

# Part 2

## Environmental Sustainability, Loving the Earth



### Key Performance

- ◆ ISO 50001  
Cheng Shin's operations in Mainland China passed the external certification for the ISO50001 energy management system.
- ◆ Greenhouse Gases Reduction  
The energy saving programs promoted in Taiwan and China have reduced greenhouse gas emissions by a total of 70,753.52 tCO<sub>2</sub>e.
- ◆ Reducing the Use of Water Resources  
A total of 88.495 million liters of water consumption was reduced in Cheng Shin Taiwan and Mainland China.
- ◆ Use of Green Energy  
Cheng Shin has installed solar photovoltaic systems that is planned to generate 47.65 million kWh of electricity per year.

## 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



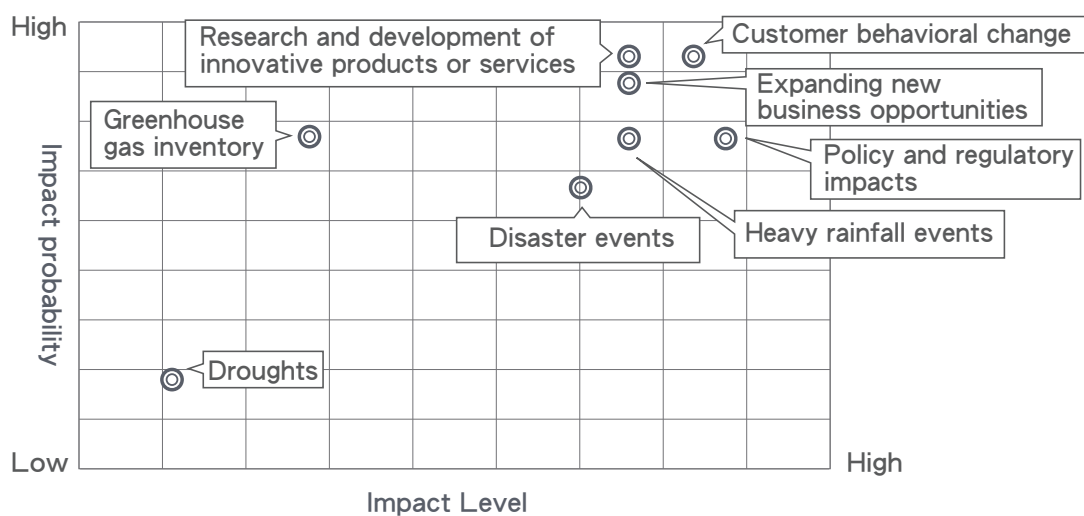
Cheng Shin’ s TCFD Indicator Disclosure Framework

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
	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.	Adaptation Strategies and Goals P.57
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
	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.	Opportunity Impact Analysis P.55

## 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.	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>Conduct compliance assessment once a year to comply with statutory provisions.</li> </ul>

CATEGORY	Potential Risks and Opportunities	Point of Impact	Impact on the Company	Response Measures
Transitional Risk	Customer behavioral change	Mid-term	<ul style="list-style-type: none"> <li>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).</li> <li>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&amp;D directions are planned, resulting in increased labor costs.</li> </ul>	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	The current national policy trend will move toward total caps of greenhouse gas emissions, and only our main plant in Taiwan is subject to control, which may incur increased costs.	<ul style="list-style-type: none"> <li>Participate in industrial associations, negotiate with the government on greenhouse gas caps.</li> <li>Participate in voluntary greenhouse gas reduction and continue to enhance the efficiency of equipment.</li> <li>Conduct greenhouse gas inventory.</li> </ul>
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.	<ul style="list-style-type: none"> <li>Contingency shall be dealt with in accordance with the "Disaster and Accident Handling Management Methods". For example: Emergency Response Plan Operation Process, Emergency Response Contact System, and Disaster Response Management, etc.</li> <li>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.</li> </ul>
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.	<ul style="list-style-type: none"> <li>Develop new products based on customer performance requirements.</li> <li>Segmenting markets and finding new niches.</li> </ul>

