



### 3

## Create Friendly Environments


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## 3.1 Eco-friendly Management

Environmental protection and pollution prevention form an integral part of our corporate management strategy. Since June 1998, TTC has implemented the ISO 14001 Environmental Management System, providing a robust framework for environmental protection across all our factories. This approach not only controls and minimizes our environmental impact but also prevents accidents that might harm the environment, ensuring compliance with relevant regulations.

We have integrated the environmental management system with our occupational health and safety system, establishing a comprehensive environmental, health, and safety (EHS) policy. Regular EHS training sessions are conducted to cultivate a safe and healthy working environment.

**TTC's Environmental, Health, and Safety Policy**

<h3 style="color: #008080;">Corporate Promise</h3> <ul style="list-style-type: none"> <li>Firm commitment to compliance with governmental regulations.</li> <li>Fulfill Corporate Social Responsibility</li> </ul>	
<ul style="list-style-type: none"> <li>Effective implementation of management cycles.</li> <li>Preventative measures to mitigate hazards and reduce risks.</li> </ul>	
<ul style="list-style-type: none"> <li>Emphasis on the concept of responsible care.</li> <li>Prioritizing the needs of employees and the public.</li> </ul>	
<ul style="list-style-type: none"> <li>Continuous improvement to enhance performance.</li> <li>Ensuring sustainable business operations.</li> </ul>	

Depending on the importance of our products, TTC evaluates its production processes in terms of hazardous substance management, pollution prevention, energy conservation, water saving, and carbon reduction. The objective is to achieve high safety standards and low pollution in production. Moreover, we set our environmental goals and targets, and devise management plans or other improvement measures. These initiatives are continually implemented, reviewed, and monitored to ensure best practices are consistently followed.

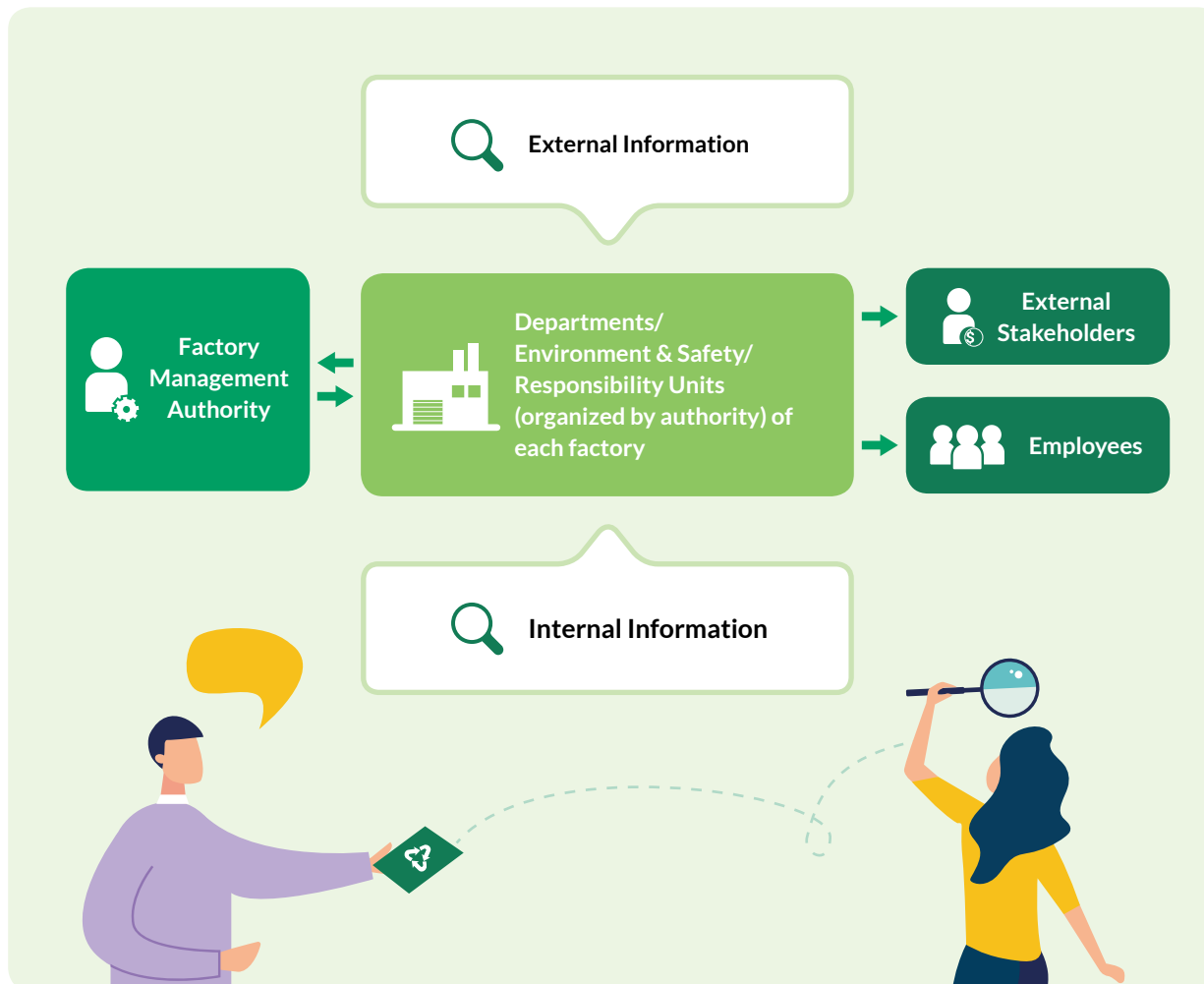
### 3.1.1 Environmental Management Organization

To effectively implement the environmental, health, and safety (EHS) management system and promote EHS awareness among employees, we have established the EHS Management Committee. The President serves as the chairman of this committee, and under its umbrella, there are EHS management sub-committees established at each factory. The EHS Management Committee convenes a management review meeting at least once a year. Meanwhile, the management sub-committees in each factory hold an occupational safety and health committee meeting at least once every three months and an EHS execution team meeting every two months. These meetings are dedicated to regular discussions and reviews of topics related to environmental, health, and safety issues.



### 3.1.2 ESH Grievance Channels GRI 2-25

The TTC has established, implemented, and maintained the Operation Regulations for Occupational Safety, Health and Environment Information Collection and Communication as channels and procedures for the communication, engagement, and consultation of environment-related topics for internal stakeholders (employees, employee welfare committee, labor/management meetings, occupational safety and health committee meetings) as well as external stakeholders (customers, suppliers, ESH competent authorities, community residents, and environmental groups).



#### Internal Complaint and Communication Procedures

1. Employees can consult and communicate on occupational safety, health, and environmental matters through channels such as the Occupational Safety and Health Committee meetings, Environmental and Safety meetings, and the employee complaint mailbox.
2. When employees have suggestions related to occupational safety, health, or environmental issues, they can also follow the proposal improvement system procedure.
3. If employees have complaints about occupational safety, health, or environmental concerns, they can address them through the administrative system or directly approach the Environment & Safety unit.

#### External Complaint and Communication Procedures

1. After receiving an HSE grievance from outside the organization over the phone (07-7040988), orally or in writing, TTC will refer the case to the responsible unit to verify the contents of the grievance and register it in the "Occupational Safety, Health and Environment Information Collection and Communication Form". After a case has been confirmed, a proper response will be made.
2. Information related to the EHS policy is available on the company's website for public access and consultation.

### 3.1.3 Environmental Investment

In 2022, the environmental expenditure of TTC totaled NT\$200 million, a 26.9% increase from 2021. The primary reason for this increase is due to the escalation of environmental protection improvement projects in recent years.

The expenditure categories associated with TTC's environmental management are as follows:

#### Environmental Management Expenditure Overview Table for the Last Three Years

Unit: NT\$10K

Category	2020	2021	2022
1. Cost for environmental management activities	2,750	4,074	3,267
2. Environmental-protection-related personnel expenses	1,788	1,862	1,919
3. Equipment maintenance cost	1,744	2,814	2,012
4. Environmental Improvement Project Costs	7,685	7,046	12,846
<b>Total</b>	<b>13,967</b>	<b>15,796</b>	<b>20,043</b>

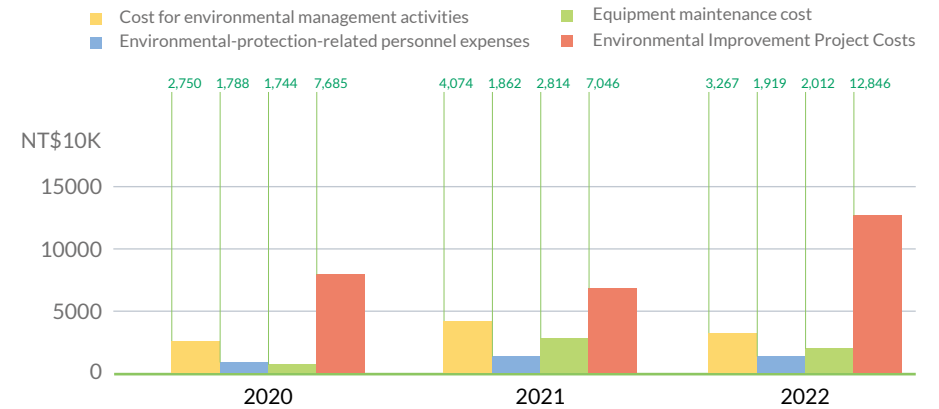
Note 1: Environmental Management Activity Costs: Includes costs related to air pollution control, water pollution control, waste disposal, noise control, and others (e.g., air pollution control expenses, soil and groundwater pollution control expenses, maintenance costs for setting up air quality monitoring facilities in the Linyuan Industrial Zone, etc.).

Note 2: Environmental-protection-related personnel expenses include personnel expenses and environmental protection-related training fees.

Note 3: Equipment Operation & Maintenance Costs: Encompasses expenses associated with the operation, maintenance, and upkeep of equipment for environmental protection and control.

Note 4: Environmental Improvement Project Costs: Covers the expenditure for projects related to environmental enhancements.

#### Environmental Management Expenditure Distribution for the Last Three Years



## 3.2 Climate Change and Energy Management GRI 3-3, GRI 302 (302-1, 302-3, 302-4), GRI 305 (305-1, 305-2, 305-4, 305-5)

- **Material Topics:** Climate Change and Energy Management
- **Major reason:** The global average temperature is on the rise due to climate change. This is closely linked to energy consumption. As TTC operates within an energy-intensive industry, the energy efficiency of our production processes is a primary focus. In addition to proactive management within our facilities, we continue to implement energy-saving and carbon-reducing measures. This is especially crucial as government agencies are stepping up their oversight of carbon emissions, preparing us to handle potential future impacts.
- **Impact Scope:** Impact Boundaries: Government agencies, partners, community, and employees
- **Alignment with Sustainability Principles and SDGs:** Create a Friendly Environment/SDGs 13 Climate Action
- **Management approaches**



Policy Purpose	Reduce the environmental impact of energy and greenhouse gas emissions, meeting both national regulatory requirements for reductions and the group's energy-saving and carbon reduction targets. With 2017 as the benchmark year, we have set short-, medium-, and long-term reduction goals. <b>Benchmark Year:</b> The year 2017 is chosen as the reference because it reflects a period where most of our factories operated at optimal capacity utilization.
Goals	<b>2022 Goals</b> 1. Reduce energy consumption per unit product by 3% 2. Greenhouse gas emissions reduced by 7.16% compared to the base year
	<b>Short-term goals for 2023</b> 1. Reduce energy consumption per unit of product by 3% 2. Greenhouse gas emissions reduced by 9% compared to the base year
	<b>Medium- &amp; Long-Term Goals in 2030</b> 1. Reduce energy consumption per unit product by 5% 2. Greenhouse gas emissions reduced by 27% compared to the base year
Management Plan	1. Introduce or update equipment to decrease energy consumption. 2. Strictly monitor energy consumption in the factory. If anomalies arise, carry out maintenance or update equipment accordingly.
Evaluation of the Management	"Energy consumption per unit of product" and "annual reduction rate of greenhouse gas emissions" are set as key performance indicators. An evaluation report is presented to the management, and a review meeting is held annually to assess the performance of the previous year. This helps in proposing improvement measures and verifying their effectiveness.

