5 Environmental management

Due to environmental degradation, energy and natural resource scarcity, intensified climate change, and stricter government regulations, businesses face pressure and challenges. Facing these external pressures is both a challenge and an opportunity. We continue to promote the work of "energy conservation and carbon reduction" with practical actions in an honest and responsible attitude. We set the environmental protection goals of power, energy and water conservation and carbon reduction and try our best to reduce the impact of business operations on the environment, further achieving the eco-friendly goals of low pollution and low energy consumption.

5.1 Environmental Management Policy

CGPC (including subsidiaries TVCM and CGPCP, and excluding overseas invested affiliates, and the same applies to the rest of the chapter) considers the protection of personnel safety and health and the environment and ecosystem as the goals of environmental management. We have always complied with environmental protection and occupational health and safety regulations, continuously and effectively implemented practices such as reusing and recycling of leftover materials, pollution prevention, energy/resource conservation and recycling, industrial waste reduction, and promoting harmonious relationships with our neighbors. All factories of CGPC have passed the ISO 14001 environmental management system verification, providing a good environmental protection framework, reducing the impact on the environment due to accidents, and ensuring compliance with regulations. The certifications or product-related certificates obtained by the Company (please refer to the website: Environmental/ Product Certifications).

The Taskforce on Nature-related Financial Disclosures (TNFD)

CGPC deeply recognizes the importance of biodiversity conservation in maintaining global ecosystem stability and the long-term well-being of humanity. Therefore, the Company actively promotes various initiatives to reduce the ecological impact of its operations. CGPC regularly uses biodiversity risk assessment tools to examine the extent of the Company's dependence on and impact on the natural environment. According to the WWF Biodiversity Risk Filter assessment, CGPC's operational activities are identified as high risk in the area of "pollution." Therefore, CGPC adopts the "Mitigation Hierarchy" approach proposed by the TNFD, prioritizing "avoidance" and "minimization" measures. All manufacturing sites are located within industrial parks to "avoid" proximity to globally or nationally important biodiversity areas, thereby reducing the risk of ecosystem disturbance. Pollution emissions are "minimized" by strengthening emission control and monitoring mechanisms. In terms of pollution control, CGPC aims to exceed regulatory requirements and actively implements various measures to reduce the environmental impact of its operations. To address air pollution, CGPC has installed volatile organic compound (VOC) treatment facilities, including activated carbon adsorption towers and incineration equipment. In addition, pre-treatment units have been added for high-concentration process exhaust to enhance overall treatment efficiency and ensure that emissions consistently meet environmental standards. At the same time, CGPC promotes a comprehensive waste management system. Dedicated personnel are assigned to handle daily management, and irregular internal audits are conducted to ensure that waste storage methods and labeling practices comply with relevant regulations. The Company also continuously monitors the quality of operations performed by waste treatment contractors. To strengthen tracking of waste flow, the Company rigorously reviews the qualifications of removal and treatment vendors and has implemented a GPS tracking system to monitor transportation routes and final destinations of waste, ensuring proper disposal and minimizing potential environmental risks. In addition, CGPC values transparency in environmental information, actively communicates with stakeholders, strengthens climate risk management and response measures, and participates in local environmental protection activities to improve the local ecological environment through concrete actions and promote sustainable community development.

5.1.1 Hazardous Substances and Waste Management (SASB：RT-CH-150a.1)

1. All raw materials and products used by CGPC have passed the inspection of Restriction of Hazardous Substances (RoHS) to prevent the impact of the products on the environment.
2. Hazardous air pollutants discharged from production all meet the emission standards for hazardous air pollutants from stationary sources to reduce the impact on the environment.

Hazardous Substances and Waste Disposal and Management

- **Hazardous Substances Disposal and Management**
  CGPC takes comprehensive measures in the management of hazardous substances across its research, procurement and production activities. From the assessment to the use, management and disposal processes, the company strictly adheres to standards and relevant regulations to minimize its operational impact on the natural environment and human health.
- **Following Domestic and International Standards and Establishing Systems**
  In order to prevent hazardous substance-related accidents, reduce occupational hazards, ensure the health of employees, and comply with government regulations, CGPC has established operational standards such as "Hazardous Substance General Management Guidelines," "Specific Chemical Operations Management Guidelines," "Lead Operations Management Guidelines," "Dust Operations Management Guidelines," and "Organic Solvent Operations Management Guidelines." These guidelines are in place to effectively control the safe use of hazardous substances.
- **Management Structure**
  Please refer to the "CGPC Hazardous substance safety management structure" link.

Hazardous Substances and Waste Disposal and Management

- **Implementation Status**
  Regarding the product design and development process, we adhere to international guidelines and standards. The content of hazardous substances in our products complies with environmental regulations and meets the green product requirements of our customers. We have established relevant management regulations to ensure proper control and management.

- **Various Guidelines:**
  - New Product Development Management Guidelines
  - Product Environmental Substance Management Guidelines
  - Initial Product Quality Planning Guidelines
  - Raw Materials Inspection Operations Guidelines
  - Raw Materials and Finished Product Management Guidelines
  - Processing Finished Product Management Guidelines

In terms of the use, management, and disposal of hazardous substances, we strictly follow legal procedures. We require relevant personnel to obtain technical certifications and install detection and alarm systems in the work environment. In terms of environmental and safety aspects, we implement operational environmental monitoring for hazardous substances to ensure that the exposure concentration does not have adverse health effects on our employees. We also implement chemical classification management to effectively prevent potential health hazards caused by hazardous substances to our employees. During the production, service and related activities, we handle waste gases and wastewater properly, ensuring compliance with national emission standards.

In 2024, we conducted measurements of harmful substance concentrations in the work environment air, covering a total of 20 types. The results showed good control of these substances. In 2024, the total quantity of hazardous industrial waste generated by CGPC and TVCM was 170.06 metric tons. Of this amount, 89.4% was reused, while 10.6% was disposed of through landfilling. (As shown in the table below). Furthermore, CGPC conducts regular visits to the waste disposal contractors to ensure proper handling of the waste.

2024 Hazardous Substances Treatment Methods and Quantity Statistics

(Unit: ton)

Item	Year	Final Disposal Method	CGPC	TVCM
Hazardous Industrial Waste	2024	Landfill	4.56	13.45
		Reuse	124.09	–
		Preparation for Reuse	28.50	–

Description: In 2024, the total quantity of hazardous waste was 170.06 metric tons, with a reuse rate accounting for 89.4% of the total and landfilling accounting for 10.6%.

5.1.2 SASB Chemical safety and environmental management (SASB: RT-CH-410b.1)

The performance indicators of CGPC's chemical safety and environmental management are calculated based on hydrochloric acid, caustic soda, and bleaching water used, and the chemical classification management and exposure assessment are carried out according to their related hazards. The data of various indicators are as follows:

1. The percentage of product revenue (%) of products containing chemical substances classified as Type 1 and 2 health and environmental hazards by the GHS hazard categories, CGPC is 10.94% and TVCM is 100%.
2. The percentage (%) of relevant products that have undergone hazard analysis is 100%. Besides, as hydrochloric acid, caustic soda, and bleaching water are not chemicals of high concern, they have less significant impact on humans and the environment.

CGPC's Green Transformation Achievements

To fulfill its commitment to corporate sustainability and low-carbon transition, CGPC has invested approximately NTD 6.5 billion in recent years to upgrade its facilities, introduce smart manufacturing, improve energy efficiency, and strengthen environmental management. With guidance from the Foundation of Taiwan Industry Service, CGPC began implementing process improvements and energy-saving, carbon-reduction measures in 2023. In June 2024, the Company obtained the "Clean Production Assessment System Certificate". Later that year, in November, the fabric coating plant (machines 41 and 43) at the Toufen main factory was also awarded the "Green Building Label Certificate", demonstrating CGPC's commitment to low-carbon and sustainable manufacturing.


綠建築標章證書


清潔生產評估系統合格證書
Certificate of Cleaner Production Assessment

證書編號：CP0158

茲證明 華夏海灣塑膠股份有限公司頭份總廠
This is to certify that China General Plastics Corporation Main Plant

通過「綠色工廠標章之清潔生產評估系統評定」
has passed *the Cleaner Production Assessment System of the Green Factory Label*

工廠地址：苗栗縣頭份市民族路571號
負責人：蔡沛宏
有效期限：113 年 06 月 15 日至 116 年 06 月 14 日
評估依據：一般行業清潔生產評估系統

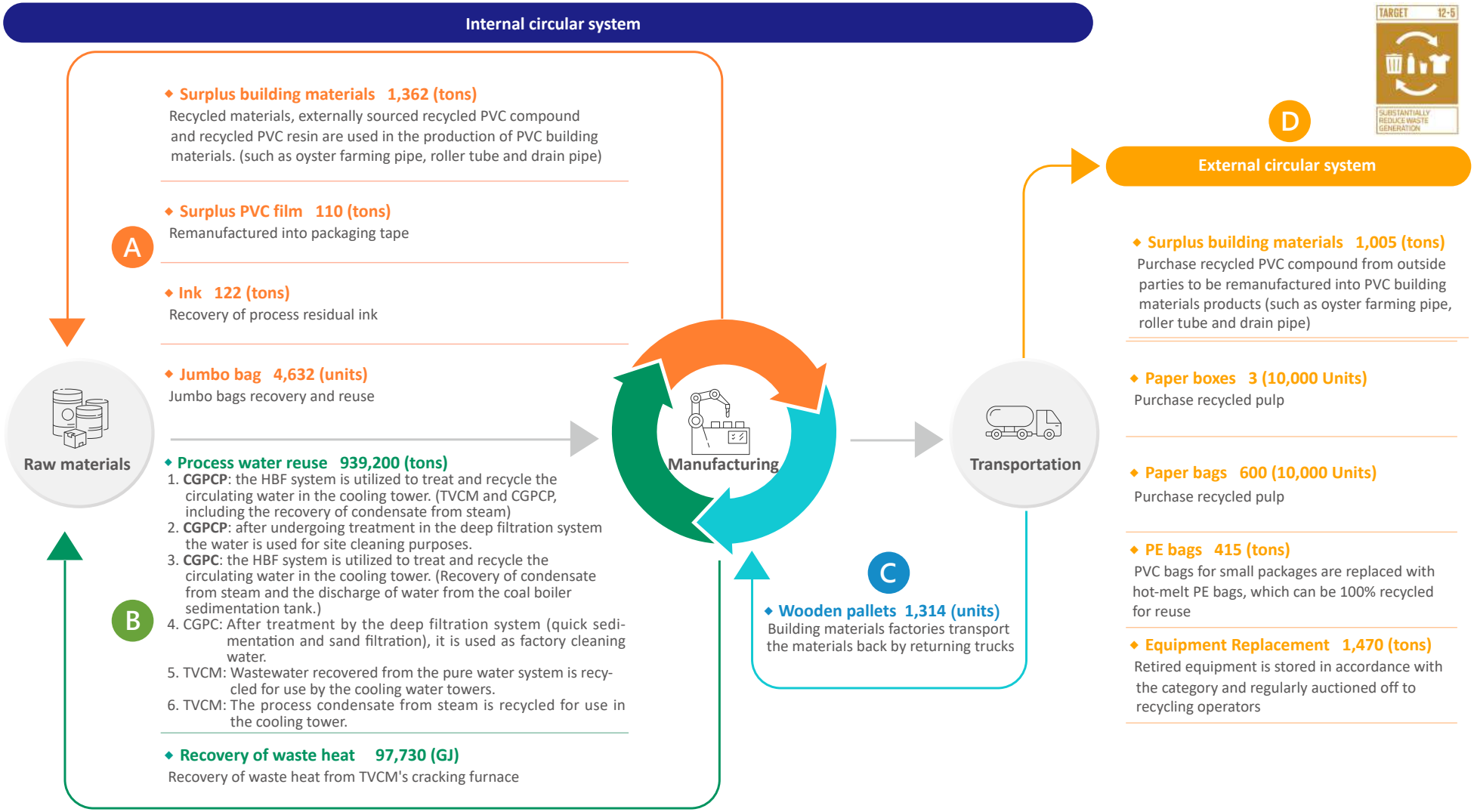
Address : No. 571, Minzu Rd., Toufen City, Miaoli County, Taiwan
Responsible Person : Pei Hung Tsai
Valid Period : 15 Jun., 2024 to 14 Jun., 2027
Assessment Method : Cleaner Production Assessment System—General

經濟部產業發展署署長 連錦漳
Director General, Industrial Development Administration, Ministry of Economic Affairs

中華民國 113 年 06 月 15 日
15 June, 2024

5.1.3 Description of recycling

CGPC values the efficiency of resources use and have adopted the circular model of recovery and re-use of raw materials and supplies, manufacturing process and distribution. In 2024, the internal and external results of circular economy practices are shown as follows:



2025 Group Strategy and Certification Plan for Sustainable Packaging Materials

1. Under the premise of maintaining product quality, the Group actively promotes packaging reduction through the following measures:

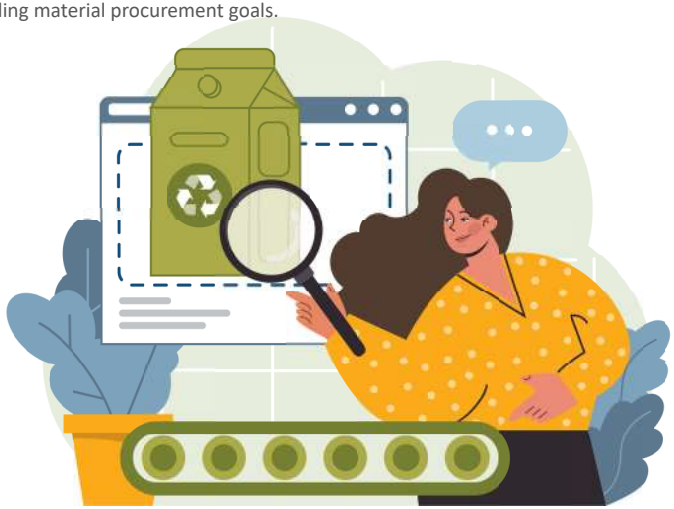
- Replacing single-use paper cores with recyclable plastic cores: Group-produced recyclable plastic cores are used to replace externally purchased single-use paper cores, significantly reducing waste and increasing packaging material reuse rates.
- Carton-free packaging: New carton-free packaging solutions are introduced to reduce paper box usage and waste.

2. Benefits:

- Reduces storage space and labor required for handling discarded packaging materials, and lowers transportation carbon footprint.
- Decreases packaging costs, eliminates the need for unpacking, and reduces occupational safety risks.
- CGPC uses recycled pellets to produce plastic cores, which can be reused multiple times and recycled again, achieving source reduction.

3. Sustainability Planning by the Group and CGPC Building Materials Plant:

- Innovative product applications within the Group: Waste information is integrated to promote recycling and reuse, thereby increasing the value of new products.
- CGPC Construction Manufacturing Department: In July 2025, the department initiated the ISO 14021 verification for recycled material content (PVC-U pipes、UPVC for electric conduit use) and will begin carbon footprint calculation to support customers in achieving their green building material procurement goals.



2024 circular economy implementation results for building materials products

- Since 2021, the building materials plant has begun to collect all kinds of recycled materials and recovered PVC resin in the plant, and purchased recycled rubber pellets to be put into production of new products for sale, striving for environmental protection.
- 2024 recovery and reuse volume of pipes: **2,367** tonnes, the recovery and reuse rate accounts for 14.5% of the 2024 product volume of piping materials.

5.2 Climate Change and Energy Management (GRI 201-2、302-4、302-5、2-4、3-3)

CGPC is committed to mitigating greenhouse gas emissions for sustainable development. We formulate improvement plans on the basis of various management operating systems (ISO 50001, ISO 14064-1, ISO 14067, ISO 46001, ISO 14046, PSM, GRS) and with reference to several international and technological developments. Through academia-industry collaborations introducing AI, big data, and algorithmic technology, we combined professional knowledge with practice to elevate various performances. Examples include the establishment of renewable energy, separation and recycling of wastewater, rainwater and sewage, energy conservation and carbon reduction solutions, and the establishment of a smart energy management system. Additionally, annual carbon reduction targets are appropriately set according to the carbon reduction targets set by the Group. Each year, review is conducted for continuous implementation of the old facility replacement plan to build a smart factory.