Opportunities	Research and development of innovative products or services	Mid-term	<p>Noise-reducing grooves are designed to isolate the pattern noise generated by the tire impacting the road and reduce noise emission.</p> <p>The high-strength structural design strengthens the rigidity of the tread and carcass to improve high-speed driving stability.</p> <p>Silicone nanoparticles with high dispersibility and polymer rubber with double-terminal functional groups, evenly dispersing molecules, can increase abrasion mileage and provide tight grip.</p> <p>This includes the initial investment in the project technology research and development costs.</p>	Development of new generation sustainable products for each tire category.
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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 2023
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	<p>In response to the rapid development of the electric vehicle industry, develop special products tailored to EVs (sedan cars and motorcycles).</p> <p>1. Wear-resistant: The heavy weight of the electric car itself often leads to rapid tire wear. The tires for electric vehicles are further optimized and improved in terms of abrasion performance.</p> <p>2. Low rolling resistance: Low rolling resistance can increase battery life and reduce charging times.</p> <p>3. Grip: EVs have high torque, tires need to be specially designed to meet the acceleration mode of EVs.</p> <p>4. Quietness: EVs produce little noise, so the tires need to be even quieter on the road to ensure optimal comfort.</p>	<p>VS-EV dedicated tires for low fuel consumption, low rolling set and high mileage have been launched for four-wheeled sedans, and have been awarded the highest Grade A in Europe Lebling Energy Efficiency.</p> <p>The Metropass smart electric bicycle tire M2028eP has been developed for two-wheeled bicycles.</p> <p>Developed GOGORO Pulse Electric Tire MA-R1N for motorcycles.</p>
	Promote energy-saving and carbon-reducing manufacturing	<ul style="list-style-type: none"> <li>Align with the Bureau of Energy's electricity saving targets each year.</li> <li>Our goal is to reduce energy consumption by 1%.</li> </ul>	The greenhouse gas emission intensity was 1.17 in 2022 and 1.12 in 2023.
Physical risks	Water resources risk management	<ul style="list-style-type: none"> <li>Conduct management in accordance with the Measures for Flood Control</li> <li>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).</li> <li>Continue to monitor climate-related information for advance development of relevant countermeasures.</li> </ul>	<ul style="list-style-type: none"> <li>Continuously monitor government policies related to water use restrictions to prevent unanticipated policies from affecting the Company's production capacity.</li> <li>Established a record file for obvious climate anomalies and related government policies.</li> </ul>
	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.	Implemented 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	Develop innovative	<ul style="list-style-type: none"> <li>• Passenger Car Tires / Light Truck /Passenger Bus Tires: The development of 4X4, UHP A/S, GT A/S, and it is expected to initiate the product development of RAZR RT tires.</li> </ul>	<ul style="list-style-type: none"> <li>• Electric vehicle tires VSEV products, with three key performance highlights: low noise, enhanced energy efficiency, and easy handling. These products have received recognition including the SEMA Best New Product Award and the Taiwan Excellence Award. They also received the best level Grade A for Energy Efficiency Label from Europe.</li> </ul>
		<ul style="list-style-type: none"> <li>• Motorcycle Tires: Introducing the brand-new "MAXXIS APPROACH" next-generation tire technology, driven by a close connection and attentive listening to consumer feedback. This approach amalgamates high mileage, energy efficiency, and exceptional wet grip into a unified concept, allowing for the development and provision of products that align with customer demands.</li> </ul>	<ul style="list-style-type: none"> <li>• Adopting the design concept "Urban X Commute X Lifestyle," we have developed the versatile 12-inch multi-functional touring tire, the "MA-CT1." The tire tread design draws inspiration from cityscapes with towering buildings, incorporating daily life visuals to enhance the connection between urban living and commuting. This tire design is equipped with wet grip, wear resistance, and energy-saving features.</li> </ul>
		<ul style="list-style-type: none"> <li>• Bicycle tires: Introduction of Sustainable Material - Recycled Fishing Nets Curtain Yarn</li> <li>• In response to the growing trend of electric bicycles in the market, we are focusing on the development of Urban, and Cargo category tires specifically designed for electric bicycles. We will continue to expand our product specifications to cater to this evolving market.</li> </ul>	<ul style="list-style-type: none"> <li>• At the 2023 Taipei Show, the Company announced that the recycled fishing nets curtain yarn has the advantages of 49% reduction in carbon emissions, 15% reduction in energy consumption, and a recycling rate of up to 95% with Taipei and Formosa Advanced Technologies together with the tire performance and weight equivalent to the existing curtain yarn.</li> <li>• Metroloads Pro E-Cargo tires: The application of recycled fishing nets curtain yarn is introduced to increase environmental friendliness by 38%, in line with Europe's environmental protection and green energy policies, and provide high mileage and high load capacity.</li> <li>• Ranked first in Vital MTB's survey of consumers in terms of purchase rate.</li> <li>• Won the first place in E-MTB Magazine's Readers' Choice Survey.</li> <li>• Won the first place in Enduro MTB Magazine's Readers' Choice Survey.</li> </ul>
		<ul style="list-style-type: none"> <li>• ATV tires: Development of ATV EV tires.</li> </ul>	<ul style="list-style-type: none"> <li>• A new set of EV tires for UTV was developed to meet the main performance requirement of reducing rolling resistance and noise. In 2023, the rolling resistance reduction of 10% has been achieved.</li> </ul>
		<ul style="list-style-type: none"> <li>• Go-Kart tire: Development of Go-Kart electric tire.</li> </ul>	<ul style="list-style-type: none"> <li>• As European countries hope to fully convert their indoor rental venues to EVs by 2025, EV tires are developed for low rolling resistance and low noise to save energy and handleability and provide a better Go-Kart driving experience.</li> </ul>

## 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. For a comprehensive understanding of the potential impacts of the different scenario outcomes to Cheng Shin, we have selected multiple public scenarios for our scenario analysis. These scenarios were adopted from reports including the "Carbon Pricing Options for Taiwan, 2020" prepared by an independent research institute commissioned by the Ministry of Environment (Taiwan) for the established policy scenario in Taiwan, and the assessment report "A near-term to net zero alternative to the social cost of carbon for setting carbon prices, 2020" published by Kaufman and so on scholars for the scenario to achieve the 2050 net zero emissions goals. 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
CPOT	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°C
NT2NZ	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°C

## 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 NT2NZ scenario, the financial impact of the carbon fee imposed by the Taiwan locations in 2030 will reach 2.03% of the operating revenue, which is significantly higher than the 0.36% under the COPT scenario.

