CH4 Eco-Friendly

- 61 Resources Management GRI 3-3, 301-1, 301-2, 301-3, 303-1, 303-2, 303-3, 303-4, 303-5
- 66 Climate Change and Energy Management GRI 2-23, 2-24, 3-3, 201-2, 302-1, 302-3, 302-4, 305-1, 305-2, 305-4, 305-5
- **<u>79</u>** Emissions Management GRI 3-3, 305-6, 305-7, 306-3, 306-4, 306-5

Performance Highlights

Electricity consumption reduced by **1.57**% on average each year during 2015-2023, better than the regulatory requirement of **1**%.

GHG emissions in 2023 were 108,107 Mt CO₂e, by 7.7% less over the baseline year (2017) Saved energy by 9,645 GJ and reduced carbon by 840 Mt CO₂e in the 2023 Energy Saving and Carbon Reduction Program

Material Topics

Raw material management Water resources management Climate change and energy management Air pollution control

SDGs Correspondence



Certified management system



ISO 14001 Environmental Management Systems Validity Period: 2022.05.13~2025.05.03



ISO 50001 Energy Management Systems Validity Period: 2022.11.19~2025.11.19





4.1 Resources management

Raw material management

Material topics: Raw materials management; Corresponding sustainability principle: Sustainable development GRI 2-25, 3-3

Management Approach and Components	Impact Management	Targets Execution and Performance of Management Approach	Evaluation of Management Approach
Significance to APC	Positive/Negative Impacts	2023 Goals	Effectiveness Assessment
Quality control of raw materials and effective recycling for reuse can reduce production costs and lower environmental impacts.	Continuation of 2022 Management Tracking Positive impact - Improve the efficiency of raw material usage, reduce costs, and decrease waste	 Ethylene efficiency ≤ 1.009 Equipment operation rate ≥ 96.6 % Flexible intermediate bulk container recovery rate ≥ 78%. Recycling and reuse of waste film rolls ≥ 60MT 	 Include Ethylene efficiency as a quality target to control the achievement rate Include materials recycling and reduction volumes in routine management
		2023 Performance	Adjust the management approach
		 Ethylene efficiency 0.9969 (♥) Equipment operation rate 98.45% (♥) 	Periodically review Ethylene efficiency at the wookly plant affairs mosting
Management Practice and Objectives	Processes to remediate and	 Flexible intermediate bulk container recovery rate 78 3% (2) 	The Finished Product Section produces statistics and follows up the FIBC recovery rate each month.
Lower the production cost, reduce waste generation, and lower environmental impact through monitoring Ethylene efficiency and	N/A	 Recycling and reuse of waste film rolls 69.3MT () 	
controlling flexible intermediate bulk container recovery.		Short-Term (< 3 years) Goals	
		• Ethylene efficiency ≤ 1.009	
Strategy		Flexible intermediate bulk container recovery	
 Raw materials use efficiency monitoring Materials recycling and reuse 		rate \geq 78%. • Recycling and reuse of waste film rolls \geq 60MT	
		Medium- Long-Term (\geq 3 years) Goals Planning	
		 Increase the dispatch flexibility of materials supply through the Kaohsiung ICT Phase II investment project to increase Ethylene supply by about 19%/ per day 	



Materials Usage

APC Linyuan Plant mainly produces low density polyethylene (LDPE) resins and ethylene vinyl acetate copolymer resin (EVA) with ethylene and VAM being the major materials and mineral spirit the secondary material. We do not use recycled materials for the major materials or recycle our products for reuse.

Usage of Major Raw Materials at Linyuan Plant in the Past 3 Years

Materials Type	Unit	2021	2022	2023
Ethylene	MT	112,990	107,936	109,548
Vinyl Acetate Monomer (VAM)	MT	25,105	24,270	25,163

Material usage and recycling GRI 301-1, 301-2

Linyuan Plant packs products in bags or in containers. The former includes PE bags, FIBC, container bags, top sheet, and shrinkable films. **No recycled materials are used.**

To minimize the environmental impact of product packaging, customers recycle and reuse packaging materials such as PE bags, container bags, Top Sheets, and shrinkable films. FIBC mostly being used for temporary packaging of Customers' finished goods or debris and recovered by Linyuan Plant for reuse. **FIBCs are collected and returned during the delivery by the transport company and each FIBC is reused for about four times on average.**

Reuse Volume and Recovery Rate of Packaging Materials in Past 3 Years GRI 301-3

Packaging		2021		2022		2023	
Material	Unit	Consumption	Recovery Rate	Consumptio	n Recovery Rate (Consumptio	n Recovery Rate
PE Bag	MT	482	Recycled by customers	474	Recycled by customers	458	Recycled by customers
Top Sheet and Shrinkable Films	MT	58	Recycled by customers	61	Recycled by customers	55	Recycled by customers
Flexible intermediate bulk container	MT	126	78.2 %	146	78.2 %	136	78.3 %

Note: 1. FIBC recovery rate = (Number of recovered FIBCs / Number of products sold in FIBC), based on the recovery of domestic sales.

Some of the FIBCs recycled by customers are punctured, while others damage during transportation, leading to an ineffective increase in the recycling rate. We will communication and coordination with customers to handle FIBCs with caution to prevent damage from affecting FIBC recovery and reuse.

3. Customers have not specified container bag packaging for shipments in many years, therefore the statistics for container bag usage have been temporarily paused.

In 2023, the overall capacity slightly rose by1.63% over 2022 as a result of the decreased unplanned halts. The demand for EVA products still occupies a high proportion in the market and development towards high-value and high VA content products led to an annual increase in the unit product VAM consumption, while the unit product ethylene consumption reduces each year.

Unit Product Consumption of Major Raw Materials at Linyuan Plant in Past 3 Years



Enforce the circular economy

For the "scrap" that generated during the production process, such as slag and dirty waste, which can't be recycled for profit, and the "waste film rolls" produced during product quality testing, both can be used for other purposes, and can still be valuable resources. In 2023, Linyuan Plant produced 225.6MT of scrap and 69.3MT of waste film rolls. These were given to downstream businesses to effectively utilize and reduce environmental impact.



Water resources management

Material Topics: Water resources management; Corresponding sustainability principle: Sustainable Development GRI 2-25, 3-3

Management Approach and Components	Impact Management	Targets Execution and Performance of Management Approach	Evaluation of Management Approach
Significance to APC	Positive/Negative Impacts	2023 Goals	Effectiveness Assessment
Global warming leading to extreme weather has caused a tight water situation in Southern Taiwan in recent years. Government units, stakeholders, and corporations are gradually placing importance on water resources management. Through water conservation measures and programs, precious water resources are reclaimed for recycling and reuse.	Negative actual impact - Insufficient reservoir water supply	 Water reclamation rate >95% Water consumption per unit product: <4.0 M³/ MT 	 "Sustainable Development Section" on APC official website Environmental Impact Grievance Channels
Management Practice and Objectives	Processes to remediate and prevent negative impacts	2023 Performance	Adjust the management approach
 Reduce pollution and emission through process and source improvement and then end-of-the-pipe treatment promote water resource recycling and reuse. Continue to implement water conservation and emission reduction, as well as water resource reclamation management 	 Implement three-stage water conservation approach in coordination with the government's water rationing measure to save water by about 10% 	 Water reclamation rate 99.2% (○) Water consumption per unit product: 3.70 M³/ MT (○) 	 Report the status and rate of self- imposed water conservation at the periodic plant affairs meeting and make rolling review. Discuss the progress and
Strategy	Continuous follow-up and	Short-Term (< 3 years) Goals	construction methods of improvement projects related to
 Management and follow-up of water reclamation rate. Continuous follow-up and management of unit product water consumption Continuous follow-up and management of process improvement projects related to water conservation. The data boundary of water resources management covers 	management of water reclamation rate, unit product water consumption, and process improvement projects for water conservation.	 Water reclamation rate >95% Water consumption per unit product: <4.0 M³/ MT Medium- Long-Term (≥ 3 years) Goals Planning 	water conservation at the periodic technological exchange meeting.
Linyuan Plant, and data coverage is 100%		• Water reclamation rate >95%	
Goals		• Water consumption per unit product: <4.0 M ³ / MT	
 Accomplish the annual target for water reclamation. Accomplish the annual target for unit product waterconsumption. Keep up with the annual schedule planning for process improvement projects related to water conservation. 		 At least one water conservation-related process improvement project each year 	