Material issue : Climate change and energy management Main target : SDG 13.3, Secondary target : SDG 7.3

The Significance and Impact of CGPC

With the deterioration of the environment and ecology, shortage of energy and natural resources, exacerbation of climate change and stricter government laws and regulations, CGPC takes concrete actions to continuously promote and implement energy conservation, carbon reduction, and the development of green products to meet government requirements. Affected Parties: Government agencies, supply chains, communities, and employees.

Develop Strategy

Renovation and replacement of old equipment and Improve equipment efficiency in order to achieve the eco-friendly goals of low pollution and low energy consumption.

Policy Commitment

Reduce carbon emissions (Scope 1 and 2) by 27% in 2030 compared to 2017, long-term goal: carbon neutrality by 2050.

Grievance Unit

Engineering Department

SASB Indicator

- RT-CH-110a.1
- RT-CH-110a.2
- RT-CH-130a.1

Indicator items	Unit	2024 goal	2024 result	2025 goal	2027 goal	2030 goal
GHG emissions	10,000 tons of CO_2e	30.10	28.28	26.85	28.99	29.97
Energy consumption per unit of core product - CGPC PVC Resin	GJ/ton	2.46	2.46	2.46	2.44	2.44
Energy consumption per unit of core product - TVCM VCM		6.94	6.94	6.96	6.81	6.67
Energy consumption per unit of core product - CGPCP PVC Resin		2.12	2.12	2.08	2.04	2.02

Note : 1. Starting from 2023, the scope of inventory includes CGPC's subsidiaries in the consolidated financial statements, with a coverage rate of 100%.
2. In 2024, the greenhouse gas emissions data for TVCM and CGPCP are based on third-party verification, while CGPC's data are based on internal inventory.
3. As the Vinyl Chain achieved its targets ahead of schedule, the goals have been adjusted based on production changes and carbon reduction strategies.

Exceeded Target | Achievement | Partially achieved | Not met

5.2.1 Climate change management (GRI 201-2、302-3)

Climate change is a global challenge that requires collective action. In order to align with international standards and address the needs of sustainable development, the ROC government announced on February 15, 2023 the amendment of the "Greenhouse Gas Reduction and Management Act" to the "Climate Change Response Act".

In the face of the impact of climate change, carbon reduction has become a global goal. In early 2022, USI Group set the 2030 carbon reduction goal of "27% reduction in carbon emissions in 2030 compared to 2017", and in 2023, it set "carbon neutrality by 2050" as the long-term goal of the Company.

Striving to achieve its vision of corporate sustainability, USI Group actively implements corresponding countermeasures and management mechanisms. The Group continues to implement ISO 14064-1 greenhouse gas inventory and verification at its domestic production factories and plans and implements carbon reduction plans. It also develops external renewable energy projects. As of the end of 2024, the cumulative grid-connected capacity of solar energy projects has reached 8.6MW. It can generate about 10.73 million kWh of green electricity every year.

CGPC has planned a carbon reduction path in accordance with the Group's carbon reduction target by 2030. In 2024, greenhouse gas emissions have decreased by 31.1% from the baseline year (2017), and we will be more proactive in implementing energy-saving and carbon reduction plans in the future. The medium-term carbon reduction strategy will be towards low-carbon energy transformation, energy efficiency improvement, intelligent monitoring, and the installation and use of renewable energy. The long-term carbon reduction strategy will continue to focus on low-carbon fuels, carbon capture, and reuse technology, and carbon negative technology to implement carbon reduction strategies. It is a goal to achieve carbon neutrality and promote sustainable development.

To achieve sustainable operations, CGPC has proposed various renovation plans since 2016, all of which have been completed successively. For detailed information, please refer to the ESG Video Section - Introduction to Various Improvements.

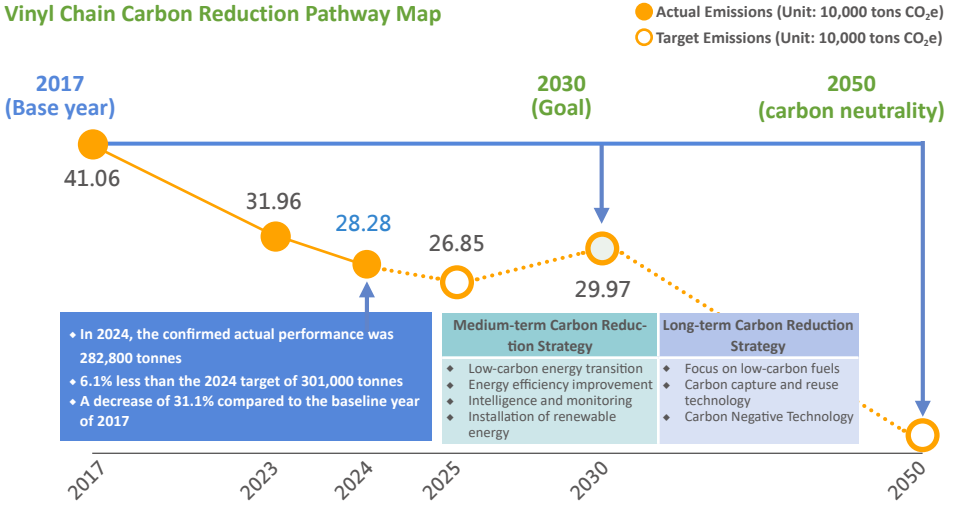
Vinyl Chain Carbon Reduction Pathway Planning

(Unit: tons CO_2e)

Company	2017 Base year Scope 1, 2	2022 Performance Scope 1, 2	2023 Performance Scope 1, 2	20224 Performance Scope 1, 2	2030 Goal Scope 1, 2
CGPC	150,575	118,783	104,899	**90,679**	109,920
TVCM	210,713	179,079	176,681	**160,511**	153,821
CGPCP	49,292	38,978	38,032	**31,598**	35,984
Total	410,580	336,840	319,612	**282,788**	299,725

Note:
1. The scope of the 2022 inventory includes CGPC Main plant, and TVCM and CGPCP plants in Linyuan. Scope of inventory starting in 2023: (1) CGPC includes: CGPC Main plant, Taipei office, and overseas subsidiaries. (2) TVCM Company includes: TVCM Linyuan plant, Taipei office, and GGTC Company. (3) It was Linyuan plant for the CGPCP Company. The above are CGPC's subsidiaries in the consolidated financial statements, and their coverage rate is 100%. The difference between the emissions in the inventory scope in 2023 and the emissions in the inventory scope in the base year is 0.1%.
2. Scope 1: The main emission sources include natural gas, fuel coal, gasoline, and diesel. Scope 2: Include purchased electricity and purchased steam. Scope 3 items are temporarily excluded from the carbon reduction pathway planning. GHG inventory includes: CO_2, CH_4, N_2O, and HFCs.
3. CGPC (Main plant) has been conducting greenhouse gas emissions inventory based on ISO 14064-1:2018 and has obtained third-party verification since 2022.
4. TVCM (Linyuan plant) and CGPCP (Linyuan plant) have been conducting greenhouse gas emissions inventory based on ISO 14064-1:2018 and have obtained third-party verification since 2021.
5. In 2023, the greenhouse gas emissions data for CGPCP (Linyuan factory) were originally based on internal inventory. The data have been revised in accordance with the third-party verification statement for that year.
6. CGPC (Main Plant), TVCM (Linyuan Plant) and CGPCP (Linyuan Plant) obtained the 2024 Greenhouse Gas Verification Report Opinion. For other annual certificates, please refer to the Climate Change and Energy website.
7. For the greenhouse gas emissions assurance report of CGPC Consolidated Financial Statements, please refer to the website.

Vinyl Chain Carbon Reduction Pathway Map



Note 1: The target was set using 2017 as the base year.
Note 2: The Vinyl Chain's carbon reduction pathway covers Scope 1 and 2 emissions. Due to a sharp decline in production, the 2030 target was achieved ahead of schedule.

(Unit:10,000 tons CO_2e)

2024			2025
Target Emissions	Actual Emissions	Achievement rate	Target Emissions
30.10	28.28	106%	26.85

Note: Achievement rate = 2024 target emissions/2024 actual emissions

The Group's cross-factory technical exchange seminar in 2024

The USI Corporation holds an annual "Group Plant Technical Case Presentation" and several "Northern/Southern Plant Resource Integration Meetings" each year. Through technical sharing and problem-solving discussions between plants, the Group promotes resource sharing and enhances energy-saving and carbon-reduction performance.

The 2024 Group Plant Technical Case Presentation was held on November 14 in a competition format, focusing on the core themes of "Occupational Safety and Environmental Protection," "Equipment Preventive Maintenance," and "Energy Conservation and Carbon Reduction." After case submissions and a document review process, seven cases advanced to the final presentation round. Senior executives and representatives from participating plants jointly voted to select the top three outstanding cases. Certificates and cash awards were presented by the Group Chairman. Through this selection, recognition, and cross-plant exchange, the event fostered mutual learning and elevated the Group's overall technical capabilities.

Implementation and results

Promote establishment of the ISO-50001 energy management system

- As of 2022, the USI Group has successfully verified 9 plants.

CGPC has obtained ISO 50001 energy management certification, valid from December 26, 2022, to November 17, 2025.
TVCM has obtained ISO 50001 energy management certification, valid from April 13, 2024, to April 13, 2027.
CGPCP has obtained ISO 50001 energy management certification, valid from June 25, 2025, to July 31, 2028.

Actively carry out energy conservation and carbon reduction actions

- Continue to participate in the Earth Hour movement to reduce environmental impact.

2024 Technical Case Award Information:

Item	TVCM (Linyuan Plant)	CGPCP(Linyuan Plant)	CGPC (Main Plant)
Award Descriptions	Awarded the Group's Technical Exchange Case Studies (Second Place)	Awarded the Group's Technical Exchange Case Studies (Third Place)	Awarded the Group's Technical Exchange Case Studies (Excellent)
Project Name	TVCM Intelligentization Project Results	Hot Ultrapure Water System Optimization	360-Degree AOI Intelligent Safety System for Forklifts and Improvement of Thermal Imaging System for High-Voltage Panels
Presenter	Section Chief Kuan-Yu Hou	Section Chief Yen-Chieh Li	Section Chief Chieh-Lin Chuang

5.2.2 Climate change management framework

At CGPC, the ESG Committee under the Board of Directors is the highest committee for climate management. It is chaired by an independent director and the Committee reviews the Company's climate change strategy and goals, manages climate change risks and opportunities, and reviews the yearly implementation status, and reports to the Board of Directors. CGPC uses the framework provided by the Task Force on Climate-related Financial Disclosures (TCFD) to identify climate-related risks and opportunities. It assesses risks and opportunities across different departments, assesses the financial impact, and establishes response plans. It restarts the full assessment every three years and reviews and updates it every year.

Process for Identifying Climate Risks and Opportunities

1. Collect climate risk and opportunity issues
Based on the Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP), the National Science and Technology Center for Disaster Reduction, Group strategies, industry characteristics, Taiwan's Intended Nationally Determined Contributions (INDC), and TCFD indicators, risk and opportunity factors under climate change were identified.

2. Identify risk and opportunity of significant items
A questionnaire survey was conducted with the ESG Committee and senior management to assess the relevance of each risk to the Company's operations and the expected time frame of its potential impact, as well as the development potential and feasibility of each opportunity.

3. Develop a risk and opportunity matrix diagram.

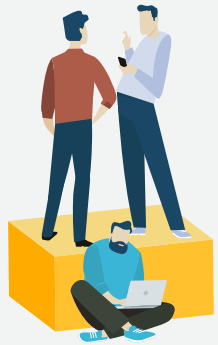
4. Assess potential financial impacts and formulate response strategies and management mechanisms to address possible effects of climate change across various aspects.

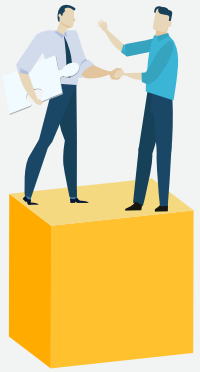
IFRS Sustainability Disclosure Standards

According to the "Roadmap for Aligning Taiwan with the IFRS Sustainability Disclosure Standards" released in August 2023, listed companies in Taiwan will begin applying the IFRS Sustainability Disclosure Standards in three phases starting in 2026. In 2024, the USI Corporation established a cross-departmental IFRS task force, with implementation progress reported quarterly to the Board of Directors of USI Corporation for oversight. The IFRS task force is led by the Group Chief Financial Officer and consists of two cross-functional teams: the Operational Impact Team and the Financial Impact Team. These teams collaborate to assess the potential financial impacts and effects of material risks and opportunities on the Company. CGPC is a member of the Operational Impact Team. In 2024, the task force completed its establishment, conducted a gap analysis against the IFRS standards, and formulated an implementation plan.

Work Plan for Implementation

Tasks by Phase	1 Analysis and Plan	2 Design and Execution			3 Implementation	4 Adjustment and Improvement
Schedule	**2024 Q4**	**2025 Q2**	**2025 Q3**	**2025 Q4**	**2026 Q3 - Q4**	**2027 Q1**
Summary of Implementation Items	◆ Establish a cross-departmental task force for adopting the IFRS Sustainability Disclosure Standards ◆ Initially identify major differences and impacts between current sustainability information and the IFRS Sustainability Disclosure Standards ◆ Initially identify the reporting entity ◆ Formulate an implementation plan	◆ Identify sustainability-related risk and opportunity topics ◆ Assess the potential impacts of sustainability-related risks and opportunities on current and expected financial performance ◆ Evaluate whether sustainability-related information constitutes material financial information to be disclosed across metrics and targets, risk management, and strategy	◆ Inventory the sustainability-related data required within the Company's reporting boundary and across the value chain ◆ Establish the linkage between sustainability-related data and data used in financial reporting (e.g., inputs and parameters)	◆ Adjust and refine company processes, including financial and non-financial reporting procedures, information systems, supply chain management processes, internal controls, and daily operations across departments	◆ Pilot the preparation of the sustainability section in the annual report ◆ Continuously update the internal control operating manual related to IFRS sustainability information and conduct training programs	◆ In accordance with the IFRS Sustainability Disclosure Standards, disclose relevant information in the sustainability section of the 2026 annual report, and complete public announcement and filing simultaneously with the 2026 financial statements.





TCFD Structure

2024 Vinyl Chain TCFD Report

Governance

- **ESG Committee**

Climate change management is organized at the highest level, with an independent director serving as the chair. The committee oversees annual planning and performance reporting on climate change initiatives and reports the results to the Board of Directors.

- **Business management meetings**

The Chairman of the Board serves as the chair and is responsible for irregular planning and reporting on major energy-saving and carbon reduction policies and their outcomes.

- **Quarterly report meeting of the Group's Environmental Protection Office**

Serves as the highest level of energy management in the USI Corporation. It takes place every quarter and involves reporting on the planning, progress and making resolutions to the Chairman.

- **Group Green Energy Task Force**

Serves as the primary unit responsible for promoting green energy initiatives within the USI Corporation. Reports to the Chairman on the progress and future plans of green energy development on an irregular basis.

Strategy

- **Scenario Analysis**

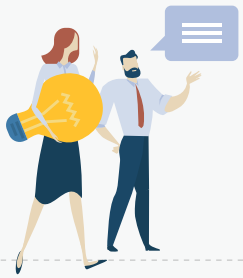
Assess physical risks under different climate scenarios.

- **Identify risks and opportunities**

Assess material risks and opportunities based on the relevance and likelihood of risk items, as well as the operational feasibility and development potential of opportunity items.

- **Assess potential financial impact**

Conduct potential financial impact assessments for the identified material risks and opportunities.



Risk management

- **Implement TCFD**

Adopted the TCFD structure to identify risks and opportunities associated with climate change. This involves effective communication with relevant units and final confirmation by senior executives.