Assessment Mechanism	1. Conduct monthly statistical analysis on energy consumption to systematically understand the reasons for any increases or decreases. 2. Establish monitoring, testing equipment, and forecasting methods to observe factory energy consumption and control and eliminate anomalies in real-time. 3. Continuously implement the ISO 14064-1 greenhouse gas verification system to systematically survey greenhouse gas emission situations and periodically review various energy-saving and carbon-reducing plans. 4. Persistently carry out the ISO 50001 energy management system to manage energy wastage systematically.
Assessment Result	1. Energy consumption per unit product 2. GHG emissions
Negative Impact Remedies and Preventive Measures	In case of power shortages leading to production interruptions: Plans have been made to install generators to ensure backup power is available during power outages.
Policy Adjustment	Proposals for improvements concerning unmet targets are presented and reviewed during management review meetings.
Grievance Mechanism	Details can be found in Section 3.1.2 under the ESH Grievance Channels.

### Status and description for goal achievement

Management Plan	2022 Goals	2022 Achievements	Explanation (including reasons for non-achievement)
Review and Follow-up of Energy-saving and Carbon Reduction Management Plan	Reduce energy consumption by 3%	Energy consumption decreased by 7.39%	The goal has been achieved
	Greenhouse gas emissions reduced by 7.16% compared to the base year	In 2022, greenhouse gas emissions amounted to 65,700 tons, which is a 17.56% reduction compared to the benchmark year	The goal has been achieved

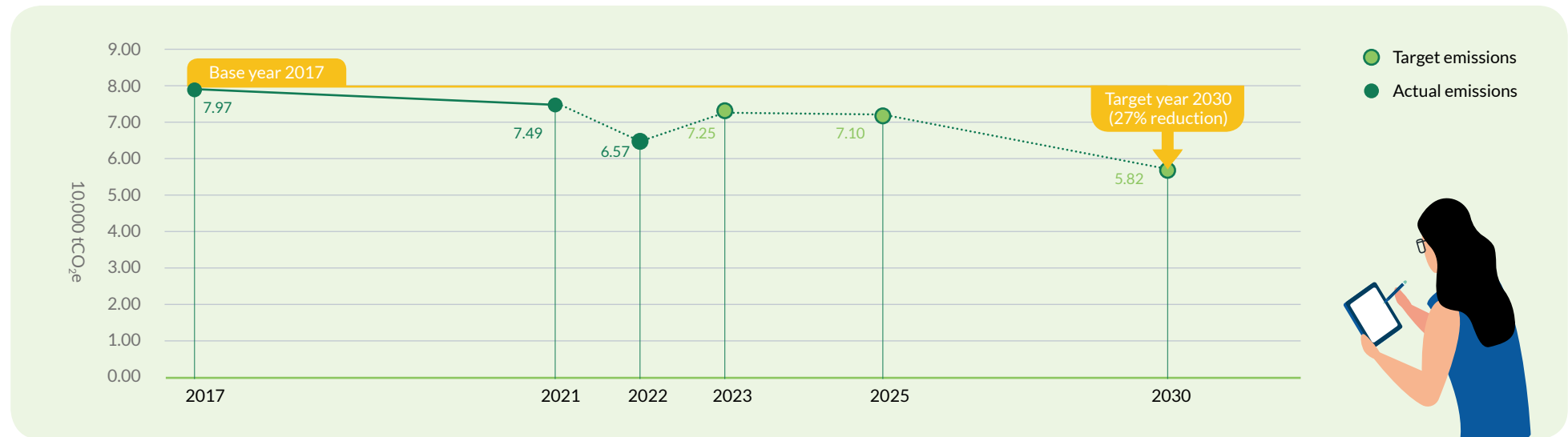
### 3.2.1 Climate Change

- Climate Change Risk Management

Climate change is a common challenge around the world. To keep up with the world and match the demand for sustainable development, Taiwan's legislature passed the Climate Change Response Act in January 10, 2023. Facing the impact of climate change, carbon reduction has become a global goal. To enhance carbon reduction, we set the 2030 carbon reduction target at "27% less than 2017 by 2030" in early 2022 to actively implement countermeasures and management mechanisms. Nine core businesses of the group will continue to implement ISO 14064-1 GHG inventory and verification and plan and implement carbon reduction programs. The group will also actively develop external renewables sites. By the end of 2022, the accumulative on-grid capacity of solar PV sites has reached 5.9MW.

Following the Group's 2030 carbon reduction targets, TTC has planned its path to carbon reduction. As of 2022, greenhouse gas emissions have decreased by 17.56% compared to the benchmark year (2017). In the future, we will be more proactive in implementing energy-saving and carbon-reducing schemes, enhancing energy-use efficiency, utilizing renewable energy, employing low-carbon fuels, actualizing our carbon reduction targets, and promoting sustainable development.

#### TTC's Taiwan Plant Carbon Reduction Pathway Targets Graph



Note: The data includes Linyuan Factory, Qianzhen Factory, and Toufen Factory, but excludes Zhongshan Factory.

At TTC, the ESG Committee is the highest governance body of climate change management. Chaired by independent directors, the committee reviews the Company's climate change strategies and targets every year, manages the actions and reviews the performance in climate change risks and opportunities, and reports to the Board. Based on the framework recommended by the Task Force on Climate-related Financial Disclosures (TCFD), we identify climate-related risks and opportunities, assess risks and opportunities from different departments, assess financial impacts and set responsive plans, plan overall assessment every three years, and review updates every year. The last assessment was completed in 2021.

## Climate Change Management Framework

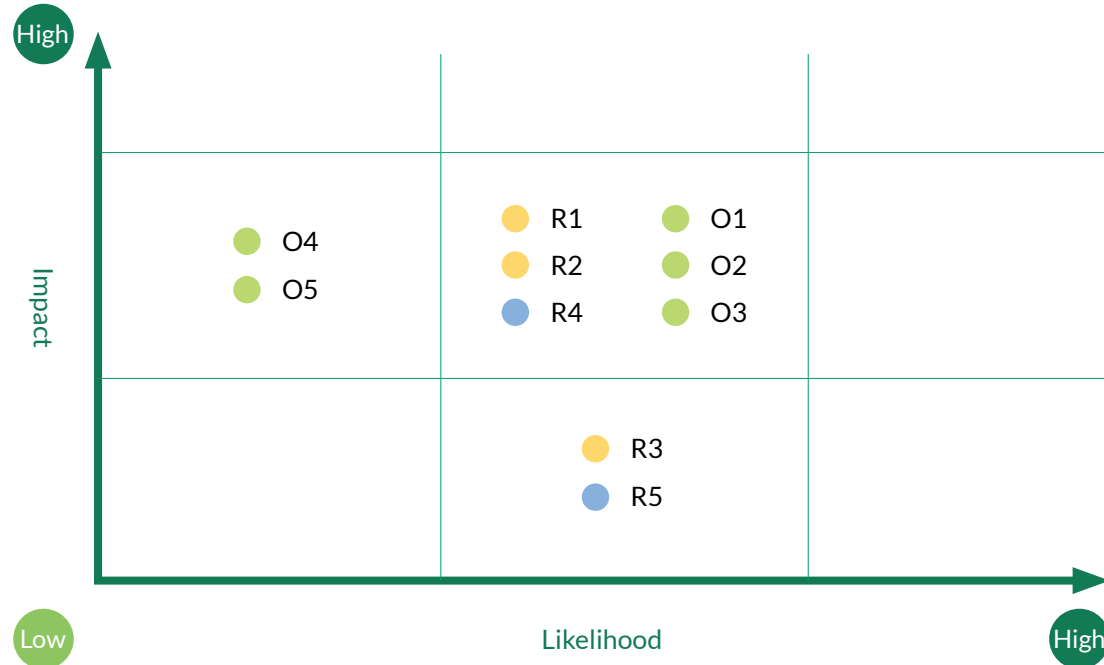
### Management strategy and action

<p>Governance</p>	<ul style="list-style-type: none"> <li>• <b>ESG Committee:</b> As the highest governance body of climate change management chaired by independent directors, it reports climate change planning, implementation and performance to the Board every year.</li> <li>• <b>Operations Management Meeting:</b> Chaired by the Board chairman, it plans and implements material policies for energy conservation and carbon reduction and reports the results from time to time.</li> <li>• <b>Division of Equipment Preventive Maintenance and Environmental Risk Control Quarterly Meeting:</b> As the highest governance body of the Group's energy management, it reports the planning and progress to the Group's chairman each quarter and makes decisions on energy management.</li> <li>• <b>Group Green Power Team:</b> As the Group's responsible unit for green power promotion, it reports the status of and future plans for green power development of the chairperson.</li> </ul>
<p>Strategy</p>	<ul style="list-style-type: none"> <li>• <b>Identification of risks and opportunities:</b> Identify material risks and opportunities based on their likelihood and impact.</li> <li>• <b>Assessment of risks and opportunities:</b> Assess the potential financial impacts of identified material risks and opportunities.</li> <li>• <b>Scenario analysis:</b> Set plans to achieve net zero emissions in different scenarios.</li> </ul>
<p>Risk Management</p>	<ul style="list-style-type: none"> <li>• <b>Implementation of TCFD-recommended framework:</b> Identify risks and opportunities based on the TCFD-recommended framework, communicate with all responsible units, and confirm by senior management.</li> <li>• <b>Report of identification results:</b> Include them in the annual risk assessment. The president reports the control measures and management performance to the Audit Committee and Board every year.</li> </ul>
<p>Indicators and Targets</p>	<ul style="list-style-type: none"> <li>• Under the overarching carbon reduction goal of the group, an energy management objective was established, setting 2017 as the benchmark year with a target of a 27% reduction in carbon emissions by 2030.</li> <li>• <b>Climate change countermeasures:</b> Equipment replacement, construction of renewables facilities, optimization of production scheduling, planning building aircon, energy management system, extreme weather events contingency plans.</li> <li>• <b>GHG emissions disclosures:</b> Disclose the data of Scopes 1 and 2 emissions in the ESG report every year and review the causes for changes periodically.</li> </ul>

## Identification of Climate Risks and Opportunities

The impact of climate change on TTC's operations has been increasing. To carefully tackle potential risks and capture potential new business opportunities, we have spared no efforts in implementing programs to enhance energy conservation and carbon reduction, improving production efficiency, and replacing old equipment with high-efficiency equipment. During operations, we have identified 5 major risks and 5 major opportunities with the TCFD-recommended methods and assessed and differentiated the duration of impacts. In the future, we will review our progress annually to foster a resilient culture adapted to climate change.