Water source of APC Linyuan Plant Water resources risk level: Low - Medium

Water source: Third-party water

Type: Fresh water ($\leq 1,000 \text{ mg/L TDS}$)

Tap water: Supplied by the Gaoping River Weir via the Fengshan Reservoir; Pure water: Supplied by Taiwan VCM Corporation

1. Adopted the water risk assessment tool developed by the World Resources Institute (WRI)

2. The data boundary of water resources management covers Linyuan Plant, and data coverage is 100%

Item	2022	2023	Increase/Decrease
Water consumption of Linyuan Plant (Thousand M3)	495.771	489.730	Decrease by 1.2%
Water discharge of Linyuan Plant (Thousand M3)	177.084	165.554	Decrease by 6.5%
Total water consumption of Linyuan Plant (Thousand M3)	318.687	324.176	Increase by 1.7%
Water Reclamation Rate (%) (Reuse Rate, R1)	99.2	99.2	-

R1 = (Total recycled water volume + Total reclaimed water volume) / (Total water consumption + Total recycled water volume + Total reclaimed water volume) X 100%

Note: After assurance by the third-party verification unit, the total water consumption starting from 2023 will include the volume of purified water and emergency water truck loading for droughts.

GRI 2-4, 303-1, 303-3, 303-4, 303-5 SASB RT-CH-140a.1

Water consumption per unit product in 2023 is 3.70 M^3/MT , a 2.9% decrease compared to the previous year and still below the goal of 4.0 M^3/MT .

APC Linyuan Plant reclaim condensate and recycle water of the cooling water tower for reuse. In accordance with the "Directions for Review of Water Consumption Plan" promulgated by the Ministry of Economic Affairs, the water reclamation rate in 2023 was 99.2%, which is the same as that of 2022. The graph below shows the unit product water consumption and unit product water reclamation rate of Linyuan Plant in the past three years. Moreover, the Company attaches great importance to the impact of global warming and climate change. In response to the water crisis in Kaohsiung region in recent years, we plan to propose the water solution policy to the senior management in 2024.



Effluent Management GRI 303-2

In Linyuan Plant, solid polyethylene products are produced by means of gas compression. After equipment cooling, dicing and cooling, and rinsing product storage tanks, tap water is collected in the equalization basin. Hence, effluents can be discharged free from contamination with a quality better than the legal requirements. It is transported to the dedicated sewerage system via underground pipelines and discharged to the wastewater treatment plant of Linyuan Industrial Park for treatment.

The 2023 effluent volume reduced by 6.5% over 2022 to 165,554 M^3 ; the volume of unit product effluent was 1.25 M^3/MT . Due to the proper water quality control of the cooling water tank, the required water replacement volume reduced, reducing the volume of unit water effluent over 2022.





The major effluent testing items in Linyuan Plant include **suspended solids (SS)**, **chemical oxygen demand (COD)**, **and pH**. The periodic report data is lower than the

sewerage water quality limits. The table below shows the results of major water quality test items of Linyuan Plant

in the past three years:

				0,
Test Item	2021	2022	2023	Emission Standard
Suspended Solids	9.51	9.18	5.51	≦ 25
Chemical Oxygen Demand	32.72	40.72	32.77	≦ 90
рН	7.58	7.52	7.46	6~9

All items of discharge water quality control tests in 2023 are within the qualified range, with no violations of discharge permission incidents. SASB RT-CH-140a.2

Water conservation measures

The enthalpy of vaporization of heat removal equipment and cooling water towers is the main source of water consumption at APC. Over the years we have implemented various water conservation programs, such as replacing the absorption chiller with the electric chiller, waste heat recovery, dicing soft water management, and increasing the concentration factor of cooling water. By maintaining the efficiency of heat exchangers, the 2023 unit product water consumption increased slightly.



Linyuan Plant Unit Water Consumption Trend

Note: The target value of water consumption per unit product in 2023 is 4.0 M³/metric ton

Due to global warming and climate change, the situation of industrial water supply in Taiwan has been worsening in recent years. Apart from adopting progressive water rationing, the government also actively combined the wastewater discharged from various processing zones and industrial parks and further planned and built wastewater recycling plants in response to water shortages. After evaluating the construction and operational costs of in-house wastewater recycling system, we have temporarily postponed the establishment of a small-scale wastewater recycling, and partially use the regenerated water from government-constructed wastewater reclamation plants for internal use, to achieve a win-win advantage for both the government and businesses.

SASB RT-CH-140a.3

APC Linyuan Plant stage response to the government's water rationing measures:

Stage 1	 Promote water conservation to employees Reclaim office rinsing water for plant irrigation Reclaim dicing water and cooling water for low-level water use
Stage 2	 Increase the concentration factor of cooling water tower water (from 5.5 times to 7.5 times) Reduce dicing water replenishment of production lines Temporary suspend unnecessary cleaning of product storage tanks and floor
Stage 3	 Reduce the frequency of fire water testing, postpone fire drills Temporary suspend supplying the Employee bathroom for washing Activate distillation and purification only when the liquid in the reclamation tank is at the high liquid level

The three-stage measures can save about 10% of water, and purchasing groundwater to supplement with water trucks when necessary.

2024 Water Conservation Program

	Energy Saving	Expecte	d Benefits	Expenditure on	
Туре	Management Program	Annual Savings in Purified Water Usage (M³)	Annual Savings in Purified Water Expenditure NTS (ten thousand dollars)	Engineering Costs (ten thousand dollars)	
Process Improvement	Line 3 V-1327/V-1328 Condensate Recovery	11,840	47.4	42	



4.2 Climate Change and Energy Management GRI 2-23 • 2-24

Material Topics: Climate change and energy management; Corresponding sustainability principle: Sustainable Development