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

	Carbon pricing in the CPOT scenario	NT2NZ 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: As of the publication date of this report, the carbon fee rate for Taiwan has not yet been determined by the Carbon Fee Rate Review Committee. Therefore, the carbon fee for Taiwan in this table is estimated based on an external source commissioned by the Ministry of Environment in 2020. The commissioned research report "Carbon Pricing Options for Taiwan" (2020) conducted by the research institute serves as the basis for carbon pricing in Taiwan's established policy scenarios. The report recommends charging carbon-related fees from US\$10 for implementation to begin from 2024 and assumes a 10% annual carbon price increase. It is assumed that the preferential tariffs and free allowances are not taken into account. 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. Cheng Shin will re-execute this scenario analysis when the rules for collection of carbon fees are more clarified.

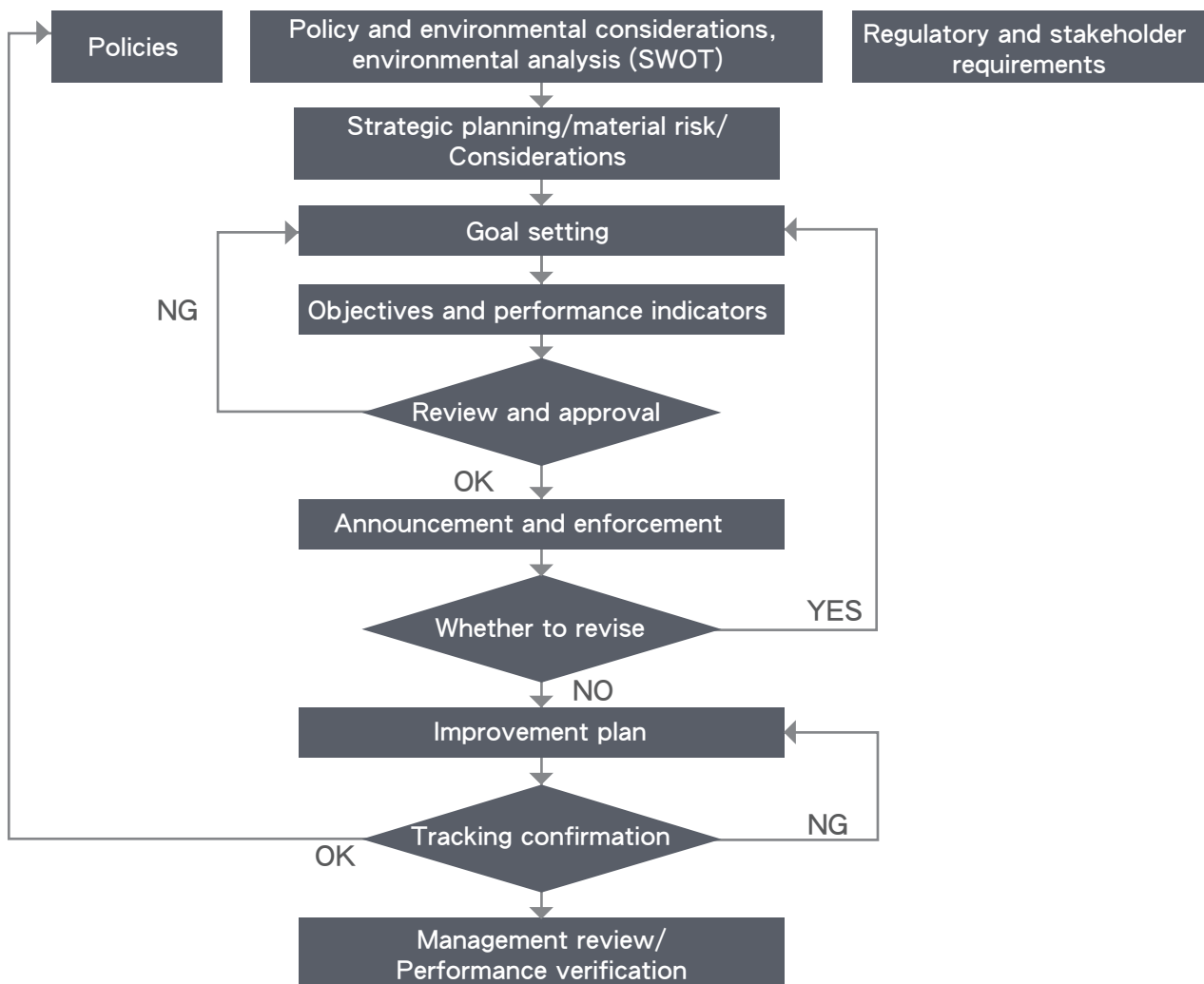
## 2.2. Environmental Management

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

Environmental Communication

Adequate environmental communication and dialogue with stakeholders can enable them to understand Cheng Shin’s emphasis on and 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 residents near the plant. In addition, Cheng Shin also provides channels for telephone complaints about local residents or external stakeholder groups who have concerns about the environmental impact on the local area 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 Mainland China Plants in 2023

Region	External Agencies	Communication / Summary	Internal Handling Situation
Cheng Shin Taiwan	Local Agencies	The public complained about the odor situation, and routine inspections were conducted at the plant.	Provide relevant operation records for preventive equipment and material reports for verification.
	Nearby residents	The public complained about an odor over the phone and requested improvement. After investigation, it was found that the Company did not cause the odor, and responded to the public about the investigation results.	After confirming that all air pollution control equipment in the factory were working properly, we enhanced our inspections. We also conducted odor inspections outside the factory, and no obvious company-produced odor was found.
Mainland China		No related complaints in 2023.	