### Climate-Related Risks and Opportunities Matrix Graph



#### Physical risk

- R1 Changes in precipitation patterns and extreme variability in weather patterns
- R2 Increased severity of extreme weather
- R3 Average temperature rises

#### Transition risk

- R4 Enhance GHG Emission Pricing
- R5 Enhance emission report obligation

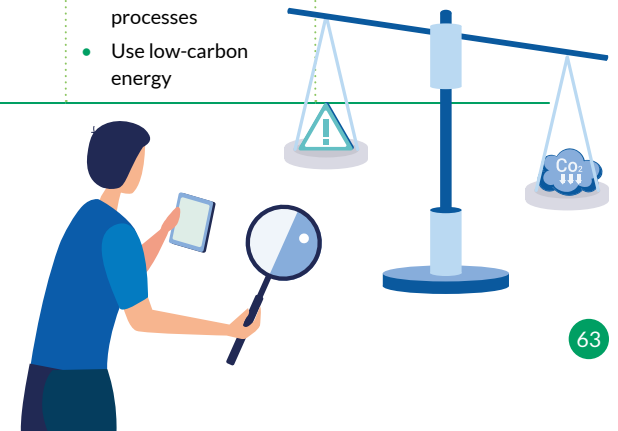
#### Opportunity

- O1 Recycling and reuse
- O2 Participation in renewables projects and adoption of energy conservation measures
- O3 Reduce water use and water consumption
- O4 Use of higher efficient production and distribution processes
- O5 Use low-carbon energy

The climate change risks and opportunities by the identified duration are tabulated below:

### Overview Table of Short, Medium, and Long-Term Climate Change Risks and Opportunities

Type	Short-term (<3 years)	Medium-term (3-5 years)	Long-term (>5 years)
Physical risk	---	<ul style="list-style-type: none"> <li>Increased severity of extreme weather events</li> </ul>	<ul style="list-style-type: none"> <li>Changes in precipitation patterns and extreme variability in weather patterns</li> <li>Average temperature rises</li> </ul>
Transition risk	---	<ul style="list-style-type: none"> <li>Enhance GHG Emission Pricing</li> <li>Enhance emission report obligation</li> </ul>	---
Opportunity	---	<ul style="list-style-type: none"> <li>Recycling and reuse</li> <li>Participation in renewables projects and adoption of energy conservation measures</li> <li>Reduce water use and water consumption</li> <li>Utilize more efficient production and distribution processes</li> <li>Use low-carbon energy</li> </ul>	---



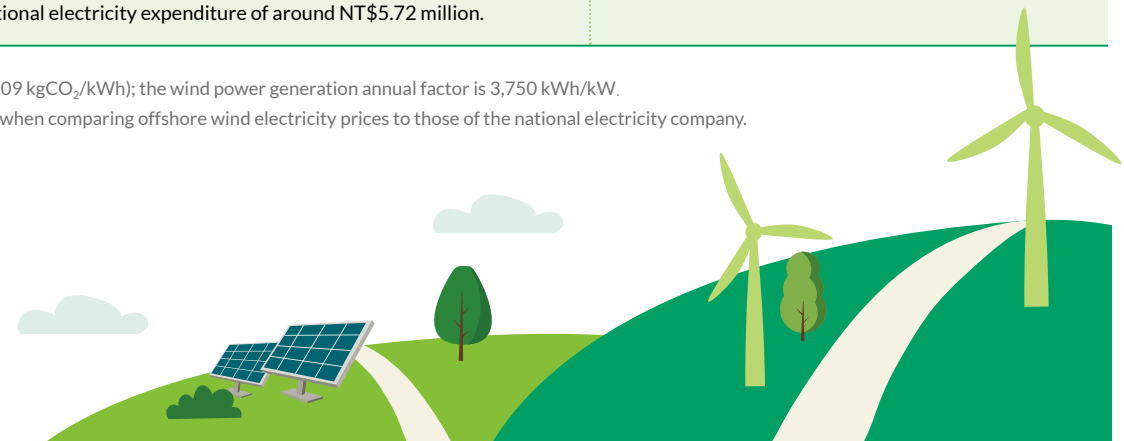


### Overview Table of Potential Financial Impact of Risks and Opportunities and Countermeasures

Type	Climate-Related Risk	Potential Financial Risk	Company Description	Countermeasures
 Physical risk	Changes in precipitation patterns and extreme variability in weather patterns	Decrease in revenue	<ul style="list-style-type: none"> <li>Changes in rainfall patterns, such as typhoons and flooding, will increase the probability of damage to factories and equipment, leading to potential business interruptions</li> </ul>	<ul style="list-style-type: none"> <li>Install a water recycling system</li> <li>Phase out high-water-consuming equipment</li> <li>Plan for disaster insurance</li> </ul>
	Increased severity of extreme weather events	Decrease in revenue	<ul style="list-style-type: none"> <li>Prolonged periods without rain can lead to low reservoir levels, resulting in water rationing and shortages. Unexpected events such as typhoons and intense rain can lead to flooding, causing operational interruptions</li> </ul>	<ul style="list-style-type: none"> <li>Build flood control and drainage measures</li> <li>Monitor water conditions and establish emergency response procedures</li> <li>Plan for alternative water sources</li> </ul>
	Average temperature rises	Increase in operating costs	<ul style="list-style-type: none"> <li>Events like seawater backflow and floods could disrupt company operations</li> </ul>	<ul style="list-style-type: none"> <li>Raise the key equipment foundation</li> <li>Build flood control and drainage measures</li> <li>Assess potential flooding risks for new equipment sites</li> </ul>
 Transition risk	Enhance GHG Emission Pricing	Increase in operating costs	<ul style="list-style-type: none"> <li>This may elevate operational costs due to anticipated impacts from the Climate Change Response Act. The implementation of domestic carbon fee mechanisms may result in carbon fee payments</li> </ul>	<ul style="list-style-type: none"> <li>Set a carbon reduction goal of 27% by 2030</li> <li>The Group has established a green energy team, actively working on setting up and negotiating green energy solutions</li> <li>Upgrade and replace outdated equipment within the factory to improve energy efficiency</li> </ul>
	Enhance emission report obligation	Increase in operating costs	<ul style="list-style-type: none"> <li>Voluntary audits have been conducted for several years. Starting in 2022, the three Taiwanese factories have conducted audits and verification in accordance with the ISO 14064-1 standards</li> </ul>	<ul style="list-style-type: none"> <li>Annual greenhouse gas inventory and verification activities are carried out</li> <li>The scope is gradually expanding to include consolidated report subsidiaries</li> </ul>
 Opportunity	Recycling and reuse	Initial costs are high, but operational costs decrease over time	<ul style="list-style-type: none"> <li>The recycling and reuse portion of general business waste accounts for 56.32%. Other reuse accounts for 21.75%, and sludge resource utilization is at 34.57%</li> </ul>	<ul style="list-style-type: none"> <li>Recover product powder from the wastewater in the processing area for reuse</li> <li>Invest in sludge drying equipment to reduce sludge moisture content</li> </ul>
	Participation in renewables projects and adoption of energy conservation measures	Initial carbon reduction technology costs are high, but operational costs decrease over time	<ul style="list-style-type: none"> <li>Assess diverse power sources, replacing those with high carbon emissions</li> </ul>	<ul style="list-style-type: none"> <li>Engage with the Renewable-Energy-Based Electricity Retailing Enterprise</li> <li>Develop self-built solar projects</li> <li>Monitor and participate in the power market</li> </ul>
	Reduce water use and water consumption	Operating Cost Down	<ul style="list-style-type: none"> <li>Save water and recycle wastewater through process improvements</li> <li>Include water usage in monthly key performance indicators monitoring. Statistical analysis and comparisons on water consumption are performed. If any anomalies in water usage are detected, an immediate cause investigation is conducted, followed by improvement measures</li> </ul>	<ul style="list-style-type: none"> <li>Invest in wastewater reclamation equipment</li> <li>Improve process equipment and operation to reduce steam use</li> <li>Constantly develop water conservation programs</li> </ul>

Type	Climate-Related Risk	Potential Financial Risk	Company description	Countermeasures
Opportunity	Utilize more efficient production and distribution processes	Increase in revenue	<ul style="list-style-type: none"> <li>Increase production through proper equipment maintenance and operational optimization to improve the energy efficiency per product unit and reduce greenhouse gas emissions</li> </ul>	<ul style="list-style-type: none"> <li>Implement an annual 1% electricity saving improvement plan by enhancing production methods and equipment to optimize energy efficiency</li> </ul>
	Use low-carbon energy	Increase in operating costs	<ul style="list-style-type: none"> <li>Assess diverse power sources, replacing those with high carbon emissions</li> <li>If the remaining carbon reduction gap at the Linyuan factory is met using green energy, it is estimated that there will be a need to increase the use of green energy by about 21.69 million kWh by 2030, accounting for 33% of the total electricity consumption. If solely using offshore wind energy, an installation capacity of approximately 5.79MW is required, leading to an additional electricity expenditure of around NT\$43.39 million.</li> <li>If the remaining carbon reduction gap at the Toufen factory is met using green energy, it is estimated that there will be a need to increase the use of green energy by about 2.86 million kWh by 2030, accounting for 16% of the total electricity consumption. If solely using offshore wind energy, an installation capacity of approximately 0.76MW is required, leading to an additional electricity expenditure of around NT\$5.72 million.</li> </ul>	<ul style="list-style-type: none"> <li>The Group coordinates and plans to fulfill the regulatory obligation amount by 2025 through the purchase of green energy</li> <li>Develop self-built solar projects</li> </ul>

Note: (1) It is assumed that the power emission factor in 2030 remains consistent with that in 2021 (0.509 kgCO<sub>2</sub>/kWh); the wind power generation annual factor is 3,750 kWh/kW.  
 (2) The increased electricity expenditure is estimated based on an additional NT\$2 cost per kWh when comparing offshore wind electricity prices to those of the national electricity company.



### 3.2.2 Energy Usage and Management

#### USIG's Energy Management Targets

USI Group (USIG) voluntarily set energy management targets in 2016 and began to make dynamic target reviews in accordance with the country's energy development policies and by keeping track on the internal trends and domestic laws and regulations. After measuring the internal and external factors, we set the 2030 carbon reduction target in early 2022. The 9 USIG core businesses began to implement the ISO 50001 energy management system and obtained the certificate on after another in 2018 to effectively manage energy performance and continuously improve energy conservation and carbon reduction, hoping to demonstrate USIG's influence and so to lower environmental impact.

## Group Technical Exchange Meeting

Every year USIG holds the “plant technology exchange meeting” and several “northern/ Kaohsiung plants resource integration meetings” for plants to share resources and exchange technologies to improve performance in energy conservation and carbon reduction. In 2022 the “plant technology exchange meeting” was held in October. Case presentation with themes including “industrial safety and environmental protection”, “equipment preventive maintenance”, and “energy conservation and carbon reduction” were conducted through competitions. Through plan technology case submission and documentary review, a total of 7 cases entered the final. Senior USIG officers and plant representatives elected the three best cases. The USIG chairman presented the certificates and bonuses to winners. Through ratings and encouragement, sharing, and mutual learning, we aim to advance technology in the group.



## TTC's Commitment to the Group's Energy Management Goals

TTC has actively invested in energy-saving and carbon reduction programs. The electricity savings rate over the past three years is listed in the table below. These achievements exceed the legal requirement, which mandates an average annual savings rate of 1% or more. In 2022, TTC continued its dedication to promoting energy-saving projects. Initiatives, such as boiler energy-saving measures and the replacement of outdated cooling water towers, are underway across all plants. These initiatives undergo periodic reviews, with the hope of further achieving the group's carbon reduction goals.