- **Present identification results**

Include the items in the Company's annual risk management assessment. Each year, the project secretary of the Sustainable Development Committee reports the control measures and management performance to the Sustainable Development Committee and the Board of Directors.

Indicators and objectives

- **Group's energy management objectives**

Energy management targets are set under the Group's carbon reduction goals, with 2017 as the base year, aiming for a 27% reduction by 2030 and carbon neutrality by 2050.

- **Climate adaptation strategies**

The medium-term carbon reduction strategy focuses on transitioning to low-carbon energy, improving energy efficiency, implementing intelligent monitoring, and installing and utilizing renewable energy. The long-term strategy continues to focus on low-carbon fuels, carbon capture and reuse technologies, and negative emission technologies.

- **GHG emissions disclosure**

Disclosed emissions data in Scope 1 to Scope 3 annually, and reviews periodically to analyze the reasons for any changes in emissions.

5.2.3 Identify climate risk and opportunity

To cope with the intensification of global climate change, we continue to adopt the TCFD framework to deepen the risk items that we may face in extreme climates and to grasp new business opportunities. With reference to the Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP) and the National Science and Technology Center, and based on the RCP 8.5 scenario, we estimate the temperature rise, rainfall, flooding, and drought between 2016 and 2035. List three physical risk topics, and based on the group's strategy, industry characteristics, country's Intended Nationally Determined Contributions (INDC), and TCFD indicators, 9 transition risks and 12 opportunity topics are listed, with a total of 24 potential risk and opportunity topics.

In 2023, the ESG Committee and senior unit executives conducted a questionnaire survey to assess the relevance of various risks to the Company's operations, the timing of possible impacts, and the developmental and enforceability of various opportunities. A total of 21 questionnaires were collected. After the statistical analysis of the team, 12 material climate issues (2 physical risk items, 4 transition risk items, and 6 opportunity items) were identified.

We assess the potential financial impacts and formulate countermeasures and management mechanisms of 12 major risks andopportunities. The goal is to grasp the possible impacts of climate change on all aspects, reduce the operational impact that may be caused by extreme weather, and establish a resilient climate change culture.

Climate-related risk items are divided into 3 intervals according to the time period of occurrence of impacts: short-term (<3 years), medium-term (3-7 years), long-term (>7 years). The impact of climate-related opportunity items on the Company's development and technical feasibility is divided into 5 levels, corresponding to the following table:

Type	Item	Time frame of occurrence
Physical Risks	Floods and Inundation	Intermediate-term (3 to 7 years)
	Drought	
Transition Risks	Carbon Fee	Short-term (< 3 years)
	Renewable Energy Regulations - Risk of Clause for Large Power Users	
	Low-carbon technology transition	
	Rising raw material prices	

Type	Item	Development	Technical feasibility
Opportunities	Efficient production	With development potential, as part of the Company's policy	Under expansion
	Recycling and Reuse - Circular Economy		
	Reduce water usage and waste		Matured
	Use low-carbon energy		
	R&D and innovation for developing new products and services - R&D of low-carbon energy-saving products		Under expansion
	Better Use of Public Sector Incentives		

Category	Item	Risk Topic
Physical Risks	1	Floods and Inundation
	2	Drought
	3	High temperature
Transition Risks	4	Government regulation or supervision
	5	Carbon Tax/Fees
	6	Product Efficiency Regulations and Standards
	7	Renewable Energy Regulations
	8	Changes in customer preferences
	9	Credit risk
	10	Low-carbon technology transition
	11	Uncertainty of market information
	12	Changes in raw material prices

Category	Item	Risk Topic
Oppor-tunity Topics	1	Adopt more efficient transportation methods
	2	Use more efficient production and distribution processes
	3	Recovery and reuse
	4	Shift to more efficient buildings
	5	Reduce water usage and waste
	6	Use low-carbon energy
	7	Use of new technology
	8	Participate in carbon trading market
	9	Develop and/or increase low-carbon products and services
	10	R&D and innovation in developing new products and services
	11	Enter new markets
	12	Better Use of Public Sector Incentives

Group Promotion of Internal Carbon Pricing

In Taiwan, three subsidiary regulations on carbon fees were officially announced on August 29, 2024, followed by the announcement of the carbon fee rate on October 21. Starting in 2025, emission volumes will be formally included in carbon fee calculations, marking the beginning of a carbon-pricing era. To proactively respond to government policies, effectively address climate change, and reduce carbon risks, the Company introduced an internal carbon pricing system in 2024. The price is based on the domestic carbon fee reference and was initially set at NTD 300 per metric ton, with plans for phased increases through periodic review. This system integrates carbon costs into the Company's decision-making and investment evaluation processes to assess the impact of carbon emissions on business operations, accelerate the implementation of carbon reduction measures, and drive low-carbon investments. In July 2024, the Company held two training sessions to help relevant departments understand the concept and application of internal carbon pricing and support implementation across all plants. Additionally, a general education course on carbon-related topics was conducted in September, open to all employees to raise awareness and professional capacity in carbon reduction, working together toward achieving carbon reduction goals.

5.2.4 Potential Financial Impacts of Risks and Opportunities and Corresponding Response Measures

Climate change issue	Issue Category	Description of Risk and Opportunity Items	Potential financial impact	Vinyl Chain Strategy and Response Measures
Flooding	Physical Risk / Chronic	1. According to data from the Water Resources Agency, if 500 mm of rainfall occurs within 24 hours, flooding of 0 to 1 meter is expected during the near term (2016–2035), lasting for one day. 2. Such heavy rainfall or flood events could cause plant shutdowns due to flooding, resulting in a decrease in revenue.	Increasing operating costs ◆ CGPC Main Plant invested NTD 12.11 million in stormwater drainage reconstruction in 2021. ◆ TVCM Linyuan Plant invested NTD 1.35 million in flood control and drainage measures in 2016.	1. Flood control measures at CGPC's Main Plant include: ◆ Drainage maintenance: The Administration Department regularly inspects and clears factory ditches to ensure smooth drainage. ◆ Flood preparedness: Sandbags are prepared in advance during typhoon warnings, and the plant maintains a sufficient stock of flood control materials. ◆ Drainage improvement: CGPC Toufen main factory completed reconstruction of two external outlets to improve drainage efficiency. Phase 2 will be reviewed alongside the heavy-duty tank project. 2. Flood control at TVCM: A stormwater retention basin was installed to meet regulatory requirements that rainwater can overflow offsite only after 30 minutes of heavy rainfall. Rainwater is stored in the basin and pumped to the wastewater treatment plant during this period. Note: In 2023, CGPC Toufen main factory, guided by the Green Foundation, adopted TCFD scenario analysis. "Flooding" was assessed as a non-material, long-term risk.
Drought	Physical Risk / Chronic	1. Based on the 1986 - 2005 baseline, the near-term (2016–2035) climate scenario shows 50–58 consecutive dry days per year, indicating potential water shortages or drought. 2. Abnormal climate may lead to water restrictions or shortages at the plant, potentially reducing production or causing full shutdowns.	Increased capital expenditure and operating costs ◆ In 2018, the two plants of Centrifugal Drying High Performance Bio-treatment and Filtration System (HBF) : approx. NTD 66.64 million invested, and CGPC expansion in 2023 will add NTD 26.19 million, totaling NTD 92.83 million. ◆ New water storage tank construction in 2021: total project cost approx. NTD 21 million. ◆ In 2024, approximately NTD 930 thousand was invested in HBF maintenance.	1. Ongoing water monitoring and conservation strategies: Continue monitoring internal and external water conditions, increase the use of HBF recycled water, and raise the cooling tower concentration ratio to improve water use efficiency. 2. Improved water recycling rate: Actively promote water improvement initiatives and strengthen the R2 water reuse rate to ensure sustainable use of water resources. 3. Rainwater harvesting and water storage facilities: The CGPC building materials plant has implemented rainwater reuse and constructed a 1,500-ton tap water storage tank to enhance water storage capacity. 4. Annual water-saving results: In 2024, CGPC and CGPCP achieved a water saving of 45.83 million liters/year through the HBF system. CGPC plans to apply for a preferential water consumption fee rate review in 2025. The R2 water reuse rates in 2022–2024 were 81.3%, 79.2%, and 81.1%, respectively (all targets met).
Renewable Energy Regulation - Risk of the High Electricity Consumption User Clause	Transition Risk / Policy and Legal	The "Regulations for Power Users with Contract Capacity Above a Certain Threshold to Install Renewable Energy Generation Equipment," issued by the Ministry of Economic Affairs, came into effect in 2021. The regulation requires electricity users with a contract capacity exceeding 5,000 kW to install renewable energy equipment equivalent to 10% of their contract capacity by 2025.	Increasing capital expenditure ◆ A total of NTD 100 million has been invested in rooftop solar installations with a capacity of 2.12 MW. Due to a fire incident in 2024 affecting 0.24 MW of the installed capacity, the plan was revised, and the regulatory requirement under the High Electricity Consumption User Clause will now be met in 2025. ◆ In 2024, approximately NTD 500 thousand was invested in green electricity purchased.	1. The rooftop of CGPC's Toufen main factory has a solar installation capacity of 1.88 MW. 2. In 2024, 97,000 kWh of green electricity was purchased.

Climate change issue	Issue Category	Description of Risk and Opportunity Items	Potential financial impact	Vinyl Chain Strategy and Response Measures
Carbon fee	Transition Risk / Policy and Legal	The Ministry of Environment released the draft "Carbon Fee Charging Regulations" on October 21, 2024, and plans to begin collecting carbon fees in 2025 from major emitters with annual emissions exceeding 25,000 metric tons.	High upfront capital expenditure, low carbon emissions in the long term, and reduced operating costs Based on a preferential carbon fee rate of NTD 100 per metric ton of CO_2e and an exemption threshold of 25,000 metric tons of CO_2e: ◆ CGPC and TVCM actively pursued voluntary reduction plans in 2025. Using the preferential rate of NTD 100, the estimated 2024 carbon fee is NTD 193.9 million, accounting for approximately 0.17% of the 2024 consolidated revenue. ◆ In 2024, the Vinyl Chain implemented multiple carbon reduction projects, achieving a total reduction of 3,888 metric tons of CO_2, resulting in a carbon reduction benefit of NTD 390,000.	1. CGPC is evaluating the use of internal carbon pricing as a shadow price to incorporate carbon costs into investment decisions and enhance the feasibility of carbon reduction projects. 2. Actively implementing carbon reduction initiatives, including equipment replacement, process improvement, and heat recovery projects. 3. Promoting intelligentization in plants by applying intelligent models to distillation columns to identify optimal operating conditions and reduce steam consumption per unit of product. 4. CGPC and TVCM obtained carbon offset quotas through GHG reduction projects. The first application was approved for 7,464 metric tons of CO_2e; the second application, expected in the second half of 2025, aims for a reduction quota of 22,028 metric tons of CO_2e. The total benefit of the second application is estimated at NTD 103.22 million (based on NTD 3,500 per metric ton). 5. In 2025, site-specific voluntary reduction plans will be proposed to apply for the preferential carbon fee rate.
Low-Carbon Technology Transition	Transition Risks/Energy, Technology	To reduce carbon emissions, the Company has invested in low-carbon technologies such as energy transition, efficiency improvement, and fuel substitution, leading to increased technology-related costs.	Increased capital expenditure; reduced operating costs ◆ In 2024, the Vinyl Chain invested approximately NTD 45.70 million in energy-saving and carbon reduction projects, achieving a reduction of 3,888 metric tons of CO_2e ◆ In 2024, green product procurement approved by the government totaled NTD 98.64 million. ◆ In 2024, the Vinyl Chain replaced outdated dewatering equipment, with an investment of approximately NTD 3.25 million. ◆ Introducing intelligent process management could save NTD 7.32 million by 2024.	1. All three Vinyl Chain plants have passed ISO 50001 energy management system certification. 2. Continue to promote energy-saving and carbon-reduction equipment improvement projects, such as replacing outdated equipment, recovering heat energy, introducing intelligent energy-saving systems, and applying energy-efficient coatings to cracking furnaces. 3. Since 2019, a green procurement program has been implemented through an online reporting system, with a primary focus on purchasing energy-saving equipment. 4. Investments in energy-saving equipment include pumps, motors, IE3 high-efficiency induction motors, inverters, gas boiler burners, LED bulbs, cooling tower circulation pumps, and fan replacements or inverter installations for fans. 5. Due to the electricity rate increase announced by Taipower on October 16, 2024, the electricity cost for the core production facilities of the three plants is expected to increase by NTD 97.07 million per year. The Company will actively invest in low-carbon technology transition to mitigate the impact.
Rising raw material price	Transition Risks/Market	With the potential implementation of carbon taxes in the future, raw materials may include additional carbon emission costs, leading to price increases	Increasing operating costs ◆ Due to inflation and uncertainty about the global economy, ethylene prices have declined. To strengthen vertical integration within the industry value chain and enable flexible production and sales planning, CGPC has constructed a new vinyl chloride storage tank, and TVCM has added a storage tank at the Intercontinental Terminal. The total investment cost is approximately NTD 3.5 billion, serving as a buffer against drastic market fluctuations. ◆ In 2024, approximately NTD 20.42 million was invested in purchased recycled materials.	1. Promote circular economy: Recycle and reuse raw materials. For example, in 2024, the CGPC Construction Manufacturing Department recycled 2,367 metric tons of pipe materials, accounting for 14.5% of total pipe production for the year. 2. Adopt a vertically integrated strategy covering procurement, production, and sales. Regular reviews of raw material and finished product inventories are conducted to respond to market changes through rolling adjustments. Projects include: ◆ TVCM established ethylene, vinyl chloride, and EDC storage tanks at the Intercontinental Terminal. ◆ CGPC Toufen main factory constructed a new ethylene storage tank. 3. Ensure flexible production and supply scheduling of key raw materials.

Climate change issue	Issue Category	Description of Risk and Opportunity Items	Potential financial impact	Vinyl Chain Strategy and Response Measures
High-Efficiency Production	Opportunity/Resource Efficiency	By adopting smart manufacturing, industrial motors, automated packaging, and other production tools, overall production efficiency is improved and energy consumption is reduced.	Increased capital expenditure; reduced operating costs ◆ Introducing intelligent manufacturing process and resulted in cost savings of about NTD 7.03 million in 2024. ◆ The optimization project for Dryer #5: involved an investment of approximately NTD 4.15 million. ◆ The optimization project for Dryer #7: involved an investment of approximately NTD 1 million. ◆ An intelligent energy-saving project was implemented on the VCM tower (C-6203): involved an investment of approximately NTD 2 million.	Introduce intelligent systems to establish smart management (see Section 3.6 for details) 1. Intelligent control was introduced into the process to optimize operating conditions through modeling. Dryer #5 and #7 are expected to save a total of 2,896 tons of steam and reduce carbon emissions by 401 tons of CO_2e annually. 2. Image recognition (AOI) technology is applied to thermal imaging of electrical panels and forklift safety sensing systems to enhance workplace safety. 3. For example, the 35-ton boiler intelligent control project in 2023 saved 460,504 kWh of electricity, 1,400,000 m^3 of natural gas, and reduced 3,138.5 tons of CO_2e, with a cost saving of approximately NTD 15.45 million. 4. In 2024, an intelligent energy-saving project was implemented on the VCM tower (C-6203), expected to save 1,920 tons of steam, 4,349GJ of energy, and reduce 260 tons of CO_2e.
Recovery and reuse - Circular economy	Opportunity/Resource Efficiency	In accordance with the three core principles of the circular economy (3R): Reduce, Reuse, Recycle Reduce waste treatment costs or raw material consumption	Increasing operating costs ◆ In 2023, approximately NTD 800 thousand was invested in the GRS (Global Recycled Standard) certification project. In 2023, approximately NTD 500 thousand was invested in the final product Recycled TPE rubber project. ◆ In 2023, approximately NTD 800 thousand was invested in the TPO fish-electricity symbiotic water pond fabric project. ◆ In 2024, approximately NTD 500 thousand was invested in TPU foam material; approximately NTD 300 thousand was invested in TPO baby car safety seat covering.	1. Since 2020, the CGPC Construction Manufacturing Department has collected various types of in-plant recycled materials and recovered PVC powder, along with externally purchased recycled pellets, to produce and sell remanufactured products. As of 2024, the total amount recycled reached approximately 11,948 metric tons, with a recycling and reuse rate of 14% in 2024. 2. Recycled plastic content in CGPC's TPE eco-friendly leather products ranges from 30% to 60%, and the products are certified under the Global Recycled Standard (GRS). 3. CGPC has replaced PVC bags for small packages with hot-melt PE bags, which can be 100% recycled for reuse. 4. The TPO fish-electricity symbiotic water pond fabric began formal order-based sales in 2024, with a total sales volume of 41 metric tons.
Reduce water usage and waste	Opportunity/Resource Efficiency	Water is an indispensable resource in the production process. Reducing water leakage and increasing the water recycling and reuse rate help lower operating costs and enhance plant resilience.	Increased capital expenditure; reduced operating costs ◆ Centrifugal Drying High Performance Bio-treatment and Filtration System (HBF): approx. NTD 92.83 million invested. ◆ In 2024, approximately NTD 930 thousand was invested in HBF maintenance.	1. Rainwater Reuse: CGPC Main Plant has installed a rainwater reuse system that stores approximately 5 tons of rainwater for landscape irrigation and toilet flushing within the plant, effectively reducing tap water consumption. 2. HBF and Optimization: The CGPC Toufen main factory and CGPCP (Linyuan factory) have implemented centrifugal drying high performance bio-treatment and filtration systems (HBF) for process water recovery, utilizing biological treatment and COD adsorption technology. The CGPC Toufen main factory has completed the installation of additional filtration tanks and pre-treatment units to enhance cooling water recovery efficiency. In 2024, the total water savings reached 458 million liters. In 2024, the R2 water recovery rate for the three plants reached 81.1% (target achieved). 3. Condensate Reuse: TVCM (Linyuan factory) recovers condensate from process steam and recirculates it to the cooling tower system, thereby reducing the amount of make-up water required for cooling.