Management Approach and Components	Impact Management	Targets Execution and Performance of Management Approach	Evaluation of Management Approach
Significance to APC	Positive/Negative Impacts	2023 Goals	Effectiveness Assessment
Extreme climate impacts human lives and properties, which is an inevitable global issue. In response to the EU policy, companies need to prepare in advance for impact response. It is necessary for businesses to take immediate action to enhance energy efficiency and reduce	Negative actual impact- Rising energy costs Negative actual impact - Insufficient electricity supply Negative potential impact - Carbon fee collection	 Carbon emissions in 2023 were 111,100 Mt CO₂e, by 5.2% less over the baseline year (2017) Unit product electricity consumption: 1,480 kWh/MT The individual company greenhouse gas inventory and assurance are expected to be completed in Q4 2023. Operational interruption due to extreme weather events: 0 day 	 Include energy conservation and carbon reduction programs in the energy management system for progress control Monitor, measure, and control Energy Key Performance Index and raviow differences monthly
		2023 Performance	"Energy Conservation Audit System
Management Practice and Objectives	Processes to remediate and prevent negative impacts	 Carbon emissions in 2023 were 108,100 Mt CO₂e, by 7.7% less over the baseline year(2017) (♥) Unit product electricity consumption 1,461 kWh/MT (♥) 	Report of Energy Users" of the Energy Administration • "Regulations of GHG Inventory Registration Management" of the Environmental Protection Administration, voluntarily undertake the GHG inventory
Establish the ISO 50001 Energy management system, improve energy performance indicators through energy-saving measures, enhance	 Review in-house energy conservation and carbon reduction programs each year in coordination with the Group Energy Management Department Plan and build generation sets to ensure electricity redundancy during power supply disruption 	 Completed the verification of Linyuan Plant's 2022 GHG emissions in May 2023 (Operational interruption due to extreme weather events 0 day 	
GHG emissions to fulfill the commitment of		Short-Term (< 3 years) Goals	Grievance Mechanism
We analyze the risks and opportunities of climate change to reduce the financial loss caused by extreme weather conditions in production operations.		 In 2025, GHG emissions amounted to 106,800 Mt CO₂e, marking an 8.9% reduction compared to the baseline year (2017). (Note: The target set for 2024 is 108,400 Mt CO₂e, which has been reached ahead of schedule.) Energy-saving and carbon reduction efforts in 2024 are expected to reduce emissions by 1,220 Mt CO₂e. The electricity consumption rate for 2024 is 1 480 kWh/MT 	 "Contact us" section on the APC website Survey on issues that concern stakeholders
Strategy	 Plan and implement green power strategies within the 	• Operational interruption due to extreme weather events: 0 day	
• Establishing Energy Conservation and	group: APC will use green	Medium- Long-Term (\geqq 3 years) Goals Planning	Adjust the management approach
 Enhance energy efficiency Legal compliance Climate change risk response 	power (solar PV) of about 2.5GWh in 2025 by law	 A self-generation and self-consumption solar PV power plant (499kW) will be installed in 2025 It is anticipated that approximately 2.5 million kWh of solar green electricity, representing 10% of contracted capacity, will be used in 2025. Achieve a 27% reduction in carbon emissions by 2030 compared to the baseline year, and reach carbon neutrality by 2050. 	 USIG Technology Exchange Meeting Energy Management System Management Review Meeting

Descriptions: Due to the change in the method of calculating energy conservation and carbon reduction, it is presented in terms of annual equivalent values. In response to the Group's carbon reduction target "Carbon emissions reduced by 27% over 2017 by 2030", the actual reduction in carbon emissions is used as the 2023 Goals.



Climate Change Risk Management GRI 2-23, 2-24

Climate change is a common challenge around the world. To keep up with the world and match the demand for sustainable development, Taiwan announced the amendment of the "Greenhouse Gas Reduction and Management Act" to the "Climate Change Response Act" on February 15, 2023. Facing the impact of climate change, carbon reduction has become a global goal. To enhance carbon reduction, **USIG set the 2030 carbon reduction target which is "carbon reduction by 27% over 2017 by 2030" in early 2022 and set "Carbon neutrality by 2050" in 2023 as the Longterm Goals of the Corporation.**

In order to achieve the corporate sustainability vision, USIG has actively implemented corresponding response strategies and management mechanisms with practical actions. The group's domestic plants continue to implement ISO 14064-1 GHG Inventory and Verification, and plan and implement carbon reduction programs. The group also actively develops external renewable energy sites. By the end of 2023, the accumulative on-grid capacity of solar PV sites has reached 7.2MW.

APC plans its carbon reduction pathway according to the group's 2030 carbon reduction Goals. **The GHG emissions in 2023 have dropped by 7.7% compared to the baseline year (2017).** We will implement the energy-saving carbon reduction Program more actively in the future. The medium-term carbon reduction strategy will proceed towards the transition to low-carbon energy, enhancement of energy efficiency, intelligent monitoring, and the setup and use of renewable energy. The long-term carbon reduction strategy will continuously focus on low-carbon fuels, carbon capture, reuse technology, and negative carbon emissions technology, to implement the carbon neutrality goals and promote sustainable development.

Descriptions

1 We set 2017 as the baseline year for total Greenhouse Gas Emissions, as it was the year when the full operation started after the completion of the fourth production line of APC.

2 Based on the results of ISO 14064-1 external verification in 2022, we revised the carbon emissions in baseline year 2017 to 117,228 Mt CO_2e (formerly 110,863 Mt CO_2e).



Long-term

Carbon capture technology, Negative carbon emission technology



APC utilizes the framework provided by the Task Force on Climate-related Financial Disclosures (TCFD) to identify climate-related risks and opportunities, assess risks and opportunities from different departments, evaluate financial impacts, and establish response plans. GRI 201-2

Climate Change Management Structure

Туре		Management strategy and action
	ESG Committee	As the highest governance body of climate change management chaired by independent directors, it reports climate change planning, implementation and performance to the Board of Directors every year
	Operations Management Meeting	Chaired by the Board chairman, it plans and implements materiality policies for energy saving and carbon reduction and reports the results from time to time.
Governance	Group Environmental Quarterly Meeting	As the highest governance body of the USIG's energy management, it reports the planning and progress to the Group's chairman each quarter and makes decisions on energy management
	Group Green Power Team	As the USIG's responsible unit for green power promotion, it reports the status of and future plans for green power development to the Chairman every month
	Scenario analysis	Assess the physical risk based in the different climate scenarios
	Identification of Risks and Opportunities	Based on the level of association with risk factors and the likelihood of occurrence, conduct materiality risk and opportunity assessments for operational feasibility and development potential of opportunity projects
Strategy	Assessment of Potential Financial Impact	Assess the potential financial impacts of identified material risks and opportunities
	Implementation of TCFD	Identify risks and opportunities based on the TCFD framework, communicate with all responsible units, and confirm by senior management
Risk Management	Report of identification results	Include them in the annual risk assessment. The head of the Sales & Marketing Division reports the control measures and management performance to the Audit Committee and the Board of Directors every year
	Group Energy Management Targets	Set energy management targets within the group's carbon reduction initiative, with 2017 as the baseline year, aiming for a 27% reduction by 2030, and achieving carbon neutrality by 2050
Indicators and Targets	Climate-Related Response Strategy	The Short-term (<3 years) initiatives include replacing old equipment, enhancing energy efficiency, installing solar power generation facilities, implementing green procurement practices, and developing measures for water and drought response to mitigate the impact of carbon levies. The Medium-term (3~5 years) carbon reduction Strategy is heading towards the Transition to low-carbon energy, energy efficiency enhancement, intelligent monitoring, and installation and use of renewables. The Long-term (>5 years) carbon reduction strategies focus on exploring low-carbon fuels, carbon capture and reuse technologies, and negative emissions technologies.
	GHG emissions disclosure	Disclose the data of Scopes 1, 2, and 3 GHG emissions in the ESG report yearly and review the causes for changes periodically



Identification of Climate Risks and Opportunities **GRI 201-2**

In response to intensifying global climate change, APC continues to utilize the TCFD framework to deepen the understanding of potential risk items that may be faced under extreme climate conditions, and capture new business opportunities. Referencing the Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP) and the National Science and Technology Center for Disaster Reduction, analyze the projected changes in temperature, rainfall, flooding, and drought from 2016 to 2035 under the RCP 8.5 scenario and identify three physical risk issues. Also, identified 9 transition risks and 12 opportunity issues, totaling 24 potential risk and opportunity issues, based on the group's strategy, industry characteristics, Intended Nationally Determined Contribution (INDC), and TCFD indicators.