## Electricity Savings Rate Achievement Overview Table for the Last Three Years

Annual Target		Performance		
		2020	2021	2022
Electricity Conservation (%)	1.0%	1.18%	1.05%	1.22%

## Energy Usage Details

In 2022, the energy consumption calculation of TTC covered Linyuan Plant, Qianzhen Plant, Toufen Plant, and Zhongshan Plant, achieving a coverage rate of 100%. Compared to 2021, the energy consumption in 2022 decreased by 11.2%. Furthermore, regarding the energy consumption per unit of product, although the energy intensity increased at the Linyuan Plant and Zhongshan Plant due to decreased production capacity, TTC's overall average energy intensity decreased by 7.39% compared to 2017, achieving the goal of reducing energy consumption per unit product by 3%.

## Energy Usage Overview Table for the Last Three Years

Energy Type	Unit	2020	2021	2022
Natural gas	GJ	241,886	242,997	222,644
Diesel	GJ	5,446	5,611	5,541
Steam	GJ	219,540	218,460	187,394
Electricity	GJ	391,915	402,607	356,458
Total consumption amount	GJ	858,787	869,676	772,036

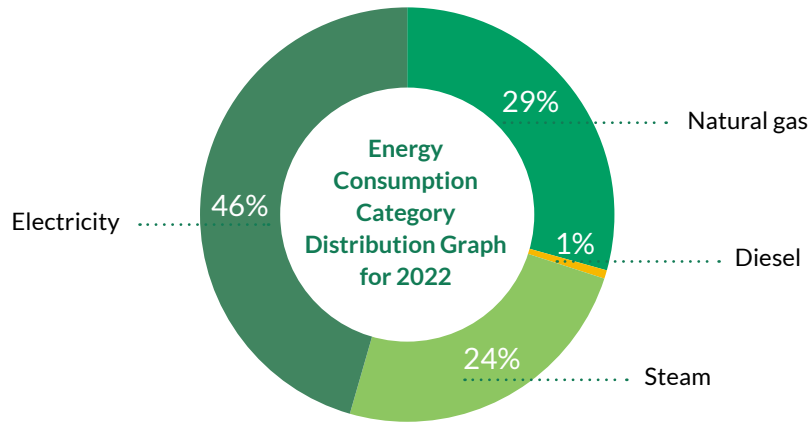
Note 1: Referring to the Energy Heating Value Per Unit Product Table announced by the Bureau of Energy, Ministry of Economic Affairs, the conversion factor of energy consumption of fuel oil, electricity, LPG, natural gas, and diesel is as follows: 9,600 Kcal/L, 860 Kcal/kWh, 9,700 Kcal/m<sup>3</sup>, and 8,400 Kcal/L; where 1 Kcal = 4.187 KJ. The calorific value of 1 ton of steam is 665,100 Kcal.

Note 2: The sources for data on the consumption of energy such as fuel oil, diesel, natural gas, steam, and electricity, as well as production quantity, come from on-site unit consumption reports.

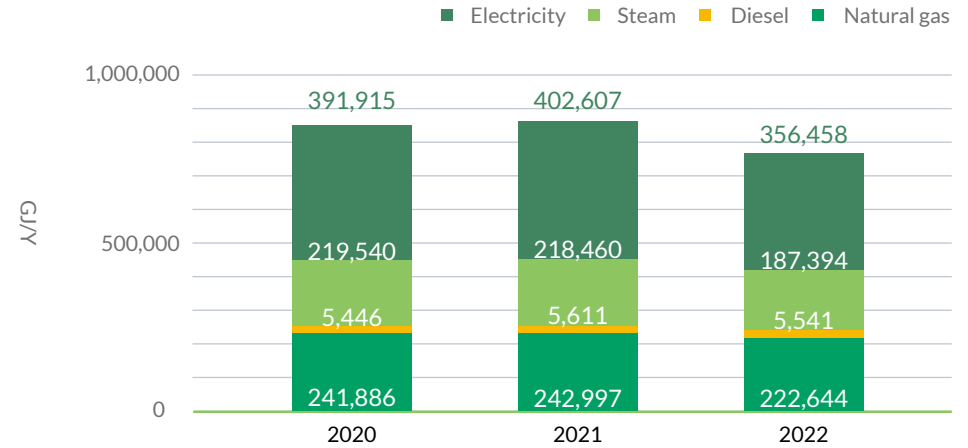
Note 3: Only non-renewables is used.

Note 4: Currently, TTC does not use any renewable energy fuel categories and does not sell electricity, nor does it provide heating, cooling, or steam.

### Energy Consumption Category Distribution Graph For 2022



### Energy Consumption by Type Graph for the Last Three Years



### Energy Consumption per Unit of Product by Plant Overview Table for the Last Three Years

Plant	Product	Unit	2017 (Base year)	2020	2021	2022	Reduction Rate compared to Base Year	Achievement Status
Linyuan Factory	ABS + AS Resin	GJ/Ton of product	2.06	1.908	1.912	2.222	+7.7%	Not achieved
Qianzhen Factory	EPS + GPS Polystyrene	GJ/Ton of product	1.21	1.092	1.032	0.869	-28.14%	Achieved
Toufen Factory	Glass Wool + Curved Surface Printing	GJ/Ton of product	17.32	15.021	15.916	15.867	-8.38%	Achieved
Zhongshan Factory	EPS Polystyrene	GJ/Ton of product	1.09	1.107	1.147	1.232	+12.77%	Not achieved

Note 1: 2017 is the base year.

Note 2: Due to decreased production capacity, the Linyuan and Zhongshan plants experienced an increase in energy intensity.

### 3.2.3 GHG Management

TTC follows the 2030 carbon reduction goals set by the USIG. The company has set a carbon reduction target of 27% less than the 2017 baseline year for greenhouse gas emissions by 2030. This is reviewed regularly to ensure we meet annual emission targets. This goal is realized through the execution of various energy-saving initiatives and plans to reduce greenhouse gas emissions. Each factory has proposed measures like reducing process energy consumption, waste heat recovery and reuse, improving equipment efficiency, and energy management. There's also an integrated plan for energy and resource sharing across different factories to utilize waste heat steam efficiently and maximize resource use, further aiming to reduce greenhouse gas emissions.

TTC began promoting the adoption of ISO 14064-1 in 2021. In 2018, greenhouse gas inventory operations were carried out (Zhongshan and Tianjin subsidiaries in the TTC consolidated report will also complete their carbon inventory operations in 2023). Third-party guidance and verification are sought to ensure the accuracy and reasonableness of greenhouse gas emission data. In 2022, the overall emissions of the Taiwan plants decreased by 17.56% compared to the baseline year. The per-unit product carbon emissions in 2022, compared to the baseline year, increased slightly at the Linyuan plant but decreased at other facilities.

#### Overview Table of Achievement Rate of Carbon Reduction Pathway Emission Target

Unit: ten thousand tons CO<sub>2</sub>e/year

Factory	Target emissions in 2022	2022 Verified Actual Emissions	Achievement Rate %	2023 Target Emissions
Taiwan Plants	7.398	6.571	112%	7.249

Note: The 2022 greenhouse gas emissions haven't been verified by a third party at the time of this report's issuance. Verification will be completed by July 2023.

#### Overview Table of Annual Greenhouse Gas Emissions Compared to the Baseline Year

Unit: tons CO<sub>2</sub>e/year

Item	2017(Base)	2021	2022
Scope 1	18,551	15,153	15,220
Scope 2	61,149	59,745	50,492
<b>Total emissions</b>	<b>79,700</b>	<b>74,898</b>	<b>65,712</b>

Note 1: The coefficients are adopted from the EPA's Greenhouse Gas Emission Coefficient Management Table version 6.0.3 and the Intergovernmental Panel on Climate Change (IPCC) 2007 Fourth Assessment Report's Global Warming Potential (GWP) value.

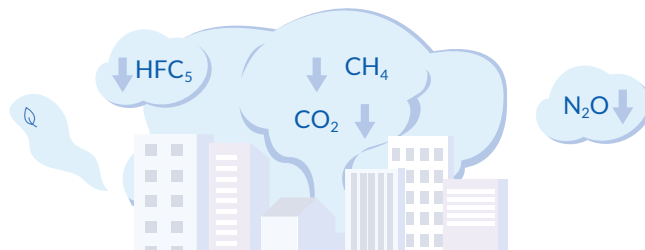
Note 2: The 2017 carbon emissions were recalculated without third-party verification. 2021 emissions have been audited and verified by a third party.

Note 3: The types of greenhouse gases include CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, and HFCs.

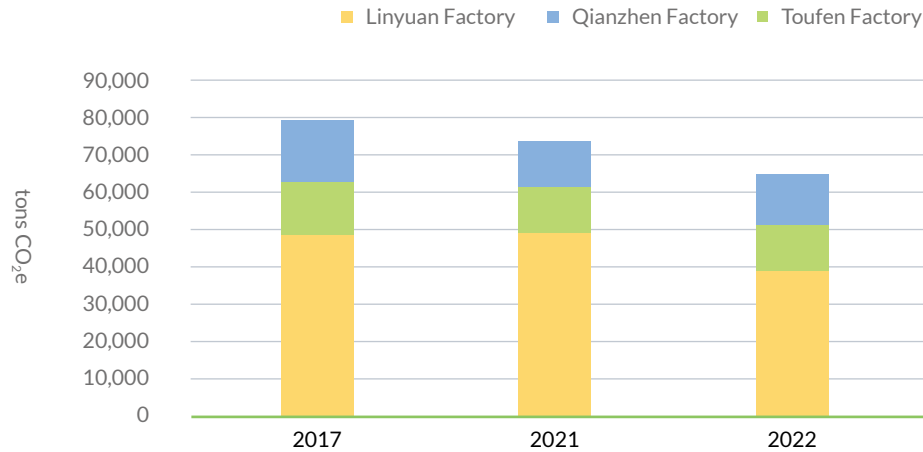
Note 4: In response to regulations from the Taiwan EPA and the Financial Supervisory Commission, the emissions data only includes Linyuan, Qianzhen, and Toufen plants. The mainland plants (Zhongshan and Tianjin) are excluded from this count.

Note 5: TTC's Taipei office 's 2022 greenhouse gas emissions are 3.2015 tons CO<sub>2</sub>e for Scope 1 and 35.1366 tons CO<sub>2</sub>e for Scope 2.

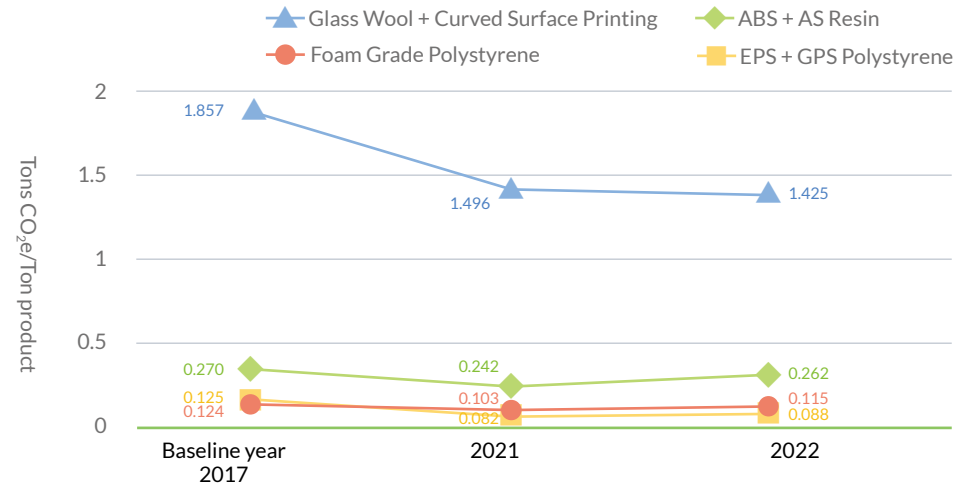
Note 6: TTC's (Taipei office, Qianzhen plant, Linyuan plant, and Toufen plant) Scope 3 emissions in 2022 amount to 114,224 tons CO<sub>2</sub>e.