Climate change issue	Issue Category	Description of Risk and Opportunity Items	Potential financial impact	Vinyl Chain Strategy and Response Measures
Use low-carbon energy	Opportunity/Source of Resilience	CGPC and TVCM implemented energy-saving improvement projects for natural gas boilers, with a total investment of approximately NTD 63 million. In 2024, these projects resulted in total savings of NTD 20.36 million in natural gas and electricity expenses.	Increased capital expenditure and reduced carbon fees ◆ CGPC and TVCM implemented energy-saving improvement projects for natural gas boilers, with a total investment of approximately NTD 63 million.	1. A new 30-ton natural gas boiler was installed at the CGPC Toufen main factory and completed in October 2023. It is expected to save 1,235,88. NM^3 of natural gas per year, resulting in an annual carbon reduction of 2,345 metric tons of CO_2e. 2. Since 2021, CGPC has been promoting the replacement of coal-fired boilers with natural gas boilers, with the goal of a full transition to natural gas by 2025. The estimated annual carbon reduction is approximately 16,000 metric tons of CO_2e. 3. TVCM (Linyuan factory) - The optimization project for the 35-ton steam boiler was completed in July 2023. After optimization, the boiler is expected to save 1,400,00 M^3 of natural gas per year. The wind turbine system was upgraded to variable frequency control, saving 460,504 kWh of electricity per year. Total carbon reduction: 3,139 metric tons of CO_2e per year.
R&D and innovation in developing new products and services - Low-carbon and energy-saving product development	Opportunities/ Products and Services	R&D efforts focus on the development of products aligned with circular economy, low-carbon, and energy-saving concepts, with technological investment based on the full life cycle of products and services to develop low-carbon products.	Increased R&D expenses and higher operating costs ◆ In 2023, the Company obtained GRS (Global Recycled Standard) certification. This project enhanced corporate image, secured brand certification, and strengthened market competitiveness, with an investment of around NTD 800 thousand. In 2024, around NTD 500 thousand was invested in TPU foam materials. ◆ In 2023, around NTD 500 thousand was invested in the Bio-shell powder antibacterial and anti-mold leather. ◆ In 2024, around NTD 500 thousand was invested in the low-carbon product project for TPO single-material rubber.	Ongoing Development of Circular Recycled Products: 1. Adopt post-consumer TPO or industrial waste TPU materials and utilize a compression molding process along with post-consumer recycled PET bottles to produce polyester non-woven fabric (base fabric) for environmentally friendly synthetic leather. The proportion of recycled plastic used reaches 30-60%, and the products are certified under the Global Recycled Standard (GRS). 2. Waste oyster shells are calcined at high temperatures and ground into oyster shell powder, a natural material that replaces synthetic antibacterial agents. This is applied to synthetic leather to minimize environmental pollution and impact. Test results confirm its antibacterial and anti-mildew effectiveness. 3. Products such as sports shoes and backpacks made from 100% single-material TPO can be crushed and reused as recycled material at the end of their life cycle, achieving circular recycling goals.
Leveraging Public Sector Incentive Programs	Opportunities/ Market	Utilize government incentive mechanisms to reduce input costs, adopt new technologies, and enhance competitiveness.	Increased capital expenditure and increased revenue ◆ In 2023, the CGPC Toufen main factory was selected by the Industrial Development Bureau as a guidance-supported manufacturer, and in 2024, it became a TCFD demonstration plant. ◆ In 2024, the CGPC Toufen main factory applied for the Clean Production + Green Building program, with an investment of approximately NTD 1.5 million. ◆ Low-Interest Loan Programs: ◇ CGPC application programs: Rooting Enterprises in Taiwan - Automated Warehousing; Returning Taiwanese Businesses - VCM Storage Tanks. ◇ TVCM: Under the “SME Project - Intercontinental Phase 2,” the Company received government support in 2024 for a low-interest loan project totaling approximately NTD 20.77 million. ◆ In 2024, total government subsidies amounted to NTD 18.56 million.	1. In 2023, CGPC conducted five TCFD counseling sessions, focusing on the RCP 8.5 scenario and projecting future scenarios of three types of climate disasters: floods, droughts, and high temperatures for the period from 2016 to 2035. For transition risks, the Company referred to the IEA and set the scenario as “a future global temperature rise of 1.5°C” to enable early planning of medium- and long-term strategies, allowing the Company to more accurately identify risks and opportunities. In 2024. CGPC shared its TCFD implementation experiences with other industries. 2. In 2024, CGPC obtained the “Clean Production Assessment” and “Green Building Label.” 3. By securing government subsidies and low-interest loans, the Company effectively reduced costs and ensured sufficient funding for operational needs. 4. 2024 Government subsidies ◆ Domestic Investment Interest Subsidies: NTD 9.6 million ◆ Occupational safety and Health Administration, Ministry of Labor: NTD 290 thousand ◆ Energy Administration, Ministry of Economic Affairs: NTD 7.58 million ◆ Bureau of Labor Insurance, Ministry of Labor: NTD 30 thousand ◆ Taoyuan-Hsinchu-Miaoli Branch of the Workforce Development Agency, Ministry of Labor: NTD 110 thousand ◆ International Trade Administration,Ministry of Economic Affairs: NTD 950 thousand

5.2.5 Development of innovative products in response to climate change

POE fish-electricity symbiotic water pond fabric

Combine aquaculture with green energy generation systems to provide appropriate shading for fish ponds, preventing excessive water temperatures in summer and installing windbreak fabric in winter to protect against cold fronts.

- Over 60% recycled content
- Free of heavy metals, halogens, and plasticizers
- Excellent flexibility for easy installation
- Anti-slip surface texture

POE waterproof membrane

Landscape Improvement Project for the Waterfront Corridor at Fenglin Recreation Area, Hualien

- Physical Properties: CNS 10145 (Certified TAF report obtained)
- Material: POE + recycled LDPE (subject to incoming inspection)
- Quantity: 15,000 m² (approximately 10,000 yards)
- Delivery Record: 6,000 yards delivered in September 2024; 4,000 yards scheduled for delivery in December 2024.


Before Construction


After Construction

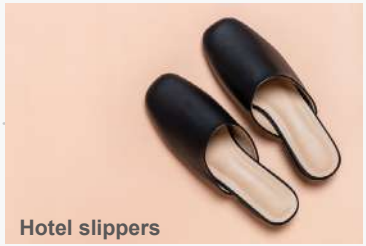

Actual View

TPO Single-Material Fully Recyclable Leather

Product Features:

- **Excellent durability;**
- **non-toxic, harmless, and highly safe**
- **Complies with EU regulations REACH, RoHS, PAHs, and U.S. CPSIA standards**
- **Lightweight TPO reduces transportation costs and conserves energy**
- **No disassembly required; can be directly recycled and remanufactured, reducing costs**
- Delivery Record: 1) Sports shoes: 3,000 pairs officially sold.
  2) Hotel slippers: Showcased at the Taiwan Design Expo.


Sport shoes


Hotel slippers

5.2.6 Energy management (GRI 302-1、302-3)

CGPC's plants primarily use purchased electricity, natural gas, and fuel coal. The scope of energy use inventory in 2024 includes CGPC Main plant and TVCM and CGPCP plants in Linyuan, with a coverage rate of 100%. Act in concert with the government's Net-Zero carbon emissions, in terms of electricity saving :adopt voluntary reduction, promote various electricity saving measures in the factory and exceed the legal requirements. **CGPC** has obtained ISO 50001 energy management certification, valid from December 26, 2022, to November 17, 2025. **TVCM** has obtained ISO 50001 energy management certification, valid from April 13, 2024, to April 13, 2027. **CGPCP** has obtained ISO 50001 energy management certification, valid from June 25, 2025, to July 31, 2028.

◆ 2024 Energy Conservation Performance

Target	Item	CGPC	TVCM	CGPCP
1%	Save electricity	2.66%	2.98%	1.94%

Description:
1. The data comes from the Energy Administration's annual energy conservation inspection system reporting form.
2. Description of achievement rate: CGPC, TVCM, and CGPCP have all achieved their targeted electricity saving rates.

Energy usage in the last 3 years

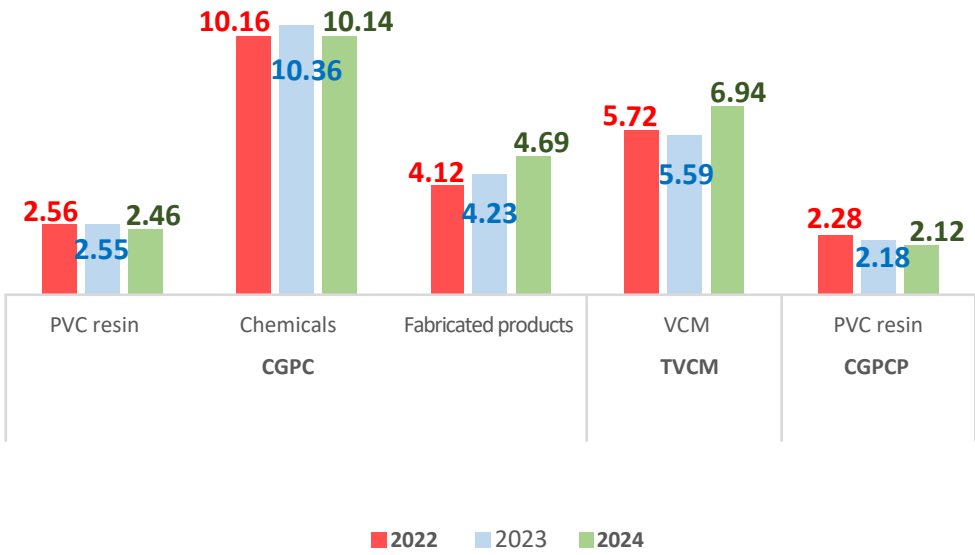
(Unit: GJ)

Company	Energy type	2022	2023	2024
CGPC (Main plant)	Purchased electricity	605,925	546,155	517,775
	Fuel coal	70,108	32,229	0
	Natural gas	517,934	516,187	424,845
	Diesel fuel	4,299	4,384	3,921
	Gasoline	114	183	144
	Total energy consumption	**1,198,380**	**1,099,138**	**946,685**
TVCM (Linyuan plant)	Purchased electricity	339,825	344,205	312,557
	Purchased steam	86,934	119,687	103,067
	Natural gas	2,005,950	1,991,576	1,854,341
	Diesel fuel	257	312	245
	Gasoline	69	129	102
	Total energy consumption	**2,433,035**	**2,455,909**	**2,270,312**
CGPCP (Linyuan plant)	Purchased electricity	129,593	135,440	123,494
	Purchased steam	294,365	298,127	242,332
	Diesel fuel	150	265	168
	Gasoline	19	21	27
	Total energy consumption	**424,127**	**433,853**	**366,021**

Note 1: The fuel coal and natural gas of the CGPC Main plant are calculated according to the unit calorific value table of energy products announced by the Energy Administration.

Energy consumption of products of each unit in the last 3 years

(Unit: GJ/ton)



Description of product energy consumption of each unit:

- In 2024, the unit energy consumption for VCM at TVCM increased due to a 25% decrease in annual VCM production compared to 2023 (as fluctuations in production volume affected energy efficiency and prevented optimal operation), resulting in a significant rise in unit consumption of electricity, steam, and natural gas.
- In 2024, the unit energy consumption for processed products at CGPC increased due to insufficient order load, which led to more frequent start-stop operations and downtime caused by a fire incident on the rubber coating machine.

Promotion of renewable energy

1. CGPC starts it from the construction of solar photovoltaic equipment on the factory roof, and gradually expanded the use of green electricity in each factory area. In 2019, the CGPC Toufen main factory leased its rooftop space for the installation of a 1,437.9 kWp solar power system. In May 2022, CGPC repurchased the entire solar PV system. By the end of 2023, an additional 679.82 kWp of solar capacity was installed. However, due to a fire incident in 2024, 236.84 kWp of solar capacity was affected. As of the end of 2024, the total installed solar capacity was 1,880.88 kWp.
2. In 2024, CGPC generated approximately 2.54 million kWh of solar power, which was fully sold to Taipower. The Company plans to shift to full self-consumption by 2025.
3. TVCM's Linyuan factory does not have a suitable roof space to put solar energy equipment. It plans to purchase 1.65 million kWh of green electricity and certificates by the 2025.
4. In 2024, 97,000 kWh of green electricity was purchased.

In response to green finance: ESG-linked loan approved by bank

In response to the government's green finance policy, CGPC (including TVCM and CGPCP) actively collaborated with banks to propose indicator items aligned with Environmental, Social, and Governance (ESG) standards, with environmental protection as the top priority. Through a rigorous review process, CGPC successfully obtained bank approval to link ESG indicators with loan amounts, demonstrating the Company's strong commitment to carbon reduction and sustainable development.

Securing ESG Financing Quotas and Low-Interest Loan Programs

- CGPC, CGPCP, and TVCM have continued to implement ESG initiatives and have signed sustainability-linked loan agreements with banks including Chang Hwa Bank, Taipei Fubon Bank, The Export-Import Bank of the Republic of China, and Bank of China.
- CGPC and TVCM's Low-Interest Loan Programs:
  - CGPC application programs: Rooting Enterprises in Taiwan - Automated Warehousing; Returning Taiwanese Businesses - VCM Storage Tanks
  - TVCM: Under the "SME Project - Intercontinental Phase 2," the Company received government support in 2024 for a low-interest loan project totaling approximately NTD 20.77 million.

5.2.7 Greenhouse gas management (GRI 305-1、305-2、305-3、305-4、305-5)

GHG inventory is carried out every year to effectively manage the emissions of each plant of CGPC. Starting from 2024, the scope of inventory includes the subsidiaries of CGPC in the Consolidated Financial Statements, with a coverage rate of 100%. Among them, CGPC Main plant and TVCM Linyuan plant must register and verify greenhouse gas emissions because they are subject to the "Climate Change Response Act". Therefore, relevant operations are carried out in accordance with the Ministry of Environment's "Greenhouse Gas Emissions Inventory Registration and Verification Management Regulations", and the inventory data is regularly verified by an impartial third-party verification unit.