In 2023, we conducted a survey for the ESG Committee and senior unit managers to assess the relevance of each risk to the Company's operations and the duration of potential impacts, as well as the development and viability of each opportunity. We collected 9 responses in total. After statistical analysis by the group, we identified 10 materiality climate issues (2 items of physical risk, 4 items of transition risk, and 4 items of opportunity).

APC evaluates potential financial impacts from 10 materiality risk and opportunity items, devises corresponding strategies, and establishes management mechanisms. The aim is to understand the potential effects of climate change across various aspects, reduce operational disruptions caused by extreme weather events and foster a resilient climate change culture.



Descriptions: Degree of Association with the Company (from low to high: 1 to 5 points); Potential Occurrence Time (from long-term to short-term: 1 to 3 points) Material Risk Threshold (Degree of Association with the Company 4 points or above, and Potential Occurrence Time 1.9 points or above)



Descriptions: Development Potential for Company Operations (from low to high: 1 to 5 points); Feasibility for Company Operations (from low to high: 1 to 5 points) Material Opportunity Threshold (Development Potential for Company Operations 4.6 points or above, and Feasibility for Company Operations 3.8 points or above)



11 Uncertainty in market information

(12) Changes in raw material prices



Financial implications and other risks and opportunities due to climate change and countermeasures GRI 201-2

Climate Change Topic	Торіс	Туре	Description of Risk and Opportunity Items	Potential Financial Impact	Countermeasures
Flood inundation	Physical risk / Chronic	Short-term (< 3years)	Based on information from the Water Resources Agency, it is estimated that the plant would experience a flood ranging from 0 to 0.5 meters if there is 500mm of rainfall in 24 hours for a duration of one day. Due to the impact of heavy rainfall/floods described above, cause the plant halting operations of flood, resulting in decrease in revenue.	↑ capital expenditure and ↓ in revenue	 Raise the foundation of key equipment Build flood control and drainage measures Regular inspection of the plant's drainage system for smooth flow
Drought	Physical risk / Chronic	Short-term (< 3years)	 Take 1986 to 2005 as a base period to estimated that APC Linyuan Plant's climate conditions during recent years (2016-2035) may face water shortage or drought due to the possibility of 58 consecutive days without rainfall annually. Due to extreme weather conditions, water rationing or shortage can occur in the plant. In serious cases, it may reduce production line operation or lead to a complete shutdown. 	 ↑ operating costs APC Linyuan Plant implemented phase three measures to reduce water consumption by approximately 10% from March 31, 2023, to June 14, 2023, in response to government water restriction levels. Water conservation rate 10%, control water quantity 1,239MT/ day; water conservation rate 5%, control water quantity 1,308MT/ day. During the water conservation period in 2023, the average daily water consumption per week: 1,230MT/day, a decrease of approximately 9.3% compared to the normal water usage period (August): 1,356MT/day The water conservation volume in the plant during the 2023 conservation period was about 9,576MT, which saved approximately NT\$3.06 million in outsourced water truck expenses. [Water truck 25 tons/truck, cost NT\$8,000, 10 trucks/day] In the event of severe drought, we would need to collaborate with water trucks to procure groundwater for replenishment. In extreme scenarios, we might have to reduce production line output or cease operations entirely. This would necessitate the addition of five more water trucks each day, resulting in a daily cost increase of over NT\$40,000 due to water purchases 	APC Linyuan Plant three-stage water conservation approach in coordination with the government's water rationing measure: Stage 1 (1) Promote water conservation to Employees (2) Reclaim office rinsing water for plant irrigation (3) Reclaim dicing water and cooling water for low-level water use Stage 2 (1) Increase the concentration factor of cooling water tower water (from 5.5 times to 7.5 times) (2) Reduce dicing water replenishment of production lines (3) Temporary suspend unnecessary cleaning of product storage tanks and floor Stage 3 (1) Reduce the frequency of fire water testing, Temporary suspend fire drills (2) Activate distillation and purification only when the liquid in the reclamation tank is at the high liquid level (3) Temporary suspend supplying the Employee bathroom for washing
Carbon Fee	Transition risk/Policy and Law	Short-term (< 3years)	The "Draft of Regulations for Charging of Carbon Fees" was released by Environmental Protection Administration in December 2023, with the expectation to impose carbon fees on large carbon emitters whose annual emissions exceed 25,000MT in 2025. (Note: When calculating the carbon fee, a deduction of 25,000MT is available as a free quota.)	Initial investment costs are high, but later carbon emissions are low, leading to reduced operating costs. APC estimated carbon emissions for 2023, assuming a carbon fee of NT\$300 per metric ton, and deducting the tax exemption of 25,000 metric tons from government, the projected carbon fee would be [NT\$24.93 million], representing around [0.38]% of individual revenue.	 APC evaluates the use of internal carbon pricing as a shadow price, incorporating carbon costs into investment assessments to increase the execution opportunities of carbon reduction items Establish the energy management system