### Total Greenhouse Gas Emissions in Recent Years Compared to the 2017 Baseline Year



### Greenhouse Gas Emissions per Product Unit in Recent Years Compared to the 2017 Baseline Year



### Overview Table of Carbon Emissions per Product Unit in Recent Years Compared to the Baseline Year

Plant	Product	Unit	2017 Baseline Year	2021	2022	Percentage change compared to baseline year
Linyuan Factory	ABS + AS Resin	Tons CO <sub>2</sub> e/Ton product	0.270	0.242	0.262	+2.803%
Qianzhen Factory	EPS + GPS Polystyrene	Tons CO <sub>2</sub> e/Ton product	0.125	0.082	0.088	-29.872%
Toufen Factory	Glass Wool + Curved Surface Printing	Tons CO <sub>2</sub> e/Ton product	1.857	1.496	1.425	-23.250%

Note 1: The carbon emissions for the 2017 baseline year disclosed in this report were recalculated using external verification methods but were not audited by a third party.

Note 2: The carbon emissions for 2021 disclosed in this report are based on externally audited data. The data for 2022 will be verified in July 2023.

Plant	Product	Unit	2017 Baseline Year	2021	2022	Percentage change compared to baseline year
Zhongshan Factory	Foam Grade Polystyrene	Tons CO <sub>2</sub> e/Ton product	0.124	0.103	0.115	-7.258%

## Promotion of Energy-Saving and Carbon Reduction Initiatives

TTC has established energy-saving and carbon-reduction committees in all its Taiwan-based plants. They convene regular Energy Resource Integration Meetings to share experiences and collaboratively drive effective and pragmatic energy-saving and carbon-reduction initiatives. The plants set energy-saving and carbon-reduction strategies, as well as plant-wide reduction targets, and review the performance on a quarterly basis.

Every two months, each plant's Environmental, Health, and Safety (EHS) team convenes an EHS implementation meeting. This meeting tracks the progress of energy-saving and carbon-reduction initiatives, evaluates compliance with applicable regulations, and actively urges each plant to fulfill its energy-saving and carbon-reduction responsibilities.

In mainland China, the Zhongshan plant holds annual energy-saving and carbon-reduction meetings, aligning with the government's carbon-reduction policies. They establish strategies and targets for each unit, which are reported to the Zhongshan Development Zone government every year.

In 2022, all plants executed 24 energy-saving and carbon-reducing measures, collectively conserving about 1,089,600 kWh of electricity and reducing approximately 555 tons of CO<sub>2</sub>e emissions. A summary of the implemented initiatives is presented in the table below:

### 2022 Performance Overview Table of Energy-Saving and Carbon-Reduction Measures

Factory Area	Measures	2022 Performance	
		Power Saved (kWh)	Carbon Reduction (tons CO <sub>2</sub> e)
Linyuan Factory	<ol style="list-style-type: none"> <li>Utility Area Cooling Water Pump P6210-3 Update</li> <li>Replaced the Fuxing 170HP (120KW) fixed-frequency centrifugal air compressor with a 120KW variable-frequency spiral air compressor</li> <li>Discontinued the use of the EB storage tank in Zone 25 and switched to using the EB storage tank in Zone 27 to support Zones 24 and 25</li> <li>Replaced two 4kW water dispensers in the administrative building</li> <li>Downsized the equipment at P2719 in Zone 27</li> <li>Upgraded the waste storage area's lighting by replacing the existing LED lights with lower wattage LEDs</li> <li>Replaced the box-type air conditioner (Tatung 5 tons) in the kitchen and dining area</li> <li>Replaced the styrene unloading pump P1101-2/3</li> </ol>	746,423	380
Qianzhen Factory	<ol style="list-style-type: none"> <li>Upgraded 17 motors throughout the plant to the IE3 high-efficiency standard</li> <li>Installed a 100HP variable-frequency air compressor in the EPS public area to replace the old air compressor</li> </ol>	239,095	122
Toufen Factory	<ol style="list-style-type: none"> <li>Upgraded 4 motors in the cooling tower to the IE3 high-efficiency standard</li> <li>Upgraded 7 motors on the fiberglass production line to the IE3 high-efficiency standard</li> <li>Replaced a 100HP blower motor in the public area with an IE3 high-efficiency motor</li> <li>Upgraded 2 motors at the furnace base to the IE3 high-efficiency standard</li> </ol>	104,092	53
<b>Total</b>		<b>1,089,610</b>	<b>555</b>

Note 1: Conversion factor: 1 kWh = 0.509 kgCO<sub>2</sub>e

Note 2: The Zhongshan plant has not yet drafted plans, so it is not presented in this table.



For 2023, we plan to implement 22 energy-saving and carbon-reducing measures. These are summarized in the following table. We anticipate power savings of approximately 2.93 million kWh and a targeted carbon reduction of around 1,493 tons CO<sub>2</sub>e.

### Overview Table of Planned Energy-Saving and Carbon-Reduction Measures for 2023

Factory Area	Measures	2023 Goals	
		Power Saved (kWh)	Carbon Reduction (tons CO <sub>2</sub> e)
Linyuan Factory	<ol style="list-style-type: none"> <li>1. Replaced cooling tower E6208C-1/2 in the public area with E6208E-3</li> <li>2. Upgraded cooling tower E6208-1 in the public area</li> <li>3. Replaced mercury lamps in Zones 11, 12, 13, 21, 22, and 25 (explosion-proof areas) with LEDs</li> <li>4. Replaced the 1000KVA transformer in the public area with a high-efficiency model</li> <li>5. Upgraded 3 Roots blowers in Zones 34, 26, and 82 to air-float blowers</li> </ol>	829,076	422
Qianzhen Factory	<ol style="list-style-type: none"> <li>1. Installed a 150HP variable-frequency air compressor in the public area to replace the old air compressor</li> <li>2. Upgraded 3 motors of the NOVA 8 SILO blower to the IE3 high-efficiency standard</li> <li>3. Replaced the old cooling tower used in the GPS process</li> <li>4. Upgraded 3 motors in the EPS process reaction tanks and 2 mixer motors to the IE3 high-efficiency standard</li> <li>5. Optimized the variable-frequency settings of air compressor C7210-2 in the public area to reduce power consumption during idling</li> <li>6. Optimized the variable-frequency settings of the RTO blower to reduce constant power consumption</li> <li>7. Upgraded the industrial water pump motor P7010 and the dryer motor M2125 to the IE3 high-efficiency standard</li> </ol>	2,017,593	1,027
Toufen Factory	<ol style="list-style-type: none"> <li>1. Upgraded 3 motors on the fiberglass production line to the IE3 high-efficiency standard</li> <li>2. Upgraded 3 motors in the compressor room to the IE3 high-efficiency standard</li> <li>3. Replaced 1 motor in the batching area with an IE3 high-efficiency motor</li> <li>4. Upgraded 2 blower motors at the water wash pool to the IE3 high-efficiency standard</li> </ol>	86,993	44
<b>Total</b>		<b>2,933,662</b>	<b>1,493</b>





## 3.3 Water Resources Management GRI 3-3,GRI 303 (303-1,303-2,303-3,303-4)

### 3.3.1 Water Resources Management

- **Significance:** Water Resources Management
- **Major reason:** Water resources are essential for operational development. As the risks of water scarcity and water-related disasters increase, ensuring a stable water supply has become a crucial issue for our company. Wastewater discharge has exceeded the natural purification capacity of water bodies in recent years, leading to water pollution issues and affecting the use of water resources. In recent years, sewage discharge has exceeded the capacity of self-purification for water, resulting in water pollution issues that affect the use of water resources.
- **Impact Scope:** Affected Stakeholders: Government agencies, local communities, employees.
- **Sustainability Principles & SDGs Alignment:** Friendly Environment Creation / SDG 6: Clean Water and Sanitation
- **Management approaches:**



Policy Purpose	Reduce water consumption to lessen production costs and the environmental impact of wastewater discharge. Objectives are set with 2017 as the baseline year for short, medium, and long-term reduction.
Goals	<b>2022 Goals</b> 1. Reduce water consumption per unit of product by 3% compared to the baseline year. 2. Discharge water quality meets the standard
	<b>Short-term goal in 2023</b> 1. Reduce water consumption per unit of product by 3% compared to the baseline year. 2. Discharge water quality meets the standard
	<b>Medium- &amp; Long-Term Goals in 2030</b> 1. Reduce water consumption per unit of product by 10% compared to the baseline year. 2. Discharge water quality meets the standard
Management Plan	1. Introduce or upgrade equipment, and reuse wastewater to reduce water consumption. 2. Strictly regulate water usage in the factory to prevent water wastage and increased wastewater discharge.
Evaluation of the management	Monitor "water consumption per unit of product" and "rate of exceeding water discharge quality standards" as key performance indicators. Present reports to management and conduct an annual review to assess the previous year's performance and suggest improvements.
Assessment result	1. Water Consumption per Unit of Product over the Last Three Years In 2022, water consumption per unit decreased by 23.6% compared to 2017%, achieving our goal. 2. Water Quality and Discharge over the Past Three Years In 2022, all factories of TTC met the regulatory standards for wastewater discharge.
Negative Impact Remedies and Preventive Measures:	Water Reservoir Shortage leading to Production Interruption: Participate in public sector water-saving plans and explore alternative water sourcing methods, such as water trucks.
Policy Adjustment	Proposals for improvements concerning unmet targets are presented and reviewed during management review meetings.
Grievance Mechanism	Details can be found in Section 3.1.2 under the ESH Grievance Channels.

## Status and Description of Objective Achievement

Management Plan	2022 Goals	2022 Achievements	Explanation (including reasons for non-achievement)
Water-saving and Wastewater Improvement: Plan Tracking	Consumption per unit compared to the baseline year decreased by 3%	Consumption per product unit decreased by 23.6%	The goal has been achieved
	Discharge water quality meets the standard	Discharge water quality of all plants meets the standard	The goal has been achieved

TTC leverages its existing technologies and expertise, adhering to principles of source management, waste reduction in processes, and end-point controls, to minimize water demand and reinforce water resource reuse and accelerated recovery processes. In 2022, the total water intake was 935 million liters, the total wastewater discharge was 607 million liters, and the total water consumption amounted to 328 million liters.

The scope of water resource management encompasses the Linyuan Factory, Qianzhen Factory, Toufen Factory, and Zhongshan Factory, achieving a coverage rate of 100%.

TTC employs the water risk assessment tool developed by the World Resources Institute (WRI). In conjunction with the water source distribution of each factory site, the company uses the Aqueduct Tool as its method for water risk assessment, pinpointing the water stress situation of each factory's water intake location. The analysis indicates that the Linyuan Factory and Qianzhen Factory are regions with relatively higher risk for TTC. Apart from utilizing the TCFD framework to assess the impact of climate change on water resources, the company continually enhances its in-factory water recovery rate, thereby bolstering its adaptive capacity in the face of risks.