Carbon Data Management Platform Development

To enhance the timeliness and accuracy of carbon emission data, USI Corporation initiated the development of a carbon data management platform in 2024 to strengthen the Group's internal carbon inventory processes and data integration capabilities.

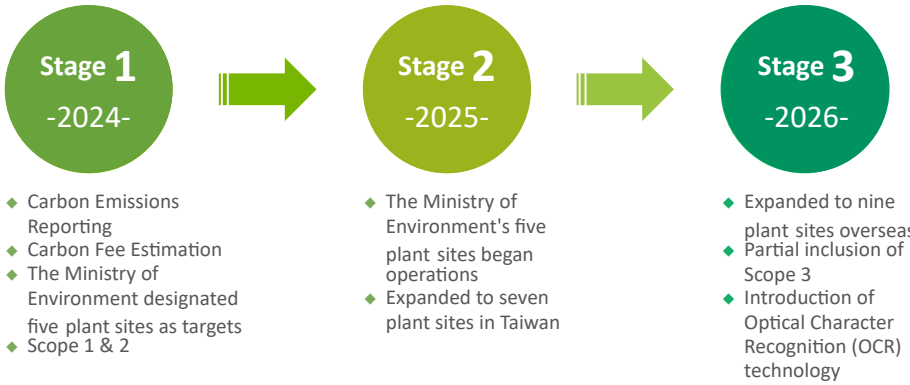
The first phase of the platform covers five plants in Taiwan, focusing primarily on the systematic collection of Scope 1 and Scope 2 emissions, with selected Scope 3 items to be gradually incorporated.

The system design integrates existing monthly reporting mechanisms and certificate uploading processes to ensure the consistency and traceability of activity data and source documents.

The platform features flexible export functions that support output formats in line with various regulatory requirements.

Through this platform, USI Corporation can manage carbon emissions more efficiently, demonstrating a commitment to data-driven carbon management, enhanced information transparency, and climate resilience.

Implementation Plan

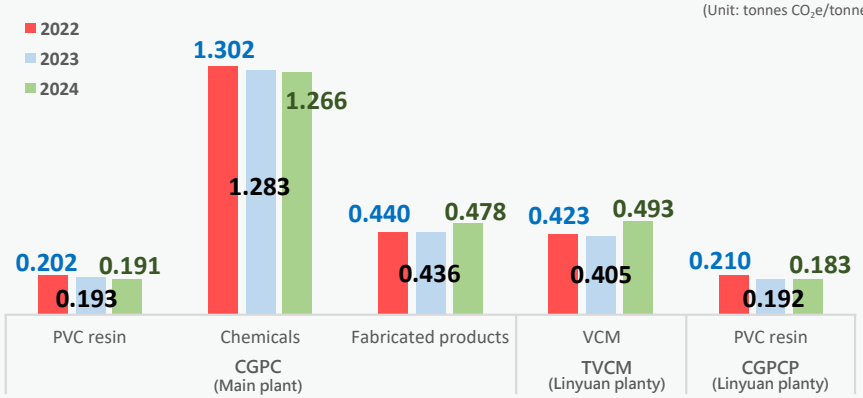


Greenhouse gas emissions intensity by product in the last 3 years

(Unit: tonnes CO_2e/tonne)

Company	Product	2022	2023	2024	goal	Achieve-ment
CGPC (Main plant)	PVC resin	0.202	0.193	0.191	0.248	√
	Chemicals	1.302	1.283	1.266	1.366	√
	Fabricated products	0.440	0.436	0.478	0.455	X
TVCM (Linyuan plant)	VCM	0.423	0.405	0.493	0.446	X
CGPCP (Linyuan plant)	PVC resin	0.210	0.192	0.183	0.234	√

(Unit: tonnes CO_2e/tonne)



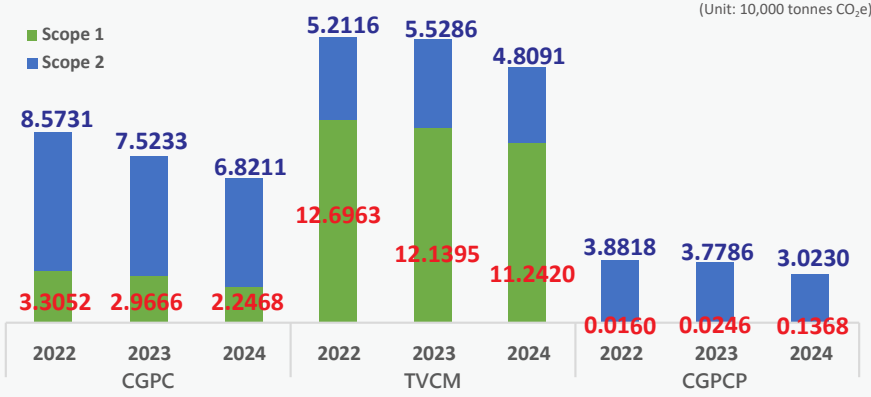
Note 1: Calculation formula = Total GHG emissions by product (tonnes CO_2e) / Total output by product (tonnes)
Note 2: The 2022 target was based on the average of the emission intensity by product between 2019~2021, and it is expected that after the review in 2025, the target will be revised.
Note 3: For additional information, please refer to the remarks in the Carbon Reduction Pathway Plan.
Note 4: The reason CGPC's processed products did not meet the 2024 target was due to insufficient order load, which led to increased start-stop operations and downtime caused by a fire incident on the rubber coating machine.
Note 5: In 2024, the unit energy consumption for VCM increased due to a 25% decrease in annual VCM production compared to 2023 (as the fluctuation in production volume affected energy efficiency and prevented optimal operation), resulting in a significant rise in unit consumption of electricity, steam, and natural gas (electricity, steam, and natural gas).

Greenhouse gas emissions of various companies in the last 3 years

(Unit: 10,000 tonnes CO_2e)

Company	Scope	2022	2023	2024
CGPC	Scope 1	3.3052	2.9666	2.2468
	Scope 2	8.5731	7.5233	6.8211
TVCM	Scope 1	12.6963	12.1395	11.2420
	Scope 2	5.2116	5.5286	4.8091
CGPCP	Scope 1	0.0160	0.0246	0.1368
	Scope 2	3.8818	3.7786	3.0230

(Unit: 10,000 tonnes CO_2e)

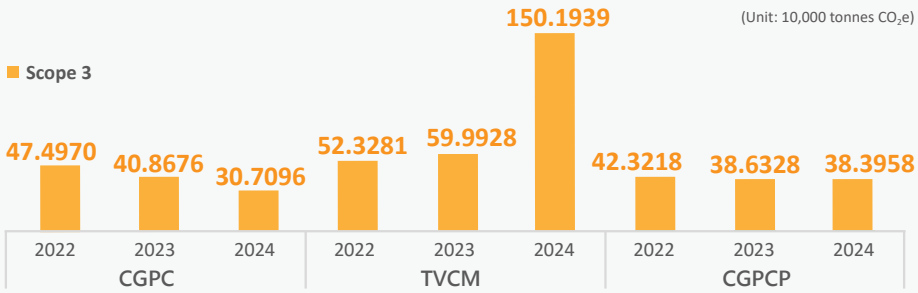


Note 1: Scope of inventory in 2024: (1) CGPC includes: CGPC Toufen main factory, Taipei office, and overseas subsidiaries. (2) TVCM includes: TVCM's Linyuan factory, Taipei office, and GGTC Company. (3) It was Linyuan factory for CGPCP Company. The above scopes include CGPC's subsidiaries in the consolidated financial statements, with a coverage rate of 100%. Greenhouse gas inventory includes: CO_2, CH_4, N_2O, and HFCs.
Note 2: The calculation adopts the operational control method, and the emission factors are based on officially announced coefficients.
Note 3: CGPCP revised its 2023 greenhouse gas emissions because the inventory data was obtained after the reporting.
Note 4: For additional information, please refer to the remarks in the Carbon Reduction Pathway Plan.

Other indirect greenhouse gas emissions (Scope 3)

The Company conducts Scope 3 data statistics in accordance with the Greenhouse Gas Inventory Operation Guidelines (Appendix 1) and the Greenhouse Gas Protocol (GHG Protocol) classification.

In 2024, CGPC included more items in its inventory, but Scope 3 carbon emissions decreased compared to the previous year. The main reason was a reduction in VCM (vinyl chloride monomer) procurement, which led to lower upstream emissions in the supply chain. In contrast, TVCM's total carbon emissions increased in 2024 due to the inclusion of Scope 3 Category 5.1 (use of sold products) in its carbon inventory.



Scope 3: Other indirect greenhouse gas

(Unit: tons CO_2e/year)

GHG Protocol Classification	2022			2023			2024		
	CGPC	TVCM	CGPCP	CGPC	TVCM	CGPCP	CGPC	TVCM	CGPCP
Category 1. Emissions from purchased goods and services	446,078	435,330	419,955	371,285	490,801	352,080	256,938	628,712	324,427
Category 2. Emissions from capital goods							679		
Category 3. Emissions from Fuel and Energy-Related Activities (not included in Scope 1 or 2)	15,094	36,094	3,174	22,212	36,990	3,737	20,121	31,435	3,505
Category 4. Upstream transportation and distribution emis	13,650	42,455	19	11,817	63,371	110	10,566	26,085	38,971
Category 5. Emissions from waste generated in operations	148	344	19	179	402	29	150	397	19
Category 6. Business travel emissions		7		41	5	0	43	5	0
Category 7. Employee Commuting		87	25	200	92	24	198	95	23
Category 9. Downstream transportation and distribution emissions		8,964	26	2,943	8,267	30,348	1,580	5,881	17,001
Category 10. Emissions from processing of sold products							16,809	809,331	11
Category 12. Emissions from end-of-life treatment of sold products							11		

Note 1: Starting from 2023, the scope of inventory includes CGPC's subsidiaries in the consolidated financial statements, and the data has been assured by a third-party institution. (CGPC's 2024 verification has been completed and the certificate is pending)
Note 2: Since 2021, Scope 3 has been included for TVCM's Linyuan factory and CGPCP's Linyuan factory; since 2022, Scope 3 has been included for the CGPC Toufen main factory; and since 2023, Scope 3 has covered CGPC's subsidiaries in the consolidated financial statements.
Note 3: Scope 3 GHG Protocol classification in 2022: CGPC: Categories 1, 3, 4, 5; TVCM: Categories 1, 2, 3, 4, 5, 9; CGPCP: Categories 1, 3, 4, 5, 7, 9.
Note 4: Scope 3 GHG Protocol classification in 2023: CGPC added 3 categories: Categories 6, 7, and 9; CGPCP added 1 category: Category 6.
Note 5: Scope 3 GHG Protocol classification in 2024: CGPC added 4 categories: Categories 2, 10, and 12; TVCM added 1 category: Category 10; CGPCP added 1 category: Category 10.
Note 6: As of 2024, Scope 3 covers 10 GHG Protocol classification categories, corresponding to 9 categories under ISO 14064-1:2018, including: purchased goods and services, fuel- and energy-related activities, upstream transportation and distribution, waste generated in operations, business travel, employee commuting, downstream transportation and distribution, processing of sold products, and use of sold products.
Note 7: Newly added items for each year are indicated in blue text.

5.2.8 Energy-saving and carbon-reduction plans and performance

Company	Energy conservation and carbon reduction solutions	2024 performance	
		Amount of energy conservation (GJ)	Amount of carbon reduction (CO_2e tonnes)
CGPC (Main plant)	◆ Replacement of outdated air compressors with new ones in RecoComp Section ◆ RecoComp Dryer #7 intelligent energy-saving project ◆ Energy-saving improvement through maintenance of electrolyzers in the Alkali-Chlorine Section ◆ Replacement of old chillers with new ones ◆ Energy-saving improvement for motors	8,508	755
TVCM (Linyuan plant)	◆ Replacement of circulation water pumps in the cooling tower ◆ Intelligent energy-saving project for the VCM tower ◆ Steam trap improvement project (Phase 3)	51,896	3,133
Total		**60,404**	**3,888**

2024 Carbon Reduction Plan and Targets (CO_2e tonnes)

Company	Energy saving and carbon reduction solutions	Target carbon reduction
CGPC (Main plant)	◆ Improvement of the powder conveying system ◆ Energy-saving improvements for extrusion screw sleeves and electric heaters ◆ Replacement of old extruders with new ones ◆ Replacement of circulation water pumps and fans in the cooling tower ◆ Replacement of old chillers with new ones ◆ Energy-saving improvement for motors	319
TVCM (Linyuan plant)	◆ Intelligent energy-saving project for the hydrochloric acid tower ◆ Replacement of outdated air compressor motors with new ones	408
CGPCP (Linyuan plant)	◆ Replacement of outdated air compressor equipment with new ones ◆ Energy-saving improvement for hot water coils in dryers ◆ Replacement and energy-saving improvement for motors	2,206
	Total	2,933

Note: 1. The data source is the annual Energy Conservation Audit Report for Energy Users submitted to the Energy Administration (investment amounts and energy-saving/carbon reduction details are provided in the attached table).

2. Calculation benchmark:

(1) The unit calorific value conversion factors refer to the unit calorific value table for energy products announced by the Energy Administration (for energy statistics only), including: electricity 860 kcal/kWh, coal 5,600 kcal/kg, natural gas 9,000 kcal/m^3, gasoline 7,800 kcal/L, and diesel 8,400 kcal/L. One cal equals 4.187 J.

(2) The CO_2 emission factor for natural gas used by CGPC's Toufen factory in 2024 is calculated at 1.898 kg CO_2e/m^3.

(3) The CO_2 emission factor for natural gas used by TVCM's Linyuan factory in 2024 is calculated at 2.080 kg CO_2e/m^3.

(4) The calorific value 184.1 kg of the purchased steam used by TVCM and CGPCP's Linyuan factories in 2024 were 669,000 kcal/ton and 665,534 kcal/ton, respectively, and the CO_2 emission factors were calculated at 184.1 kg CO_2e/ton and 153.7 kg $_2e$/ton, respectively.

(5) The types of gases included in the calculation of carbon reduction in the energy conservation and carbon reduction plan include carbon dioxide, methane and nitrous oxide.

3. This program does not include the carbon reduction benefits of offset projects. Please refer to the explanation provided in the Greenhouse gas replacement project Quota Application for further details.

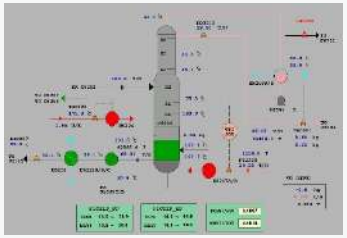
4. Energy conservation and carbon reduction plan and performance (annual carbon reduction), equivalent to the annual carbon emissions absorbed by ten Da'an Forest Parks..

Greenhouse gas replacement project quota obtained

Since 2018, CGPC has implemented two greenhouse gas offset projects. These projects, namely the "Updated replacement project of the IEM Alkali Evaporator Tank" by CGPC and the "Cracking Furnace Replacement Project for Furnaces F-6201 and F-6202" by TVCM, have undergone third-party verification and registered for approval. On February 23, 2022, and May 3, 2022, respectively, both projects were approved in the first round of quota applications by the Ministry of Environment, obtaining a total reduction quota of 7,464 tonnes of CO_2e. These measures were taken to reduce future carbon regulatory risks. CGPC and TVCM plan a second application in 2025. Please refer to the official letter of the Ministry of Environment, Executive Yuan: Updated the IEM Alkali Evaporation Tank Offset Project and Replacing two pyrolysis furnaces (F-6201 and F-6202).

5.2.9 Energy conservation and carbon reduction equipment improvement solutions (GRI 302-4、303-3、305-5)

We continue to promote the work of "energy conservation and carbon reduction" with practical actions in an honest and responsible attitude. In recent years, we have invested a lot of resources in adding new equipment and replacing old equipment with new ones, hoping to reduce the impact of the overall operating activities on the environment.

