence to legal requirements. However, in 2024, Cheng Shin China region had five instances of violating environmental regulations. In response to these violations, Cheng Shin immediately made corrections to the penalized matters, and formulated measures for prevention and improvement to prevent the recurrence of similar incidents.

Violations of environmental protection laws and regulations in Taiwan and Mainland China in 2024

Region	Name of Laws or Regulations Violated	Causes/Circumstances of Violation	Amount of Fines Imposed	Improvement Plan
Cheng Shin Xiamen	The Regulation on the Administration of Permitting of Pollutant Discharges	The actual number of waste gas discharge outlets did not match the requirements of the pollutant discharge permit	CNY 135,563	Changed pollutant discharge permit
	The Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution	Exceeded the standard for atmospheric pollutant emissions	CNY 555,458	Exhaust gas was combined with the sulfurization waste gas treatment equipment, with the pollution control permit modified to include one extruder.
	The Regulation on the Administration of Permitting of Pollutant Discharges	Checked the door of 3B Procedure Room of calendering workshop 102 which was not closed	CNY 140,625	Collaborated with online testing vendors to confirm parameters, and report to the Provincial Environmental Protection Department.
	The Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution	The height of the 101A exhaust pipe of mixed exhaust gas did not meet the legal requirements	CNY 127,607	Exhaust duct renovation
	Regulations on Automatic Monitoring of Stationary Pollution Sources in Fujian Province	After replacing the non-methane total hydrocarbon automatic monitoring equipment, the acceptance inspection was not overdue	CNY 158,346	Acceptance inspection work was immediately initiated and the work plan reported to the Xiamen Municipal Ecological Environment Bureau

Note: Except for Shin Xiamen, there were no violations of environmental laws and regulations occurred in other Taiwan and overseas plants.