Factory	Linyuan Factory	Qianzhen Factory	Toufen Factory	Zhongshan Factory
Primary Water Sources	Fengshan Reservoir	Fengshan Reservoir	Yonghe Mountain Reservoir	Hengmen Canal
Water Stress Situation	Moderate to High (20-40%)	Moderate to High (20-40%)	Low to Moderate (10-20%)	Low (<10%)

Note 1: The WRI (Water Resource Institute) Aqueduct Tool is used for water risk assessment. <http://www.wri.org/our-work/project/aqueduct/aqueduct-atlas>

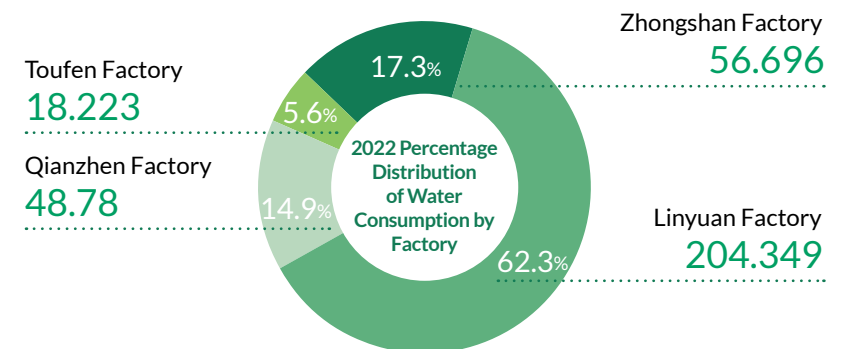
All Taiwanese factories source their water from municipal water plants. The Zhongshan factory, however, procures its supply from neighboring plants. In 2022, the water consumption amounted to 328 million liters, a decrease of approximately 16.32% compared to the baseline year of 2017. The water consumption per unit product has reduced by 23.6%.

## Water Consumption and Per Unit Product Water Consumption Overview Table for the Last Three Years

Item	Base year is 2017	2020	2021	2022
Total Water Intake (Million Liters)	1,064	1,110	1,110	935
Total Water Consumption (Million Liters)	392	515	471	328
Water Consumption Per Unit Product (Ton/ Ton Product)	1.339	1.282	1.181	1.024

For the water consumption of products in each factory, the Linyuan factory's ABS+AS resin has the highest proportion, accounting for approximately 62.3%. Following this, the Zhongshan factory's foam-grade EPS resin accounts for about 17.3% of the water consumption.

## 2022 Water Consumption Distribution by Factory



Unit: million liters

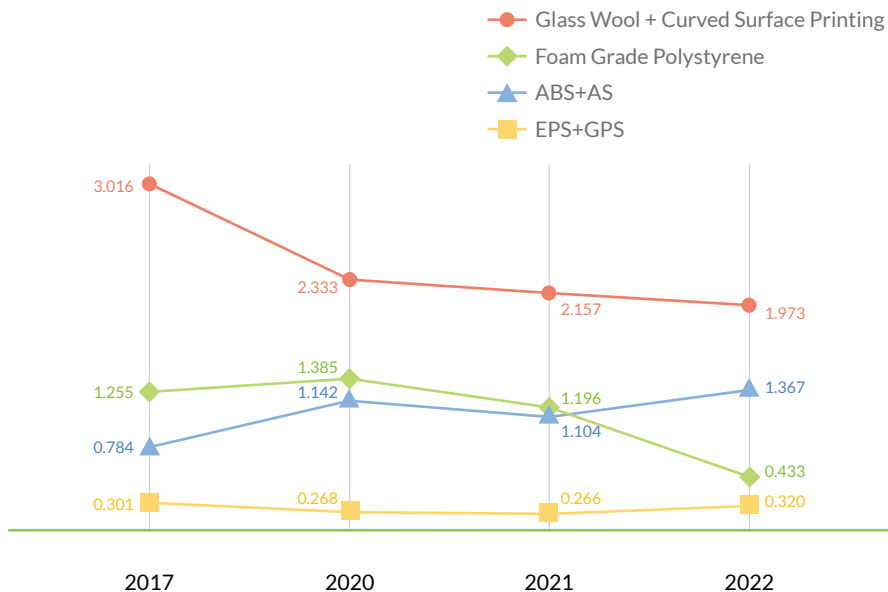
### Water Consumption Per Unit Product for Various Products Overview Table for the Last Three Years

Plant	Product	Unit	Base year is 2017	2020	2021	2022	Increase/Decrease Rate Compared to Baseline Year 2022
Linyuan Factory	ABS + AS Resin	Ton/Ton Product	0.784	1.142	1.104	1.367	+74.37%
Qianzhen Factory	EPS + GPS Polystyrene	Ton/Ton Product	0.301	0.268	0.266	0.320	+6.46%
Toufen Factory	Glass Wool + Curved Surface Printing	Ton/Ton Product	3.016	2.333	2.157	1.973	-34.58%
Zhongshan Factory	Foam Grade Polystyrene	Ton/Ton Product	1.255	1.385	1.196	0.433	-65.46%

Note 1: The baseline year is set as 2017.

Note 2: After 2017, for the Linyuan and Qianzhen factories, the general-purpose polystyrene has seen a continuous increase in production capacity, resulting in a consumption rate higher than the set baseline year.

### Comparison Graph Of Water Consumption Per Unit Product for the Last Three Years and the Baseline Year



### Water-saving Measures

TTC actively manages water resources by achieving water-saving results through measures such as conserving water in processes, wastewater recycling and reuse, and rainwater collection and reuse.

Through improvements in water-saving processes and multiple schemes like wastewater recycling and reuse, there's a significant increase in the wastewater reuse rate. Beyond implementing water-saving plans, water usage has further been included in the monthly key performance indicator monitoring. Statistics and analysis are performed on water usage. If any anomalies in water consumption are detected, an immediate investigation into the cause is initiated, followed by necessary improvements.

### TTC's Water Recycling and Reuse Percentage for 2022

Total Amount of Water Resource Recycling and Reuse **534,866 tons**

Percentage of Water Resource Recycling and Reuse **163%**

Note: Percentage of Water Resource Recycling and Reuse = (Annual Amount of Water Resource Recycling and Reuse) / (Annual Water Consumption) x 100%

### Water Resource Improvement Plans for 2022~2023

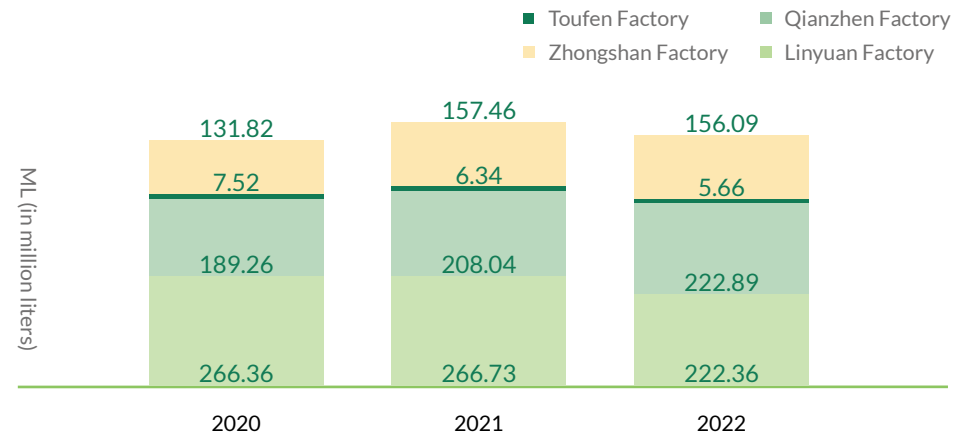
Factory Area	Improvement Measures
Linyuan Factory	Reduce the backwash frequency and duration of the side-stream filter in the public area.
Qianzhen Factory	Update the deteriorated 2B3T resin in the pure water system.

All the factories under TTC properly handle process wastewater and other wastewater. For wastewater discharge, each factory operates at standards that surpass regulatory requirements. The wastewater from Toufen Factory is treated by CGPC. In 2022, all the factories complied with regulatory discharge standards.

Factory Area	Wastewater Discharge Standard	Discharge Destination
Linyuan Factory	Secondary biological treatment up to the industrial area's joint wastewater treatment plant standard	Discharged via underground pipelines to the joint wastewater treatment plant and subsequently discharged into the ocean after treatment.
Qianzhen Factory	Secondary biological treatment up to the standard for water discharge.	Discharged to an external open drain and then discharged into the Kaohsiung port.
Toufen Factory	The fiberglass production process is an environmentally friendly process with no wastewater. Water used in the process is filtered and recycled. Rainwater is also filtered and used in the fiberglass production process. Wastewater generated from the curved printing process is treated by CGPC up to the water discharge standard.	Discharged jointly with CGPC into the Zhonggang River.
Zhongshan Factory	Treated in accordance with the national standard GB31572-2015 "Pollutant Discharge Standard for the Synthetic Resin Industry".	Discharged into the Hengmen Canal.

In 2022, TTC's total water discharge decreased by 4.94% compared to 2021. All the factories treated wastewater to standards higher than regulations. In addition to periodic reviews, improvement measures are set annually. In the last three years, all primary water quality tests met legal discharge standards.

### Graph of Water Discharge by Each Factory Over the Past Three Years



Note: All the wastewater discharged by the factories of TTC, after treatment, is freshwater.

### Self-tested Results on Main Water Quality Parameters by Each Factory Overview Table for the Last Three Years

Factory Area	Water Quality	2020	2021	2022	Emission Standard
Linyuan Factory	pH value	7.2	7.2	7.2	6~9
	COD (mg/L)	89.1	75.6	45.55	100
	SS (mg/L)	22.6	13.0	11.4	30
Qianzhen Factory	pH value	7.5	7.3	7.2	6~9
	COD (mg/L)	28.6	21.9	26.2	100
	SS (mg/L)	9.9	9.8	12.6	30
Zhongshan Factory	pH value	7.2	7.4	7.32	6~9
	COD (mg/L)	15.0	25.0	19.19	60
	SS (mg/L)	5.5	10.5	9.2	30

Note: The water quality test values are averaged from two tests conducted per year.

## Wastewater Improvement Plans for 2022~2023



### 2022 Wastewater Improvement Measures

An additional PVA-Gel aeration biological treatment tank has been installed to enhance COD treatment efficiency and reduce sludge production in Zone 82.

### 2023 Planned Improvement Measures

- A fine screening machine has been added to reduce the quantity of suspended solids (SS) in the wastewater in Zone 82.
- Sand filtration equipment has been introduced to decrease the amount of suspended solids (SS) in the discharge water in Zone 82.