## 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 2023, the total amount of raw materials used in Taiwan and Mainland China was 109,933 and 554,027 metric tons respectively. The production of tires (including inner tubes) amounted to 108,169 and 550,133 metric tons respectively. The material usage intensity was 0.984 and 0.993 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		2021	2022	2023
Cheng Shin Taiwan		0.993	0.956	0.984
Mainland China	Cheng Shin Kunshan	0.996	0.999	0.992
	Cheng Shin Chongqing	0.994	0.999	0.991
	Cheng Shin Xiamen	0.983	0.995	0.994

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

Years		2023				
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	
Cheng Shin Taiwan		24,546	109,933	22.3%	108,169	0.984
Cheng Shin China	Cheng Shin Kunshan	40,400	159,800	25.3%	158,527	0.992
	Cheng Shin Chongqing	8,416	36,553	23.0%	36,222	0.991
	Cheng Shin Xiamen	112,754	357,674	31.50%	355,384	0.994

### 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 both Mainland China and Cheng Shin Taiwan, 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 2023, the solar photovoltaic system provided 4.29 million kWh annually, reducing about 2,127 tCO<sub>2e</sub> emissions. Mainland China continues to increase the area of solar power generation, reducing a total of

16,196 tCO<sub>2</sub>e emissions in 2023. 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 2023, the energy consumption in Cheng Shin Taiwan and Mainland China was 1,262,546.22 GJ and 5,647,615 GJ respectively. The energy intensity in Taiwan was 11.67 GJ per metric ton, while in Mainland China, it was 9.94 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.

## State of energy use Cheng Shin Taiwan

Energy		Unit	2021	2022	2023
Electricity	Self-consumption and renewable	GWh	0	0	4.30
		GJ	0	0	15,466.53
	Externally purchased non-renewable energy	GWh	219.30	186.86	160.14
		GJ	789,475.29	672,680.56	576,499.57
Natural gas <sup>2</sup>	million kiloliter (kL)	26.20	24.12	19.40	
	GJ	1,077,977.88	992,397.96	649,291.53	
Gasoline	kiloliter (kL)	100.05	92.83	109.69	
	GJ	3,146.57	2,919.50	3,579.63	
Diesel fuel	kiloliter (kL)	95.50	41.71	503.87	
	GJ	3,428.93	1,497.60	17,708.96	
Total self-generated and self-use energy		GJ	0	0	15,466.53
Total Non-Renewable Energy Consumption		GJ	1,669,961	1,481,820	1,247,079.69
Percentage of purchased electricity		%	42.13	40.29	45.66
Renewable energy utilization rate		%	0	0	1.23

Note 1: The source of calorific value refers to the "Greenhouse Gas Emission Coefficient Management Table 6.0.4" published by the Ministry of Environment.

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.

<sup>2</sup> Correction: The heating value of natural gas, gasoline, and diesel was incorrectly stated in 2021 and 2022. They are hereby corrected.

## Cheng Shin China

Energy		Unit	2021			2022			2023		
		Manufacturing Plants	Kunshan	Chongqing	Xiamen	Kunshan	Chongqing	Xiamen	Kunshan	Chongqing	Xiamen
Electricity	Self-consumption and renewable	GWh	0	0	0	0	0	0	0	0	23.765
		GJ	0	0	0	0	0	0	0	0	85,554
	Externally purchased renewable energy	GWh	6.212	0	0	9.390	0	0	11.721	0	0
		GJ	22,363	0	0	33,803	0	0	42,197	0	0
	Externally purchased non-renewable energy	GWh	200.255	61.393	580.850	160.654	44.742	471.450	171.643	40.909	451.560
		GJ	720,916	221,014	2,091,060	578,353	161,072	1,697,220	617,915	147,272	1,625,615
Purchased Steam	Thousand metric tons	331.940	104.018	1,040.190	253.919	69.606	827.050	261.962	61.939	798.670	
	GJ	901,643	282,540	2,886,433	689,710	189,067	2,294,989	711,557	168,242	2,216,248	
Gasoline	Gasoline kiloliter (kL)	108.368	6.721	44.590	75.901	4.553	45.950	82.444	6.274	45.950	
	GJ	3,578	222	1,923	2,506	150	1,982	2,722	207	1,982	
Diesel fuel <sup>3</sup>	Gasoline kiloliter (kL)	290.837	30.959	485.880	233.310	29.986	412.940	220.809	22.739	451.760	
	GJ	10,523	1,120	20,750	8,441	1,085	17,635	7,989	823	19,292	
Total Renewable Energy Consumption	GJ	22,363	0	0	33,803	0	0	42,197	0	85,554	
Total Non-Renewable Energy Consumption	GJ	1,636,661	504,896	5,000,166	1,279,010	351,374	4,011,826	1,340,183	316,544	3,863,137	

Note 1: The energy categories are categorized according to the energy supervision items outlined in Chinese regulations, following the statistical methods and reporting guidelines specified in the Guidelines on Accounting Methods and Reporting of Greenhouse Gas Emission of Enterprises in Industrial and Other Industries.