Program name	CGPC's Toufen main factory RecoComp Dryer #7 intelligent energy-saving project	TVCM's Linyuan factory Intelligent energy-saving implementation for the distillation tower	TVCM's Linyuan factory Steam trap improvement project (Phase 3)
Condition before improvement	The dryer uses hot air to remove moisture from the powder cake. Operators adjust the hot air temperature setpoint based on experience, which results in fluctuations in steam consumption per unit and product quality.	The distillation tower controls steam and reflux through flow rate control, making it difficult to precisely manage heat input. Operators rely on experience and distillation product composition data to make adjustments, which can lead to excessive steam usage.	1. Most steam traps are clogged, causing condensate to accumulate and flow back into the main pipe. The condensate entering the heat exchanger results in poor heat transfer efficiency. 2. Some steam traps have severe steam leakage, preventing the outlet temperature from staying below the saturated steam temperature at atmospheric pressure.
Program Description	1. Based on the experience gained from implementing intelligent control on Dryer #5 through industry-academia collaboration, the plant independently extended the application to Dryer #7. 2. Historical data was collected and used to build an intelligent model through a data-driven approach. When operating conditions change, the intelligent program automatically links to the DCS to adjust the hot air temperature setpoint, replacing manual input by operators. This ensures consistent operation and reduces operator workload. 3. A steam flow meter was added and the control loop of Dryer #7 was optimized. The impact of steam on the dryer was taken into account, and an intelligent model was developed to identify suitable control parameters under current operating conditions. The model is connected to the DCS through the intelligent program, eliminating the need for manual adjustments and reducing the burden on operators. 4. These improvements for Dryer #7 maintain product quality and drying temperature while enabling intelligent operation, resulting in more stable processes and reduced steam consumption per unit, thereby achieving energy-saving benefits.	1. Based on the experience gained from implementing intelligent control on the first distillation tower through industry-academia collaboration, the plant independently replicated and extended the application to other distillation tower equipment. 2. Historical data was collected and calibrated to ensure its representativeness. 3. An intelligent model was developed using a data-driven approach. When the relationship between process variables and product quality changes, the model parameters are automatically updated. 4. Under the premise of ensuring product quality and output at the outlet of the distillation tower, the system identifies optimal operating conditions (displaying two sets of recommended conditions on the control interface), allowing operators to standardize their actions and reduce steam consumption per unit of product.	1. The ARISTI steam trap is designed based on the venturi principle, incorporating specific pressure-reducing nodes within the trap body. The pressure differential generated by the fluid inside the venturi causes condensate to be drawn out through a nozzle designed according to flow rate specifications, creating a jet effect. 2. A comprehensive inspection and evaluation of all steam traps in the plant was conducted. Using the ISO 7841 test standard for measuring steam leakage in "active-type steam traps (valves)," the leakage rates of ARISTI and other existing brands were compared. Abnormal traps were identified and replaced accordingly.
Completion date	September 2024	July 2024	July 2024
Expected benefits after improvement	After the introduction of AI-based operation, steam savings reached 1,767 tons/year, with a carbon reduction of 226 tons CO_2e/year.	The project has also resulted in significant steam savings of 1,920 tons/year, which is equivalent to recovering 4,275 GJ of thermal energy annually. This translates to a carbon reduction of 260 tons CO_2e/year.	Steam savings reached 20,800 tons/year, with a carbon reduction of 2,816 tons CO_2e/year.
Photos			

5.3 Water Resources Management (GRI 2-4、3-3、303：2018)

Material issue : Water resources management

Main target : SDG 6.4, Secondary target : SDG 6.3, 6.5,6b, 12.2

The Significance and Impact of CGPC

Value water resources, reduce the consumption of water resources in the production process, and improve the reuse rate of water recycled to reduce the impact on the environment. Affected parties: employees, government agencies, community residents.

Develop Strategy

Implement ISO 46001 and ISO 14046 to reduce and reduce water waste, improve and replace water-consuming equipment, Improve R2 water recycling rate and actively implement the plan to apply for water consumption reduction.

Policy Commitment

Starting from 2025, the annual R2 Water recycling rate will be increased by 0.4% (total of the three plants).

Grievance Unit

Public Utility Course

SASB Indicator

- RT-CH-140a.1
- RT-CH-140a.2
- RT-CH-140a.3

Indicator items	Unit	2024 goal	2024 result	2025 goal	2027 goal	2030 goal
Annual R2 water reuse rate increased by 1%	%	80.0	81.1	81.0	81.8	83.0
Water intensity	ton/ton	3.01	3.60	3.74	3.31	3.19

Note: 1. Starting in 2023, the R2 water reuse rate has been used for statistical reporting.
2. The 2024 target was updated due to a revision in the R2 water reuse rate calculation formula by the Water Resources Agency.
3. The water intensity target for 2024 was not achieved mainly due to a significant decline in production volume.

Exceeded Target | Achievement | Partially achieved | Not met

- Continuous monitoring and compilation of daily, monthly and annual water consumption records.
- In terms of management, we will continue to study feasible solutions and use manufacturing processes to improve water conservation and enhance water recycling and reuse rates.
- Improve pipelines, conduct regular leak-prevention inspections, follow up and review the progress, and propose improvement plans.
- The scope of 2024 inventory includes CGPC's Main plant, and TVCM and CGPCP's plants in Linyuan, with a coverage rate of 100%.

Centrifuge dryer wastewater recovery systems (HBF) for CGPC Main plant and CGPCP Linyuan plant

Due to abnormal climate conditions and global water scarcity, CGPC Toufen main factory and CGPCP's Linyuan factory have installed biological treatment systems and COD adsorption systems to recover and reuse process wastewater. After being treated by newly established centrifuge water recycling equipment, the chemical oxygen demand (COD) and suspended solids (SS) in the water are reduced. The treated water is then replenished into the cooling water tower to reduce the consumption of tap water and the amount of wastewater discharged, thereby contributing to environmental protection efforts. In 2023, Phase 2 of the HBF project was launched, targeting a daily recovery of 100 tons.

Condition before improvement	Before installing the system, the centrifuge wastewater and plant wastewater are treated by the sand filter system and then discharged to the sewage treatment plant.
Expected benefits after improvement	2024 total water saved: 458.3 million liters per year. ◆ CGPC's volume of water recycled: 116.5 million liters per year; CGPCP's volume of water recycled: 341.8 million liters per year.
Program Description	A biological treatment system and a COD adsorption system are set up to treat the separated original liquid that cannot undergo the complete recycling process and after the liquid is treated by the newly installed centrifuge to reduce the chemical oxygen demand (COD) an suspended solids (SS), it is resupplied to the cooling water tower to reduce the amount of tap water used and wastewater discharged. In 2023, a filter tank and a pre-treatment device were added to the HBF system, which is expected to increase the reused water consumption by 35 million liters.
Completion date	CGPC : The expansion was completed in April 2018 and expansion to be completed by the end of 2023. CGPCP : July 2018.

HBF system of CGPC's Main Plant


HBF system of CGPCP's Linyuan Plant

5.3.1 Water management (GRI 303-1 ~ 305-5)

In response to the risk of water shortage potentially caused by climate change, the water source used by CGPC (Main plant) is supplied by Yongheshan Reservoir and the water used by TVCM and CGPCP (Linyuan plant) is supplied by the Fengshan Reservoir, which is put into the process. In order to save water, the three companies have added processed water recycling systems and various water-conserving devices, promoted other related measures, and continued to pay attention to the internal and external water supply and demand status and reinforce the implementation of water risk management.

Risk management of water resources

To ensure stable operation and sustainable development, the risk of water shortage resulting from climate change was addressed in December 2020 through the approval of the "Risk Management Policies and Procedures" by the Audit Committee and the Board of Directors, aiming to establish a comprehensive risk management system. To effectively implement the company's risk management mechanism, the Board of Directors, Audit Committee, General Manager, Audit Department, various risk management units, and subsidiaries collaborate in its promotion. Pay attention to the development of international and domestic risk management systems at all time, review and optimize the risk management methods to improve the effectiveness of the Company's risk management implementation.

Distribution of water stress

The companies refer to the water stress map drawn up by the World Resources Institute (WRI), enabling us to understand the water stress felt by countries around the world. Each company is verified to be located in the low to high stress areas.

Item/Company	CGPC (Main plant)	TVCM (Linyuan plant)	CGPCP (Linyuan plant)
Regions with water stress	Low to moderate water stress zone	Low to moderate water stress zone	Low to moderate water stress zone
Water stress	10 ～ 20%	10 ～ 20%	10 ～ 20%

Note: The Company defines areas with a water stress level exceeding 40% as regions under water resource pressure, which serves as an important basis for water management and risk response.

Identification of water risk

1. **Risk Identification**
   Identify risks based on the information on equipment, events, and government agencies.
2. **Assessment of current risk**
   Assess severity and occurrence by risk items.
3. **Plan actions**
   Plan actions for high risks.
4. **Assessment residual risks**
   Assess the effectiveness of actions and then determine residual risks.
5. **Follow up improvements**
   Follow up on the formulation of action measures and improvement plans.

Assessment of water risks and implementation

CGPC Main plant plans to introduce ISO 46001 water resources management system and ISO 14046 water footprint in 2022 to understand the potential impact of water risks on operations and refer to the Taiwan Climate Change Projection and Information Platform and Taiwan-wide disaster risk map to estimate the impact of future changes in average rainfall on water resources. Water footprint, recycling of water resources, and wastewater treatment are used to formulate response strategies. Identified that the Company's operating locations (Main plant in Miaoli is in a low to moderate stress area, and Linyuan plant in Kaohsiung is in a moderate to high stress area) are not in high water stress areas and there is no significant impact on water use. In 2025, CGPC Main Plant plans to undergo water consumption fee verification.

Company	Water stress Assessment Result	Impacts caused by extreme weather
CGPC Main plant	Low to moderate water stress zone	In the second half of 2020, the rainfall continued to be lower than expected. The water supply situation in Hsinchu and Miaoli areas was particularly dire. The Toufen Industrial Park Management Center has required a weekly water saving of 7% starting from January 7, 2023, 11% starting from February 19, 2023, and 17% starting from May 12, 2021, and the weekly water intake reported and the water meter data needed to be checked to verify whether the water conservation standards have been met. Statistics show that as of the end of July 2023, the average water conservation performance of the Main plant has reached more than 15%, that of TVCM Linyuan plant has reached 11%, and that of CGPCP has reached 20%. In 2024, various water-saving measures continued to be implemented.
TVCM Linyuan plant	Low to moderate water stress zone	
CGPCP Linyuan plant	Low to moderate water stress zone	
Identification of water risk (Frequency of occurrence)	The risks of operational sites are evaluated based on factors such as water usage, seasonal variations, droughts, floods, and declining groundwater levels.	
Management actions	A. Conservation of process water: (1) Start water conservation measures to increase the conductivity of the water replenished to the cooling water tower. (2) Increase the concentration ratio of the cooling water tower and reduce the frequency of water replacement in the scrubber tower. (3) Discharge the cooling water and recycle it as the water used in the scrubber. B. Conservation of water used in daily life (1) Decompressed water supply. (2) Place water bottles and install water savers to squat toilets to achieve water conservation. (3) Continue to advocate water conservation to employees. (4) Improve on-site patrol inspections and send personnel to handle any water leaks immediately. C. Improve the recycling water treatment operation and the recycling rate and actively plan rainwater recycling. D. Purchased water and active the use of underground in the Main plant. E. Continue to maintain contact with government agencies to obtain water information. F. CGPC plans to continue to issue ISO 46001 and ISO 14046 certificates in 2023. G. Conduct monthly plant review meetings, exchange opinions with other plants from time to time, and keep track of climate and reservoir information. H. One new 500-ton PE storage tank (20 pieces) and 1,500-ton tap water storage tank.	
Water conservation results	1. Install centrifuge dryer wastewater recovery systems (HBF) for CGPC Main plant and CGPCP Linyuan plant. 2. 2024 volume of recycled water as a percentage of total water withdrawal: CGPC 35.9%, TVCM 24.0%, CGPCP 77.9%; total volume of recovered water: 1,055.6 million liters. Note: CGPC's recycled water includes HBF process recycled water system, steam condensate, and coal boiler sedimentation tank uses effluent water instead.	

CGPC's Construction Material Department – Rainwater recycling and re-use

Solution: Rainwater recycling and reuse
Description:

CGPC has been established for 59 years. The building materials plant uses the plastic pipes produced by the Company to build a green environment which can be used by employees during their break and for environmental protection purposes. We strive to harness the power of our team and give our utmost efforts to contribute to environmental protection.

- Rainwater Storage Tank Volume:
  (12-inch pipe X 2M X 6) about 3 tons + 1 ton buckets (2), which can store about 5 tons of rainwater.
- Application situation:
  Rainwater in the rainwater recovery tank can be used for watering plants and flushing toilets.
- Benefits:
  Green and keep the environment clean and it can also keep water bills low and add to conservation.

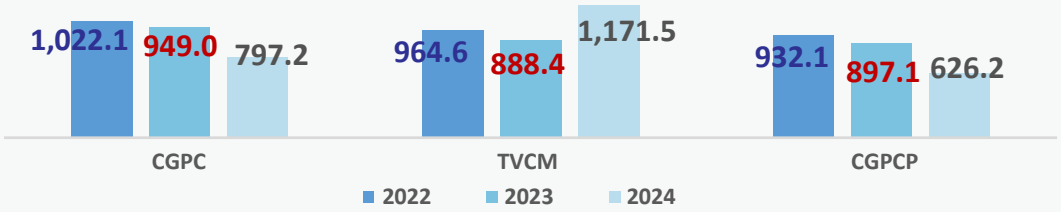
We spare no efforts in conducting internal and external coordination and communicating with government agencies and have implemented adding the use of HBF recycled water, increasing the concentration ratio of the cooling water tower and reduce the water replenishment and other water conservation measures. Because the water data is inconsistent with the actual water volume we should be receiving, which results in great challenges to our operations, we will continue to observe the process and take action at any time.

Water withdrawal by each plant in the last 3 years

(Unit: million liters)

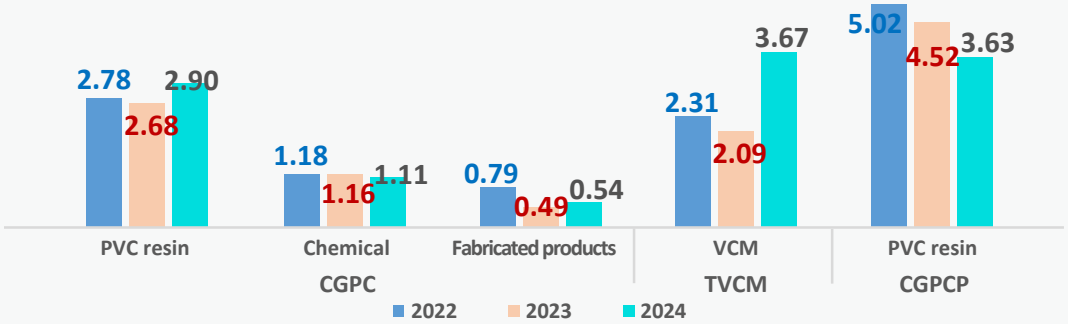
Company	Source	2022	2023	2024
CGPC (Main plant)	Tap water	1,021.5	949.0	796.9
	Groundwater	0.6	-	0.3
	Total	1,022.1	949.0	797.2
TVCM (Linyuan plant)	Tap water	1,079.2	884.1	977.1
	Third-party water (Note2)	(114.6)	4.3	194.4
	Total	964.6	888.4	1,171.5
CGPCP (Linyuan plant)	Tap water	680.5	751.4	696.6
	Third-party water (Note2)	251.6	145.7	-70.4
	Total	932.1	897.1	626.2
Three Plants	Total water withdrawal	2,918.8	2,734.5	2,594.9

Note 1: HBF (process water recycling system) has been set up in CGPC main plant and CGPCP Linyuan plant, which diverts the recycled water into the cooling water tower for use, in order to reduce the consumption of tap water.
Note 2: Third-party water includes: CGPCP provides tap water to TVCM to produce pure water, and TVCM also provides pure water for CGPCP to use.