Climate Change Topic	Торіс	: Туре	Description of Risk and Opportunity Items	Potential Financial Impact	Countermeasures
Renewable Energy Regulations - Risk of Energy-heavy Industries Clause	Transition risk/Policy and Law	Short-term (< 3years)	"Regulations for the Management of Setting up Renewable Energy Power Generation Equipment of Power Users above a Certain Contract Capacity" by the Ministry of Economic Affairs requires energy-heavy Industries with a contract capacity of more than 5,000 kW to install renewable energy equipment equivalent to 10% of their contract capacity before 2025.	↑ capital expenditure and ↑ in operating costs APC plans to install solar PV equipment on the rooftop and purchase green power with USI Green Energy Corporation to meet regulatory requirements.	 USI Green Energy Corporation actively seeks suitable sites for green power development. The cumulative capacity of solar photovoltaic installations reached 7.2MW by 2023, with an annual power generation of up to 9.15 million kWh. APC estimates to purchase 1.913 million kWh of green power from USI Green Energy Corporation, a subsidiary of USIG. APC Linyuan Plant has installed 496 kW solar PV APC Linyuan Plant will install a 499 kW (self-generated and self-consumed) solar photovoltaic system in 2025.
Transition of low-carbon technology	Transition risk/Energy, Technology	Medium-term (3~5 years)	Investing in energy transition, efficiency improvement, fuel substitution and other low- carbon technology developments for carbon reduction has led to an increase in technical costs for corporates.	 ▲ capital expenditure and ↓ in operating costs 1. Waste heat recovery improvement project saves up to 2,656 MT of steam per year, saving about NT\$4 million yearly 2. Cost and Benefit of Other Equipment Investments 3. Price increase in electricity, cost increase 	 Implement a waste heat recovery system improvement project to solve the problem of unstable steam production and save steam when producing different products (LDPE/EVA) on the same production line Other investments in energy-saving equipment (such as motors) or fuel substitution achievements Due to the price increase in electricity by Taiwan Power Company in April 2024, the electricity expenses of Linyuan Plant will increase by NT\$41.89 million per year compared to the past. APC will proactively invest in the transition to low carbon technology to mitigate the impact of the increase in electricity expenses.
Increased raw materials price	Transition risk/Market	Short-term (< 3years)	 Under the consideration of future carbon tax levies, the raw material will include the cost of carbon emissions, leading to a rise in prices Extreme climate leads to uncertainties in feedstock transportation costs and delivery dates 	↑ capital expenditure and ↑ in operating costs As ethylene serves as the primary raw material for APC's pro- ducts, APC invested NT\$906 million in Gulei Project and the Ethylene Storage Tank Project at Kaohsiung Intercontinental Container Terminal to diversify the sources of ethylene.	1. Diversified raw materials suppliers
High-efficiency production	Opportunity/ Resource Efficiency	Medium-term (3~5 years)	Through AI intelligent production, industrial motors, automatic packaging and other production tools, we enhance overall production efficiency and reduce energy consumption.	↑ capital expenditure and ↓ in operating costs It is expected to invest NT\$10 million to implement online analysis and monitoring via the AI data platform	Through the Al project, a new data platform DCS+ was established to collect. Use data from reactors and cooling towers as a basis for subsequent online analysis to enhance analytical efficiency.
Reduce water usage and water consumption	Opportunity/ Resource Efficiency	Medium-term (3~5 years)	Water resources are irreplaceable in the manufactur- ing process. Reducing plant water leakage and increasing the proportion of water reclamation and reuse can save operational cost expenditures and enhance the resilience of the plant.	The early investment cost of water conservation technology is high Project equipment investment costs and benefits	 Improve process equipment and operation to reduce steam use Continually evaluate water consumption reduction programs Water consumption per unit product in 2023 decreased by 2.9% compared to 2022



Climate Change Topic	ange Topic Type		Description of Risk and Opportunity Items	Potential Financial Impact	Countermeasures
Use low-carbon energy	Opportunity/ Resilience, Energy source	Long-term (>5 years)	Promote coal gasification, enhance the proportion of renewable energy usage, reduce carbon costs, and lower the product carbon footprint.	↑ in operating costs, ↓ in carbon fees Project Investment in Carbon Reduced, Cost, and Benefit	 Developing self-built solar PV power plant, paying attention to and participating in the renewable electricity market The priority for the source of purchased steam supply is natural gas. The energy saving and carbon reduction program in 2023 resulted in a total electricity savings of 516,000 kWh, steam savings of 2,736MT, and carbon reduction of 840MT
R&D and innovation of new products and services - research and development of low-carbon and energy-saving products	Opportunity/ Product and Services	Long-term (>5 years)	R&D low-carbon products from the perspective of a complete product and service life cycle toward developing products in circular economy, low- carbon, and energy-saving.	↑ in revenue The total sales volume of EVA Materials for photovoltaic applications by APC from 2017 to 2023 is 180,000MT, which can be used for packaging 40GW solar power modules, equivalent to the annual Carbon Reduced of 64,000 Daan Park.	In countermeasures to the major trend of climate change and the transition to low-carbon energy, APC actively developed optoelectronic industry application products, launching low-carbon green energy and high-efficiency EVA films

Promote group internal carbon pricing GRI 2-23, 2-24

In February 2023, Taiwan announced the implementation of the "Climate Change Response Act", which introduced a mechanism for collecting carbon fees. Details concerning the fee collection methods and specific rates would be stipulated by the Environmental Protection Administration through related regulations. Targets would be subject to charges based on hierarchy, beginning with major ones followed by minor targets in different stages. The rates will be reviewed regularly and gradually increased. In order to respond government policies in advance and effectively cope with climate change and reducing carbon risk, USIG will introduce an internal carbon pricing system in 2024. The price will be based on the domestic carbon fee pricing basis. We plan to integrate this system into the Company's decision-making and investment evaluation processes, assessing the impact of carbon emissions on business operations, and accelerating the implementation of carbon reduction measures. The Group will also hold two Educational training sessions to help relevant unit employees understand the concept and application of internal carbon pricing, assist each plant in prompt implementation, and also plan for a general course on carbon-related topics. Invite all group employees to participate in order to enhance everyone's carbon reduction awareness and achieve our Sustainable Development Goals.





Climate Adaptation Actions

In response to the impact of climate change, in terms of climate adaptation, USIG is not only continue leveraging technology and R&D capabilities to invest in the development of innovative materials and products but also actively participating in environmental sustainability initiatives held by the Group to mitigate the impact of climate change.



In response to the extreme weather events due to climate change, the importance of market demand for green power products continue to rise. APC thus actively develop PV applied products with high added value, such as the EVA films for PV module packaging, to fulfill the eager demand for PV module packaging materials and cultivate new markets for high-value products.

In the first three quarters of 2023, Mainland China's new solar PV installations reached 129GW, an increase of 145% from the previous year, surpassing the full year installations in 2022. The demand for photovoltaic-grade EVA remains strong. The capacity in Mainland China is expected to start sequentially in the first quarter of 2024. The conservative outlook of customers in H2 2023 affected the price and sales volume, and the sales volume of photovoltaic grade EVA products decreased by about 23% compared to 2022.

"Add a Touch of Color to the Earth, USI Group Plants a Field of Green" afforestation activity

USIG collaborated with the Experimental Forest of the College of Bio-Resources and Agriculture at National Taiwan University on afforestation adoption project. Led by President Wu, more than 120 people from the Group Taipei HQ and its subsidiaries including USI, APC, and TTC, planted Chamaecyparis formosensis saplings at the afforestation land in Xitou, a section of the Experimental Forest on May 20, 2023. With technical support and management administration provided by the Experimental Forest of the College of Bio-Resources and Agriculture at National Taiwan University, we aim to increase forestry coverage to achieve the goal of "Carbon Neutrality," providing positive benefits such as soil and water conservation, climate regulation, maintenance of environmental ecosystems, and more. This contributes to the "Sustainable Forestry" of our forests and natural resources, helping mitigate global warming and green our Earth.

After the afforestation activity, we went to Shuili Township to participate in the ESG Sustainable Market and DIY crafts, to practice circular economy, support local agricultural product consumption, and implement the spirit of low-carbon sustainability and agricultural education.



Energy management

USIG voluntarily set energy management targets in 2016 and began to make dynamic target reviews in accordance with the Country's energy development policies and by keeping track on the international trends and domestic laws and regulations. After measuring the internal and external factors, we set the 2030 carbon reduction target in early 2022, which is "carbon reduction by 27% over 2017 by 2030". The 9 USIG core businesses began to implement the ISO 50001 energy management system and obtained the certificate in 2018 to effectively manage energy performance and continuously improve energy saving and carbon reduction, hoping to demonstrate USIG's influence and so to lower environmental impact.

Every year USIG holds the "plant technology exchange meeting" and several "Northern /Southern plants resource integration meetings" for plants to share resources and improve performance in energy conservation and carbon reduction though exchange technology experience. In 2023 the "plant technology exchange meeting" was held in October. Case presentation with themes including "industrial safety and environmental protection", "equipment preventive maintenance", and "energy saving and carbon reduction" were conducted through competitions. Through plant technology case submission and documentary review, a total of 7 cases entered the final. Senior group management and plant representatives elected the three best cases. The group's chairman presented the certificates and bonuses to winners. Through ratings and encouragement, sharing, and mutual learning, we aim to advance technology in the group.