## Energy Usage Intensity

Region		2021	2022	2023
Cheng Shin Taiwan		11.50	11.84	11.67
Cheng Shin China	Cheng Shin Kunshan	11.04	10.25	9.03
	Cheng Shin Chongqing	10.86	9.77	9.29
	Cheng Shin Xiamen	13.76	12.32	11.50
	Heating value in Cheng Shin China	11.89	10.78	9.94

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

<sup>3</sup> Correction: The quantity of diesel was incorrectly specified in the 2022 ESG report for Xiamen Factory, China. It is hereby corrected.

### 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 2023, the main focus of energy-saving efforts was on process/plant equipment optimization, replacing outdated equipment, and implementing energy-saving control and management measures.

Through the direct measurement and integration of the implemented energy conservation plans in 2023, greenhouse gas emissions can be reduced. In Taiwan and China, 3,121.71 tons and 67,631.81 tons of CO<sub>2</sub>e emissions can be reduced, for a total of 70,753.52 tons of CO<sub>2</sub>e emissions.

#### Major Energy Saving Initiatives:

Region	Item	Content	Annual Energy Saving Performance		Annual Carbon Reduction Performance (tCO <sub>2</sub> e)
Cheng Shin Taiwan	Equipment upgrades and optimization	The purpose of carbon reduction can be achieved by modifying the operation of the equipment or modify the equipment.	466,300 kWh	1,678.68GJ	230.82
	Replacement with energy-saving equipment	Replace old equipment with more energy-efficient equipment.	1,381,400 kWh	4,973.04GJ	683.80
	Technical optimization	Application of production technology or equipment technology transformation, in order to achieve the purpose of carbon reduction.	2,200 kWh	7.92GJ	1.09
	Green energy use	Solar system installation	4,460,000 kWh	16,056.0GJ	2,206
				Total	3121.71
Cheng Shin China	Equipment upgrades and optimization	The purpose of carbon reduction can be achieved by modifying the operation of the equipment or upgrading the equipment	1.Electricity Capacity: 1,602,300 kWh 2.Steam:5,884 tons	5,784.17GJ	2,090.00
	Technical optimization	Upgrade production technology or equipment technology transformation, in order to achieve the purpose of carbon reduction.	1.Electricity Capacity: 3,703,100 kWh 2.Steam: 42,049 tons	13,444.69GJ	49,345.81
	Green energy use	Continuously increase installed solar power generation capacity.	43,190,000 kWh	155,484.00GJ	16,196.00
				Total	67,631.81

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 at Taiwan plants refers to the electricity emission coefficient announced by the Bureau of Energy, citing the electricity coefficient for 2023 provided in the announcement issued on April 26, 2024.

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<sub>2</sub>e/GJ, emission coefficient for electricity: 5.703 CO<sub>2</sub>e/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, Cheng Shin Taiwan officially adopted the ISO 14064-1:2018 version for greenhouse gas inventory procedures. Furthermore, in accordance with the Financial Supervisory Commission's "Sustainable Development Guidemap for TWSE- and TPEX-Listed Companies" released in March 2022, Cheng Shin has planned a schedule for greenhouse gas inventory and verification for the Group. A comprehensive greenhouse gas inventory is being conducted across all facilities, and 2023 was originally set as the baseline year for energy conservation and carbon reduction, which was later brought forward to 2019 after the meeting of the Energy Saving and Carbon Reduction Committee; the total greenhouse gas emissions of the factories in Taiwan and China in 2023 were 121,801.937 and 552,534.663 tons of CO<sub>2</sub>e, 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<sub>2</sub>e

Region		Item	2021	2022	2023
Cheng Shin Taiwan		Category I: Direct Emission	54,885.000	56,656.489	42,670.504
		Category II: Energy Indirect Emission	110,088.000	89,791.780	79,131.433
		Total	164,973.000	146,448.270	121,801.937
		Scope 3 other indirect emissions	NA	NA	306,173.638
Cheng Shin China	Cheng Shin Kunshan	Category I: Direct Emission	1,006.790	787.310	764.752
	Cheng Shin Chongqing		96.370	88.960	73.785
	Cheng Shin Xiamen		1,338.676	1,156.553	388.11
	Cheng Shin Kunshan	Category II: Energy Indirect Emission	235,934.623	185,578.000	176,159.366
	Cheng Shin Chongqing		73,004.551	51,307.700	41,837.000
	Cheng Shin Xiamen		817,548.026	658,538.618	333,311.650
			1,128,929.036	897,457.141	552,534.663

Note 1: The data for Taiwan is calculated by referring to the "Greenhouse Gas Emission Coefficient Management Table 6.0.4" published by Ministry of Environment.

Note 2: GWP values for greenhouse gas type are based on the IPCC Fourth Assessment Report (2007).

Note 3: The carbon emission coefficient for electricity is referenced from the announcement by the Bureau of Energy on April 26, 2023, based on the 2023 electricity carbon emission coefficient.

Note 4: The data for the mainland region is calculated by referring to the "Guidelines on Accounting Methods and Reporting of Greenhouse Gas Emission" issued by the National Development and Reform Commission of China in 2014.