Water consumption per product by each of the plant in the last 3 years

(Unit: M^3 /ton)

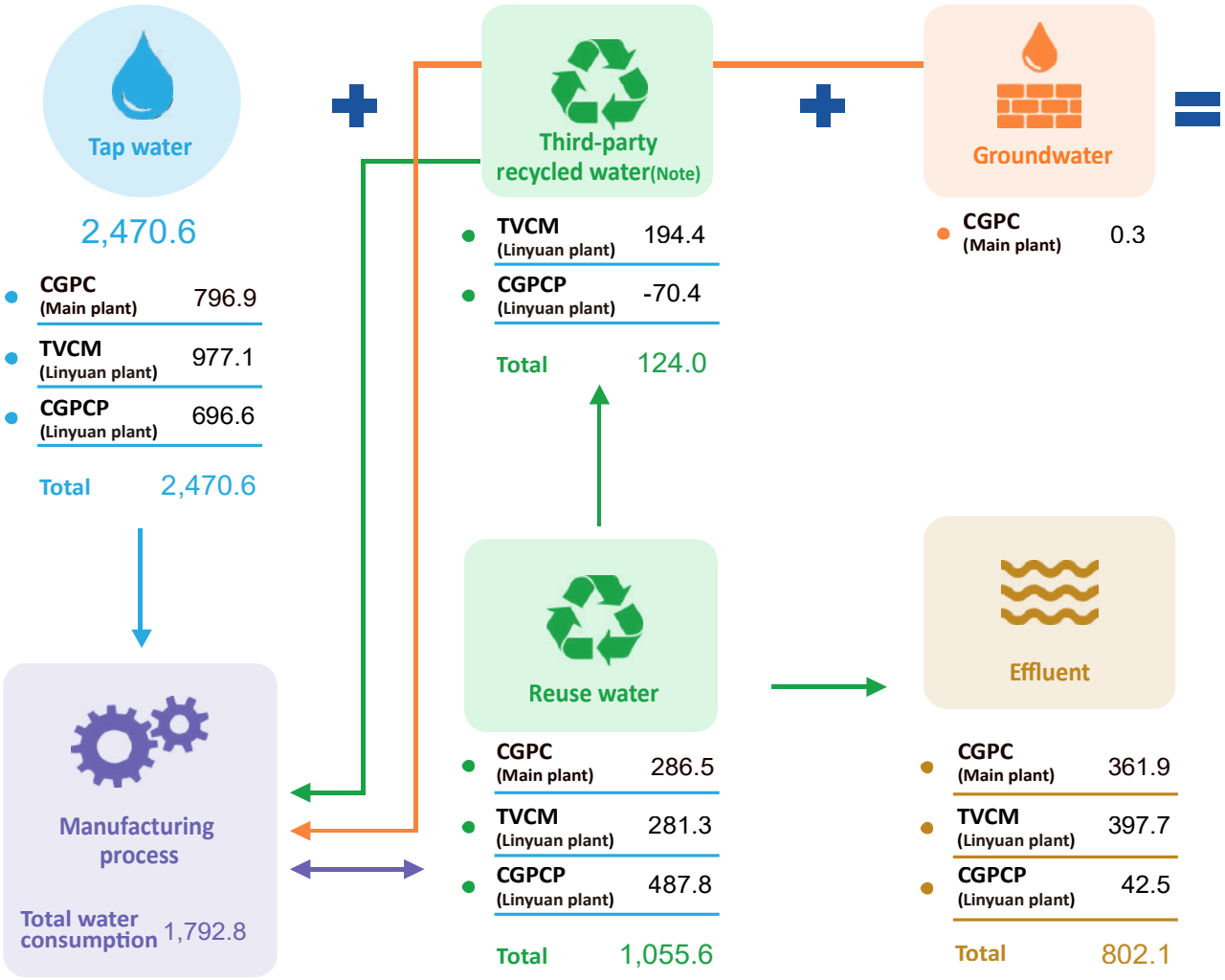


R2 recycled water reuse rate over the past three years

By company	Recycling %	2022	2023	2024
CGPC (Toufen main factory)	Recycled water volume	520.8	467.1	286.5
	Total circulation water volume	98,075.8	87,139.3	60,667.3
	Circulated water volume (Note 3)	3,519.0	2,180.1	2,326.9
	R2 water reuse rate	79.8%	73.6%	76.6%
TVCM (Linyuan factory)	Recycled water volume	236.3	216.5	281.3
	Total circulation water volume	95,802.0	95,802.0	95,802.0
	Circulated water volume (Note 3)	2,562.0	2,562.0	2,562.0
	R2 water reuse rate	74.4%	75.8%	70.8%
CGPCP (Linyuan factory)	Recycled water volume	594.8	633.1	487.8
	Total circulation water volume	49,056.0	48,180.0	49,135.6
	Circulated water volume (Note 3)	5,256.0	4,380.0	5,215.6
	R2 water reuse rate	86.3%	84.8%	90.1%
Total recycled water volume of the three plants		1,351.9	1,316.7	1,055.6
Total circulation water volume of the three plants		242,933.8	231,121.3	205,604.9
Total circulated water volume of the three plants (Note 3)		11,337.0	9,122.1	10,104.5
R2 water reuse rate achievement ratio of the three plants		81.3%	79.2%	81.1%
R2 water reuse rate target of the three plants		-	79.0%	80.0%

Note 1: Starting from 2023, the recycled water ratio has been recalculated using the R2 water reuse rate method, with a target annual increase of 1%.
Note 2: "Water recovery rate (excluding circulation within cooling water towers)," referred to as the R2 water reuse rate, is calculated in accordance with the "Regulations for Water Consumption Fee Collection." Formula (Total recycled water volume + total circulation water volume - circulation within cooling water towers + rainwater intake volume + condensate water intake volume) ÷ (Total water consumption + total recycled water volume + total circulation water volume - circulation within cooling water towers) × 100% = R2 water reuse rate.
Note 3: Recycled water volume and circulation water volume are estimated figures. Circulation water volume = total circulation water volume - circulation within cooling water towers.
Note 4: In 2024, due to the revised R2 water reuse rate formula by the Water Resources Agency, CGPC and CGPCP added circulation water volume as a statistical item, resulting in the revision of circulation water volumes for 2022 - 2023 and an adjustment of the 2024 target.

Water Resource Statistics Table ▶ 2024 Water Balance Chart (Unit: million liters)



Note: Water consumption = Water intake - Discharge

All plants adopt standards stricter than regulatory requirements for their treatment and discharge of wastewater.

Outsourcing steam and CGPCP provides tap water to TVCM to produce pure water.

Company	Reservoir	Percentage of water intake to reservoir water outflow
CGPC (Main plant)	Yongheshan	1.31%
TVCM (Linyuan plant)	Fengshan Reservoir	1.34%
CGPCP (Linyuan plant)	Fengshan Reservoir	0.95%

Total water withdrawal (Unit: million liters) 2,594.9

Percentage of local reservoir water usage at the plant site

(Unit: million liters)

Company	Year	Water intake volumes	Reservoir outflow volume	Percentage
CGPC (Main plant)	2022	1,021.5	52,454	1.95%
	2023	949.0	50,589	1.88%
	2024	796.9	60,950	1.31%
TVCM (Linyuan plant)	2022	1,079.2	78,000	1.38%
	2023	884.1	70,000	1.26%
	2024	977.1	73,000	1.34%
CGPCP (Linyuan plant)	2022	680.5	78,000	0.87%
	2023	751.4	70,000	1.07%
	2024	696.6	73,000	0.95%

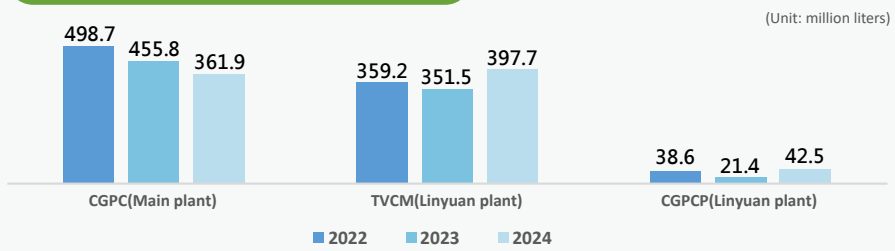
5.3.2 Wastewater discharge management (GRI 303-4)

CGPC's plants adopt standards stricter than regulatory requirements for their treatment and discharge of wastewater. The destinations of each plant's effluent are as follows:

Company	CGPC (Main plant)	TVCM (Linyuan plant)	CGPCP (Linyuan plant)
Effluents' Destination	Jhonggang River	Ocean discharge in Dalinpu (Note)	

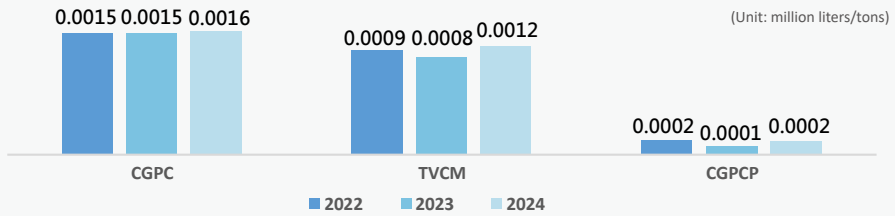
Note: The wastewater of each plant in Linyuan Industrial Park is treated and then discharged to the sewage treatment plant in Linyuan and then transported to the Kaohsiung Linhai Linyuan and Dafa Industrial Parks Combined Wastewater Treatment Plant of the Industrial Development Bureau, Ministry of Economic Affairs, before being discharged to the open sea of the industrial park and the water quality has to meet the discharge standards.

Wastewater discharged in the last 3 years



Note: CGPCP's 2022 data was affected by rounding.

Wastewater discharge intensity in the last 3 years



Description:
1. The volume of discharged water supplied by TVCM/CGPCP to the Linyuan factory is significantly lower than the volume of tap water used.
2. Since the process wastewater is almost completely recovered to be used as water replenishment of the cooling water tower, the volume of discharged water is greatly reduced.
3. CGPC revised its total production calculation method, resulting in the correction of wastewater discharge intensity for 2022 - 2023.
4. The increase in wastewater discharge at TVCM's Linyuan factory was mainly due to the naturally high conductivity of raw water in the Linyuan area. During periods of high temperature, conductivity exceeds the standard for cooling towers, requiring continuous replenishment and drainage to reduce conductivity, thus increasing the volume discharged to the wastewater treatment plant.
5. The increase in wastewater discharge at CGPCP's Linyuan factory occurred when the wastewater treatment capacity at TVCM reached saturation, leading to direct discharge to the wastewater treatment plant.
6. The 2022 wastewater discharge data for CGPCP was corrected due to rounding.

5.3.3 Wastewater quality testing (GRI 303-2)

The main water quality testing items include suspended solids, grease, chemical oxygen demand, etc., and are regularly tested and reported. In the last 3 years, they have all been lower than the effluent water standard or below the detection limit value.

(Unit: mg/L)

Company	Test items	2022 average value	2023 average value	2024 average value	Emissions Standard	Internal control value
CGPC (Main plant)	pH	7.7	7.7	7.5	6~9	7~8
	(SS) Suspended solids (mg/L)	14.4	12.9	11.8	30	<25
	(COD) Chemical oxygen demand (mg/L)	32.5	31.1	37.2	100	<80
TVCM (Linyuan plant)	pH	7.8	8.0	7.7	6~9	7~8
	(SS) Suspended solids (mg/L)	15.0	4.9	1.2	30	<25
	(COD) Chemical oxygen demand (mg/L)	33.5	19.7	10.4	100	<80
CGPCP (Linyuan plant)	pH	7.8	7.8	7.4	6~9	7~8
	(SS) Suspended solids (mg/L)	1.1	17.2	10.6	30	<25
	(COD) Chemical oxygen demand (mg/L)	12.7	64.1	49.1	100	<80

Source: Average of annual inspections (CGPC, four times/year; TVCM and Taiwan Highpolymer, twice/year)

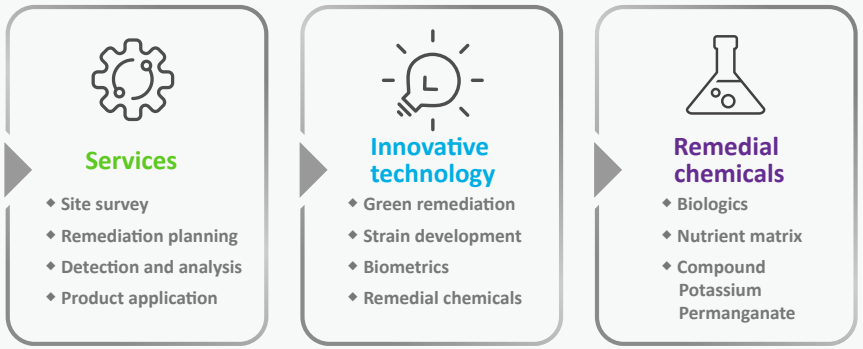
5.3.4 Soil and groundwater remediation technology

Global Green Technology Corporation (hereinafter referred to as GGTC) is one of the green energy and environmental businesses within the TPC Group. It was established and registered in 2022 as a spin-off from the Environmental Technology Development Department of Taiwan VCM Corporation (hereinafter referred to as TVCM). GGTC is a wholly owned subsidiary of TVCM, which in turn is a subsidiary of CGPC. GGTC focuses on the research, development, and application of localized bioremediation technologies, using scientific and engineering approaches to address complex issues of chlorinated contaminants in soil and groundwater, thereby overcoming the limitations of traditional physical and single chemical treatment methods.

Core Technologies and Outstanding Achievements:

- Expertise in chlorinated contaminant remediation: Developed unique bioremediation technologies specifically for the treatment of hard-to-remove chlorinated contaminants.
- Successful Cases:
  - Industry leadership: In 2016 and 2017, successfully completed remediation of TVCM's Kaohsiung plant and CGPC's Toufen main factory, leading to official delisting by the competent authorities.
  - National first: In 2021, received the nation's first "Site Remediation Technology Delisting Certificate" for a chlorinated-contaminated site from the Ministry of Environment.
  - Local recognition: In 2022, awarded a "Certificate of Technology Applied in Soil and Groundwater Contamination Site" by the Environment Protection Bureau Kaohsiung City Government.
  - Continued progress: In 2023, successfully completed groundwater remediation at the Taoyuan Dayang Plastic Luzhu plant and achieved official delisting.
- Advanced investigation techniques:
  Introduced high-resolution site contamination investigation technologies to build accurate conceptual models of subsurface pollution, optimizing remediation planning.
- Green and Sustainable Remediation Philosophy:
  Centered on environmental principles such as reducing energy consumption, lowering air emissions, minimizing water resource impacts, reducing materials and waste, and mitigating impacts on soil and ecosystems, while integrating considerations of human health and safety, social equity, cost-effectiveness, and economic impact to implement the Green and Sustainable Remediation (GSR) promoted by the Ministry of Environment.
- Localized advantage: Independently produces remediation materials and technologies to reduce reliance on imports, using native microbial strains in place of foreign ones.
- Industry-academia collaboration: Collaborates with several universities, including National Sun Yat-sen University and National University of Kaohsiung, to conduct joint research and accumulate extensive practical experience.
- Recognized excellence: In 2023, honored by the Ministry of Environment as an "Outstanding Green and Sustainable Remediation Unit."

GGTC will continue to refine its technologies and remain dedicated to environmental pollution improvement and prevention, aiming to achieve the goal of sustainable environmental development. For detailed information, please refer to the attachment, CGPC's ESG webpage, or the official website of GGTC.



CGPC's soil and groundwater remediation technology restores the original land through biological remediation technology, which also reduces the harm to groundwater sources and pollutants that harm ecosystems and it is also linked to SDGs 6 Clean water and sanitation and SDGs 15 Protect terrestrial ecosystems.

5.4 Air Pollution Control (GRI 2-4、3-3)

Follow-up issue : Air pollution control Main target : SDG 11.6, Secondary target : SDG 3.9

The Significance and Impact of CGPC

Reduce the impact of greenhouse gas emissions and air pollutants on the environment.
Affected parties: employees, community residents, government agencies.

Develop Strategy

Switch to the use of low-polluting fuel (natural gas) to reduce sulfur oxides (SOx), nitrogen oxides (NOx) and volatile organic compounds (VOCs) emissions.