In 2023, Plant Director Mr. Hsieh led APC manufacturing team (Chief Sheng-Jen Hsueh, Supervisor Shang-Hsing Yen, and Engineer Cheng-Hsiung Lin), presented with the theme of "Waste Heat Recovery System Process Improvement and Energy Optimization", obtained the third place in the group's senior management evaluation, showing outstanding performance.

Electricity Conservation Rate of Linyuan Plant in Past 3 Years:

Year	2021	2022	2023
Electricity Conservation Rate (%)	0.75	0.68	1.13

1 The electricity conservation rate in 2023 was 1.13%, and the average power conservation from 2015 to 2023 was 1.57%, which meets the requirement of the "Energy Administration's regulatory requirement of 1%".

2 Electricity Conservation (%) (including Taipower's demand bidding, with an energy conservation volume of 1,568,166 kWh from demand bidding)





Energy use GRI 302-1, 302-3

The data boundary of energy management in 2023 covers Linyuan Plant, and data coverage is 100%. The graph below shows the internal energy consumption of Linyuan Plant by electricity, steam, fuel oil, and other energy sources in the past three years and the unit product energy consumption:



Note: 1. Conversion factor of heat value per unit GRI 2-4

The Energy Administration, Ministry of Economic Affairs announced: Electricity 860 Kcal/degree; Fuel Oil 9,600 Kcal/L; Unit conversion: 1 Kcal= 4.187 KJ

Steam supplier provides (Kcal/kg): Steam 679.47 (2023); 679.51 (2022); 671 (2021)

- 2. (Electricity/Steam/Fuel Oil) energy consumption = (Electricity/Steam/Fuel Oil) consumption x conversion factor of heat value per unit x 4.187x10-6(GJ/KJ)
- 3. Sources of electricity, steam, and fuel oil consumption and production data: Monthly production statistics, with bills as proof.
- 4. The energy used by the Company is non-renewable.
- 5. After fuel oil is verified a third-party unit, gasoline + diesel + liquefied petroleum gas will be included starting from 2023.

Total 2023 Energy Consumption 805,494 GJ, Reduced by 0.6% SASB RT-CH-130a.1

The production process is running smoothly, reducing the number of equipment cleanings and implementing energy-saving and carbon-reduction programs to lower the usage of steam; increasing the recovery rate of the VA system, and reducing the generation of fuel oil.

Electricity Consumption 695,742 GJ, accounting for 86.4%

Percentage renewable 0%

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Self-Generation Energy (Solar PV) 2,017 GJ

Total capacity of self-generation and self-consumption (solar PV) **0** GJ All APC's solar-generated electricity in 2023 was sold to Taiwan Power Company





Note: 1. Unit product energy consumption (or energy intensity) = Total consumption (GJ) / Total production (MT)

2. Source: "Energy Conservation Audit System Report of Energy Users" of the Energy Administration

The unit product energy consumption (or Energy intensity) in 2023 was 6.09 GJ/MT, which was about 2.2% lower than the 6.23 GJ/MT in 2022. The main reasons were the smooth plant process, fewer equipment cleanings, the implementation of energy saving and carbon reduction programs, and the reduction in steam usage. Moreover, increasing the recovery volume of the VA system and reducing the output of fuel oil (VA waste liquid) also contributed to the decrease in unit product energy consumption.

In addition, we adjusted the product production combination in response to changes in market demand. Currently, the market demand is still dominated by EVA products with higher unit product energy consumption. The production of high-EVA products requires higher production pressure. Under conditions that do not affect product quality, reducing the pressure for production saves electricity and factors such as the decrease in the number of yearly equipment failures also are key to preventing a sudden increase in electricity consumption.

GHG management

The Ministry of Environment announced a revision on August 8, 2022, "Businesses should inventory and register GHG emissions sources". The Linyuan Plant of APC belongs to the Added second batch Target for inventory and registration of GHG emissions, which should complete the GHG inventory of the previous year by August 31, 2023, and after entrusting a third-party certification body for verification, register on the website designated by the Ministry of Environment. APC Linyuan Plant once entrusted Environmental Protection Bureau of Kaohsiung City to inventory on GHG emissions and has been conducting self-imposed inventory for years and completed the verification in accordance with ISO 14064-1 through a third-party assurance agency in 2022 Q3.

According to regulatory requirements, APC must complete the consolidated greenhouse gas inventory for the parent and subsidiary companies by 2025 and achieve assurance by 2027. APC has already completed the consolidated greenhouse gas inventory and assurance for 2023 in Q2 2024. The operational boundary of Linyuan Plant includes direct, indirect, and other indirect GHG emissions. The main GHG emissions are five categories, including CO_2 , CH_4 , N_2O , HFCs, and SF_6 . Ultimately, carbon emissions are presented as CO_2e by converting through the Global Warming Potential (GWP) in IPCC's sixth assessment report.

GHG emissions by scope and intensity of unit product of APC in past 3 years are as follows: GRI 305-1, 305-2, 305-4



Description: As Linyuan Plant implemented the ISO 14064-1 GHG inventory thirdparty verification system in 2021, we replace the original 2021 GHG emissions inventory data with the data verified by the third party.

- Note1: Electricity emission factor: 0.494 kg CO₂e/kWh (for 2023). Purchased steam emission factor: 0.1536731535 tons CO₂e/ton (for 2023).
- Note2: GHG Emissions: Scope 1 refers to direct emissions from processes or facilities. Scope 2 refers to energy indirect emissions, such as purchased electricity (all supplied by Taiwan Power Company) and purchased steam (all supplied by Formosa Plastics Linyuan Plant).
- Note3: GHG Emissions = (Energy Fuel Usage) x (Emission factor announced by the Environmental Protection Administration) x (IPCC GWP value required by the Environmental Protection Administration)
- Note4: GHG emission intensity = total GHG emissions (metric tons CO_2e) / total production (metric tons) (or total GHG emissions metric tons CO_3e) / million turnover).
- Note5: According to the GHG emission coefficient version 6.0.4 announced by the Ministry of Environment and the GWP value of the IPCC 2013 Fifth Assessment Report, the value is converted into dioxide carbon emission equivalent.



Direct GHG Emissions (Scope 1) 10,275Mt CO₂e, Accounting for 9.5% Data boundary: Consolidated Financial Statements of Parent and Subsidiaries GRI 305-1 SASB RT-CH-110a.1 Energy indirect GHG Emissions (Scope 2) 97,832Mt CO₂e, Accounting for 90.5% Data boundary: Consolidated Financial Statements of Parent and Subsidiaries GRI 305-2

The total GHG emissions of APC in 2023 were 108,107 Mt CO_2e , a reduction of 1.1% compared to 2022. The intensity of unit product GHG emissions was 0.818 Mt $CO_2e/$ MT, a reduction of approximately 2.62% compared to 2022. The reduction in energy consumption per unit product is primarily due to adjustments in the product mix based on market demand changes, process pressure adjustments, and a decrease in equipment failure rates. Another measure of emission intensity is 16.09 tons CO_2e per million in revenue, which represents an increase of approximately 45% from the previous year, mainly due to a decrease in product prices and a reduction in annual revenue.