## GHG emissions intensity

Unit: tCO<sub>2</sub>e

Region		2021	2022	2023
Cheng Shin Taiwan		1.130	1.170	1.120
Cheng Shin China	Cheng Shin Kunshan	1.517	1.402	1.116
	Cheng Shin Chongqing	1.483	1.416	1.157
	Cheng Shin Xiamen	1.353	1.221	0.930

Note: GHG emission intensity = (Scope 1 + Scope 2 GHG emissions) (tCO<sub>2</sub>e) / total product weight (t)

## Greenhouse gas emissions by category

Unit: tCO<sub>2</sub>e

Region	Item	2021	2022	2023
Cheng Shin Taiwan	Carbon dioxide (CO <sub>2</sub> )	68,031.30	144,240.89	121,185.91
	Methane	257.13	487.46	495.43
	Nitrous oxide	43.48	53.49	63.45
	Hydrofluorocarbons (HFCs)	27.41	526.43	198.13
	Perfluorocarbons	0.00	0.00	0
	Sulfur hexafluoride (SF <sub>6</sub> )	0.00	1,140.00	0
	Nitrogen trifluoride (NF <sub>3</sub> )	0.00	0.00	0

Note 1: During the reporting period in Mainland China, external inventory has not been introduced yet. Therefore, this table has been intentionally left blank due to lack of data.

## 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, the Company's Board of Directors conducts the 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 based on materiality criteria. Eight climate change risks and opportunities have been identified, integrating Cheng Hsin'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).

CATEGORY	Potential Risks and Opportunities	Point of Impact	Financial 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 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 head factory and Xizhou Plant are subject to a carbon tax on the greenhouse gas emissions in 2024, resulting in an increase in operating costs.	Participate in industrial associations, negotiate with the government on greenhouse gas caps. Promote greenhouse gas reduction efforts proactively and continue to enhance the efficiency of equipment.
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". For example: Emergency Response Plan Operation Process, Emergency Response Contact System, and Disaster Response Management, etc.



				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	Anti-closing 3DSipe technology ensures that tires maintain excellent performance. Maintain product quality and enhance market competitiveness and sales volume. High wet grip 4S white smoke tread formula technology, optimize the product wet grip, enhance market competitiveness and sales volume.	Development of new generation products for each tire category.

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 head factory and Xizhou Plant are subject to a carbon tax on the greenhouse gas emissions in 2024, resulting in an increase in operating costs.	Participate in industrial associations, negotiate with the government on greenhouse gas caps. Promote greenhouse gas reduction efforts proactively and continue to enhance the efficiency of equipment.

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". For example: Emergency Response Plan Operation Process, Emergency Response Contact System, and Disaster Response Management, etc. 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: Cheng Shin has no transformation plan in response to climate-related risk management for the time being.

7. If internal carbon pricing is used as a planning tool, elaborate on the basis for setting the price.

Implementation status: Cheng Shin does not use internal carbon pricing as a planning tool.

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. Carbon offset and renewable energy certificates have not yet been used.

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<sub>2e</sub>), intensity (metric tCO<sub>2e</sub>/NTD million), and data coverage for the most recent two years.

Scope of Implementation for Verification/Assurance		Emissions in 2022 (Metric tons CO <sub>2e</sub> )	Emissions in 2023 (Metric tons CO <sub>2e</sub> )
Cheng Shin parent company	Scope 1	No Verification/Assurance	42,670.5037
	Scope 2		79,131.4331
	Total		121,801.9368
	As a percentage of the inventory data disclosed above		100%
Consolidated financial statements of some subsidiaries	Scope 1	No Verification/Assurance	No Verification/Assurance
	Scope 2		
	Total		
	As a percentage of the inventory data disclosed above		
Verification/Assurance Institution			AFNOR ASIA LTD.
Description of verification/assurance			ISO14064:2018 Reasonable assurance level
Verification/assurance opinion conclusion			None

2023, Cheng Shin parent company's greenhouse gas emission intensity was 6.9812 metric tons CO<sub>2e</sub>/NTD 1 million.

### 1-1-2 Greenhouse Gas 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 2022 greenhouse gas emission data are inspected based on ISO14064-1:2006, while there was no external verification.

In 2023, the annual emission data will be inventoried and externally verified according to the ISO 14064-1:2018 version.

Assurance scope: All plants in Taiwan (including Main Plant, Plants 2, 3, Zhongzhuang, Xizhou, Douliou 1, Plants 2, and 5)

Assurance institution: The external verification is entrusted to AFNOR Asia Ltd..

Date of assurance: Stage 1: April 17-19, 2024; Stage 2: April 29, 2024

### 1-2 Greenhouse gas reduction goals, strategies and concrete action plans

Describe the greenhouse gas 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 baseline year for greenhouse gas reduction. The reduction target is to reduce emissions by 22% in 2030 compared to the baseline 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 2023, greenhouse gas emissions can be reduced. In Taiwan and China, 3,121.71 tons and 67,631.81 tons of CO<sub>2e</sub> emissions can be reduced, for a total of 70,753.52 tons of CO<sub>2e</sub> emissions.