Policy Commitment

In addition to complying with environmental regulations and emission standards, the unit product emissions of sulfur oxides (SOx), nitrogen oxides (NOx) and organic volatile compounds (VOCs) are reduced year by year.

Grievance Unit

Environmental Protection Sector

SASB Indicator

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Indicator items	Unit	2024 goal	2024 result	2025 goal	2027 goal	2030 goal
Reduce sulfur oxide emission intensity	ton/kt	0.003	0.000	0.003	0.003	0.003
Reduce NOx emission intensity	ton/kt	0.265	0.263	0.264	0.262	0.259
Reduce the emission intensity of volatile organic compounds	ton/kt	1.385	1.125	1.379	1.368	1.351
Reduce the emission intensity of hazardous air pollutants	ton/kt	0.068	0.068	0.068	0.068	0.067

Note: 1. Due to differences in the calculation methods for water intensity, wastewater discharge intensity, total production, and energy previously used, the baseline year formula and production figures have been adjusted. As a result, targets for 2024 - 2030 have been revised.
2. Since the SOx reduction target was achieved ahead of schedule in 2023, future target years will be based on an annual emission level not exceeding 0.003 (tons/kt).
3. In 2024, hazardous air pollutants (HAPs) were added as a new indicator, using 2022 as the baseline year for target value calculations.
4. Please refer to the air pollutant emissions explanation.

Exceeded Target | Achievement | Partially achieved | Not met

Major air pollutants emitted by CGPC's factories from the manufacturing process include sulfur oxides (SOx), nitrogen oxides (NOx), volatile organic compounds (VOCs), and total suspended particulate matter (TSP). These are mainly generated from the boiler process. CGPC has installed a new natural gas boiler in 2023, gradually increasing the proportion of natural gas boilers and reduce the use of coal-fired boilers. Activated carbon adsorption and desorption equipment was installed and the discharge arm was used for VCM loading and unloading in 2022. The discharge pipeline of the loading operation has been sealed with leak-proof joints to reduce the proportion of VOCs emissions. Currently, all factories of CGPC are making persistent efforts to reduce air pollutants by continuously replacing old equipment with new ones, increasing the use of natural gas, replacing valves with ISO 15848-compliant valves, and using enclosed gas collection treatment for equipment prone to disseminate.

Air pollution emissions in the last three years

(Unit: tons/year)

Company	Pollutants	2022	2023	2024
CGPC (Main plant)	Sulfur oxides (SOx)	1.449	0.883	0.000
	Nitrogen oxides (NOx)	25.453	27.014	16.949
	Volatile organic compounds (VOCs)	404.442	304.979	237.496
	Hazardous air pollutants (HAPs)	8.987	13.277	7.275
TVCM (Linyuan plant)	Sulfur oxides (SOx)	0.111	0.117	0.106
	Nitrogen oxides (NOx)	56.320	52.409	60.250
	Volatile organic compounds (VOCs)	33.449	35.465	16.416
	Hazardous air pollutants (HAPs)	15.112	17.218	6.559
CGPCP (Linyuan plant)	Volatile organic compounds (VOCs)	5.116	6.951	7.188
	Hazardous air pollutants (HAPs)	0.932	1.486	2.524
Total	Sulfur oxides (SOx)	1.560	1.000	0.106
	Nitrogen oxides (NOx)	81.773	79.423	77.199
	Volatile organic compounds (VOCs)	443.006	347.395	261.100
	Hazardous air pollutants (HAPs)	25.031	31.981	16.358

Note 1: CGPC completed the installation of pollution control equipment in 2022 and added a natural gas boiler in October 2023 to gradually reduce the use of coal-fired boilers. Toluene and xylene account for the majority of HAPs emissions at the plant. Therefore, starting in 2025, CGPC has begun reducing the use of raw materials containing toluene and xylene to lower HAPs emissions.

Note 2: In 2024, TVCM converted all EDC and light/heavy fraction storage tanks into pressure-type tanks and adopted closed gas collection systems to connect with control equipment. Dichloroethane is the main component of HAPs emissions at the plant. To further reduce emissions, equipment upgrades will be carried out on the tail gas incinerator (F-6801) and the stripping tower for wastewater (C-6251). Regarding the noticeable increase in NOx emissions, an intelligent energy-saving project(C-6202) will be implemented in process facilities to address the issue.

Note 3: The primary HAP emitted at CGPCP is VCM. Due to aging spiral heat exchangers with poor heat exchange efficiency, the VCM removal efficiency is suboptimal. An upgrade of the spiral heat exchanger is planned for this year to improve VCM removal efficiency.

Note 4: HAPs emissions are reported and calculated according to the Ministry of Environment's "Air Pollution Control Fee Collection Regulations," which specify individual substance declaration requirements.

Note 5: Emission factors are determined using either the coefficient method (as stipulated by the Ministry of Environment) or the testing method (based on the average results of the three most recent reports issued by external testing agencies).

5.5 Waste Management (GRI 3-3、306-1~3：2020)

SDGs

Follow-up issue : Waste management

Main target : SDG 12.5, Secondary target : SDG 12.4, 6.3

The Significance and Impact of CGPC

Comply with environmental protection regulations, legally clean and transport, improve resource reuse rate, and pursue sustainable resource utilization. Affected objects: employees, community residents, government agencies.

Develop Strategy

Continue to promote waste classification and improve resource reuse rate.

Policy Commitment

Reduce waste per unit of output year by year.

Grievance Unit

Environmental Protection Sector

SASB Indicator

◆ RT-CH-150a.1

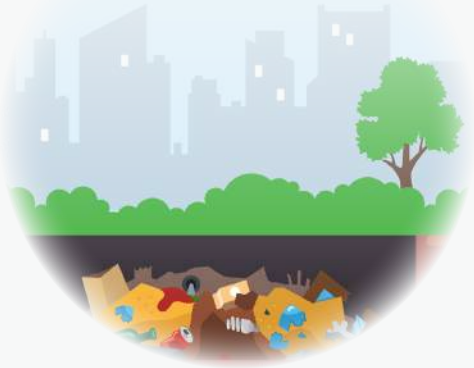
Indicator items	Unit	2024 goal	2024 result	2025 goal	2027 goal	2030 goal
Proper waste disposal rate	%	100%	100%	100%	100%	100%
Reduce waste generation per unit of output	kg/tonnes	0.0060	0.0071	0.0060	0.0050	0.0045
Reuse rate	%	80	82	80	85	90
Landfill rate	%	20	18	20	15	10

Reason for failure to achieve: Detailed remarks on the amount of waste generated in the past three years.

Exceeded Target Achievement Partially achieved Not met

The Company adheres to the philosophy of green environmental protection for pollution control work. In addition to the abovementioned water and air pollution control, it reduces waste pollution in various aspects to fulfill its operational responsibilities. CGPC's factories sell leftover materials, auction off unqualified products and recycle and remanufacture offcuts, so there is little waste from the process. The waste is classified into general industrial waste and hazardous industrial waste. The removal and disposal are handled by organizations with a qualified license, and comply with the Waste Disposal Act.

1. Each plant has designated waste personnel to manage, monitor, and inspect waste disposal vendors, and the designated personnel perform in-plant inspections (waste labeling, storage) from time to time and check whether or not the waste cleaning plan and reporting data are abnormal in order to ensure that the plant management complies with the laws and regulations.
2. Hazardous industrial waste shall be stored and labeled in accordance with the Methods and Facilities Standards for the Storage, Clearance and Disposal of Industrial Waste and the disposal and treatment shall be tracked by using the Industrial Waste Reporting and Management System.

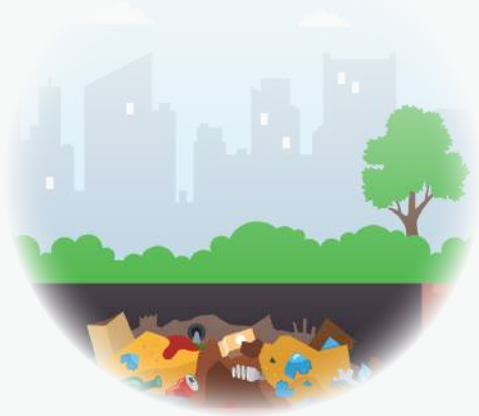


Amount of waste generated in the last three years

(Unit: ton)

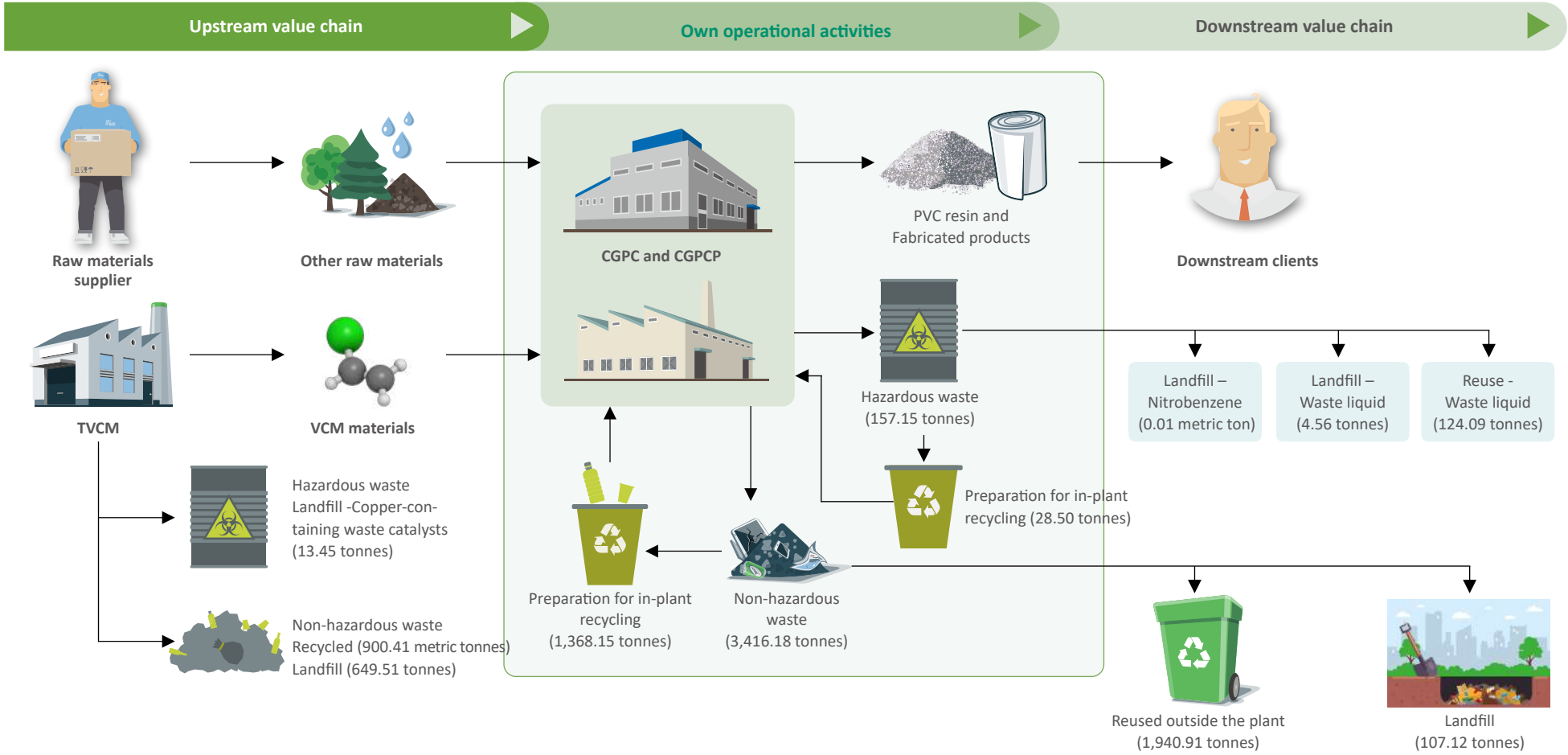
	Company	Final disposal	2022	2023	2024
General industrial waste	CGPC (Main plant)	Recycled and reused	1,521.67	2,612.84	1,874.87
		Preparation for reuse	402.03	772.01	1,368.15
		Landfill	95.14	190.57	89.86
	Total general industrial waste of CGPC		2,018.84	3,575.42	3,332.88
	% of general industrial waste recycled by CGPC		95.3%	94.7%	97.3%
	TVCM (Linyuan plant)	Recycled and reused	569.96	409.98	900.41
		Landfill	556.56	635.19	649.54
	Total general industrial waste of TVCM		1,126.52	1,045.17	1,549.95
	% of general industrial waste recycled by TVCM		50.6%	39.2%	58.1%
	CGPCP (Linyuan plant)	Recycled and reused	28.16	42.68	66.04
		Landfill	54.47	62.66	17.26
	Total general industrial waste of CGPCP		82.63	105.34	83.30
	% of general industrial waste recycled by CGPCP		34.1%	40.5%	79.3%
	Total amount of general industrial waste		3,227.99	4,725.93	4,966.13
	% of total general industrial waste recycled		78.1%	81.2%	84.8%
Hazardous Industrial Waste	CGPC (Main plant)	Recycled and reused	1.62	114.08	124.09
		Preparation for reuse	-	24.00	28.50
		Landfill	6.70	21.82	4.56
	Total hazardous industrial waste of CGPC		8.32	159.90	157.15
	% of hazardous industrial waste recycled by CGPC		19.5%	86.4%	97.1%
	TVCM (Linyuan plant)	Landfill	38.23	38.05	13.45
	Total hazardous industrial waste of TVCM		38.23	38.05	13.45
	% of hazardous industrial waste recycled by TVCM		0.0%	0.0%	0.0%
	Total amount of hazardous industrial waste		46.55	197.95	170.60
	% of total hazardous industrial waste recycled		3.5%	69.8%	89.4%
		General + hazardous_total	3,274.54	4,923.88	5,136.73
		Percentage of general industrial waste (%)	98.6%	96.0%	96.7%
		Percentage of hazardous industrial waste (%)	1.4%	4.0%	3.3%

Note:
1. All recyclable resources from CGPC's plants are handled off-site by licensed vendors for recycling.
2. Our environmental safety and health units regularly inspects waste disposal vendors' management and disposal monitoring, and the general affairs units work with waste treatment organizations to formulate contracts. GPS real-time tracking systems are used to confirm the transportation routes and flows, and the delivery receipt is signed by all three parties, ensuring that the waste is transported and treated in accordance with regulations. In 2024, the disposal and treatment agencies did not have any breach of contract.
3. Due to previous omissions in data from the three plants, the 2022 figures have been updated.
4. In 2023, industrial waste increased. At CGPC, waste iron rose due to plant demolition; at CGPCP, landfill volume increased due to residual packaging material. For CGPCP, an agreement has been reached with the waste disposal vendor to implement off-site recycling and reuse in the future. In addition, CGPC's increase in hazardous waste was due to chemical waste liquid from the rubber plant.
5. In 2024, TVCM's industrial waste increased due to tank dismantling and maintenance-related equipment replacement, while CGPC was unable to significantly reduce waste volume due to fire-related demolition at the hard fabric plant.



Life cycle management for waste

The hazardous waste generated by CGPC and TVCM in 2024 was 172.04 tonnes. Without proper management and effective treatment, random disposal can pollute the environment (air, soil, and water), further affecting the ecosystems and harming human health. Therefore, we have adopted the following management measures: 1. Review vendors' qualifications: they need to be qualified waste removal and treatment organizations. 2. Use the GPS real-time tracking system to confirm the transportation route and flow. 3. Conduct irregular vehicle inspections to ensure that hazardous waste is properly handled.



On September 29, 2022, an activated carbon fluidized bed control equipment was installed, primarily for the recovery of Methyl Ethyl Ketone (MEK), accounting for approximately 84% of the total waste liquid volume.

The pollution control equipment has been continuously operating for two months in the plant, using a Flame Ionization Detector (FID) for self-monitoring. The FID detects the average concentration of Volatile Organic Compounds (VOCs) emitted from 2 to 4 production lines. The average removal efficiency is over 93%, significantly reducing environmental emissions and pollution.