Other indirect GHG emissions (Scope 3)

According to ISO 14064-1, categories 3-6 indirect GHG emi-ssions were identified and assessment in accordance with the indicators in Appendix H of ISO 14064-1:2018. Among them, one item is Category 3 (emissions from upstream transport and distribution for goods) and four items are Category 4 (purchased goods), which belong to Scope 3, with GHG emissions of 307,865 Mt CO_2e . (Note: Scope 1–3 data has been assured by a third-party organization.)

APC's Scope 3 GHG emissions in 2023

Item	Emissions (MT CO ₂ e)
Category 3 - Transportation Vehicles -Vinyl Acetate Monomer	286.4414
Category 4 - Purchased Goods - Ethylene	205,950.2513
Category 4 - Purchased Goods - Vinyl Acetate Monomer	82,722.8249
Category 4 - Purchased Goods - Other Electricity	18,800.0834
Category 4 - Purchased Goods - Tap Water	105.4774
Total	307,865.0784



Energy Saving Actions and Benefits GRI 302-4

A total of four energy saving and carbon reduction manage-ment programs have been implemented in 2023, as shown in the figure:



Process Improvement

1. Increase V-1227 steam output. 2. Reduce production pressure for electricity conservation. Save: Electricity 355,220 kWh, Steam 2,736 MT, Reduce carbon 760 Mt CO₂e



Equipment Improvement

3. Replacement of the reactor motor. 4. Improve LINE 4 granulation area for energy-saving. Save: Electricity 161,394 kWh, Reduce carbon 80 Mt CO₂e

Electricity conservation by 516,614kWh, steam 2,736 MT, and reduced carbon by 840 Mt CO_2e in total. The table below shows the energy saved and carbon reduced by process improvement and by equipment improvement:

Туре		Process Improvement	Equipment Improvement	Total
Energy	Electricity (GJ)	1,279	582	1,861
Saved	Steam (GJ)	7,784		7,784
Reduce carbon(MT CO ₂ e)		760	80	840

Note 1: The calculation method for energy saving and carbon reduction program have been presented in terms of annual equivalent values.

Note 2: The Energy Administration, Ministry of Economic Affairs announced: Electricity 860 Kcal/degree; supplied by the steam supply plant: Steam 679 Kcal/kg, Unit conversion factor: 4.187x10-6(GJ/KJ)

All reduced GHG emissions were Scope 2 Reduced indirect energy emissions GRI 305-5

APC Linyuan Plant establish energy saving and carbon reduction programs and targets in response to the government's energy saving policy and in accordance with the group's energy management targets. Every month we produce statistics on the results of implementation of the energy saving and carbon reduction programs for the reference of progress control. We also share resources and exchange experience with other USIG businesses through the group's "Resource Integration Meeting" and "Technology Exchange Meeting" to learn from one another so as to implement practical and effective energy saving and carbon reduction programs.



2024 Energy saving and carbon reduction programs

It is expected to implement 5 energy-saving and carbon-reducing measures, saving 2,237,004 kWh of electricity, 522 MT of steam, and reducing carbon emissions by 1,220 MT CO₂e in total.

Investment amount for the 2024 energy-saving and carbon reduction program is NTD 16.13 million.

Туре	Energy Saving Management Program	Program Targe Value	Total Energy Saved in the Program	2024 Reduce Carbon Emissions Target
کو سے Process Improvement	 Improve LINE 3 condensate recovery for energy saving. Improve LINE 3 VA transportation system for energy saving. Line 2 Recycle line for temperature reduction and electricity conservation. 	Electricity 135,120 kWh Steam 522MT	Electricity 2,237,004 kWh Steam 552MT	1,220 MT CO ₂ e
Equipment Improvement	 Improve LINE 3 catalyst pump for electricity conservation. Improve electricity power system for electricity conservation. 	Electricity 2,101,884 kWh		

Renewable Energy

The solar PV installations with an installed capacity of 496.08kW at the APC Linyuan Plant was completed in June 2011. In 2023, APC solar PV generation produced up to 560,067 kWh and all was sold to Taiwan Power Company. The accumulative generation by the end of 2023 was 73.9 GWh, reducing emissions by about 3,839Mt CO₂e.

Currently, USIG is planning to lead all USIG businesses to fulfill the green power demands within five years through the central construction of PV installations by the group. If the output is insufficient, the group will be supplemented by purchasing green power and renewable energy certificates.

APC is expected to purchase 1.89GWh of green power from USI Green Energy Corporation in 2025. Linyuan Plant will follow the regulations of the new law and coordinate with the group's overall planning to achieve the group's carbon neutrality goal set for 2050. Linyuan Plant is expected to install another 499 kW solar PV system for self-generation and self-consumption in 2025.





4.3 Emissions Management

Material Topics: Air pollution control; Corresponding sustainability principle: Sustainable Development GRI 2-25, 3-3

Management Approach and Components	Impact Management	Targets Execution Manageme	Evaluation of Management Approach	
Significance to APC	Positive/Negative Impacts	2023 Goals		Effectiveness Assessment
Air quality in the petrochemical industry remains a significant topic for the general public. The emission of air pollutants not only impacts compliance with environmental regulations but also has affect environmental air quality and public health	Negative actual impact - Air pollution control has not been implemented	 Regular walk-through inspections of 280 inspection points monthly Process Air Pollution Reduction Pro The approved annual emission goad phase of Kaohsiung-Pingtung-Chiag volatile organic compounds 39,771 	Authorized testing companies that approved by the National Environmental Research Institute to regularly measure the volume of air pollutant emissions every year.	
Management Practice and Objectives		2023 Pe	rformance	Grievance Mechanism
APC Linyuan Plant monitors and improves air pollutant emission quality through VOCs leakage detection of equipment components and air pollutant emission reduction improvements of equipment, to meet the requirements of government air	 Processes to remediate and prevent negative impacts Enhance the frequency of regular component inspections, from 140 inspection points per month to 280 inspection points per month. 	 Regular walk-through inspections of equipment components, with 420 inspection points monthly () Air pollutant emissions: NOX 5,261 kg () SOX 3,930 kg (×) VOCs 32,754 kg () 	We plan to engage the approved pollutant emissions in accordance with the "Total Air Pollutants Quantity Control Plans for Kaohsiung-Pingtung Area" with external vendors to comply with relevant regulations.	Environmental Impact grievance channels.
pollution regulations and improve the		Short-Term (·	Adjust the management approach	
Strategy	the emission of air pollutants (NOx, SOx, VOCs) at all times, and	• Regular walk-through inspections o inspection points monthly	Exchange of environmental pollution prevention technology and	
 Equipment and component leakage tour inspection Reduction of air pollutant emissions Legal compliance 	make immediate adjustments and improvements when there are process or equipment anomalies. • Reduce equipment failure	 Process Air Pollution Reduction Pro The approved annual emission goa of Kaohsiung-Pingtung-Chiayi Area organic compounds 39,771 kg) 	experience at the group technology exchange meeting.	
0	rate through monthly periodic maintenance.	Medium- Long-Term (🗎		
		 Monthly tour inspection of 600 pcs⁻ by the environmental protection se Reduce boiler NOx emissions to bel below 10mg/Nm3 with new air poll Air pollutant emissions: NOx decreased by 19 	VOCs equipment and components ction. ow 30ppm and TSP emissions to ution control equipment. used by 1% compared to the stand- 6 compared to the standard value.	