## 2.4. Water Resource Management

### 2.4.1. Water Use Management

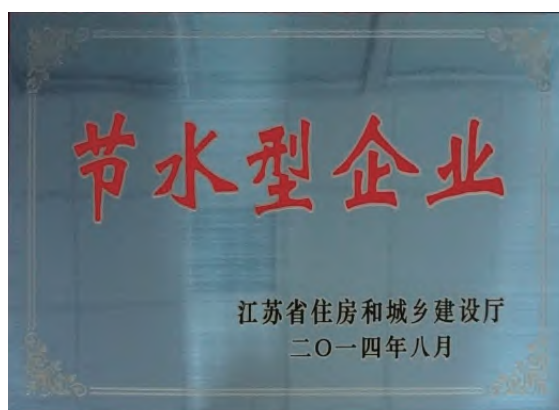
Due to climate change, water resources are becoming increasingly scarce. Both developed and developing countries have been affected by dwindling water resources. Moreover, in the Global Risk Report of the World Economic Forum issued over the past three years, "water crises" around the world have been 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 2023, the total water consumption in Taiwan and the Mainland was 828.532 and 620.884 million liters, respectively. Due to production adjustments and the improvement of employees' water conservation awareness, the total water consumption was reduced by 27.20% compared to the Mainland in 2022. In Taiwan, the water resources in 2023 decreased. The statistics include the water supply of three factories and third-party parks, resulting in a significant increase in water volume.

#### Water Withdrawal Over the Past Three Years

Unit: megaliters

Region		Item	2021	2022	2023
Cheng Shin Taiwan		Running Water	288.722	236.964	212.235
		Groundwater	790.964	517.786	474.850
		Third Party Park Water Supply	NA	NA	141.447
		Total	1,079.686	754.751	828.532
Cheng Shin China	Cheng Shin Kunshan	Running Water	399.040	360.357	302.587
	Cheng Shin Chongqing		36.134	34.304	32.037
	Cheng Shin Xiamen		532.062	458.149	286.260
	Total		967.236	852.810	620.884

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 in 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 Cheng Shin Taiwan's 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). Wastewater discharge in the Company's Mainland China operations decreased by 4.9% compared to the previous year. The reason for the decrease in wastewater discharge volume in 2023 for Kunshan Cheng Shin: There were fewer people living in the dormitories. The calculation of the daily living flow volume was made based on the daily point inspections. If abnormalities are found, the personnel will contact the vendors immediately to carry out calibration. In upper half of March and April, the flow meter was defective. Hence, there were no measurement records during the recovery process. In terms of wastewater discharge destinations, some of the Company's wastewater discharge in Taiwan and Mainland China are pre-treated at in-plant treatment stations and then discharged it to municipal or industrial park wastewater treatment plants, while in some areas, the wastewater is treated in-plant and then discharged to natural water bodies. In 2023, the total wastewater discharged in Cheng Shin Taiwan and Cheng Shin Mainland China was 327.060 and 425.013 million liters respectively.

### Wastewater Discharge over the Past Three Years (water discharge) Unit: megaliters

Region		Wastewater characteristics	2021	2022	2023
Cheng Shin Taiwan		Mainly consists of domestic wastewater and cooling wastewater	555.293	374.999	327.060
Cheng Shin China	Cheng Shin Kunshan	Mainly domestic wastewater and steam condensate wastewater	311.910	342.122	246.986
	Cheng Shin Chongqing		47.450	30.275	23.027
	Cheng Shin Xiamen	Domestic wastewater	21.160	74.327	155.000
	Total		380.520	446.724	425.013

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

Note 2: Waste water in Mainland China is measured by flowmeters specified by the government and connected to the government for measurement. The equipment is verified by the Quality Assurance Department once a year.

## Water Consumption

Water consumption is calculated by subtracting the wastewater discharge from the water withdrawal. In 2021, Cheng Shin Chongqing experienced an increase in water consumption due to steam leakage, which has been resolved after repair.

### Water Consumption in the Recent Three Years

Unit: megaliters

Region		Wastewater characteristics	2021	2022	2023
Cheng Shin Taiwan		Mainly consists of domestic wastewater and cooling wastewater	524.393	379.752	501.472
Cheng Shin China	Cheng Shin Kunshan	Mainly domestic wastewater and steam condensate wastewater	87.13	18.235	55.601
	Cheng Shin Chongqing		-11.316	4.029	9.010
	Cheng Shin Xiamen	Domestic wastewater	510.902	383.822	131.260
	Total		586.716	406.086	195.871

## 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 through particularly 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 wastewater 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 2023 all met the standards for wastewater discharge in accordance with the requirements of the 3-phase environmental assessment for technical renovation and in compliance with the "Emission Standards of Pollutants for the Rubber Products Industry" (GB27632-2011), the water quality tests in the Mainland region in 2023 met the implementation standards.

## Cheng Shin Taiwan

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(°C)	5-9月38°C 10-4月35°C	45	29.4	30.1
Suspended solids(mg/L)	30	320	12.3	<1
Biochemical oxygen demand(mg/L)	30	320	6.6	6.4
Chemical oxygen demand(mg/L)	100	480	28.2	26.5
pH	6-9	5-9	7.8	8.1
Oil and grease(mg/L)	10	10	9.4	<0.5

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).