## 3.4 Air Pollution Control GRI 3-3, GRI 305 (305-7)

- **Material Topics:** Air pollution control
- **Major reason:** During their production processes, the factories of TTC emit key air pollutants, including particulate matter (referred to as Par), sulfur oxides (abbreviated as SO<sub>x</sub>), nitrogen oxides (referred to as NO<sub>x</sub>), and VOCs. Due to deteriorating air quality, government agencies at all levels emphasize monitoring emissions of air pollutants. The Kaohsiung-Pingtung area has also implemented total control on air pollutants, directly impacting the Linyuan and Qianzhen factories.
- **Impact Scope:** Impact Boundaries: Government agencies, local communities, and employees. The air pollutants emitted during the production processes have significant impacts on the environment and human health. In recent years, fine particulate matter has been identified to have a profound effect on human health. Nitrogen oxides appear reddish-brown in the air, contribute to acid rain, and can potentially lead to respiratory diseases in humans.
- **Sustainability Principle & Correspondence to SDGs:** Create a Friendly Environment/SDGs 11 Sustainable Cities and Communities



- **Management approaches:**

Policy Purpose	To mitigate the environmental impact of air pollution emissions and, during operations, minimize the factors endangering the health of employees and residents living near the factory areas.
Goals	Goal in 2022: The number of fines for exceeding the limit of air pollutant emissions is 0
	Short-term goal in 2023: The number of fines for exceeding the limit of air pollutant emissions is 0
Management Plan	1. Add or update equipment to reduce pollutant emissions. 2. Strictly control the emission quality of flue gases from factories and strengthen autonomous management of VOCs emissions.
Evaluation of the management	The "number of fines for exceeding air pollutant emission limits" and the "number of cases of abnormal mass emissions" are listed as key performance indicators. A review report will be presented to the management level. An annual review meeting is convened to assess the performance of the previous year, aiming to propose improvement measures and evaluate their effectiveness.
Assessment Mechanism	1. Continuously implement the ISO 14001 environmental management system for a systematic management of emissions. 2. Establish monitoring and testing equipment and forecasting methods to observe the concentration and volume of factory emissions, allowing for real-time control of emission scenarios and eliminating abnormalities.
Assessment result	1. Annual emissions of various pollutants over the last three years 2. Environmental-related fines
Grievance Mechanism	As explained in the "Environment, Safety, and Health Appeal Channels" section 3.1.2.

### Status and description for goal achievement

Management Plan	2022 Goals	2022 Achievements	Explanation (including reasons for non-achievement)
Review and Monitoring of Air Pollution Control Management	The number of fines for exceeding the limit of air pollutant emissions is 0	Air pollution fines: 1 case	Target not achieved

In 2022, the Linyuan factory of TTC had one incident of exceeding the air pollution limit. However, there were no over-limit incidents at the Qianzhen, Toufen, and Zhongshan factories, all of which complied with national emission standards.

TTC's main air pollutants include TSP(Par), SOx, NOx, and VOCs. The table below describes their primary sources. The changes in emissions of air pollutants at Taiwan factories from 2020 to 2022 were minimal. However, from 2021 onwards, the VOCs emissions from the Zhongshan factory were higher due to a change in the calculation method mandated by the environmental authority in the mainland area, which differs from the method used in Taiwan.

### Overview Table of Main Air Pollutants and Their Sources in Each Factory

Factory Area	Main Air Pollutants	Primary Sources
Linyuan Factory, Qianzhen Factory	Particulates, Sulfur Oxides, Nitrogen Oxides	Emissions from thermal media boilers, incinerators, and Flare.
	Volatile organic compounds (VOCs)	Emissions from Flare, storage tanks, equipment components, process exhaust ducts, wastewater treatment plants, and Regenerative Thermal Oxidizer.
Toufen Factory	Sulfur Oxides, Nitrogen Oxides	Emissions from fiberglass formation and drying ovens.
Zhongshan Factory	Volatile organic compounds (VOCs)	Styrene emissions from the production process, which are annually tested by third-party contractors. The emission results comply with the "Pollutant Emission Standards for the Synthetic Resin Industry" (GB 31572-2015).

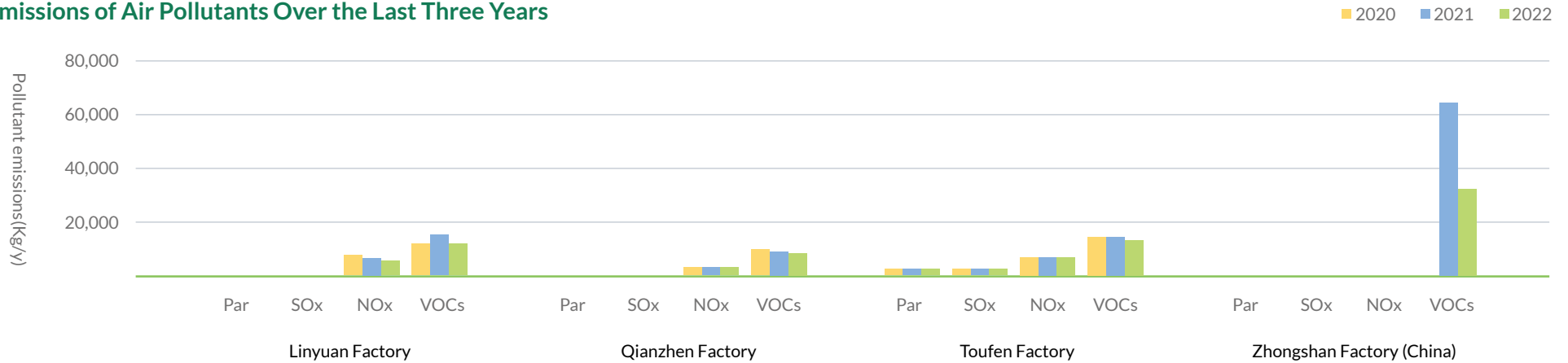
### Emissions of Main Air Pollutants by Factory Overview Table for the Last Three Years

Factory	Type	Unit	2020	2021	2022
Linyuan Factory	Par	Kg	860	838	577
	SOx	Kg	838	755	557
	NOx	Kg	7,714	7,116	6,050
	VOCs	Kg	12,773	15,437	12,148
Qianzhen Factory	Par	Kg	152	125	136
	SOx Note 1.	Kg	209	0	0
	NOx	Kg	3,393	3,271	3,357
	VOCs	Kg	10,087	9,365	8,738
Toufen Factory	Par	Kg	2,977	2,903	3,056
	SOx	Kg	2,570	2,498	2,552
	NOx	Kg	6,528	6,606	6,868
	VOCs	Kg	14,888	14,472	13,567
Zhongshan Factory (China)	Par	Kg	0	0	0
	SOx	Kg	0	0	0
	NOx	Kg	0	0	0
	VOCs Note 2.	Kg	436	64,849	33,134

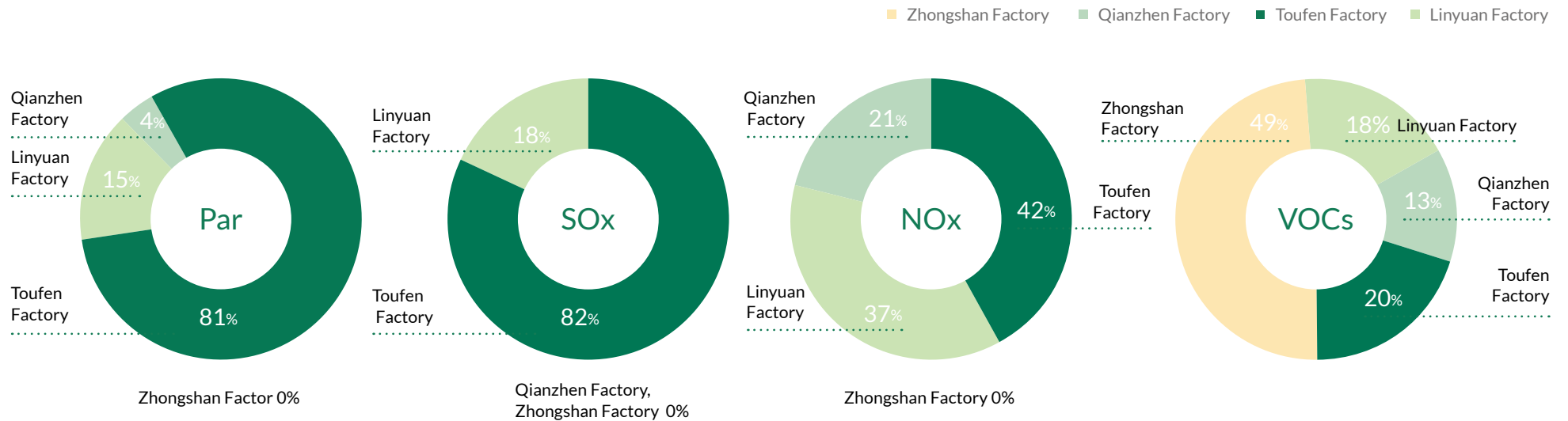
Note 1: The SOx emissions of the Qianzhen Factory decreased to 0 due to changes in the estimation emission coefficient.

Note 2: In 2021, as per the requirements of the local environmental authorities, the raw material data and pollution control equipment data were input into the system. The VOCs emission figures were then automatically generated by the government environmental agency's system. The method used for estimating these emissions differs from the one used in Taiwan.

### Emissions of Air Pollutants Over the Last Three Years



### Graph of Distribution of Various Air Pollutant Emissions in 2022



Note 1: Zhongshan Factory sources its heat from a neighboring factory by purchasing steam, thus it doesn't have its own boilers or incinerators. Consequently, it does not emit particulates, sulfur oxides, or nitrogen oxides. As for VOCs emissions, they are estimated according to local mainland regulations, which only consider emission channels. Emissions from other sources, such as equipment components, currently have no available data for estimation.

In 2022, TTC received one air pollution excess emission fine. Details of the violation and the corresponding corrective measures are presented in the table below.

### Air Pollutant Emission Improvement Plan for 2022

Factory Area	Situation in 2022	Explanation (including reasons for non-achievement)	Improvement Plan for 2022
Linyuan Factory	1 Exceedance Case	On August 19, 2022, representatives from the Kaohsiung City Environmental Protection Bureau conducted an odor test on the RTO emission channel of this factory. The detected odor concentration was 3,090, exceeding the emission standard of 2,000. A penalty was imposed based on Article 20, Section 1 of the Air Pollution Control Act and Article 2 of the Fixed Pollution Source Emission Standards.	<ol style="list-style-type: none"> <li>1. We will commission a testing company for sample collection and verification. Once we have a qualifying report, it will be submitted to the Environmental Protection Bureau for review. They may then conduct another sampling test at the factory. The correction is considered complete only if the test results are satisfactory. (Re-tested and corrected on November 16, 2022).</li> <li>2. We will conduct weekly self-tests on the RTO's volatile organic compound concentration and check if operational parameters are within the prescribed range and in compliance with emission standards, ensuring proper onsite operations.</li> </ol>

### Air Pollutant Emission Improvement Plan for 2023

Factory Area	Air Pollutant Emission Improvement Plan
Linyuan Factory	In 2023, we plan to add flue gas denitration control equipment (selective catalyst) to boilers to reduce the emission concentration of nitrogen oxides.
Qianzhen Factory	Regularly clean electrostatic precipitator (EP) equipment with steam to enhance particulate removal.
Toufen Factory	<ul style="list-style-type: none"> <li>• Conduct regular maintenance on the electrostatic precipitator every year to ensure its opacity meets regulations.</li> <li>• We are planning improvements for pollution source equipment - drying ovens E007~9 to comply with SOx emission standards.</li> </ul>





## 3.5 Waste Management GRI 3-3,GRI 306 (306-1,306-2,306-3,306-4)

- **Key Issue:** Waste Management
- **Major reason:** The government enforces strict requirements for the industry to ensure proper waste disposal and traceability. With the existing waste landfill sites nearing capacity, the prices for processing facilities are increasing. Qualified waste disposal companies are hard to find, which affects waste processing for various factories.
- **Impact Scope :** Impact Boundaries: Government agencies, communities, and employees  
If waste produced during the manufacturing process isn't properly handled, it will impact the environment.
- **Sustainability Principle & Correspondence to SDGs:** Create a Friendly Environment/ SDGs 12 Responsible Consumption and Production
- **Management approaches:**



Policy Purpose	Comply with waste-related regulations, fulfill our duties with due diligence, and minimize waste generated during the production process.
Goals	Goal in 2022: Strengthen the waste patrol inspection system; The proper treatment rate of waste is 100%
	Short-term goal in 2023: Strengthen the waste patrol inspection system; The proper treatment rate of waste is 100%
	Medium- & Long-Term Goals in 2030: Implementing waste reduction
Management Plan	<ol style="list-style-type: none"> <li>1. Establish a waste audit management system.</li> <li>2. Strictly control waste treatment in the factory and commission legitimate vendors for disposal.</li> <li>3. With the addition or update of equipment, promote waste reduction plans to decrease the amount of waste.</li> </ol>
Evaluation of the management	Measure the "Proper Waste Handling Rate" and present an assessment report to the management during the annual management review meeting. This allows for a review of the past year's performance and the formulation of improvement measures, as well as an evaluation of the effectiveness of those measures.
Assessment Mechanism	Continuously implement the ISO 14001 Environmental Management System to systematically manage waste treatment.
Assessment result	Annual waste generation and proper handling ratio.
Policy Adjustment	For unmet targets or proposed improvement plans, reviews and adjustments will be presented during the management review meeting.
Grievance Mechanism	Details can be found in Section 3.1.2 under the ESH Grievance Channels.