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Air pollution control GRI 305-6

The major air pollutants emitted by APC Linyuan Plant include nitrogen oxides (NOx), sulfur oxides (SOx), volatile organic compounds (VOCs), and total suspended particulate (TSP). NOx and SOx are mainly produced by the plant's combustion facilities (e.g., regenerative thermal oxidizer (RTO), steam boiler, thermal oil boiler). The Plant does not generate ozone depleting substances (ODS). VOCs mainly come from the emissions and leakage of the RTO, flare, storage tanks, equipment and components. Particulate matters mainly come from product storage tanks.

In addition to regularly testing and reporting air pollutants, we have planned the following reduction programs to effectively reduce air pollutants:

Reduce VOCs emissions

We commission EPA-accredited institutions to check all equipment and components in the plant each quarter, enhance the self-imposed tour inspection of equipment and component (about 15,000 spots each month), and replace one old catalyst pump (one replaced). The environmental protection section has purchased two FID detectors (TVA-2020) to perform average up to 420 spot checks each month, the number has increase compared to previous years.

Ethylene Recovery Process

The ethylene is recycled among different production lines when the production process halts

Offsite underground ethylene pipelines Ethylene emptying recovery

When there is an operation issue that needs to empty the offsite underground ethylene pipelines for maintenance, we recover ethylene to each production line through the in-house ethylene recovery pipelines to reduce air pollution

Process waste reduction and improvement SASB RT-CH-110a.2

- In 2019, the emission pipeline of the first-section outlet separator of the fourth production line's flash compression machine was modified to return to the inlet separator of the compressor
- In 2021, the discharge pipeline of the first-section outlet separator of the boosting compressor in the third production line was modified to return to the inlet separator of the compressor
- · In 2022, plan for steam boiler replacement
- In 2025, it is planned to add a combined fuel steam boiler with catalytic ceramic filter tubes, which will handle process emissions and process exhaust gases, reducing particulate matter (TSP) and nitrogen oxides (NOx) emissions.

Air Pollutant Emissions of Linyuan Plant in Past 3 Years:

GRI 305-7 SASB RT-CH-120a.1

Year	Unit	NOx	SOx	VOCs	HAPs
2021	MT	7.8	1.2	31.9	8.616
2022	MT	6.0	1.8	32.4	0.742
2023	MT	5.3	3.9	32.8	0.583

Description: The 2023 SOx unit emissions increased over 2022 mainly because the Department of Environmental Protection changed the SOx calculation method for RTOs, increasing the SOx emissions. Additionally, the hazardous air pollutant (HAP) emitted by the Linyuan Plant is Vinyl Acetate Monomer (VAM), which has no control limit been set and VAM emissions were 0.583 MT.

Unit Product Air Pollutant Emissions of Linyuan Plant in Past 3 Years



Over the years, emission test results of the Linyuan Plant have been consistently well below the Environmental Protection Administration emission standards. The table below shows the results of APC pipeline emission test in 2023:

Pollutant	Unit	Thermal Oil Boiler	Steam Boiler	Emission Standard	Regenerative Thermal Oxidizer	Emission Standard
NOx	ppm	72	74	100	2	150
SOx	ppm	ND(<2)	ND(<3)	50	4	100
TSP	mg/Nm ³	ND(<1)	3	30	1	100

Note:Total Suspended Particulate (TSP)

Waste Management GRI 306-3, 306-4, 306-5

Industrial waste generate by APC Linyuan Plant includes general industrial waste and hazardous industrial waste. We sign contracts with EPA-accredited domestic contractors to remove and dispose of waste in accordance with the "Waste Disposal Act". It is required to file a waste delivery manifest on the Environmental Protection Administration's website according to the Act. After leaving the plant, we then track the waste disposal contractors ensure compliance with the statutory period and also request contractors to provide proof of proper disposal, with onsite inspections of waste disposal facilities annually.

General industrial waste is disposed by type through intermediate waste treatment including incineration, pyrolysis, and physical disposal operations. Contractors will direct waste to landfills, production into recycled oil products, or fuel oil as final treatment according to the approved methods in their licenses.

In response to the Zero Waste through Resource Circulation Policy by Resource Circulation Administration, we have actively sought ways for recycling for reuse of waste in recent years. Waste wood, waste plastic, and waste bricks are treated via recycling for reuse and can ultimately be used as renewable fuel and construction-grade materials; while waste iron is transported to licensed waste disposal contractors for recycling purposes.

The table below shows the methods and weight of waste disposal reported by Linyuan Plant in the past three years, according to the waste delivery manifest statistics on the Environmental Protection Administration's website:

Method and Weight of Waste Disposal of Linyuan Plant in Past 3 Years

Unit: MT

Treatment	Types of Waste	2021	2022	2023
Incineration	General household waste, waste plastic, and waste wood mixture	43.64	43.70	51.53
Physical treatment, thermal decomposition, incineration treatment	Waste oil mixture	268.49	145.50	219.79
Physical treatment	Waste Lubricating Oil	66.95	68.81	48.65
Physical treatment	General waste chemical substances mixture	16.48	16.43	17.53
Landfill Disposal	Mixture of civil or construction waste			2.90
Overseas processing	Including cadmium battery			
Pocycling for rouse	Waste wood, waste plastics, waste bricks,			49.3
Recycling for reuse	Waste iron			185.34
Total weight of waste		395.56	274.44	575.04
Waste recycling rate (%)				40.8



Due to two whole plants shutdown for maintenance at Linyuan Plant in 2023 and implemented adjustments to product specifications in 2023 H2. These factors contributed to the rise in the generation of waste oil mixtures compared to 2022. Some of the waste lubricating oil was of inferior quality, so it was deemed as a waste oil mixture, leading to a decrease in production in 2023 compared to 2022. SABB RT-CH-150a.1



Waste Intensity for Past Three Years

There was no hazardous waste generated at the Linyuan Plant in 2023. Additionally, there was no spill of oils, fuels, or chemical substances was reported at the Linyuan Plant in 2023.

Environmental Impact Grievance Channels

APC Linyuan Plant has established the "Procedures for Implementation of Communication and Consultation" to establish, implement and maintain channels and procedures for the communication, engagement, and consultation of environmentrelated topics for internal (employees, enterprise union, Occupational Health and Safety committee meetings, etc.) and external (customers, competent authorities, community residents, and environmental groups, etc.).

The procedure for addressing internal grievances, employees proposes environment, health and safety-related issues through meetings such as the "Enterprise Labor Union Board Meetings", "Occupational Health and Safety Committee Meeting". If publicity or response is required, the responsible departments will review the responses, which then will be communicated within the company through meetings, educational training, or announcements after the approval by the environmental and Occupational Health and Safety management representative.

The procedure for addressing external grievances is refer to after any unit of the Linyuan Plant receives an environment, safety, and health-related grievance from outside the company via phone, orally, or in writing, the responsible unit will verify the contents of the grievance and register it in the "Occupational Safety and Health and Environmental Information Registration Form", then take necessary actions and appropriate responses, if the grievance becomes a case study.

Item	2021	2022	2023
Number of Grievances (cases)	2	3	0
Number of Valid Cases (cases)	2	3	0

Linyuan Plant Environmental Impact Grievance Channels Schematic Diagram