## Cheng Shin China

Water Quality Item	Water Quality Standards of Mainland China		Effluent Testing of Mainland China		
	Kunshan	Cheng Shin Chongqing and Xiamen	Kunshan	Chongqing	Cheng Shin Xiamen
pH value	6-9		7.1	/	7.2
COD(mg/L)	70	≦ 300	22	27	26
SS(mg/L)	40	≦ 150	9	8	2
NH3-N(mg/L)	10	≦ 30	0.273	1.90	0.588
TP(mg/L)	0.5	≦ 1	0.02	0.14	0.08
TN(mg/L)	15	-	3.54	8.12	3.23
Petroleum(mg/L)	1	≦ 10	ND	0.36	0.35
BOD5(mg/L)	20		4.9	/	5.3

## 2.5. Waste Management, Recycling and Reuse

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 (scraps) waste includes items such as waste rubber, metal waste, plastic waste, discarded pallets, and waste paper/cardboard. These materials are collected separately and then handed over to local authorized recycling operators for recycling. This process enhances the lifecycle of waste materials by promoting resource recovery and reuse. 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.
- ◆ The total amount of waste generated in Taiwan and Mainland China operations in 2023 includes domestic waste, general and hazardous business waste, with a total of 2,931.508 and 14,663.404 tons respectively.

### Waste generation and treatment statistics

Unit: tons

Region		2021	2022	2023
Cheng Shin Taiwan		3,933.780	2,992.840	2,931.508
Cheng Shin China	Cheng Shin Kunshan	8,503.525	5,874.651	5,828.131
	Cheng Shin Chongqing	762.470	582.596	558.370
	Cheng Shin Xiamen	8,950.253	8,123.813	8,276.903
	Total	18,216.248	14,581.060	14,663.404

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		
Cheng Shin Taiwan	Domestic waste	119.87	0.00	0.00	119.87	4.09%
	General Business Waste	288.23	102.37	2,420.80	2,811.40	95.90%
	Hazardous Waste	0.24	0	0	0.24	0.01%
	Total				2,931.51	100.00%



Region	Waste type	Disposal method (Unit : metric tons)			Total	%	
		Incineration	Landfill	Recycling			
Cheng Shin China	Cheng Shin Kunshan	Domestic waste	4.2	/	32.8	37	0.63%
		General Business Waste	244.68	/	5,260.181	5,504.86	94.45%
		Hazardous Waste	139.673	/	146.597	286.27	4.91%
		Total				5,828.13	100%
	Cheng Shin Chongqing	Domestic waste	68.76	0.00	0.00	68.76	10.48%
		General Business Waste	0.00	28.96	498.35	527.31	80.37%
		Hazardous Waste	5.51	0.08	54.43	60.02	9.15%
		Total				656.09	100.00%
	Cheng Shin Xiamen	Domestic waste	454.717	0	0	454.72	5.49%
		General Business Waste	494.54	0	7,097.9	7,592.44	91.73%
		Hazardous Waste	161.833	15.821	52.092	229.74	2.78%
		Total				8,276.90	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 waste is 43.92%.

## 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 Cheng Shin Taiwan, 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		2021	2022	2023	
Cheng Shin Taiwan	Oxysulfide	0.00	0.00	0	
	Nitrogen Oxides	49,140	43,520	32,680	
	Volatile Organic Compounds	139,220	131,860	122,020	
	Particulates	1,110	1,100	896	
	Total	189,470	176,840	155,596	
Cheng Shin China	Cheng Shin Kunshan	Volatile Organic Compounds	7,020	8,100	7,116
		Particulates	11,620	9,800	7,479
		Hydrogen sulfide(H <sub>2</sub> S)	110	30	279
		Total	18,750	17,930	14,874
	Cheng Shin Chongqing	Volatile Organic Compounds	2,514	1,380	2,050
		Particulates	521	321	480
		Hydrogen sulfide(H <sub>2</sub> S)	50	22	38
		Total	3,085	1,723	2,568
	Cheng Shin Xiamen	Volatile Organic Compounds	56,825	47,593	87,560.14
		Particulates	23,481	14,160	10,791.07
		Total	80,306	61,753	98,351.21

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.

Sulfur oxides: NIEA A413.76C; nitrogen oxides: 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.

## 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 2023, Cheng Shin China region had four 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.

### Air pollution emissions over the past three years

Region		Name of Laws or Regulations Violated	Causes/Circumstances of Violation	Amount of Fines Imposed	Improvement Plan
Cheng Shin Taiwan		None			
Cheng Shin China	Cheng Shin Xiamen	Paragraph 2, Article 18 of the Regulation on the Administration of Permitting of Pollutant Discharges	12 exhaust stacks that were not listed in the pollution discharge permit	CNY 30,125	Exhaust stack rectification and pollution discharge permit revision have been completed.
Cheng Shin China	Cheng Shin Xiamen	Article 18 of the Regulation on the Administration of Permitting of Pollutant Discharges	The average concentration of non-methane total hydrocarbons exceeding the standard at the monitoring point 1 meter away from the refining machine in Workshop 502.	CNY 123,435	Passed the outsourced monitoring of the consolidated wind management system.
Cheng Shin China	Cheng Shin Xiamen	Article 45 of the Atmospheric Pollution Prevention Law	Check the door of 3B Procedure Room of calendering workshop 102 which is not closed.	CNY 22,571	Purchase and install automatic closing doors to prevent recurrence.
Cheng Shin China	Cheng Shin Xiamen	Paragraph 1, Article 20 of the Atmospheric Pollution Prevention Law	The height of the 101A exhaust pipe of mixed exhaust gas does not meet the legal requirements.	CNY 28,357	A rectification plan has been formulated and rectification implemented as planned.