### Status and description for goal achievement

Management Plan	2022 Goals	2022 Achievements	Explanation (including reasons for non-achievement)
Waste management system Review and monitoring	Strengthen the waste inspection system	Number of inspections: 17 times	The goal has been achieved
	The proper waste handling rate is 100%	The proper handling rate is 100%	The goal has been achieved

TTC produces waste during production and processing stages of product manufacturing. In recent years, in response to increasingly strict standards imposed on waste disposal contractors, each facility, besides intensifying the advocacy of proper waste classification, storage, and labeling, also endeavors to reduce waste production. This ensures that waste disposal aligns with legal regulations.

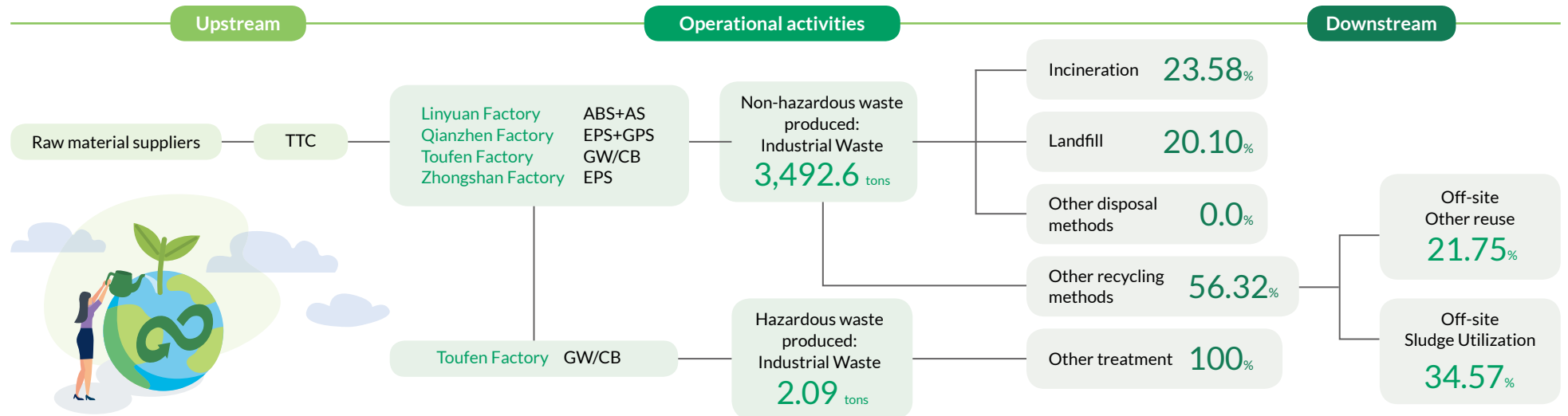
TTC adheres to waste management regulations, commissioning certified disposal organizations for waste treatment. We require these operators to provide proper handling documents, periodically check on the commissioned waste management status, and report on disposal volumes. Using the Global Positioning System (GPS) installed on waste disposal vehicles, we verify if the transportation routes align with the designated waste treatment facilities, conducting random vehicle inspections and establishing an autonomous waste inspection system to diligently fulfill our responsibilities. In 2022, a total of 17 inspections were conducted. The results complied with relevant legal stipulations, and each facility's waste generation and proper handling rate was 100% (Note: The proper waste handling rate indicates that all factory waste is properly treated by certified disposal contractors as per regulations). This aligns with our annual target.



## Waste Generation and Disposal Process

In 2022, TTC's total waste generation was 3,494.7 tons, a 5.34% decrease compared to 2017. Most of the waste generated by the facilities was non-hazardous. However, due to the cessation and reorganization of the curved printing process at Toufen factory, 2.09 tons of hazardous waste were produced. The primary disposal methods for general industrial waste were incineration (23.58%) and landfill (20.10%). Other recycling operations included other reuse at 21.75% and sludge resource utilization at 34.57%. 100% of hazardous industrial waste was cleaned and directly disposed of by qualified contractors. The waste generation, transfer, and disposal volumes of each facility over the past three years are detailed in the table below.

### Flowchart of Waste Generation for TTC



### TTC's Waste Production, Transfer, and Disposal in the Last 3 Years

Unit: m.t.

Factory	Hazardous/Non-hazardous	Type of Disposal	Method of Disposal	2020	2021	2022	
Linyuan Factory	Non-hazardous waste	Direct Treatment of General Industrial Waste	Incineration (including non-recyclable waste)	674.7	690.8	542.9	
			Burial	5.1	0.0	0.0	
			Other treatment	0.0	0.0	0.0	
		Total weight of non-hazardous waste			679.7	690.8	542.9
		Other recycling operations	Other reuse	15.9	52.8	26.5	
			Sludge Utilization	849.0	938.3	914.6	
		Total weight of non-hazardous waste			1,544.6	1,681.9	1,484.0

Factory	Hazardous/Non-hazardous	Type of Disposal	Method of Disposal	2020	2021	2022	
Qianzhen Factory	Non-hazardous waste	Direct Treatment of General Industrial Waste	Incineration (including non-recyclable waste)	74.6	92.6	72.1	
			Landfill	0.0	0.0	0.0	
			Other treatment	0.0	0.0	0.0	
		Total weight of non-hazardous waste			74.6	92.6	72.1
		Other recycling operations	Other reuse	100.8	73.9	68.8	
			Sludge Utilization	273.4	324.2	292.8	
Total weight of non-hazardous waste			448.8	490.7	433.7		
Toufen Factory	Non-hazardous waste	Direct Treatment of General Industrial Waste	Incineration (including non-recyclable waste)	32.1	30.1	50.6	
			Landfill	0.0	0.0	0.0	
			Other treatment	0.0	0.0	0.0	
		Total weight of non-hazardous waste			32.1	30.1	50.6
		Other recycling operations	Other reuse	722.3	606.0	664.4	
			Sludge Utilization	0.0	0.0	0.0	
Total weight of non-hazardous waste			754.5	636.1	715.0		
Zhongshan Factory	Non-hazardous waste	Direct Treatment of General Industrial Waste	Incineration (including nonrecyclable waste)	219.0	203.0	157.9	
			Landfill	436.9	575.4	702.0	
			Other treatment	0.0	0.0	0.0	
		Total weight of non-hazardous waste			655.8	778.4	859.9
		Other recycling operations	Other reuse	0.0	0.0	0.0	
			Sludge Utilization	0.0	0.0	0.0	
Total weight of non-hazardous waste			655.8	778.4	859.9		

Note: The "Other Recycling Operations" refers to the resource recovery of sludge. This is carried out by qualified processing plants using a thermal treatment method, after which it is used as a supplementary material for cement (not a product of TTC).

Factory	Hazardous/Non-hazardous	Type of Disposal	Method of Disposal	2020	2021	2022
Toufen Factory	Hazardous waste	Direct Treatment of Toxic Industrial Waste	Other treatment	-	-	2.09
		Total weight of hazardous waste			-	-

## Waste Management Operations

### Linyuan Factory

Since 2018, wastewater sludge has been dehydrated using a plate-and-frame type dehydrator, with the addition of a dryer to further reduce moisture, achieving sludge reduction. Some secondary materials (coagulants) from the process are sold to manufacturers as raw materials, reducing waste coagulant production. ABS powder in the process wastewater is also recycled for reuse, reducing sludge waste. Plans are in place to further reuse and recycle waste plastic within the factory to improve the waste reuse rate.

### Zhongshan Factory

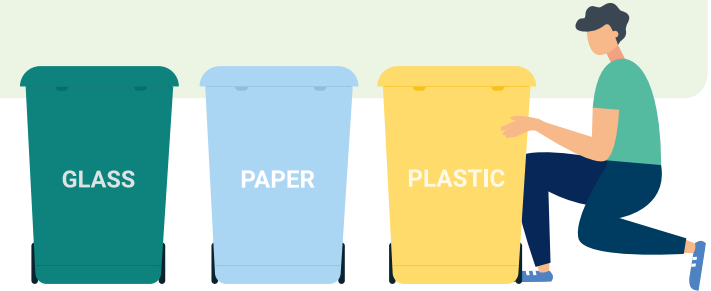
Waste wood generated is sold for incineration by a management unit. Regular household waste is collectively recycled and incinerated by government sanitation units. Sludge is landfilled by a third-party company, while hazardous waste, with the consent of the Zhongshan City Environmental Protection Bureau, is processed by qualified companies.

### Toufen Factory

In 2015, they successfully developed a method to reuse waste glass wool, significantly reducing the need for waste landfilling. From 2016, through process waste reduction and repackaging of defective products, quality-inspected cotton that can be reused is sent back to the production line for packaging, reducing the handling of waste cotton. This has led to a continuous decrease in waste disposal. In 2022, the curved printing process was discontinued, reducing waste output.

### Qianzhen Factory

Starting in 2018, wastewater sludge has been dehydrated using a plate-frame sludge dehydrator, reducing sludge weight. The sludge machine cleaning process was further optimized to improve efficiency. The factory plans to reuse its own waste to reduce waste generation.



Each factory's waste management and reduction plans are as follows:

### Improvement Plans for Waste Management in 2022 and 2023

Factory Area	2022 Improvement Initiatives	2023 Planned Initiatives
Linyuan Factory	Addition of a PVA-Gel aeration biotreatment tank to the A line of wastewater treatment, aiming to enhance COD treatment capacity. It is estimated that the effluent COD will decrease by 20%, reducing sludge production by 108 tons/year.	Planning the processing method for in-factory waste (plastic) to improve the recycling volume.
Qianzhen Factory	Pallets attached to raw material shipments are discussed for recycling and reuse with interested manufacturers, maximizing resource utilization.	Opt for high-durability plastic pallets to reduce plastic waste by reusing multiple times.
Toufen Factory	Reduce process waste, repackaging defective products, and after quality control inspection, the usable cotton is returned to the production line, reducing waste cotton handling and continuously decreasing waste disposal.	Continuous promotion of the 2022 improvement plan.
Zhongshan Factory	<ul style="list-style-type: none"> <li>Strengthen process management to reduce end-of-pipe treatment.</li> <li>Reuse EPS with non-standard particle sizes and periodically sell scrap to downstream manufacturers.</li> </ul>	Continuous promotion of the 2022 improvement plan.